**Illinois Tollway Base Sheet Revisions**

| Section M | Base Sheet Drawings | |
|---|---|---|
| | **Drawing** | **Modification Summary** **Effective: 03-01-2024** |
| | | |
| | **Plaza Electrical Work (Business System)-Series 2500** | |
| | | |
| | **M-BUS-2507A** | **Reserved** |
| | | This sheet was deleted due to duplication to drawing M-ITS-2518A |
| | | |
| | **M-BUS-2507B** | **Reserved** |
| | | This sheet was deleted due to duplication to drawing M-ITS-2518B |
| | | |
| | **M-BUS-2508A** | **Reserved** |
| | | This sheet was deleted due to duplication to drawing M-ITS-2519A |
| | | |
| | **M-BUS-2508B** | **Reserved** |
| | | This sheet was deleted due to duplication to drawing M-ITS-2519B |
| | | |
| | **M-BUS-2519B** | **Wiring Diagram - AET 1-Lane Layout** |
| | | Replace solid line at the base of the monotubes by dash line. |
| | | |
| | **M-BUS-2536** | **Overhead Conduit Tray** |
| | | Revised: Concrete Base Plate Footing to say Concrete Base Plate Foundation |
| | | Added arow with note saying: Backfilled by compacted earth |
| | | Added the symbol: diameter for 3/5" diameter x 10 foot 6 inches |
| | | |
| | **M-BUS-2538** | **VES Wash System Single Cabinet Detail** |
| | | VES Wash cabinet redrawn to show VES Wash Single Cabinet System with Nitrogen generator |
| | | Removed the 4 old nitrogen cylinders and air compressor |
| | | Rearranged the VES Wash cabinet layout showing all the parts and description of each main components |
| | | |
| | **M-BUS-2539** | **VES Wash System Panel Detail** |
| | | VES Wash Single Cabinet with Nitrogen Generator layout with notes and material list of components of the new cabinet |
| | | New representation of the VES Wash single cabinet layout with Nitrogen generator and part list. |

New Sheet

Retired Standard

## CONDUIT SIZES

| | |
|---|---|
| ① | RIGID METALLIC CONDUIT ¾" |
| ② | RIGID METALLIC CONDUIT 1" |
| ③ | RIGID METALLIC CONDUIT 1¼" |
| ④ | RIGID METALLIC CONDUIT 1½" |
| ⑤ | RIGID METALLIC CONDUIT 2" |
| ⑥ | RIGID METALLIC CONDUIT 2½" |
| 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 |
| ⑱ | NOT USED |
| ⑲ | RIGID NON-METALLIC CONDUIT 4" SCHEDULE 40 |
| ㉒ | RIGID NON-METALLIC CONDUIT 1" SCHEDULE 80 |
| ㉔ | RIGID NON-METALLIC CONDUIT 1½" 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 1¼" |
| ㉞ | RIGID METALLIC CONDUIT PVC COATED 1½" |
| ㉟ | RIGID METALLIC CONDUIT PVC COATED 2" |
| ㊲ | RIGID METALLIC CONDUIT PVC COATED 3" |
| ㊴ | RIGID METALLIC CONDUIT PVC COATED 4" |
| ㊵ | 1½" COILABLE PVC CABLE DUCT |
| ㊶ | RIGID NON-METALLIC CONDUIT 4" SCHEDULE 80 WITH 1" INNER DUCTS |
| ㊷ | 1" COILABLE NON-METALLIC CONDUIT |
| ㊸ | 2" COILABLE NON-METALLIC CONDUIT |
| ㊹ | 4" COILABLE NON-METALLIC CONDUIT |
| ㊺ | 3" COILABLE NON-METALLIC CONDUIT |
| ㊻ | 1 ½" COILABLE NON-METALLIC CONDUIT |

## TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

| SYMBOL | CABLE DESCRIPTION | REMARKS |
|---|---|---|
| ① | 1-6PR #22 SHLD | NOTE 8 |
| ② | 1-3/C #12 SHLD | NOTE 3 |
| ③ | 1-3PR #22 SHLD | NOTE 8 |
| ④ | 1-4/C #12 SHLD | NOTES 1 & 3 |
| ⑤ | 2-1/C #12, 1-1/C #12(GRD) | NOTE 1 |
| ⑥ | 1-1PR #14 SHLD (LOOP LEAD IN) | |
| ⑦ | 1-1/C #14 (LOOP WIRE) | |
| ⑧ | 1-1/C #6 BARE TINNED (GRD) | |
| ⑨ | 1-7/C #12 SHLD | NOTE 3 |
| ⑩ | 1-3/C #12 SHLD | NOTE 3 |
| ⑪ | 2-1PR #22 SHLD | NOTE 1 |
| ⑫ | 1-2/C #12 SHLD | NOTE 3 |
| ⑬ | 1-2 PR #24 (RS 422) | NOTE 7 |
| ⑭ | NOT USED | |
| ⑮ | 1-COAXIAL ANTENNA CABLE | |
| ⑯ | 1- 9/C #22 IND SHLD | |
| ⑰ | 1-1/C #4/0 (GRD BARE TINNED COPPER CONDUCTOR) | |
| ⑱ | 1-1/C #8 (GRD BARE TINNED COPPER CONDUCTOR) | |
| ⑲ | 1-1/C #2 (GRD BARE TINNED COPPER CONDUCTOR) | |
| ⑳ | 1-4PR #24 (CATEGORY 6) | |
| ㉑ | 1-6 STRAND, SINGLE MODE FIBER OPTIC CABLE | ARMORED CABLE |
| ㉒ | 1-24 STRAND, SINGLE MODE FIBER OPTIC CABLE | ARMORED CABLE |
| ㉓ | 1-36 STRAND, SINGLE MODE FIBER OPTIC CABLE | ARMORED CABLE |
| ㉔ | 1-48 STRAND, SINGLE MODE FIBER OPTIC CABLE | ARMORED CABLE |
| ㉕ | 1-12PR #22 SHLD | |
| ㉖ | 1-9/C #18 SHLD | NOTE 4 |
| ㉗ | 2-2/C #18 SHLD | NOTE 4 |
| ㉘ | 1-6PR #22 SHLD | |
| ㉙ | 1-3PR #24 SHLD | NOTE 6 |
| ㉚ | 1-3/C #10 SHLD | |
| ㉛ | 1-2PR #22 SHLD | |
| ㉜ | OEM CABLE (POWER AND VIDEO) | NOTE 10 |
| ㉝ | 1 - 1PR #22 SHLD (SENSE WIRE VES CAM) | |
| ㉞ THRU ㊾ | RESERVED FOR STANDARD DRAWINGS | |
| ㊿ | CAT6 CABLE | OUTDOOR RATED |
| ㊿① | SYNC CABLE, TWISTED PAIR # 24. BELDEN 89730 | NOTE 11 |

## TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

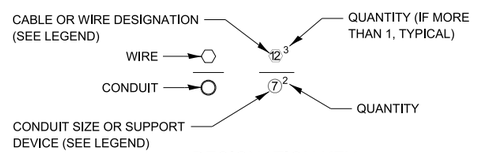
| SYMBOL | CABLE DESCRIPTION | CONDUIT SIZE | | REMARKS |
|---|---|---|---|---|
| | | EXPOSED | EMBEDED OR UNDERGROUND | |
| ⑩① | (4) 1/C #3/0<br>(1) 1/C #4 (GRD) | | 4" | |
| ⑩② | (4) 1/C 250 MCM<br>(1) 1/C #1/0 (GRD) | | 4" | |
| ⑩③ | (4) 1/C #2<br>(1) 1/C #8 (GRD) | | 2" | |
| ⑩④ | (3) 1/C #10<br>(1) 1/C #10 (GRD) | 1" | 1" | |
| ⑩⑤ | (4) 1/C #10<br>(1) 1/C #10 (GRD) | 1" | 1" | |
| ⑩⑥ | (2) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑩⑦ | (4) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑩⑧ | (4) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑩⑨ | (5) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑪⓪ | (5) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 2" | |
| ⑪① | (6) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑪② | (8) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑪③ | 1" CABLE DUCT WITH<br>(2) 1/C #12<br>(1) 1/C #12 (GRD) | 1" | 1" | |
| ⑪④ | 1" CABLE DUCT WITH<br>(3) 4/C #12 (SHLD) | 1" | 1" | |
| ⑪⑤ | (3) 1/C #2/0 & 1 #8 (GND) | | 4" | |
| ⑪⑥ | (2) 1/C #8<br>(1) 1/C #8 (GRD) 600V | | | |
| ⑪⑦ | (3) 1/C #250MCM 600V<br>(1) 1/C #1/0 (GRD) 600V | | 3" | |
| ⑪⑧ | (2) 1/C #4<br>(1) 1/C #8 (GRD) 600V | | 2" | |
| ⑪⑨ | (1) 16 AWG 6C FPLR<br>(6) 1PR #22 SHLD | 1" | 1" | SECURITY-CARD ACCESS |
| ⑫⓪ | (2) 1/C #16 SHIELDED PAIR | 1" | 1" | FIRE ALARM |
| ⑫① | (2) 1/C #10<br>(1) 1/C #10 (GRD) | 1" | 1" | |
| ⑫② | (3) 1/C #3/0<br>(1) 1/C #1/0 (GRD) | | 3" | |
| ⑫③ | (3) 1/C #1/0<br>(1) 1/C #4 (GRD) | | 3" | |
| ⑫④ | (1) 1/C #6 SHLD | | | NOTE 10 |
| ⑫⑤ | 144 STRANDS SM, FIBER OPTIC | | | ARMORED CABLE |
| ⑫⑥ | 12 STRANDS SM, FIBER OPTIC | | | ARMORED CABLE |
| ⑫⑦ | 2#2, 1#6 | | 2" | |
| ⑫⑧ | 2#1, 1#6 | | 2" | |
| ⑫⑨ | 3#8, 1#8 | | 2" | |
| ⑬⓪ | 2#6, 1#8 | | 1¼" | |

## TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

| SYMBOL | CABLE DESCRIPTION | CONDUIT SIZE | | REMARKS |
|---|---|---|---|---|
| | | EXPOSED | EMBEDED OR UNDERGROUND | |
| ⑬① | 48 STRANDS SM. FIBER OPTIC | | | ARMORED CABLE |
| ⑬② | (3) 1/C #1<br>(1) 1/C #8 (GRD) | | | |
| ⑬③ | (3) 1/C #2<br>(1) 1/C #8 (GRD) | | | |
| ⑬④ | (3) 1/C #4<br>(1) 1/C #8 (GRD) | | | |
| ⑬⑤ | (3) 1/C #12 | 1" | 1" | |
| ⑬⑥ | (4) 1/C 500 MCM<br>(1) 1/C #1/0 (GRD) | | | |
| ⑬⑦ | (4) 1/C 500 MCM<br>(1) 1/C #4 (GRD) | | | |

NOTES:

1. MINIMUM SIZE OF EXPOSED CONDUIT IS ¾". MINIMUM SIZE OF EMBEDDED CONDUIT IS 1". EMBEDDED CONDUIT SHALL BE PVC COATED RIGID STEEL.
2. STANDARD AND QUANTUM LOOPS SHALL BE FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOP LEAD-IN CABLING IS FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. MULTI-CONDUCTOR SHIELDED CABLE #12 AWG FOR NORMAL AND UPS POWER, 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. NOT USED
6. PROVIDE SPD PROTECTION ADAPTERS FOR ALL ANTENNA CABLES ENTERING BUILDING. IN-LINE ADAPTERS MUST BE INSTALLED AT ALL CONNECTIONS TO THE RACK, ELPAC AND IPASS EQUIPMENT. THE SPD PROTECTION ADAPTERS SHALL BE PHOENIX CONTACT (OR EQUIVALENT) "COAXTRAX SERIES" CATALOG NUMBER C-UFB-5DC/E.
7. PROVIDE SPD PROTECTION ADAPTERS FOR ALL RS-422 AND CATEGORY 6 CABLES ENTERING THE BUILDING. IN-LINE ADAPTERS MUST BE INSTALLED AT ALL CONNECTIONS TO THE CISCO SWITCH, ELPAC AND IPASS EQUIPMENT. THE SPD ADAPTER FOR RS-422 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-UFB-V11/BS-B. THE SPD ADAPTER FOR CATEGORY 6 CABLES SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-LAN-CAT.6+.
8. PLENUM RATED CABLE INSTALLED IN EMBEDDED CONDUIT.
9. LANE VIOLATION CAMERA IS MOUNTED ON MONOTUBE.
10. PROVIDE SURGE PROTECTION DEVICE FOR ALL CABLES FROM EXTERNAL DEVICES ROUTED INTO THE PLAZA BUILDING INCLUDING ALL CAT6, ANTENNA AND POWER CABLES.
11. ANTENNA READER SYNC CABLE IN CONDUIT MUST BE INSTALLED BETWEEN TWO PLAZAS WHEN THEIR ANTENNAS ARE WITHIN 500FT. OF EACH OTHER.




DESIGNATION KEY

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# CABLE / CONDUIT SCHEDULE AND GENERAL NOTES

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2500 | 1 OF 1 |

## 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
- $H_P$ $H_P$ — 4'X4' HEAVY DUTY HANDHOLE (POWER) EXISTING/PROPOSED
- $H_C$ $H_C$ — 4'X4' HEAVY DUTY HANDHOLE (COMMUNICATIONS) EXISTING/PROPOSED
- TYPE A H | TYPE A H — 72"X48"X36" TORSION ASSIST FIBER HANDHOLE EXISTING/PROPOSED

ARM LENGTH
MOUNTING HEIGHT
CIRCUIT NUMBER
S15-50-C1
TYPE A
DISTRIBUTION TYPE AS SPECIFIED ON THE PLANS

LIGHT STANDARD DESCRIPTION
LED LUMINAIRES

## 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. |
| E | ELECTRICALLY HELD LIGHTING CONTACTOR. |
| C | MECHANICALLY HELD LIGHTING COIL. |
| CR | CONTROL RELAY COIL. |
| SPD WITH LP | TRANSIENT VOLTAGE SURGE SUPPRESSION WITH LIGHTNING PROTECTION |

## ABBREVIATIONS

| | |
|---|---|
| ACM | AUTOMATIC COIN MACHINE |
| AET | ALL ELECTRONIC TOLL |
| AFF | ABOVE FINISH FLOOR |
| ATPM | AUTOMATIC TOLL PAYMENT MACHINE |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AVI | AUTOMATED VEHICLE IDENTIFICATION |
| BF | BARRIER WARNING LIGHT |
| C/B | CIRCUIT BREAKER |
| CCTV | CLOSED CIRCUIT TELEVISION |
| CKT | CIRCUIT |
| CNC | COILABLE NON-METALLIC CONDUIT |
| DHH | DOUBLE HANDHOLE |
| FACP | FIRE ALARM CONTROL PANEL |
| FLPC | FRONT LICENSE PLATE CAMERA |
| GCS | GENERATOR CONTROL SWITCH |
| GFI | GROUND FAULT INTERRUPTER |
| HDPE | HIGH DENSITY POLYETHYLENE |
| HH | HANDHOLE |
| IPO | I-PASS ONLY |
| JB | JUNCTION BOX |
| LA | LIGHTNING ARRESTER |
| LC | LINE CONDITIONER |
| LCC | LANE CONTROLLER CABINET |
| LP | LIGHTNING PROTECTION |
| 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 |
| RLPC | REAR LICENSE PLATE CAMERA |
| SDR | STANDARD DIMENSION RATIO |
| SMF | SINGLE MODE FIBER |
| SPD | SURGE PROTECTION DEVICE |
| TOC | TRAFFIC OPERATION CENTER |
| TSIC | TERMINAL STRIP INTERCONNECT CENTER |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| VES | VIOLATION ENFORCEMENT SYSTEM |
| WP | WEATHERPROOF |

NOTES:

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

NOTE TO DESIGNER

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## WIRING DEVICE SCHEDULE

| SYMBOL | DESCRIPTION | RATING | MFR. AND CAT. NO. | MOUNTING HEIGHT |
|---|---|---|---|---|
| $ a OC | SINGLE-POLE SWITCH a-SWITCH LEG (LOWER CASE LETTER) | 20A, 120V | HUBBELL #LHIR | 4'-0" |
| X | DUPLEX RECEPTACLE X - CIRCUIT NUMBER | 20A, 120V | HUBBELL #HBL5362 | 18" AS NOTED |
| X | QUAD RECEPTACLE X - CIRCUIT NUMBER | 20A, 120V | (2) 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 |
| WP GFI | DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION WP - IDENTIFIES WEATHERPROOF | 20A, 120V | HUBBELL #GF5362SG | 3'-0" ABOVE GRADE |
| A | 3P, 3W, WEATHERPROOF RECEPTACLE | 30A, 240V | | 3'-0" ABOVE GRADE |

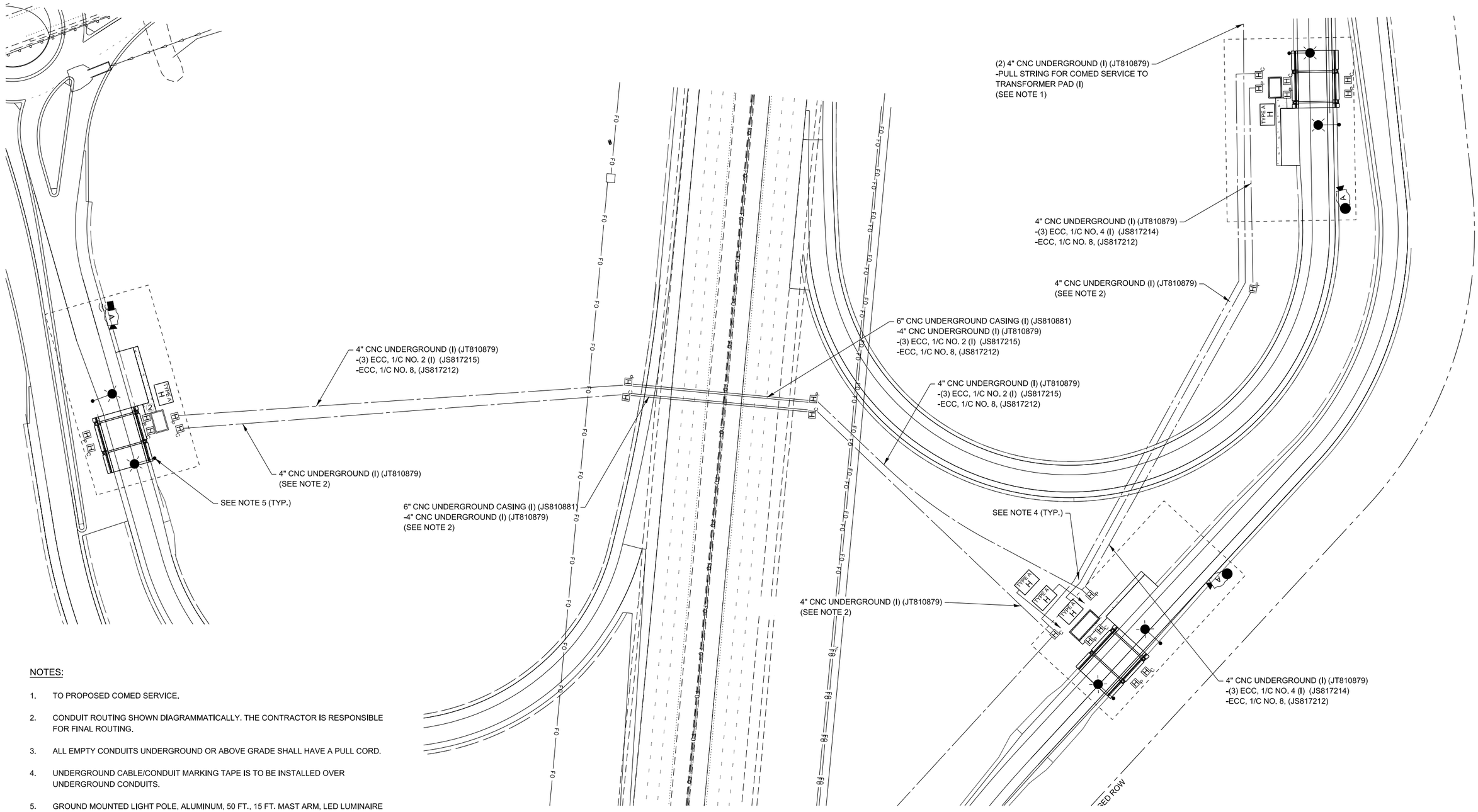
## LIGHTING FIXTURE SCHEDULE

| SYMBOL | DESCRIPTION | VOLTAGE | LAMPS | MFR. AND CAT. NO. | REMARKS |
|---|---|---|---|---|---|
| A | 4' LED LOW PROFILE INDUSTRIAL LUMINAIRE | 120 V | LED | H.E. WILLIAMS 96-4-L62/840-HIAFR-DRV-UNV | MOUNT 8' ABOVE FINISHED FLOOR |
| B | LED LOW PROFILE WALL PACK | 120 V | LED | H.E. WILLIAMS VWPV-L30/740-TFT-DBZ-CGL-DIM-UNV | MOUNT 10'-0" ABOVE FINISHED GRADE NOTE 1 |
| C | EMERGENCY LED LIGHT WITH NICKEL METAL HYBRIDE BATTERY | 120 V | LED | H.E. WILLIAMS EMER/LED-WHT-SDT-D | MOUNT 8' ABOVE FINISHED FLOOR |

Illinois Tollway

# LEGEND AND SYMBOL LIST ABBREVIATIONS AND EQUIPMENT SCHEDULES

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2501 | 1 OF 1 |




NOTES:

1. TO PROPOSED COMED SERVICE.
2. CONDUIT ROUTING SHOWN DIAGRAMMATICALLY. THE CONTRACTOR IS RESPONSIBLE FOR FINAL ROUTING.
3. ALL EMPTY CONDUITS UNDERGROUND OR ABOVE GRADE SHALL HAVE A PULL CORD.
4. UNDERGROUND CABLE/CONDUIT MARKING TAPE IS TO BE INSTALLED OVER UNDERGROUND CONDUITS.
5. GROUND MOUNTED LIGHT POLE, ALUMINUM, 50 FT., 15 FT. MAST ARM, LED LUMINAIRE (AS PER ROADWAY LIGHTING PLAN) AND LIGHT POLE FOUNDATION (ROADWAY) STEEL HELIX (7 FT) OR CONCRETE.
6. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
   (1) 1 ½" CNC DUCT (SOLID GREEN)
   (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
   (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)

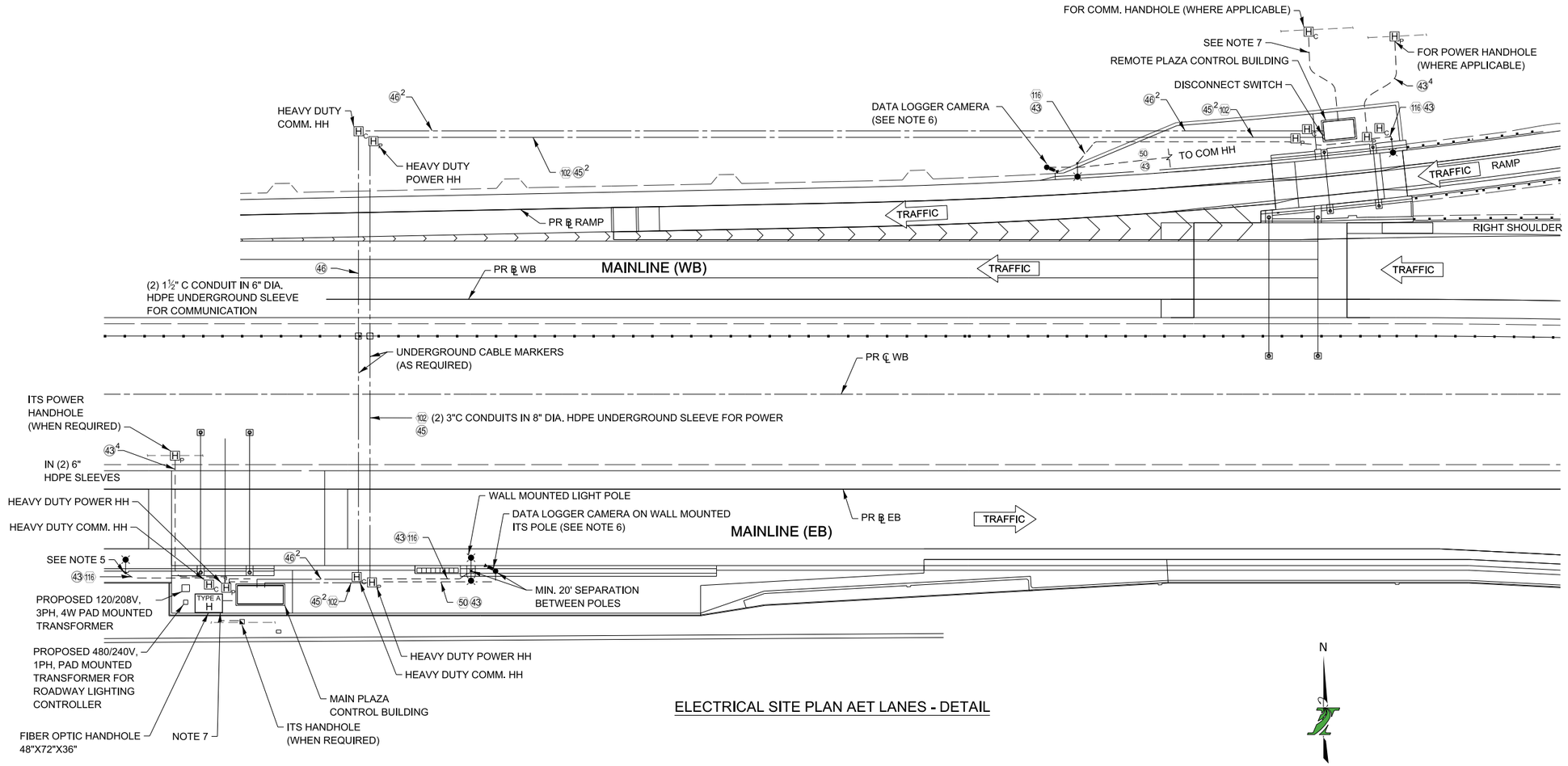
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# ELECTRICAL SITE PLAN AET LANES

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2502A | 1 OF 1 |




## ELECTRICAL SITE PLAN AET LANES - DETAIL




NOTES:

1. SEE LEGEND SHEET FOR SYMBOL LEGEND.
2. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
3. ALL EMPTY CONDUITS UNDERGROUND OR ABOVE GRADE SHALL HAVE A PULL CORD.
4. UNDERGROUND CABLE/CONDUIT MARKING TAPE IS TO BE INSTALLED OVER UNDERGROUND CONDUITS.
5. GROUND MOUNTED LIGHT POLE, ALUMINUM, 50 FT., 15 FT. MAST ARM, LED LUMINAIRE (AS PER ROADWAY LIGHTING PLAN) AND LIGHT POLE FOUNDATION (ROADWAY) STEEL HELIX (7 FT) OR CONCRETE.
6. DATA LOGGER CAMERA SHALL BE INSTALLED ON STEEL ITS POLE. SEE CAMERA DETAILS.
7. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
   (1) 1 ½" CNC DUCT (SOLID GREEN)
   (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
   (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)

### NOTE TO DESIGNER

1. THE DESIGNER 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 DESIGNER TO PROVIDE A MAXIMUM 3% VOLTAGE DROP.
3. THE DESIGNER MUST PROVIDE PAY ITEMS, QUANTITIES AND UNIT BID PRICES FOR THE WORK SHOWN ON THIS DRAWING NOT INCLUDED IN THE PLAZA LUMP SUM PRICE.
4. IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.
5. MAIN AND REMOTE PLAZA BUILDING DOORS MUST FACE PAY ZONES.

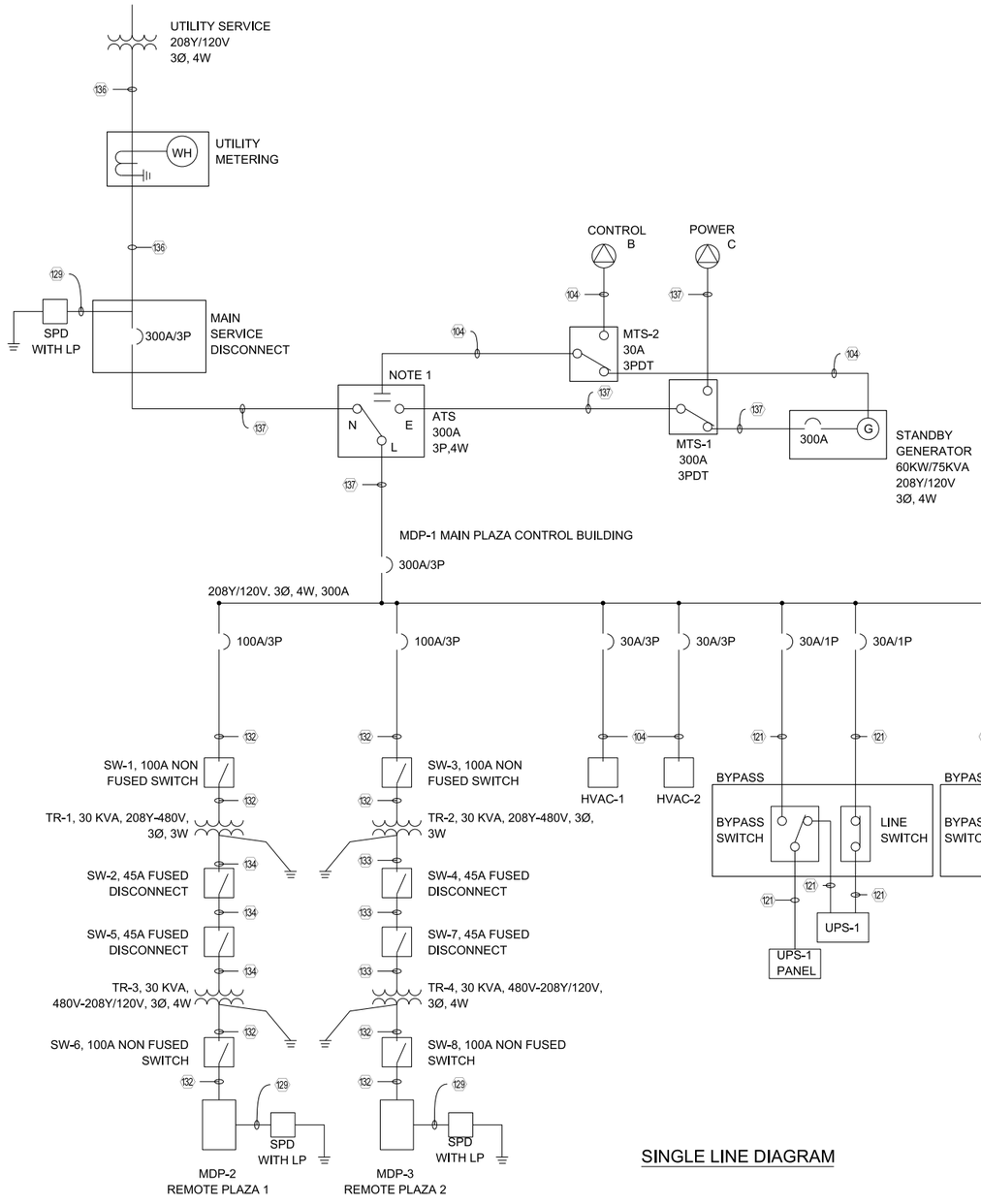
### NOTE TO DESIGNER

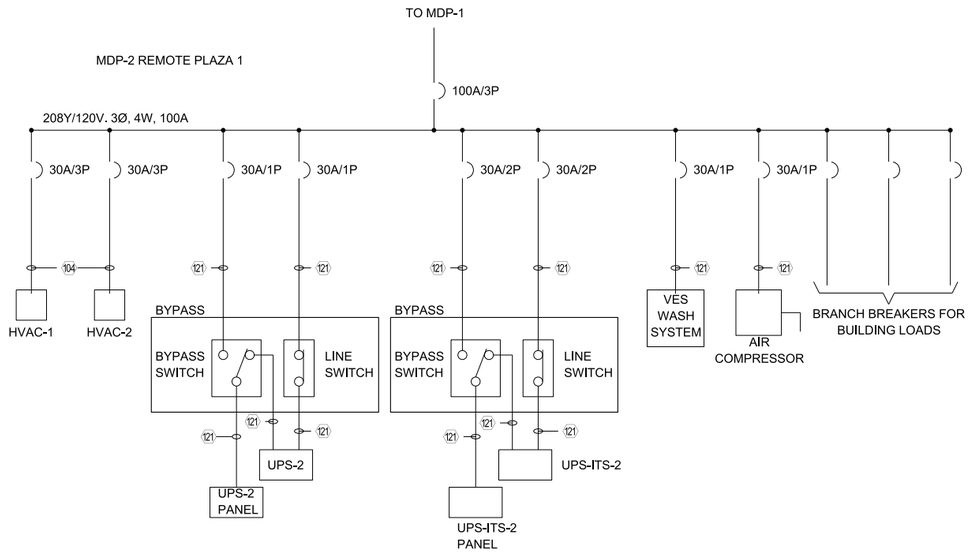
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# ELECTRICAL SITE PLAN AET LANES - DETAIL

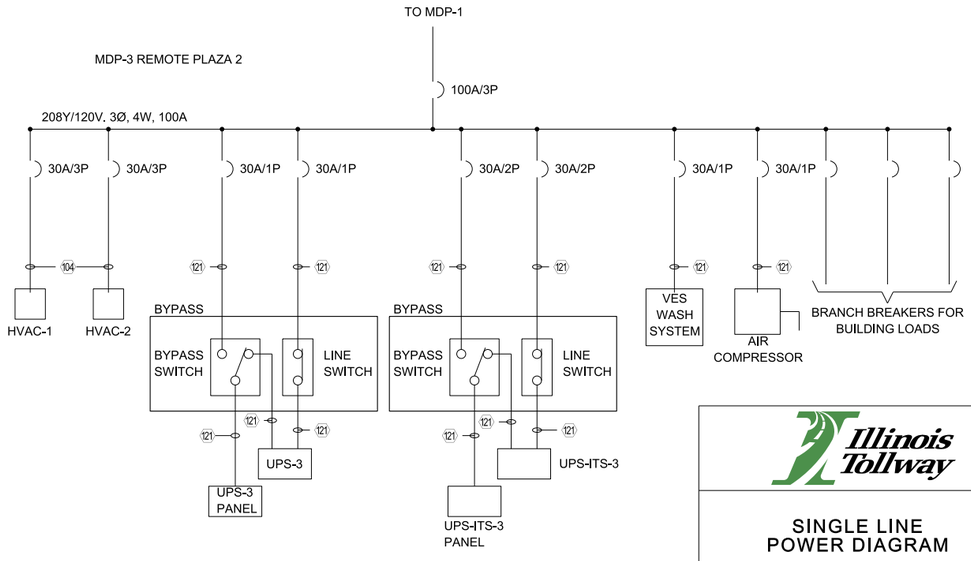
| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2502B | 1 OF 1 |




NOTES:

1. CONTACT TO INITIATE ENGINE STARTING CONTROLS.
2. ALL CIRCUIT BREAKERS AND DISCONNECT SWITCHES ARE 3-POLE UNLESS NOTED OTHERWISE.
3. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
4. SEE ELECTRICAL LEGENDS, SYMBOLS, ABBREVIATIONS AND EQUIPMENT SCHEDULES SHEET.




## SINGLE LINE DIAGRAM

### NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

### NOTES TO DESIGNER

FEEDER TO REMOTE RAMP POWER PANEL. CABLING TO REMOTE PLAZA TO BE SIZED BY THE DESIGNER. DRAWING SHOWS TWO REMOTE PLAZAS, TO BE MODIFIED BY DSE WHEN ONE OR NO REMOTE PLAZAS.

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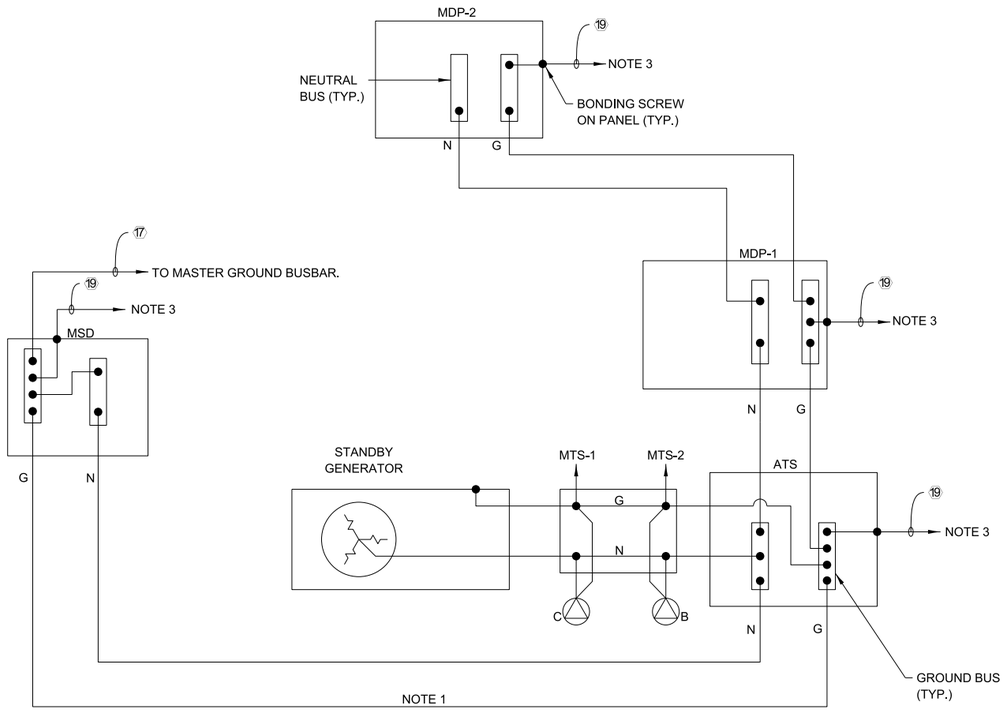
# SINGLE LINE POWER DIAGRAM

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2503 | 1 OF 1 |




CONTROL BUILDING EQUIPMENT

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. PROVIDE ¾" SCHEDULE 40 PVC CONDUITS FOR GROUND CABLES CONNECTING UPS-1 AND LC-1 TO MASTER GROUND BUSBAR.
3. PROVIDE EXOTHERMIC CONNECTION TO INTERNAL PERIMETER BUS CONDUCTOR.
4. GROUNDING SHALL BE PER SPECIAL PROVISION.

NOTE TO DESIGNER

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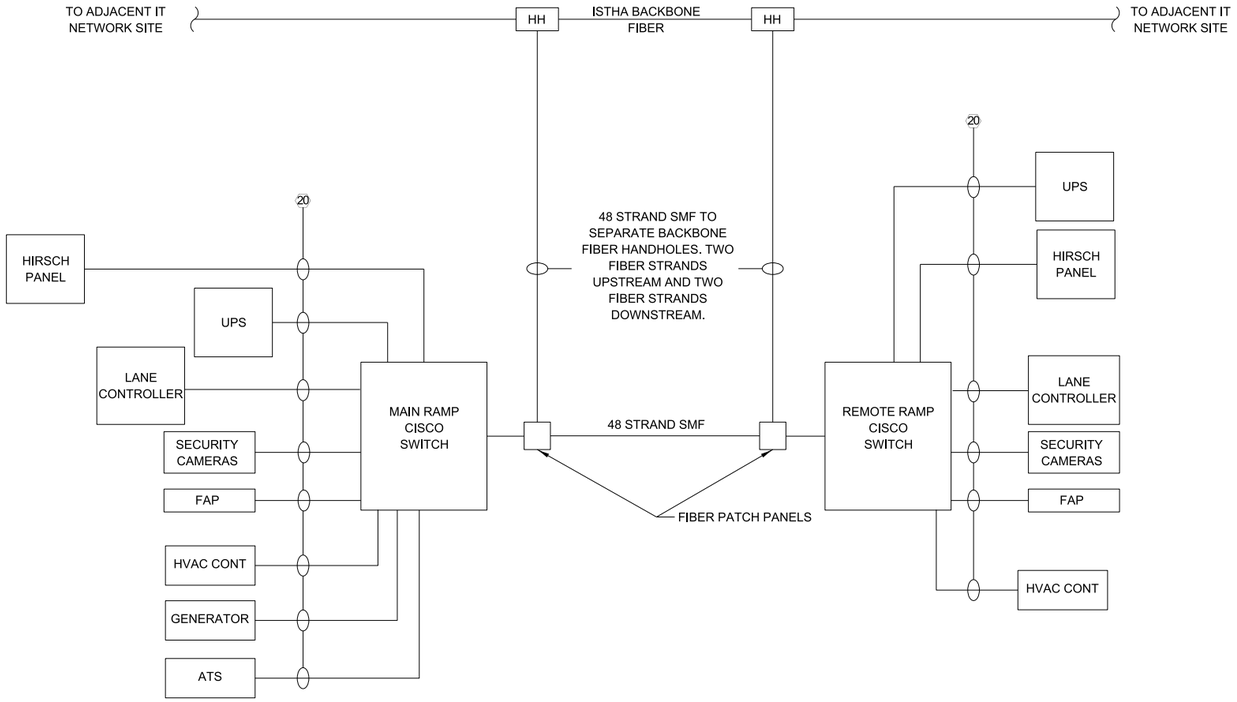
Illinois Tollway

# GROUNDING SCHEMATIC

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2504 | 1 OF 1 |




SMF AND NETWORK CONNECTIVITY BETWEEN MAIN PLAZA AND REMOTE PLAZA

NOTES:

1. EQUIPMENT SHOWN ON THIS DRAWING MUST BE COORDINATED WITH THE ILLINOIS TOLLWAY IT DEPARTMENT.
2. ALL CABLING AND CONNECTORS REQUIRED SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. ALL FIBER OPTIC PATCH CORDS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
4. ALL FIBER OPTIC SFP'S REQUIRED FOR TERMINATING FIBER OPTIC CABLES AT CISCO SWITCHES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
5. PROVIDE IN-LINE SPD PROTECTION ADAPTERS FOR ALL CATEGORY 6 CABLES ENTERING THE BUILDING INCLUDING ALL CONNECTIONS TO THE CISCO SWITCH, EPAC, I-PASS EQUIPMENT AND RACK.

NOTE TO DESIGNER

WHETHER A RAMP PLAZA BUILDING CONNECTS TO THE FIBER BACKBONE DIRECTLY OR THROUGH A MAIN CONTROL BUILDING IS SITUATIONAL BASED ON THE NUMBER OF BUILDINGS, DISTANCE BETWEEN THEM, AND OTHER FACTORS. DETERMINE FIBER ROUTING IN COORDINATION WITH ILLINOIS TOLLWAY I.T. AND BUSINESS SYSTEMS.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

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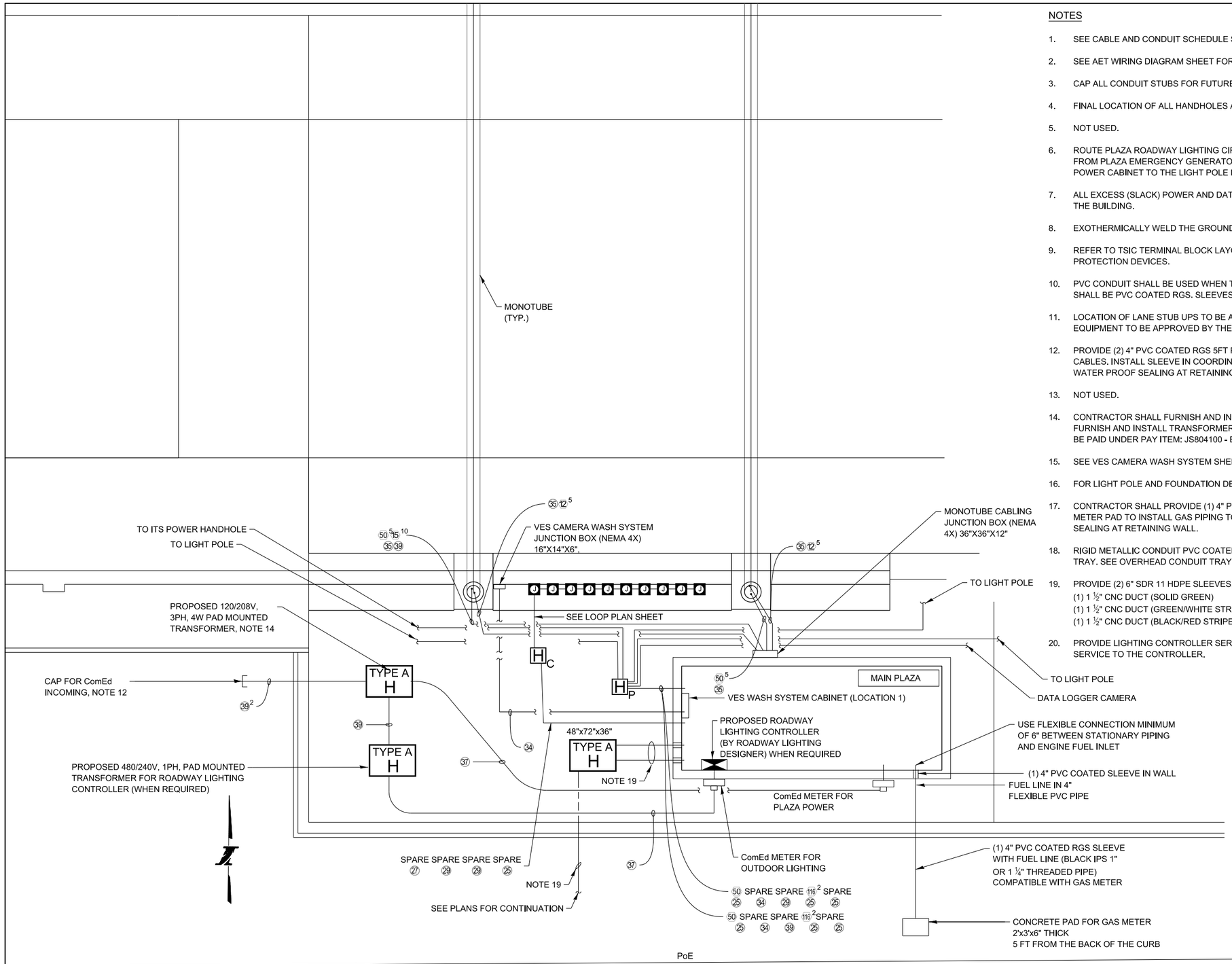
# FIBER INTERCONNECTIONS BETWEEN MAIN AND REMOTE PLAZAS

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2505 | 1 OF 1 |




UNDERGROUND CONDUIT PLAN MAIN PLAZA

NOTES

1. SEE CABLE AND CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. SEE AET WIRING DIAGRAM SHEET FOR MONOTUBE WIRING.
3. CAP ALL CONDUIT STUBS FOR FUTURE USE.
4. FINAL LOCATION OF ALL HANDHOLES AND JUNCTION BOXES SHALL BE APPROVED BY THE ENGINEER.
5. NOT USED.
6. ROUTE PLAZA ROADWAY LIGHTING CIRCUITS TO LIGHTING CONTACTOR. THESE STAY ON PLAZA CIRCUITS, THAT ARE POWERED FROM PLAZA EMERGENCY GENERATOR. ROUTE 2-1/C #8 AND 1/C #8 GROUND WIRE FROM LIGHTING CONTACTOR LOCATED IN THE POWER CABINET TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE PHOTOCELL ON SAME POLE.
7. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
8. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BASE.
9. REFER TO TSIC TERMINAL BLOCK LAYOUT SHEET. LOW VOLTAGE WIRE FROM VES AND SECURITY CAMERAS LAND ON SURGE PROTECTION DEVICES.
10. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN CROSSING WALL FOUNDATIONS.
11. LOCATION OF LANE STUB UPS TO BE APPROVED BY THE ILLINOIS TOLLWAY PRIOR TO CONCRETE POUR. FINAL LOCATION OF EQUIPMENT TO BE APPROVED BY THE ENGINEER.
12. PROVIDE (2) 4" PVC COATED RGS 5FT PAST RETAINING WALL UP TO ComEd TRANSFORMER FOR ComEd INCOMING PRIMARY CABLES. INSTALL SLEEVE IN COORDINATION WITH STRUCTURAL AND STUB UP NEAR ComEd TRANSFORMER LOCATION. PROVIDE WATER PROOF SEALING AT RETAINING WALL.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED TRANSFORMER PAD AND CONDUIT/TRENCH FOR ComEd. ComEd WILL FURNISH AND INSTALL TRANSFORMER AND GROUND ROD/WIRING. ALL WORK SHALL CONFORM TO ComEd STANDARD. THIS WILL BE PAID UNDER PAY ITEM: JS804100 - ELECTRIC SERVICE INSTALLATION.
15. SEE VES CAMERA WASH SYSTEM SHEETS FOR DETAILS.
16. FOR LIGHT POLE AND FOUNDATION DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWINGS H1 AND H2.
17. CONTRACTOR SHALL PROVIDE (1) 4" PVC COATED RGS SLEEVE FROM BUILDING SOUTHEAST CORNER SOUTH UP TO NICOR METER PAD TO INSTALL GAS PIPING TO BUILDING. STUB UP SLEEVE NEAR GAS METER LOCATION. PROVIDE WATERPROOF SEALING AT RETAINING WALL.
18. RIGID METALLIC CONDUIT PVC COATED FOR MONOTUBE POWER/DATA/ANTENNA CABLING SHALL RUN IN OVERHEAD CONDUIT TRAY. SEE OVERHEAD CONDUIT TRAY DETAILS.
19. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
    (1) 1 ½" CNC DUCT (SOLID GREEN)
    (1) 1 ½" CNC DUCT (GREEN/WHITE STRIPE)
    (1) 1 ½" CNC DUCT (BLACK/RED STRIPE)
20. PROVIDE LIGHTING CONTROLLER SERVICE CONDUIT 3"C PVC-SCH 40 AND STUP UP INTO METER 3"C RGS PVC COATED FOR SERVICE TO THE CONTROLLER.

NOTE TO DESIGNER

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UNDERGROUND CONDUIT
PLAN - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2506 | 1 OF 1 |

RESERVED

RESERVED

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2507A | 1 OF 1 |

RESERVED

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RESERVED

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2507B | 1 OF 1 |

RESERVED

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RESERVED

| VERSION: | STANDARD: | SHEET: |
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| 2024-03 | M-BUS-2508A | 1 OF 1 |

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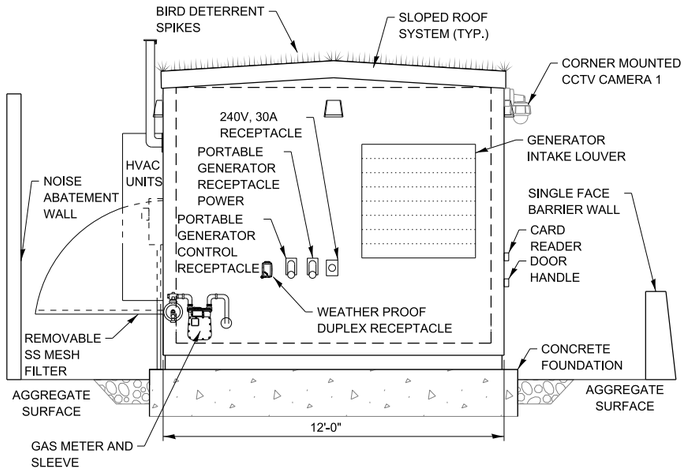
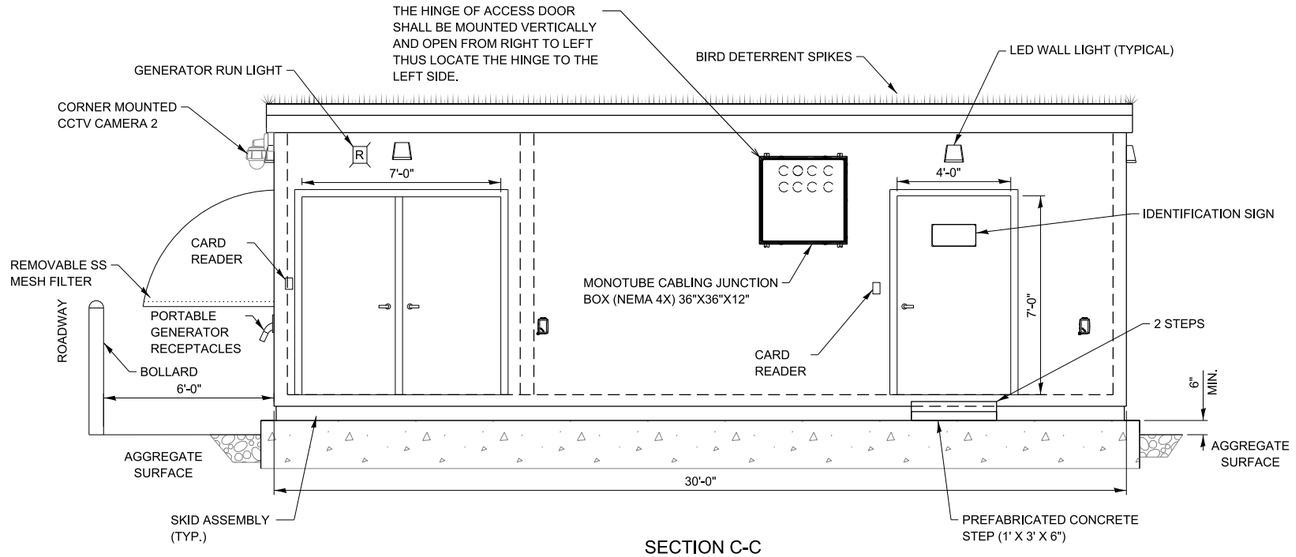
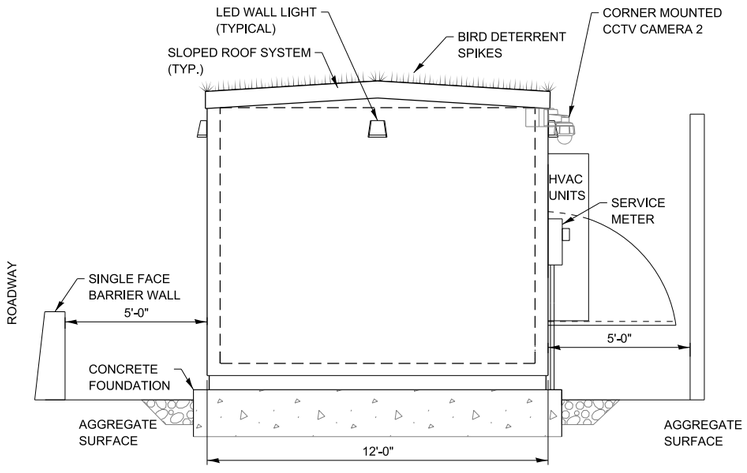
| 2024-03 | M-BUS-2508B | 1 OF 1 |



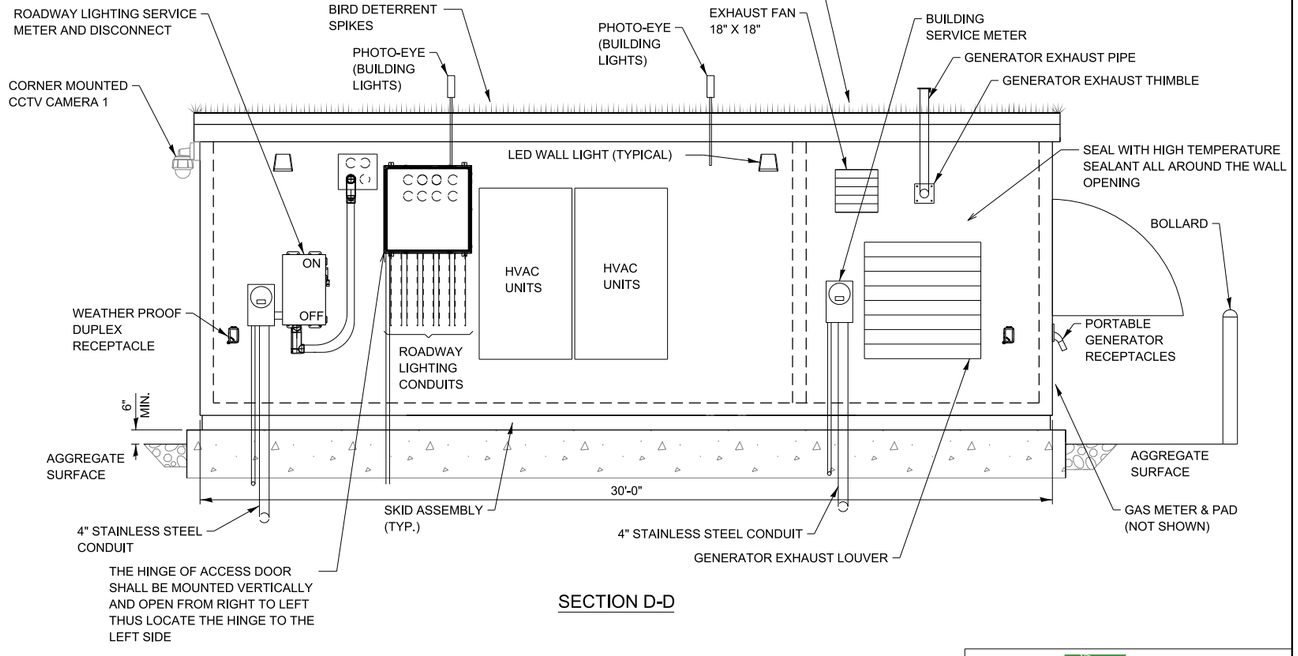

SECTION A-A




SECTION C-C




SECTION B-B

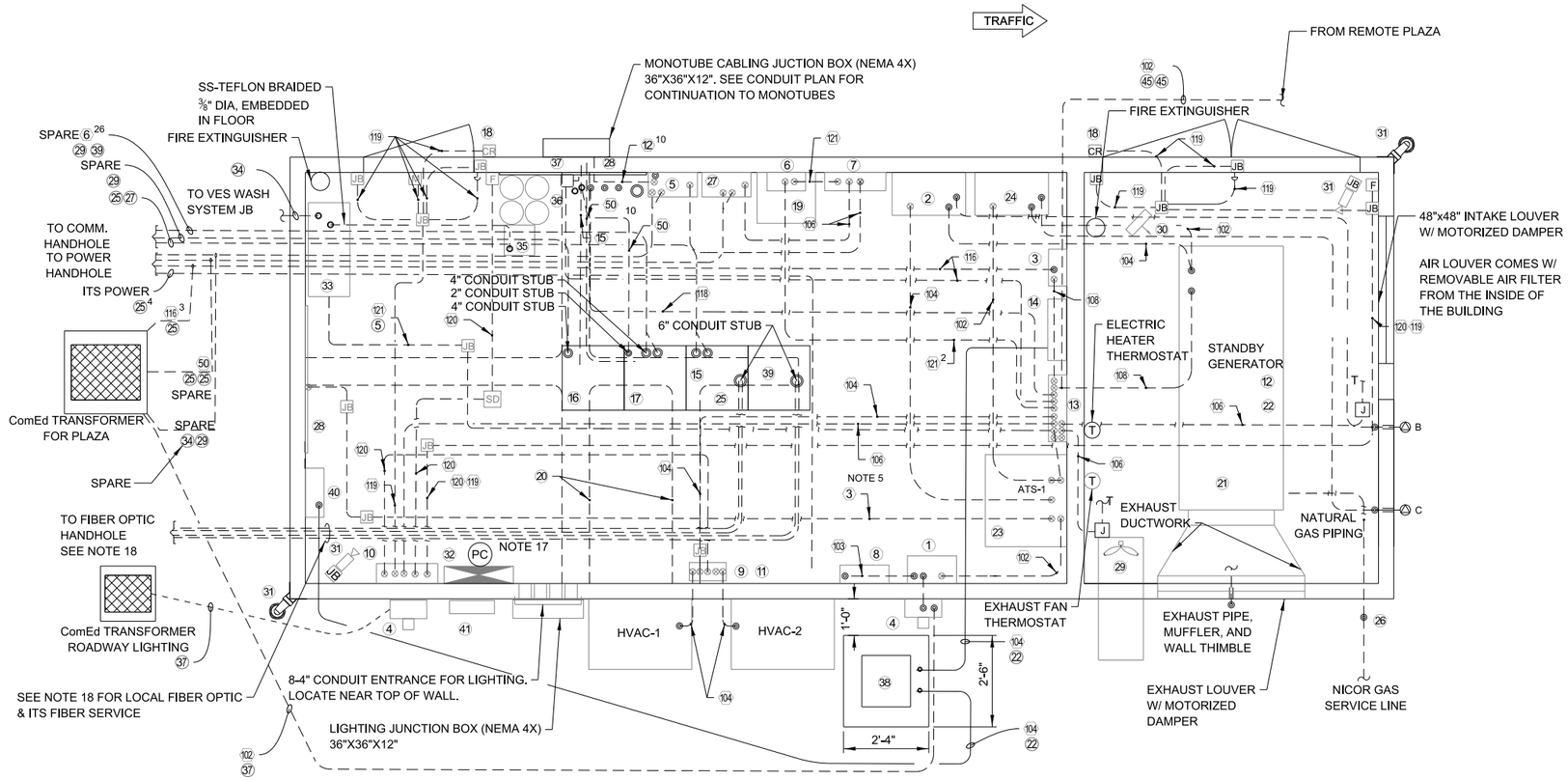



SECTION D-D

Illinois Tollway

# EXTERIOR ELEVATIONS - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2509 | 1 OF 1 |




CONTROL BUILDING MAIN TOLL PLAZA EQUIPMENT LAYOUT

LEGEND:

1. MAIN SERVICE DISCONNECT 200A/3P
2. MTS-2 FOR GENERATOR CONTROL
3. LIGHTING CONTACTOR, TRANSFORMER, AND CIRCUIT BREAKER
4. ELECTRIC UTILITY METER
5. VIDEO JB POWER #1
6. BYPASS SWITCH
7. UPS-1 PANEL.
8. LIGHTNING ARRESTER
9. TEMPERATURE ALARM
10. CARD READER PANEL
11. HVAC CONTROL PANEL
12. GENERATOR CONTROL PANEL
13. MAIN DISTRIBUTION PANEL MDP-1
14. ITS 1-1 PANEL
15. 19" RACK LOCAL BACKBONE FIBER
16. 19" RACK I-PASS READER
17. 19" RACK LANE CONTROLLER RACK
18. CARD READER
19. UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
20. CABLE TRAY
21. JACKET WATER HEATER
22. BATTERY CHARGER
23. ATS
24. MTS-1 FOR GENERATOR POWER
25. SMF DISTRIBUTION PANEL
26. NICOR GAS SERVICE LINE
27. VIDEO JB POWER #2
28. TSIC BOARD
29. SIDEWALL EXHAUST FAN W/ MOTORIZED DAMPER
30. ELECTRIC CEILING MOUNTED HEATER
31. SECURITY CAMERA
32. ROADWAY LIGHTING CONTROLLER (BY ROADWAY LIGHTING DESIGNER)
33. VES WASH SYSTEM CABINET LOCATION 1
34. ROLAIR AIR COMPRESSOR
35. HP-80 NITROGEN TANK-4 NOS.
36. DISCONNECT SWITCH 60A/1P, 250V FOR AIR COMPRESSOR
37. 5 KVA, 208V/480V OUTDOOR TYPE SINGLE PHASE TRANSFORMER, NEMA 4X
38. 19" RACK ITS FIBER
39. ITS 1-2 PANEL
40. ROADWAY LIGHTING DISCONNECT SWITCH

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. SEE SYSTEM POWER SINGLE LINE DIAGRAM SHEET FOR DETAILS.
3. SEE WALL ELEVATION SHEET FOR DETAILS.
4. DOOR ALARM SWITCH, SEE DETAIL ON CONTROL BUILDING MISCELLANEOUS DETAILS SHEET.
5. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO TSIC BOARD. ALL CONTACT CLOSURES SHALL BE ROUTED TO TSIC.
6. THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE UTILITY METER.
7. FOR ROADWAY LIGHTING. ROUTE TO 30A. CIRCUIT BREAKER.
8. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLES WILL BE COILED INSIDE THE CABINET.
9. NOT USED.
10. PVC SCH-80 CONDUIT INSIDE BUILDING SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. TRANSITION SHALL BE ALLOWED. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.
11. THE CABLE LENGTH FROM THE ANTENNA TO THE I-PASS READER SHALL NOT EXCEED 150 FEET FOR MAIN PLAZA.
12. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO CARD READER EQUIPMENT.
13. PROVIDE AN ETHERNET CABLE FROM UPS AND FROM CARD READER PANEL TO LOCAL BACKBONE RACK. NETWORK SWITCHES TO BE PROCURED BY OTHERS.

NOTES (CONT'D):

14. TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD.
15. CONTRACTOR SHALL COORDINATE ALL WORK FOR UTILITY SERVICES WITH COMED AND NICOR.
16. POWER FRONT AND REAR VES CAMERAS FROM 24V DC VIDEO JUNCTION BOX #1 AND DATA LOGGER CAMERA FROM SECURITY VIDEO JUNCTION BOX #2. ALL POWER TO BE SURGE PROTECTED.
17. MOUNT PHOTOCELL 6" ABOVE TOP OF BUILDING POINTING TOWARDS NORTHEAST.
18. PROVIDE (2) 6" SDR 11 HDPE SLEEVES EACH. SLEEVE SHALL HAVE;
    (1) 1½" CNC DUCT (SOLID GREEN)
    (1) 1½" CNC DUCT (GREEN / WHITE STRIPE)
    (1) 1½" CNC DUCT (BLACK / RED STRIPE)
19. LOCATION OF (4) RACKS BE IN THE MIDDLE OF THE ROOM.
20. FOR SECURITY CAMERA, CONTRACTOR TO VERIFY CLEAR UNOBSTRUCTED LINE OF SIGHT TO THE ENTRANCE DOORS.
21. INSTALL TRANSFORMER ON 6" CONCRETE PAD 1 FT AWAY FROM EXTERIOR WALL. ALL FEED TO THIS TRANSFORMER SHALL BE UNDERGROUND.

NOTE TO DESIGNER

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NOTE TO DESIGNER

IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.

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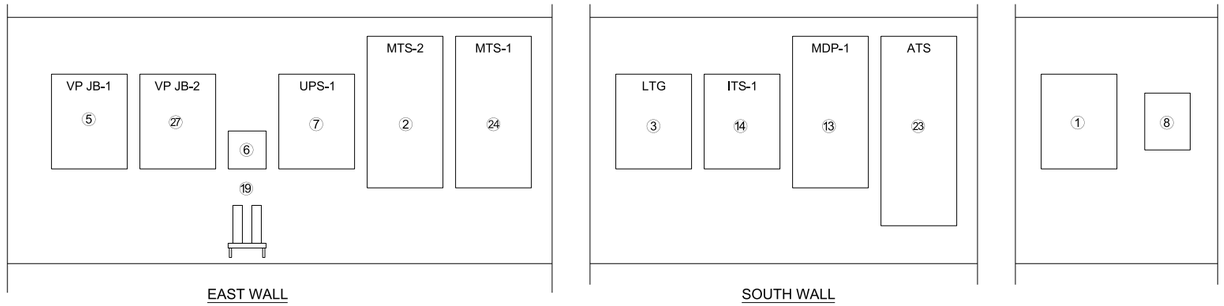
CONTROL BUILDING EQUIPMENT LAYOUT - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2510 | 1 OF 1 |




WALL ELEVATIONS

NOT TO SCALE

NOTE 2

EQUIPMENT LEGEND

ITEM DESCRIPTION

1. MAIN SERVICE DISCONNECT 200A/3P
2. MTS-2 FOR GENERATOR CONTROL
3. LIGHTING CONTRACTOR 120V, 30A, 1 PHASE, 4-POLE IN A NEMA 1 ENCLOSURE WITH A THREE POSITION SELECTOR SWITCH HAND-OFF-AUTO MOUNTED ON THE COVER. TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY, 1-PHASE, 3-WIRE ROADWAY LIGHTING.
5. VIDEO JB POWER #1
6. BYPASS SWITCH.
7. UPS-1 PANEL.
8. LIGHTNING ARRESTOR SYSTEM
13. MAIN DISTRIBUTION PANEL (MDP-1), 208Y/120V, 3 PHASE, 4W 250 AMP, MAIN CIRCUIT BREAKER
14. ITS-1 PANEL
19. UPS / LINE CONDITIONER CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
23. ATS
24. MTS-1 FOR GENERATOR POWER
27. VIDEO JB POWER #2

NOTE TO DESIGNER

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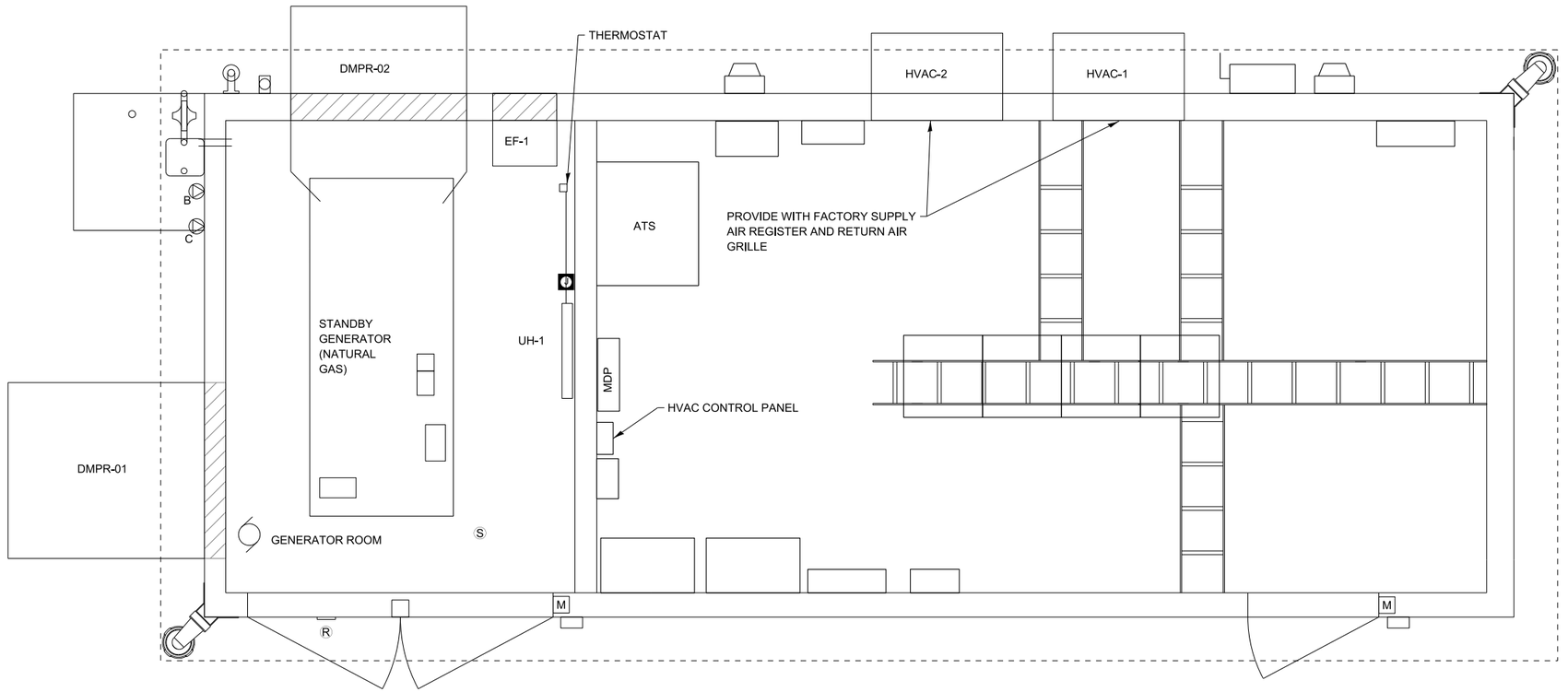
# INTERIOR ELEVATIONS - CONTROL BUILDING

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2511 | 1 OF 1 |




BUILDING MECHANICAL PLAN

NOT TO SCALE

NOTES:

1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART NUMBERS ARE FOR REFERENCE. THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR HVAC AND HEATING SYSTEM BASED ON BUILDING CONSTRUCTION AND INTERNAL BUILDING LOADS.

**ELECTRICAL ROOM**

| MARK | LOCATION | SERVES | NOM. TON | TOTAL AIRFLOW CFM | OUTSIDE AIRFLOW CFM | ESP (IN WG) | REFRIG. TYPE | COOLING DATA | | | | | | HEATING DATA | | | | ELECTRICAL DATA | | | MANUFACTURER/ MODEL NUMBER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TOTAL CAP MBH | SENS CAP MBH | EAT (DEG F) DB | EAT (DEG F) WB | OUTDOOR TEMP (DEG F) | MIN. EER AT ARI CONDITIONS | CAP MBH | EAT (DEG F) DB | OUTDOOR TEMP (DEG F) | SUPPLEMENTAL HEATING (KW) | VOLTS | PH | HZ | | |
| HVAC-01 | OUTSIDE | BUILDING | 4 | 1500 | - | 0.15 | R410A | 45.5 | 34.0 | 75 | 62 | 90 | 11 | 17.1 | 70 | 0 | 5 | 240 | 1 | 60 | BARD WL4S2-A05TPXXXJ | |
| HVAC-02 | OUTSIDE | BUILDING | 4 | 1500 | - | 0.15 | R410A | 45.5 | 34.0 | 75 | 62 | 90 | 11 | 17.1 | 70 | 0 | 5 | 240 | 1 | 60 | BARD WA4S3-A05TPXXXJ | |

**EXHAUST FAN AND DAMPERS**

| MARK | LOCATION | MAKE | MODEL | TYPE | CFM | ESP IN WG | FAN RPM | DRIVE TYPE | MOTOR DATA | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | HP | V / PH / HZ | |
| EF-1 | GENERATOR ROOM | GREENHECK | SE1 | EXHAUST FAN | 750 | 0.25 | 1307 | DIRECT | 1/8 | 115/ 1/ 60 | WITH MOTORIZED LOUVERS AND GALV. HOUSING, THERMOSTAT CONTROLLED |

**EXHAUST FAN AND DAMPERS**

| MARK | LOCATION | DESCRIPTION | TYPE | MAKE | MODEL | SIZE | ELECTRICAL | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | V / PH / HZ | |
| DMPR-01 | GENERATOR ROOM | SUPPLY DAMPER | MOTORIZED DAMPER | GREENHECK | VCD-23 | 48" x 48" | 115/ 1/ 60 | LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL HOOD WITH SS MESH FILTER ON EXTERIOR |
| DMPR-02 | GENERATOR ROOM | EXHAUST DAMPER | MOTORIZED DAMPER | GREENHECK | 135 TLCD | 48" x 48" | 460 / 3 / 60 | LOUVERS FAIL OPEN ON LOSS OF POWER, INSTALL PARTIAL HOOD WITH STAINLESS STEEL WIRE GRID |

**ELECTRIC UNIT HEATER SCHEDULE (UH)**

| MARK | ROOM | MAKE | MODEL | TYPE | CAPACITY (kW) | CFM | V / PH / HZ | NOTES |
|---|---|---|---|---|---|---|---|---|
| UH-1 | GENERATOR | INDEECO | ULI | WALL MOUNTED | 2KW/1.5KW | 300 | 240/ 1 / 60 | INCLUDE DISCONNECT |

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

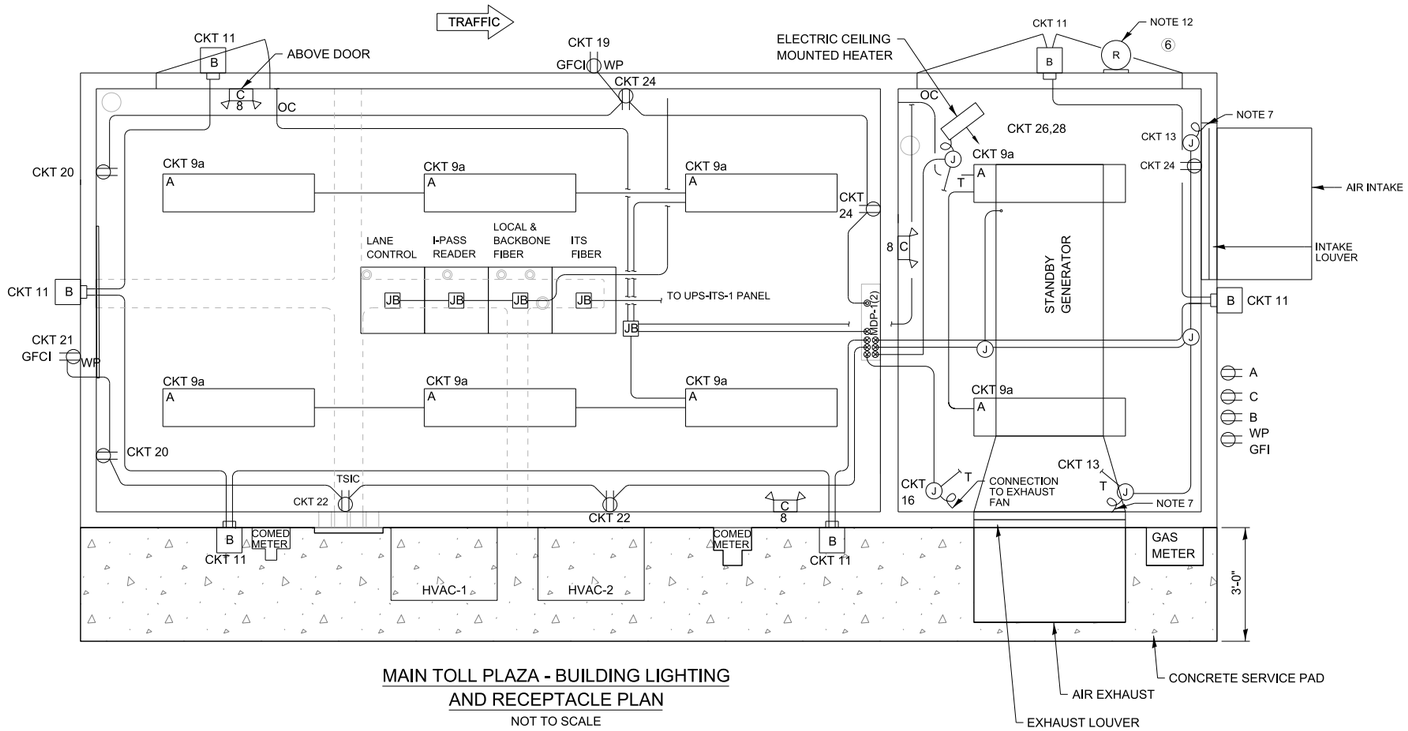
NOTE TO DESIGNER

THE ESTIMATED EQUIPMENT BUILDING LOADS FOR EQUIPMENT IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.

Illinois Tollway

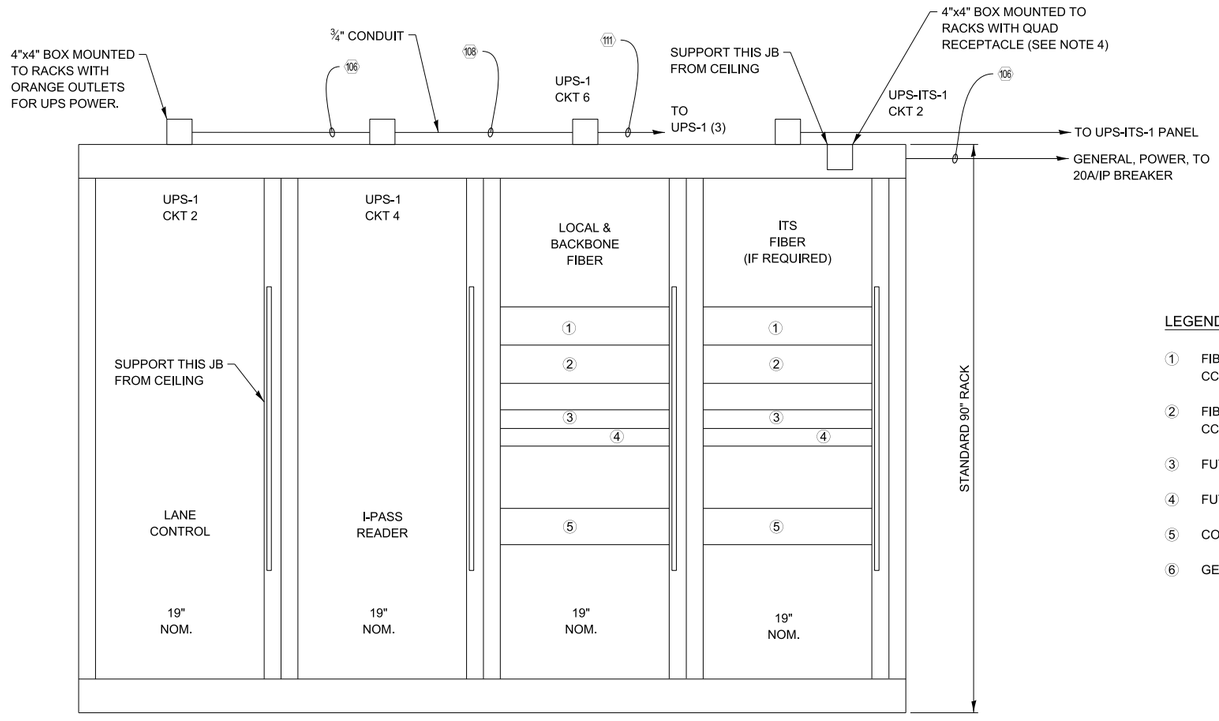
# MECHANICAL PLAN - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2512 | 1 OF 1 |




MAIN TOLL PLAZA - BUILDING LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE




COMMUNICATIONS AND EQUIPMENT RACK ELEVATION

NOT TO SCALE

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE ¾" WITH 2-1/C #12 AND 1/C #12 GRD, UNLESS OTHERWISE NOTED.
3. FOR PANEL SCHEDULES, SEE PANELBOARD SCHEDULES SHEET.
4. PROVIDE CONNECTION TO RECEPTACLES FOR THE EQUIPMENT RACKS AS SPECIFIED. THE PLUG STRIP SHALL BE MOUNTED TO THE SIDE OF THE CABINET AS DIRECTED BY THE ENGINEER.
5. FOR LIGHTING FIXTURE SCHEDULE, ELECTRICAL SYMBOLS, LEGEND, AND ABBREVIATIONS, SEE LEGEND SHEET.
6. LIGHTING AND RECEPTACLES SHALL BE FED FROM PANEL MDP-1.
7. PROVIDE CONNECTIONS TO THE MOTORIZED DAMPER AND GEN. CONTROL PANEL DAMPERS TO BE CONTROLLED FROM GEN. CONTROLLER.
8. CONNECT EMERGENCY BATTERY PACKS AHEAD OF LIGHTING CIRCUIT.
9. COMMUNICATION AND EQUIPMENT RACK SHALL BE AS FOLLOWS: I-PASS LANE CONTROL BACKBONE FIBER IT ITS FIBER
10. CONTRACTOR SHALL COORDINATE FINAL RACK LAYOUT WITH THE ENGINEER AND THE ILLINOIS TOLLWAY.
11. NETWORK SWITCHES PROCURED BY OTHERS.
12. RED INDICATOR LIGHT INSTALLED FACING THE ROADWAY AND ACTIVATED WHEN GENERATOR IS RUNNING.
13. SEE MISCELLANEOUS SCHEMATIC DIAGRAMS SHEET FOR EXTERIOR LIGHTING CONTROLS.

LEGEND:

① FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

② FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

③ FUTURE NETWORK SWITCHES - (1 RU) NOTE 11

④ FUTURE NETWORK SWITCHES - (1 RU) NOTE 11

⑤ COMMSCOPE MODULAR PATCH PANEL - (2 RU)

⑥ GENERATOR RUNNING LIGHT

NOTE TO DESIGNER

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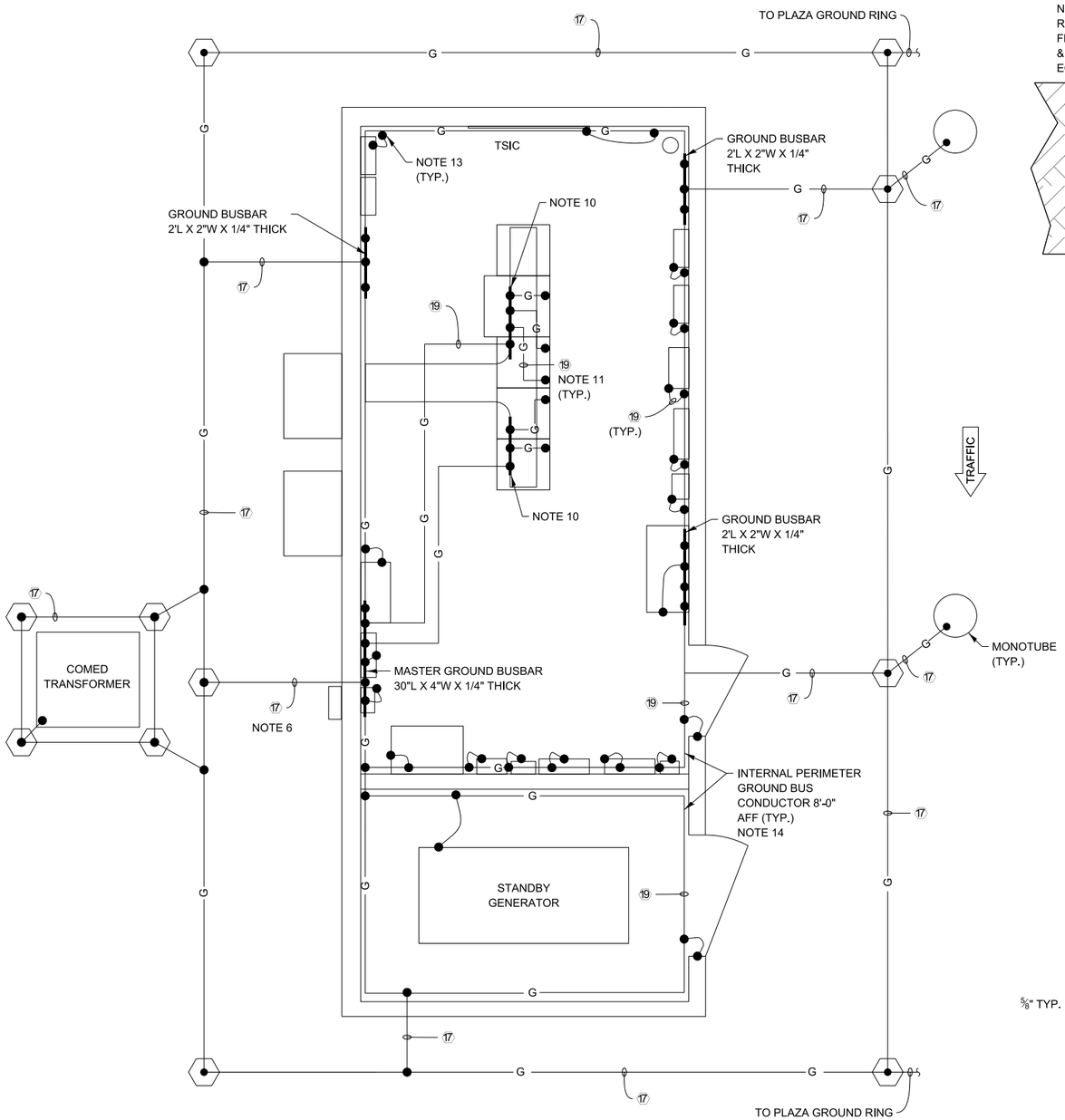
Illinois Tollway

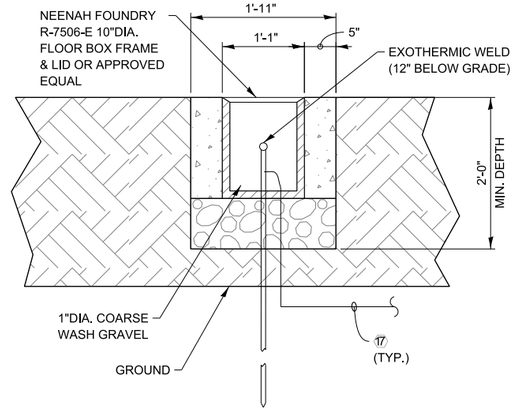
# CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2513 | 1 OF 1 |



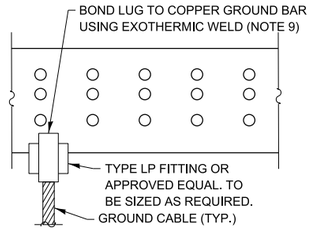

BUILDING ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE




GROUND WELL ELEVATION DETAIL

NOTE 3

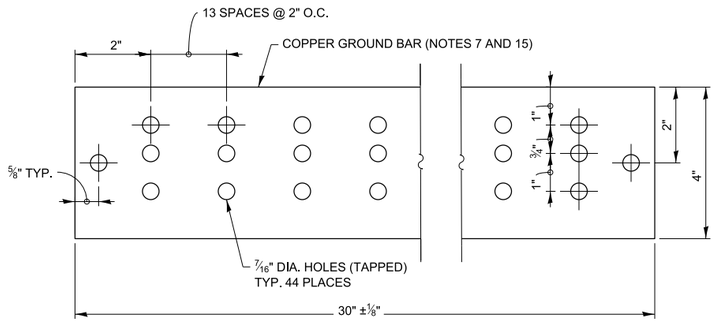



MASTER GROUND BUSBAR CONNECTION DETAIL

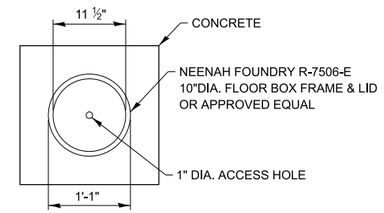
(NOT TO SCALE)

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE SHEET FOR CABLE TAGS.
2. NOT USED
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 GROUNDING SCHEMATIC SHEET FOR MORE DETAILS.
6. PROVIDE 1" SCHEDULE 40 PVC CONDUIT FOR GROUND CABLES UNDER BUILDING (TYP.).
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 BUSBARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUSBAR 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 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 BUSBARS MUST BE MOUNTED APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.




MASTER GROUND BUSBAR SUPPORT SPACING DETAIL




GROUND WELL PLAN DETAIL

NOTE TO DESIGNER

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Illinois Tollway

# CONTROL BUILDING GROUNDING DETAILS - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2514 | 1 OF 1 |

PANELBOARD MDP-1 | MAINS 250A. MCB
VOLTAGE 120/208V | BUS RATING 300A.
PHASE/WIRE 3/4 | 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 MDP-2 | 1 | 11450 | | | 100/3 | | | 30/1 | 2400 | | | 2 | UPS-1 (3 KVA) |
| | 3 | | 11960 | | | | | 20/1 | | 200 | | 4 | LIGHTING CONTACTOR (CONTROL) |
| | 5 | | | 7470 | | | | 30/3 | | | 2000 | 6 | HVAC UNITS |
| EMERGENCY LIGHT | 7 | 200 | | | 20/1 | | | | 2000 | | | 8 | |
| INTERIOR LIGHTS | 9 | | 400 | | 20/1 | | | | | 2000 | | 10 | |
| EXTERIOR BUILDING LIGHTS | 11 | | | 400 | 20/1 | | | 60/2 | | | — | 12 | SPARE |
| MOTORIZED DAMPERS | 13 | 180 | | | 20/1 | | | | -— | | | 14 | |
| GEN. BATTERY CHARGER | 15 | | 160 | | 20/1 | | | 20/1 | | 400 | | 16 | EXHAUST FAN |
| GEN. JACKET WATER HTR. | 17 | | | 1500 | 20/1 | | | 20/1 | | | — | 18 | SPARE |
| EXTERIOR RECEPTACLE | 19 | 400 | | | 20/1 | | | 20/1 | 400 | | | 20 | INTERIOR RECEPTACLES |
| EXTERIOR RECEPTACLE | 21 | | 400 | | 20/1 | | | 20/1 | | 400 | | 22 | INTERIOR RECEPTACLES |
| SPARE | 23 | | | – | 20/1 | | | 20/1 | | | 400 | 24 | INTERIOR RECEPTACLES |
| SPARE | 25 | -- | | | 20/2 | | | 20/2 | 375 | | | 26 | ELECTRIC CEILING MOUNTED HEATER |
| | 27 | | – | | | | | | | 375 | | 28 | |
| VES WASH SYSTEM (LOC 1) | 29 | | | 2500 | 30/1 | | | 30/2 | | | -- | 30 | LINE CONDITIONER |
| AIR COMPRESSOR | 31 | 3600 | | | 40/1 | | | | – | | | 32 | |
| ROADWAY LTG TRANSFORMER | 33 | | 960 | | 20/2 | | | 20/1 | | – | | 34 | SPARE |
| | 35 | | | 960 | | | | 30/2 | | | 1252 | 36 | UPS-ITS-1 (5 KVA) |
| LINE CONDITIONER (LC-1) | 37 | | -- | | 30/1 | | | | 1252 | | | 38 | |
| SPARE | 39 | | | | 20/1 | | | 20/1 | | – | | 40 | SPARE |
| SPARE | 41 | | | | 20/1 | | | 20/1 | | | -- | 42 | SPARE |
| | | | | | | | | | | | | | |
| "A" | | 15830 | | | SUBTOTAL "A" = 22257 | | | | 6427 | | | | "A" |
| "B" | | | 13880 | | SUBTOTAL "B" = 17255 | | | | | 3375 | | | "B" |
| "C" | | | | 12830 | SUBTOTAL "C" = 16682 | | | | | | 3852 | | "C" |
| TOTAL WATTS "A,B,C" | | = 56.19 KW | | | | | | | | | | | |

PANELBOARD UPS-1 | MAINS 30A. 1P. MCB
VOLTAGE 120V. | BUS RATING 30A.
PHASE/WIRE 1/2 | MOUNTING SURFACE

| DESCRIPTION | | LOAD (WATTS) | AMPS/ POLES | CKT NO. | CKT NO. | AMPS/ POLES | LOAD (WATTS) | CKT NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| SPARE | 1 | – | 20/1 | | | 20/1 | 400 | 2 | RACK RECEPTACLE (LCC) |
| SPARE | 3 | – | 20/1 | | | 20/1 | 400 | 4 | RACK RECEPTACLE (I-PASS) |
| SPARE | 5 | – | 20/1 | | | 20/1 | 400 | 6 | RACK RECEPTACLE (FIBER) |
| SPARE | 7 | – | 20/1 | | | 20/1 | 200 | 8 | CARD READER PANEL |
| VIDEO POWER JUNCTION BOX 1 | 9 | 500 | 20/1 | | | 20/1 | – | 10 | SPARE |
| VIDEO POWER JUNCTION BOX 2 | 11 | 400 | 20/1 | | | 20/1 | 65 | 12 | VIDEO POWER JUCTION BOX (DATA LOGGER) |
| SUBTOTAL "A" | | 900 | | | | | 1465 | | |
| TOTAL WATTS "A,B" | | = 2.4 KW | | | | | | | |

PANELBOARD ITS 1 | MAINS 30A. 2P. MCB
VOLTAGE 120V / 208V | BUS RATING 60A.
PHASE/WIRE 1/3 | MOUNTING SURFACE

| DESCRIPTION | | LOAD (WATTS) | AMPS/ POLES | CKT NO. | CKT NO. | AMPS/ POLES | LOAD (WATTS) | CKT NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 5 KVA TRANSFORMER | 1 | – | 30/2P | | | 10/1P | 200 | 2 | ITS RACK RECEPTACLES |
| | 3 | | | | | 10/1P | – | 4 | SPARE |
| SPARE | 5 | – | 10/1P | | | 10/1P | | 6 | SPARE |
| SPARE | 7 | – | 10/1P | | | 10/1P | | 8 | SPARE |
| | | | | | | | | | |
| | | | | | | | | | |
| SUBTOTAL = -— | | — | | | | | 200 | | |
| TOTAL WATTS "A,B" | | = 0.2 KW | | | | | | | |

NOTE TO DESIGNER

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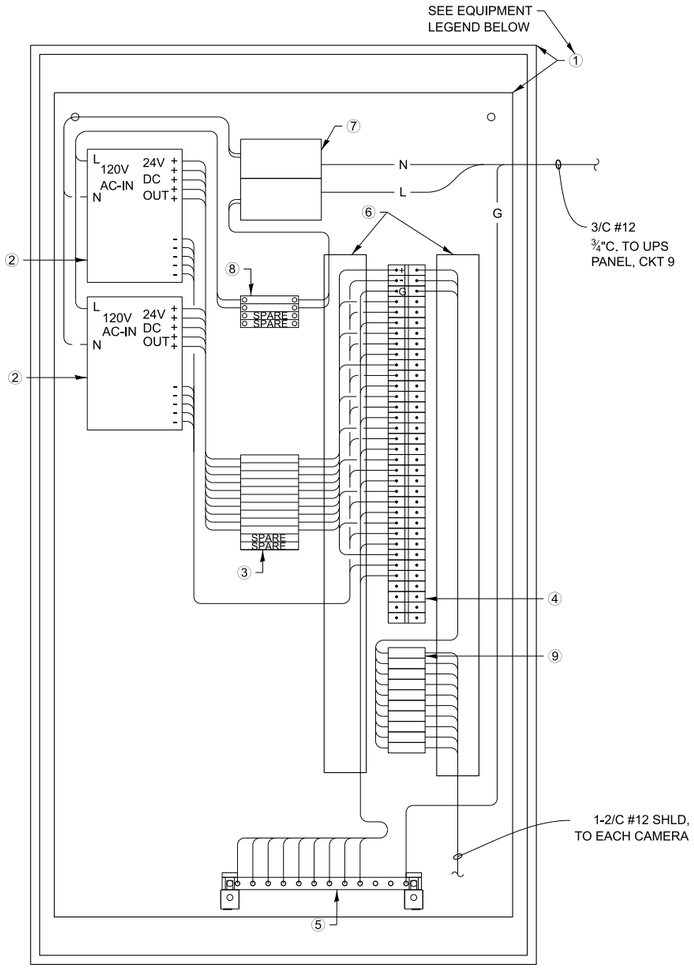
Illinois Tollway

# PANELBOARD SCHEDULES - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2515 | 1 OF 1 |




FRONT & REAR VES CAMERA VIDEO POWER JUNCTION BOX - MAIN PLAZA

NOT TO SCALE

## EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

| ITEM | QUANTITY (SAMPLE) | DESCRIPTION |
|---|---|---|
| ① | 1 | 48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 221#2"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL. |
| ② | 2 | POWER SUPPLY, 24VDC, TDK-LAMBDA NO. QM7FSDL 24/24DMS 24/24DMS 24/24DMS 24/24DMS 24/24DMS. |
| ③ | 12 | 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-FB1M30-D1. |
| ④ | 21 | TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6. |
| ⑤ | 1 | GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K. |
| 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. |
| ⑦ | 1 | POWER DISTRIBUTION BLOCK MARATHON NO. 1322580. |
| ⑧ | 4 | SQUARE D, QOU 115 1P/15A BREAKER. |
| ⑨ | 10 | SURGE SUPPRESSOR MTL MODEL ZB24580. |

NOTES:

1. LABEL JUNCTION BOX, TERMINAL STRIPS, AND ALL WIRE AND CABLES.
2. ROUTE 1-2/C #12 POWER CABLE TO EACH CAMERA.
3. ALL ELECTRICAL CABLES TO CAMERA SHALL HAVE SURGE PROTECTION.
4. CAT6 CABLE SHALL BE SURGE PROTECTED ON THE TSIC.

NOTES TO DESIGNER

1. THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.
2. THE DESIGNER SHALL ADJUST DETAIL AND QUANTITIES AS REQUIRED FOR NUMBER OF VES CAMERAS.
3. THE DESIGNER SHALL INCLUDE VIDEO POWER JUCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.

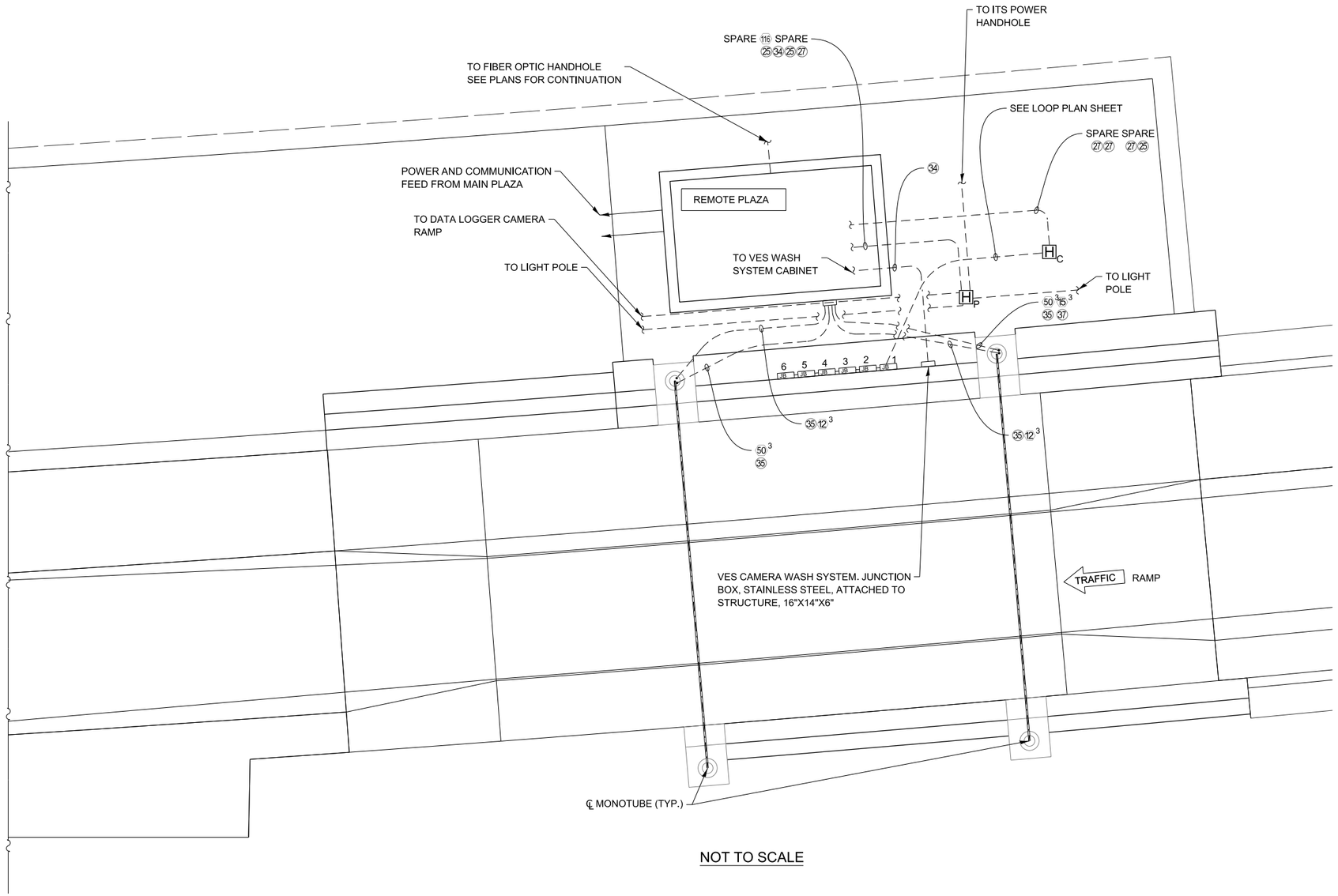
Illinois Tollway

# VIDEO POWER JUNCTION BOX DETAIL - MAIN PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2516 | 1 OF 1 |

NOTES:

1. SEE CABLE AND CONDUIT SCHEDULE. SHEET FOR CABLE TAGS.
2. SEE AET WIRING DIAGRAMS SHEET FOR MONOTUBE WIRING.
3. NOT USED.
4. CAP ALL CONDUIT STUBS FOR FUTURE USE.
5. FINAL LOCATION OF ALL HANDHOLES AND JUNCTION BOXES SHALL BE APPROVED BY THE ENGINEER.
6. NOT USED.
7. ROUTE PLAZA ROADWAY LIGHTING CIRCUITS TO LIGHTING CONTRACTOR. THESE STAY ON PLAZA CIRCUITS, THAT ARE POWERED FROM PLAZA EMERGENCY GENERATOR. ROUTE 2-1/C #8 AND 1/C #8 GROUND WIRE FROM LIGHTING CONTRACTOR LOCATED IN THE POWER CABINET TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE PHOTOCELL ON SAME POLE.
8. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
9. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BASE.
10. REFER TO TSIC TERMINAL BLOCK LAYOUT SHEET. LOW VOLTAGE WIRE FROM VES AND SECURITY CAMERAS LAND ON SURGE PROTECTION DEVICES.
11. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN CROSSING WALL FOUNDATIONS.
12. LOCATION OF LANE STUB UPS TO BE APPROVED BY THE ILLINOIS TOLLWAY PRIOR TO CONCRETE POUR. FINAL LOCATION OF EQUIPMENT TO BE APPROVED BY THE ENGINEER.
13. PROVIDE (2) 4" PVC COATED RGS 5FT PAST RETAINING WALL UP TO ComEd TRANSFORMER FOR ComEd INCOMING PRIMARY CABLES. INSTALL SLEEVE IN COORDINATION WITH STRUCTURAL AND STUB UP NEAR ComEd TRANSFORMER LOCATION. PROVIDE WATER PROOF SEALING AT RETAINING WALL.
14. RIGID METALLIC CONDUIT PVC COATED FOR MONOTUBE POWER/DATA/ANTENNA CABLING SHALL RUN IN OVERHEAD CONDUIT TRAY. SEE OVERHEAD CONDUIT TRAY DETAILS..
15. SEE VES CAMERA WASH SYSTEM SHEETS FOR DETAILS. THIS WORK WILL BE PAID UNDER PAY ITEM JT132701 "VES CAMERA HIGH PRESSURE WASH SYSTEM, LOCATION 2".
16. FOR LIGHT POLE AND FOUNDATION DETAILS, SEE ILLINOIS TOLLWAY STANDARD DRAWINGS H1 AND H2.
17. NOT USED.
18. PROVIDE (2) 6" SDR 11 HDPE SLEEVES, EACH SLEEVE SHALL HAVE;
    (1) 1 1#2" CNC DUCT (SOLID GREEN)
    (1) 1 1#2" CNC DUCT (GREEN/WHITE STRIPE)
    (1) 1 1#2" CNC DUCT (BLACK/RED STRIPE)




NOT TO SCALE

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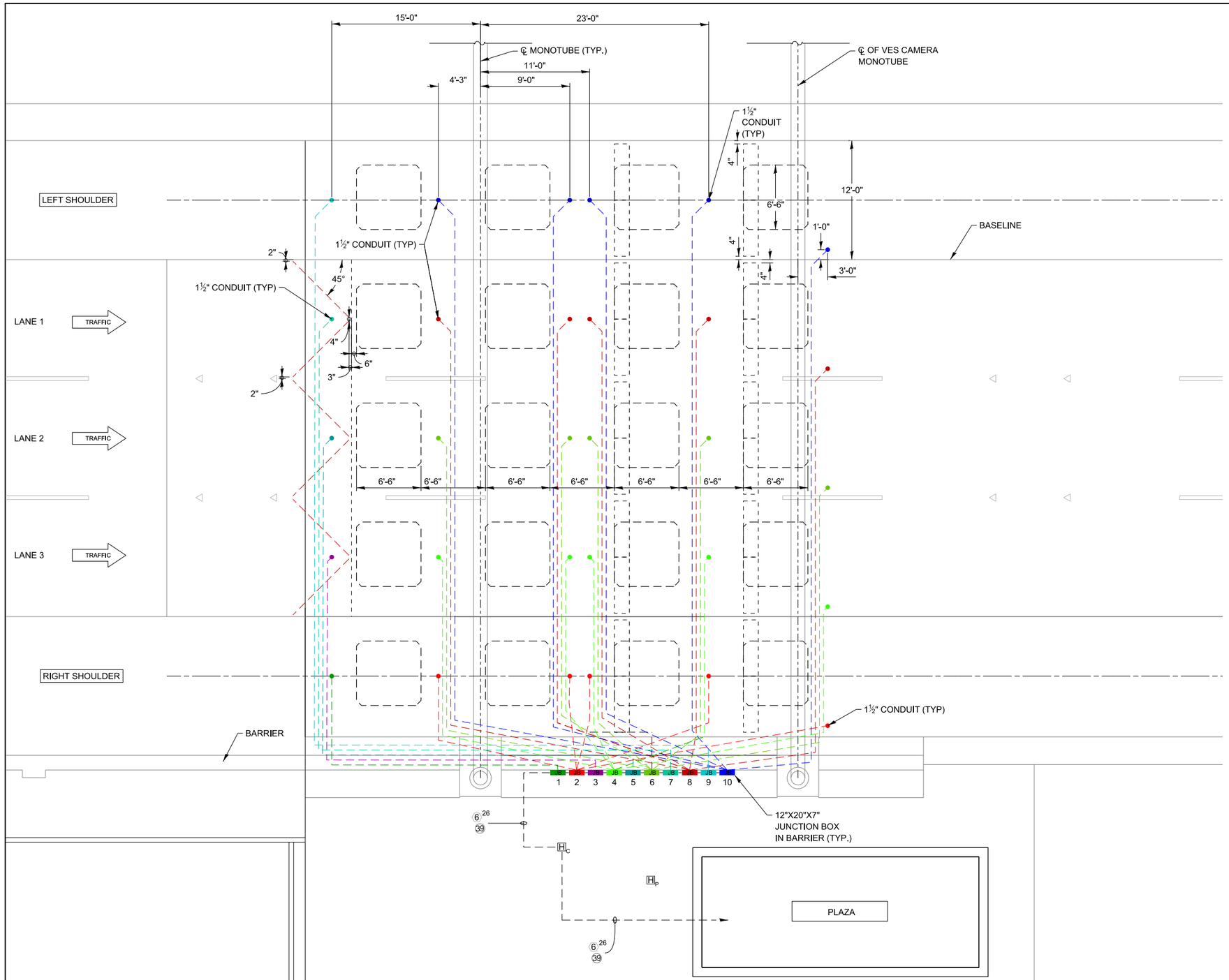
Illinois Tollway

# UNDERGROUND CONDUIT PLAN - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2517 | 1 OF 1 |




## 3-LANE AET EQUIPMENT AND LOOP LAYOUT

(AET LANES-THREE LANE CONFIGURATION)

NOTES:

1. MINIMUM CONDUIT SIZE IS 1-1/2".
2. LOOP WIRE SPLICES ARE MADE IN JUNCTION BOXES.
3. CONDUITS FOR LOOPS ARE TO BE 1-1/2" RIGID GALVANIZED STEEL PVC COATED.
4. LOOPS PROVIDED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOPS PULLED BACK TO JUNCTION BOXES IN BARRIER WALL. SEE LOOP INSTALLATION DETAILS. CONTRACTOR SHALL COORDINATE WITH ILLINOIS TOLLWAY FOR PROVIDING SLOT OPENING, SAW CUTTING AND OTHER MISCELLANEOUS WORK REQUIRED FOR COMPLETE LOOP INSTALLATION.
5. VERIFY THE CONDUIT, MONOTUBES AND VES CAMERA POLE LOCATIONS WITH THE ILLINOIS TOLLWAY PRIOR TO BARRIER CONSTRUCTION.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO ANY CONSTRUCTION STARTING. LOCATION OF ALL LANE LOOPS AND LANE STUB UPS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE CONCRETE POUR CONTRACTOR TO COORDINATE WITH THE ENGINEER.
7. SEE CONDUIT ROUTING DETAILS.
8. CONTRACTOR IS TO PROVIDE ALL CONDUIT AND LOOP LEAD IN CABLE FROM BUILDING TO JUNCTION BOX IN BARRIER WALL. 3 FEET OF CABLE COILED IN JUNCTION BOX AT BARRIER WALL.
9. ALL LOOP DETECTORS SHALL BE IN THE CENTER OF THE STRIPED LANES.
10. CONDUITS AND CONDUIT STUB UPS SHOWN SHALL BE INSTALLED IN ALL LANES (TRAVEL LANES AND SHOULDERS).
11. LEAD EDGE OF LOOP 2 SHALL BE 6" DOWNSTREAM OF MONOTUBE CENTERLINE.
12. PIEZO AND QUANTUM SYSTEM LOOPS SHALL BE INSTALLED IN TRAVEL LANES ONLY.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTE TO DESIGNER

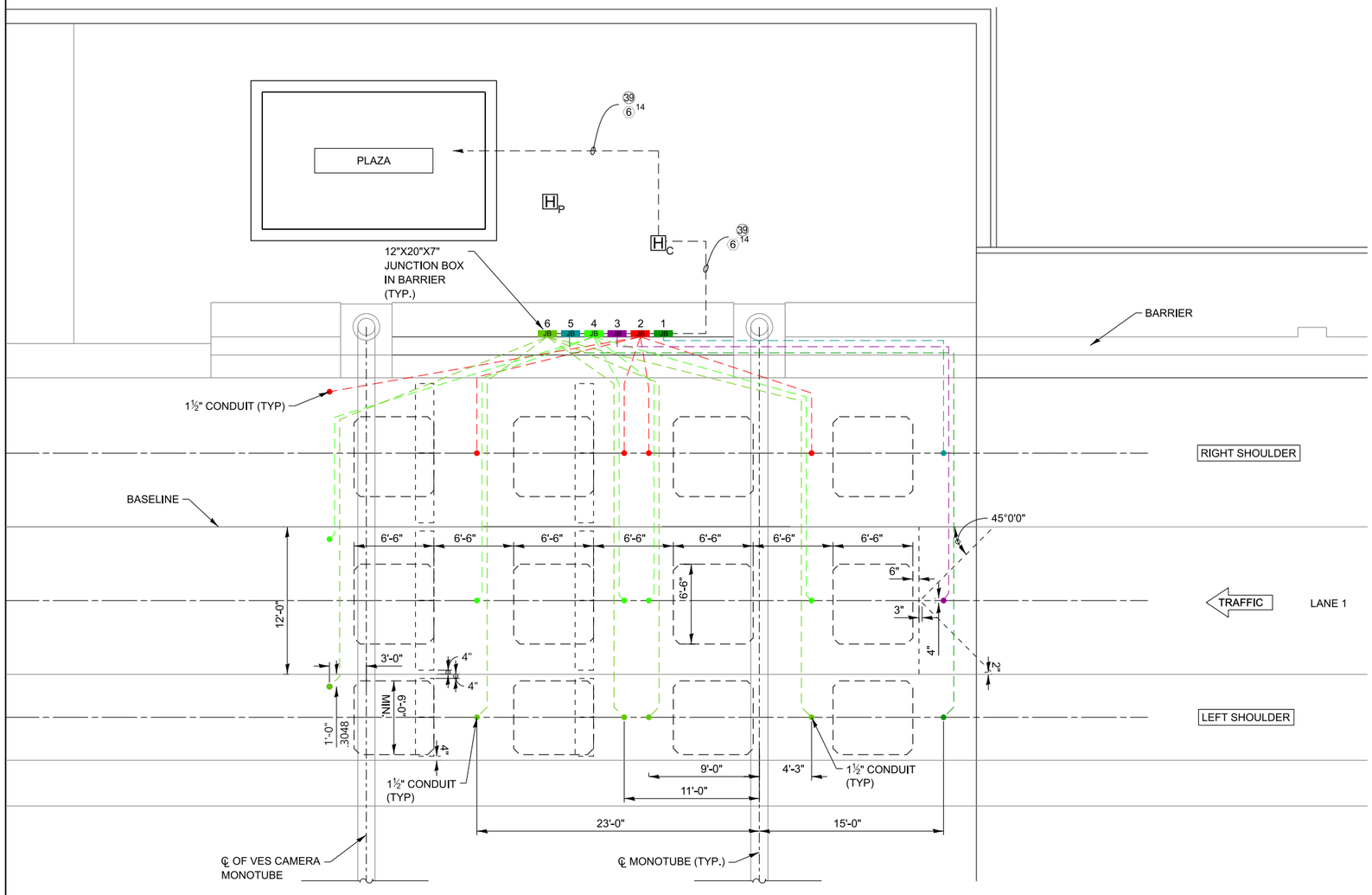
DSE TO CONFIRM THE CORRECT NUMBER OF DETECTOR LEAD-IN CABLES (DLCs) ROUTED TO THE BARRIER JUNCTIONBOXES, BASED ON THE LAYOUT SHOWN HERE.

A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE: (4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE

Illinois Tollway

# LOOP PLAN - AET 3-LANE LAYOUT

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2518A | 1 OF 1 |




1-LANE AET EQUIPMENT AND LOOP LAYOUT

NOTES:

1. MINIMUM CONDUIT SIZE IS 1-1/2".
2. LOOP WIRE SPLICES ARE MADE IN JUNCTION BOXES.
3. CONDUITS FOR LOOPS ARE TO BE 1-1/2" RIGID GALVANIZED STEEL PVC COATED.
4. LOOPS PROVIDED AND INSTALLED BY THE ILLINOIS TOLLWAY. LOOPS PULLED BACK TO JUNCTION BOXES IN BARRIER WALL. SEE LOOP INSTALLATION DETAILS. CONTRACTOR SHALL COORDINATE WITH ILLINOIS TOLLWAY FOR PROVIDING SLOT OPENING, SAW CUTTING AND OTHER MISCELLANEOUS WORK REQUIRED FOR COMPLETE LOOP INSTALLATION.
5. VERIFY THE CONDUIT, MONOTUBES AND VES CAMERA POLE LOCATIONS WITH THE ILLINOIS TOLLWAY PRIOR TO BARRIER CONSTRUCTION.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO ANY CONSTRUCTION STARTING. LOCATION OF ALL LANE LOOPS AND LANE STUB UPS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE CONCRETE POUR CONTRACTOR TO COORDINATE WITH THE ENGINEER.
7. SEE CONDUIT ROUTING DETAILS.
8. CONTRACTOR IS TO PROVIDE ALL CONDUIT AND LOOP LEAD IN CABLE FROM BUILDING TO JUNCTION BOX IN BARRIER WALL. 3 FEET OF CABLE COILED IN JUNCTION BOX AT BARRIER WALL.
9. ALL LOOP DETECTORS SHALL BE IN THE CENTER OF THE STRIPED LANES.
10. CONDUITS AND CONDUIT STUB UPS SHOWN SHALL BE INSTALLED IN ALL LANES (TRAVEL LANES AND SHOULDERS).
11. LEAD EDGE OF LOOP 2 SHALL BE 6" DOWNSTREAM OF MONOTUBE CENTERLINE.
12. PIEZO AND QUANTUM SYSTEM LOOPS SHALL BE INSTALLED IN TRAVEL LANES ONLY.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTE TO DESIGNER

DSE TO CONFIRM THE CORRECT NUMBER OF DETECTOR LEAD-IN CABLES (DLCs) ROUTED TO THE BARRIER JUNCTION BOXES, BASED ON THE LAYOUT SHOWN HERE.

A. SHOULDERS - (4) DLCs EACH SHOULDER FOR MAIN LOOPS.
B. TRAVEL LANES - (6) DLCs EACH TRAVEL LANE:
(4) MAIN LOOPS + (1) PIEZO ANGLE LOOP + (1) SPARE

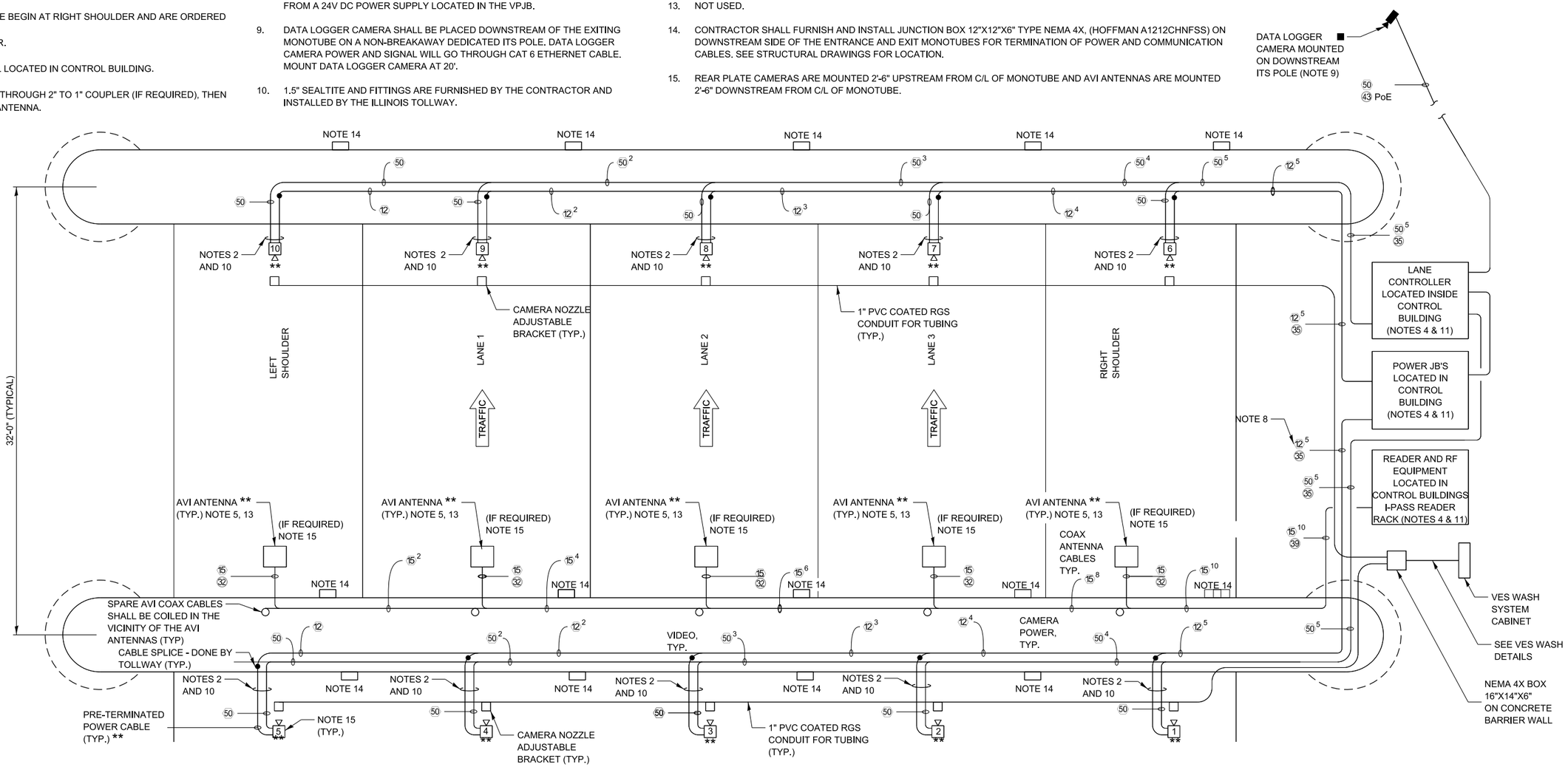
Illinois Tollway

# LOOP PLAN - AET 1-LANE LAYOUT

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2518B | 1 OF 1 |

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEET FOR CABLE TAGS.
2. FRONT AND REAR VES CAMERA CABLES ARE PULLED BY THE CONTRACTOR INTO MONOTUBE AND POLE ARM. THE CONTRACTOR WHIPS UP ABOUT 10 FEET OF CABLE, LEAVING THE MAJORITY INSIDE THE MONOTUBE/POLE ARM. THE ILLINOIS TOLLWAY WILL PULL FROM THE JB/POLE ARM TO THE CAMERAS AND THEN TERMINATE.
3. VES CAMERA NUMBERING SCHEME BEGIN AT RIGHT SHOULDER AND ARE ORDERED SEQUENTIALLY (1, 2, 3, ... ETC) TO LEFT SHOULDER.
4. ALL CABINETS AND POWER PANEL LOCATED IN CONTROL BUILDING.
5. COAX FOR AVI ANTENNAS ROUTE THROUGH 2" TO 1" COUPLER (IF REQUIRED), THEN RUN IN 1" SEALTITE CONDUIT TO ANTENNA.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO CONSTRUCTION AND INSTALLATION.
7. IF VES CAMERAS ARE MOUNTED 18' ABOVE THE ROADWAY, THEN THE CAMERAS SHALL BE PLACED 33' HORIZONTAL FROM THE TRIGGER.
8. THIS CABLING IS USED TO POWER THE VES CAMERAS. THESE CABLES WILL RUN FROM A 24V DC POWER SUPPLY LOCATED IN THE VPJB.
9. DATA LOGGER CAMERA SHALL BE PLACED DOWNSTREAM OF THE EXITING MONOTUBE ON A NON-BREAKAWAY DEDICATED ITS POLE. DATA LOGGER CAMERA POWER AND SIGNAL WILL GO THROUGH CAT 6 ETHERNET CABLE. MOUNT DATA LOGGER CAMERA AT 20'.
10. 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.
11. ALL WIRING FROM CAMERAS/I-PASS ANTENNAS SHALL BE SURGE PROTECTED AS IT ENTERS PLAZA BUILDING. SURGE PROTECTION SHALL BE IN VES VPJB FOR CAMERAS AND IN COMMUNICATION ROOM FOR ANTENNA CABLE.
12. PROVIDE 14 FT PERPENDICULAR OUTRIGGER SUPPORT FOR VES CAMERA POLE AND THE ANTENNA POLE DUE TO THE NEEDS OF MULTIPROTOCOL READERS ONLY. MAINTAIN THE POSITION OF THE VES SUPPORT POLE SO THE LONGER OUTRIGGER WILL NEED TO CANTILEVER MORE TOWARDS THE DEPARTURE SIDE OF THE MONOTUBE.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX 12"X12"X6" TYPE NEMA 4X, (HOFFMAN A1212CHNFSS) ON DOWNSTREAM SIDE OF THE ENTRANCE AND EXIT MONOTUBES FOR TERMINATION OF POWER AND COMMUNICATION CABLES. SEE STRUCTURAL DRAWINGS FOR LOCATION.
15. REAR PLATE CAMERAS ARE MOUNTED 2'-6" UPSTREAM FROM C/L OF MONOTUBE AND AVI ANTENNAS ARE MOUNTED 2'-6" DOWNSTREAM FROM C/L OF MONOTUBE.




FRONT - REAR PLATE VES BLOCK WIRING DIAGRAM

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTE TO DESIGNER

VES CAMERAS ON SHOULDERS ARE NOT TYPICALLY INSTALLED. SHOWN HERE FOR COMPLETION, BUT SHOULD BE REMOVED BY DESIGNER UNLESS THEY ARE SPECIFICALLY REQUESTED BY ILLINOIS TOLLWAY.

LEGEND:

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

** INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY.

1 INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.

Illinois Tollway

WIRING DIAGRAM - AET 3-LANE LAYOUT

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2519A | 1 OF 1 |

NOTES:

1. SEE CABLE/CONDUIT SCHEDULE AND NOTES SHEET FOR CABLE TAGS.
2. FRONT AND REAR VES CAMERA CABLES ARE PULLED BY THE CONTRACTOR INTO MONOTUBE AND POLE ARM. THE CONTRACTOR WHIPS UP ABOUT 10 FEET OF CABLE, LEAVING THE MAJORITY INSIDE THE MONOTUBE/POLE ARM. THE ILLINOIS TOLLWAY WILL PULL FROM THE JB/POLE ARM TO THE CAMERAS AND THEN TERMINATE.
3. VES CAMERA NUMBERING SCHEME BEGIN AT RIGHT SHOULDER AND ARE ORDERED SEQUENTIALLY (1, 2, 3, ... ETC) TO LEFT SHOULDER.
4. ALL CABINETS AND POWER PANEL LOCATED IN CONTROL BUILDING.
5. COAX FOR AVI ANTENNAS ROUTE THROUGH 2" TO 1" COUPLER (IF REQUIRED), THEN RUN IN 1" SEALTITE CONDUIT TO ANTENNA.
6. EQUIPMENT LOCATIONS MUST BE VERIFIED BY THE ILLINOIS TOLLWAY PRIOR TO CONSTRUCTION AND INSTALLATION.
7. IF VES CAMERAS ARE MOUNTED 18' ABOVE THE ROADWAY, THEN THE CAMERAS SHALL BE PLACED 33' HORIZONTAL FROM THE TRIGGER.
8. THIS CABLING IS USED TO POWER THE VES CAMERAS. THESE CABLES WILL RUN FROM A 24V DC POWER SUPPLY LOCATED IN THE VPJB.
9. DATA LOGGER CAMERA SHALL BE PLACED DOWNSTREAM OF THE EXITING MONOTUBE ON A NON-BREAKAWAY DEDICATED ITS POLE. DATA LOGGER CAMERA POWER AND SIGNAL WILL GO THROUGH CAT 6 ETHERNET CABLE. MOUNT DATA LOGGER CAMERA AT 20'.
10. 1.5" SEALTITE AND FITTINGS ARE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE ILLINOIS TOLLWAY.
11. ALL WIRING FROM CAMERAS/I-PASS ANTENNAS SHALL BE SURGE PROTECTED AS IT ENTERS PLAZA BUILDING. SURGE PROTECTION SHALL BE IN VES VPJB FOR CAMERAS AND IN COMMUNICATION ROOM FOR ANTENNA CABLE.
12. PROVIDE 14 FT PERPENDICULAR OUTRIGGER SUPPORT FOR VES CAMERA POLE AND THE ANTENNA POLE DUE TO THE NEEDS OF MULTIPROTOCOL READERS ONLY. MAINTAIN THE POSITION OF THE VES SUPPORT POLE SO THE LONGER OUTRIGGER WILL NEED TO CANTILEVER MORE TOWARDS THE DEPARTURE SIDE OF THE MONOTUBE.
13. NOT USED.
14. CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX 12"X12"X6" TYPE NEMA 4X, HOFFMAN A1212CHNFSS ON DOWNSTREAM SIDE OF THE ENTRANCE AND EXIT MONOTUBES FOR TERMINATION OF POWER AND COMMUNICATION CABLES (EXCEPT AVI CABLES). SEE STRUCTURAL DRAWINGS FOR LOCATION.
15. REAR PLATE CAMERAS ARE MOUNTED 2'-6" UPSTREAM FROM C/L OF MONOTUBE AND AVI ANTENNAS ARE MOUNTED 2'-6" DOWNSTREAM FROM C/L OF MONOTUBE.

NOTE TO DESIGNER

SHOULDER VES CAMERAS ARE SHOWN FOR COMPLETION, BUT TYPICALLY NOT INSTALLED. DELETE IF NOT SPECIFICALLY REQUESTED BY ILLINOIS TOLLWAY BUSINESS SYSTEMS.

LEGEND:

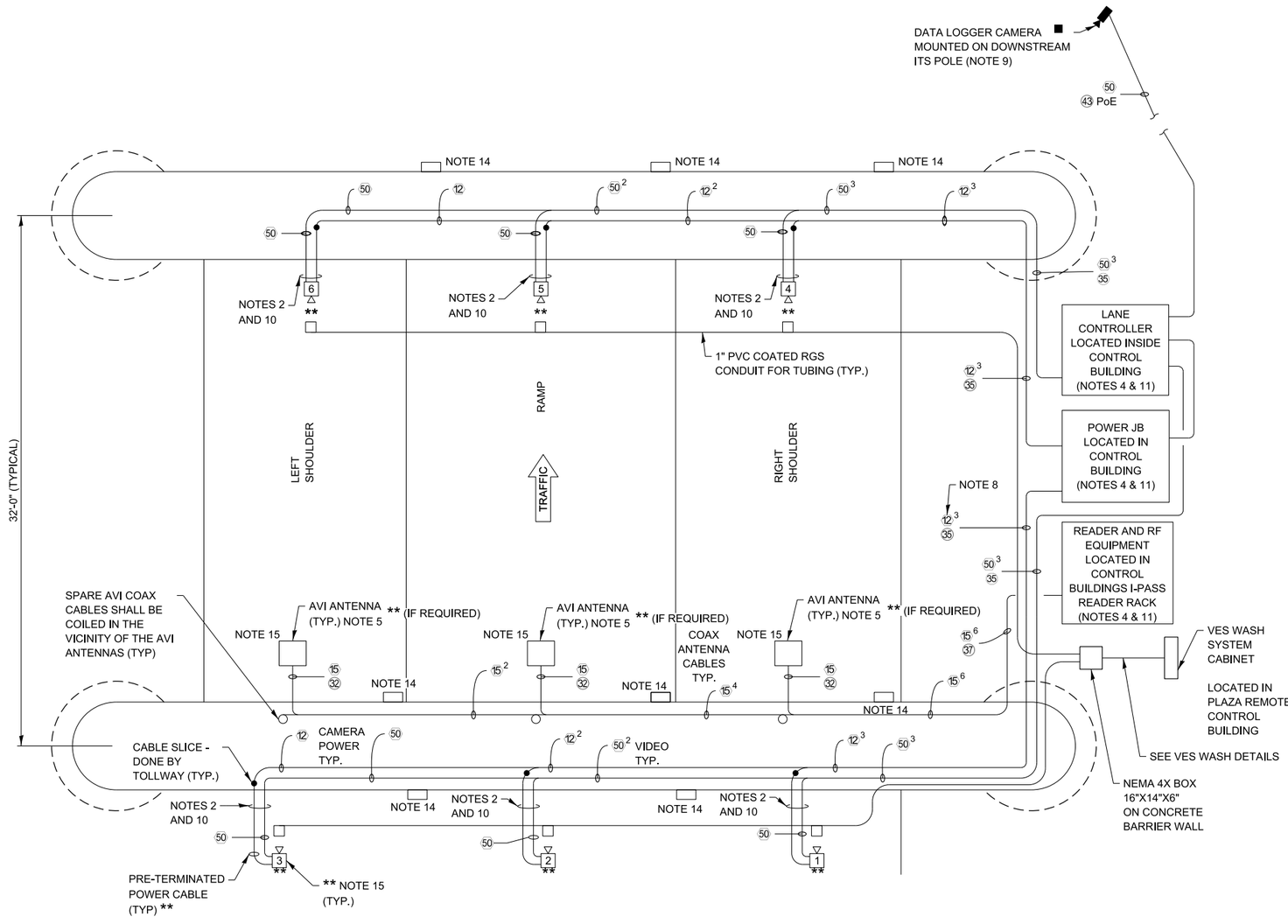
* INDICATES EQUIPMENT FURNISHED BY THE ILLINOIS TOLLWAY AND INSTALLED BY THE CONTRACTOR.

** INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE ILLINOIS TOLLWAY.

■ INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

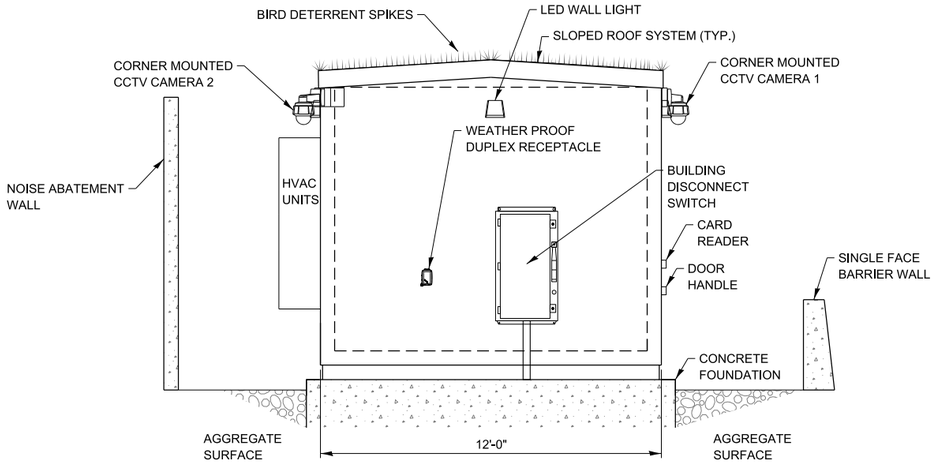



FRONT / REAR PLATE VES BLOCK WIRING DIAGRAM

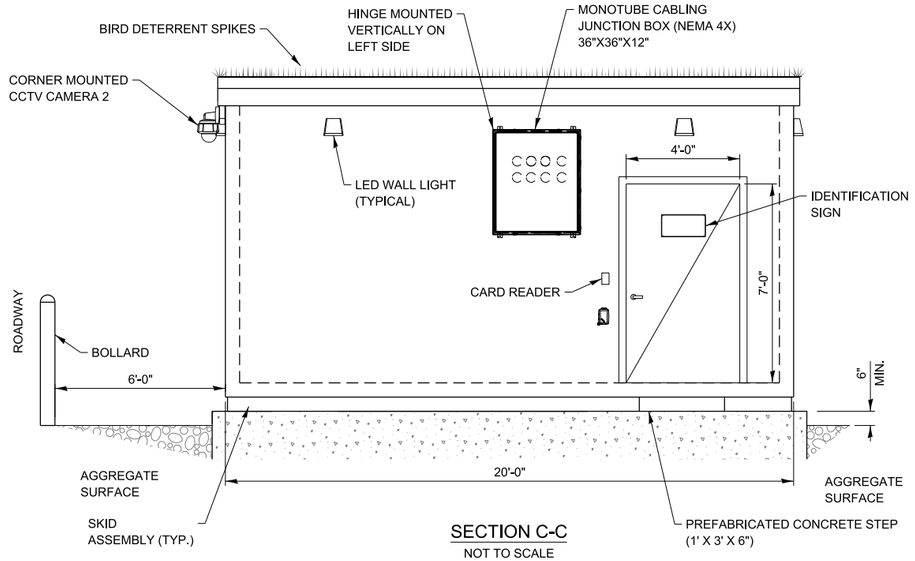
Illinois Tollway

WIRING DIAGRAM - AET
1-LANE LAYOUT

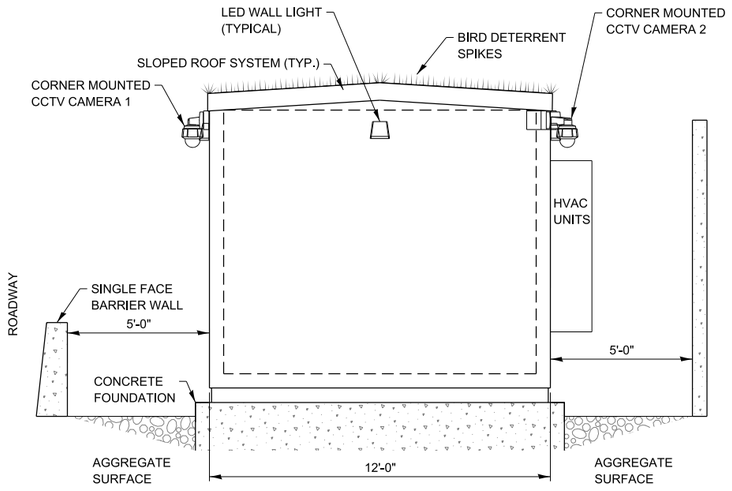
| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2519B | 1 OF 1 |



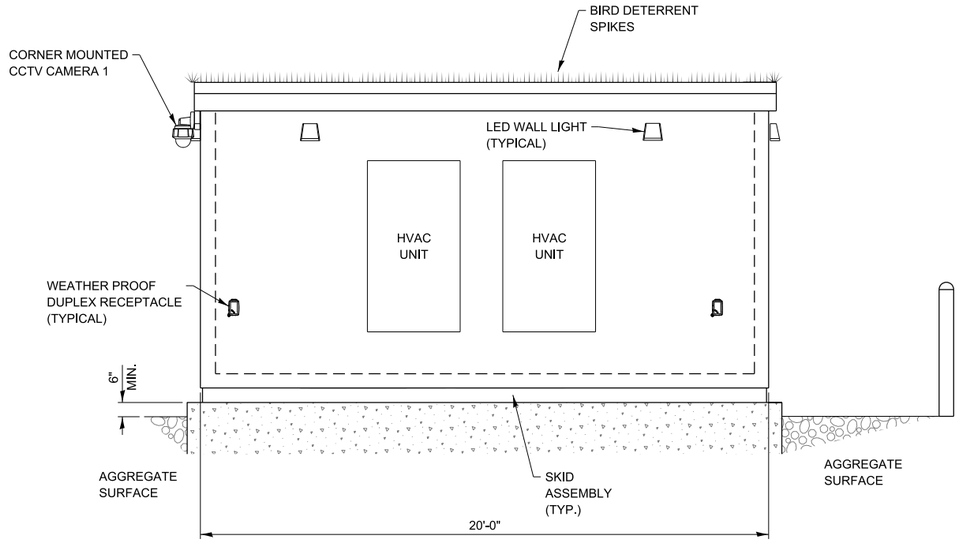

SECTION A-A
NOT TO SCALE
M-BUS-2521




SECTION C-C
NOT TO SCALE




SECTION B-B
NOT TO SCALE
M-BUS-2521

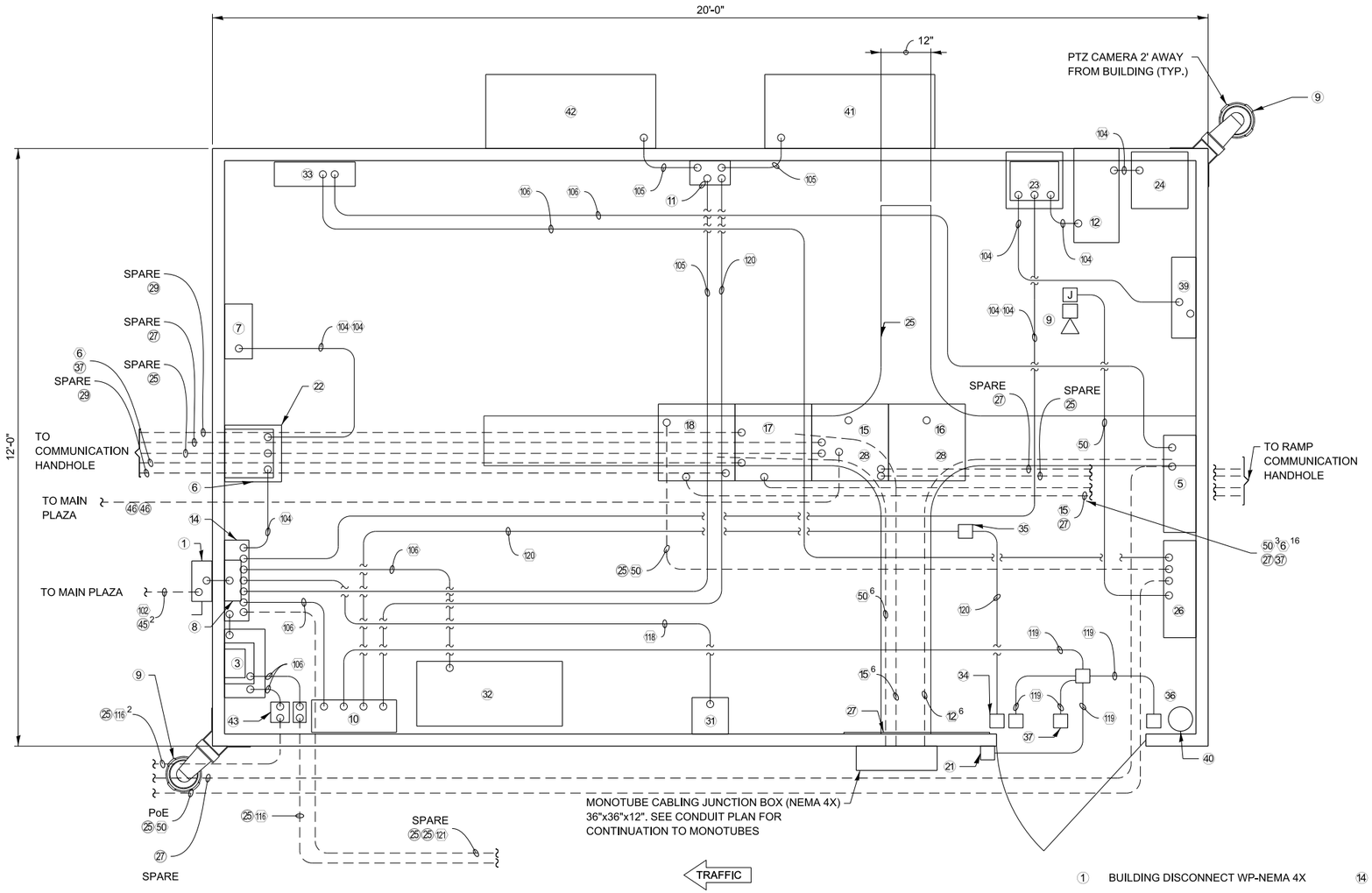



SECTION D-D
NOT TO SCALE

Illinois Tollway

# EXTERIOR ELEVATIONS - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2520 | 1 OF 1 |




## CONTROL BUILDING REMOTE TOLL PLAZA EQUIPMENT LAYOUT

NOT TO SCALE

### NOTE TO DESIGNER

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### NOTE TO DESIGNER

IF DISTANCE BETWEEN MAIN AND REMOTE PLAZA ANTENNAS IS LESS THAN 500 FT., PROVIDE CONDUIT AND SYNC CABLE TO CONNECT ANTENNA READERS IN THE MAIN AND REMOTE CONTROL BUILDINGS.

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. SEE SYSTEM POWER SINGLE LINE DIAGRAM SHEET FOR DETAILS.
3. DOOR ALARM SWITCH, SEE DETAIL ON DOOR ALARMS DETAILS SHEET.
4. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO TSIC BOARD. ALL CONTACT CLOSURES SHALL BE ROUTED TO TSIC.
5. THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE MAIN BREAKER.
6. FOR ROADWAY LIGHTING. ROUTE TO 30A. CIRCUIT BREAKER
7. ALL EXCESS (SLACK) POWER AND DATA CABLES MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLES WILL BE COILED INSIDE THE CABINET.
8. NOT USED.
9. PVC SCH-80 CONDUIT INSIDE BUILDING SHALL BE USED WHEN THE CONDUIT IS EITHER COVERED OR ENCASED IN CONCRETE. TRANSITION SHALL BE ALLOWED. ANY EXPOSED CONDUIT SHALL BE PVC COATED RGS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.
10. THE CABLE LENGTH FROM THE ANTENNA TO THE I-PASS READER SHALL NOT EXCEED 150 FEET.
11. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO CARD READER EQUIPMENT.
12. PROVIDE AN ETHERNET CABLE FROM UPS AND FROM CARD READER PANEL TO LOCAL BACKBONE RACK. NETWORK SWITCHES TO BE PROCURED BY OTHERS.
13. TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD.
14. NOT USED.
15. POWER FRONT AND REAR VES CAMERAS FROM 24V DC VIDEO JUNCTION BOX #3 AND DATA LOGGER CAMERA FROM SECURITY VIDEO JUNCTION BOX #4 ALL POWER TO BE SURGE PROTECTED.
16. ALL COPPER COMMUNICATIONS AND CONTROL CABLES SHALL ENTER BUILDING ALONG OUTSIDE WALL AND BE CONNECTED TO A SURGE PROTECTION THAT IS GROUNDED TO GROUND BUS IN BUILDING.
17. LOCATION OF (6) RACKS BE IN THE MIDDLE OF THE ROOM.
18. FOR SECURITY CAMERA, CONTRACTOR TO VERIFY CLEAR UNOBSTRUCTED LINE OF SIGHT TO THE ENTRANCE DOORS.
19. INSTALL TRANSFORMER ON 6" CONCRETE PAD 1 FT AWAY FROM EXTERIOR WALL. ALL FEED TO THIS TRANSFORMER SHALL BE UNDERGROUND.
20. PROVIDE (2) 6" SDR 11 HDPE SLEEVES EACH, SEE BASE SHEET $M-BUS-2547 FOR DETAILS
    SLEEVE SHALL HAVE;
    (1) 1 ½" CNC DUCT (SOLID GREEN)
    (1) 1 ½" CNC DUCT (GREEN / WHITE STRIPE)
    (1) 1 ½" CNC DUCT (BLACK / RED STRIPE)

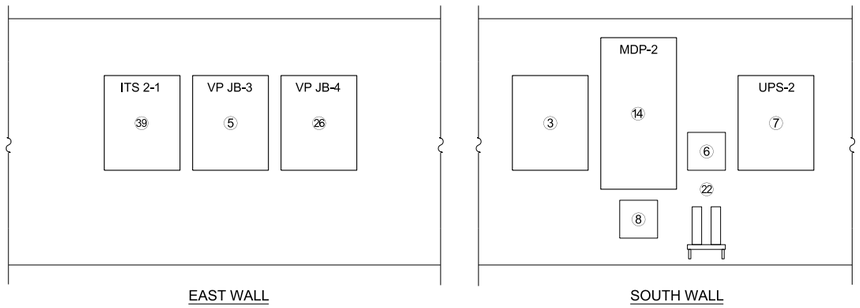
## LEGEND

1. BUILDING DISCONNECT WP-NEMA 4X
2. NOT USED.
3. LIGHTING TRANSFORMER, CONTRACTOR, AND CIRCUIT BREAKER
4. NOT USED.
5. VIDEO JB POWER #3
6. BYPASS SWITCH
7. UPS-2 PANEL.
8. SPD LIGHTNING PROTECTION SYSTEM
9. SECURITY CAMERA
10. CARD READER PANEL
11. HVAC CONTROL PANEL
12. UPS-ITS-2 (5 KVA)
13. 5 KVA, 208V/480V OUTDOOR TYPE SINGLE PHASE TRANSFORMER, NEMA 4X
14. ELECTRICAL PANEL MDP-2
15. 19" RACK LOCAL AND BACKBONE FIBER
16. 19" RACK ITS FIBER
17. 19" RACK I-PASS READER REMOTE PLAZA
18. 19" RACK LANE CONTROL REMOTE PLAZA
19. NOT USED.
20. NOT USED.
21. CARD READER
22. UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER
23. BYPASS SWITCH LINE CONDITIONER ITS POWER
24. BYPASS SWITCH CABINET ITS POWER
25. CABLE TRAY
26. VIDEO JB POWER #4
27. TSIC BOARD
28. SMF DISTRIBUTION PANEL
29. NOT USED.
30. NOT USED.
31. DISCONNECT SWITCH 60A/1P, 250V FOR AIR COMPRESSOR
32. VES WASH CABINET LOCATION 2
33. PANEL UPS-2
34. PULL STATION
35. SMOKE DETECTOR
36. NOT USED.
37. MAGNETIC LOCK
38. NOT USED.
39. ITS 2-1 PANEL
40. FIRE EXTINGUISHER
41. HVAC UNIT - 1
42. HVAC UNIT - 2
43. 30A/2P C/B

Illinois Tollway

# CONTROL BUILDING EQUIPMENT LAYOUT - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2521 | 1 OF 1 |




WALL ELEVATIONS

NOT TO SCALE

NOTE 2

EQUIPMENT LEGEND

| ITEM | DESCRIPTION |
|---|---|
| ③ | LIGHTING CONTRACTOR 120V, 30A, 1 PHASE, 4-POLE IN A NEMA 1 ENCLOSURE WITH A THREE POSITION SELECTOR SWITCH HAND-OFF-AUTO MOUNTED ON THE COVER. TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY, 1-PHASE, 3-WIRE ROADWAY LIGHTING. |
| ⑤ | VIDEO JB POWER #3 |
| ⑥ | BYPASS SWITCH |
| ⑦ | UPS-2 PANEL. |
| ⑧ | LIGHTNING ARRESTOR SYSTEM |
| ⑭ | MAIN DISTRIBUTION PANEL (MDP-2), 208Y/120V, 3 PHASE, 4W 100 AMP, MAIN CIRCUIT BREAKER |
| ㉒ | UPS/LINE CONDITIONER. CONTRACTOR SHALL INSTALL THE 3KVA UPS ABOVE GROUND, ON A SHELVING SYSTEM AS DIRECTED BY THE ENGINEER |
| ㉖ | VIDEO JB POWER #4 |
| ㊴ | ITS 2-1 PANEL |

NOTES:

1. CONTRACTOR SHALL ROUTE ALL CONDUIT AS REQUIRED TO ALL PANELS, EQUIPMENT AND CONTROL DEVICES.
2. THE WALL ELEVATIONS FOR THE MAIN RAMP CONTROL BUILDING ARE SHOWN ON THIS DRAWING. THE WALL ELEVATIONS (NOT SHOWN) FOR THE REMOTE RAMP CONTROL BUILDING ARE SIMILAR.
3. MINIMUM CLEARANCE BETWEEN CABINETS SHALL ALLOW THE DOORS TO OPEN 90 DEGREES MINIMUM.

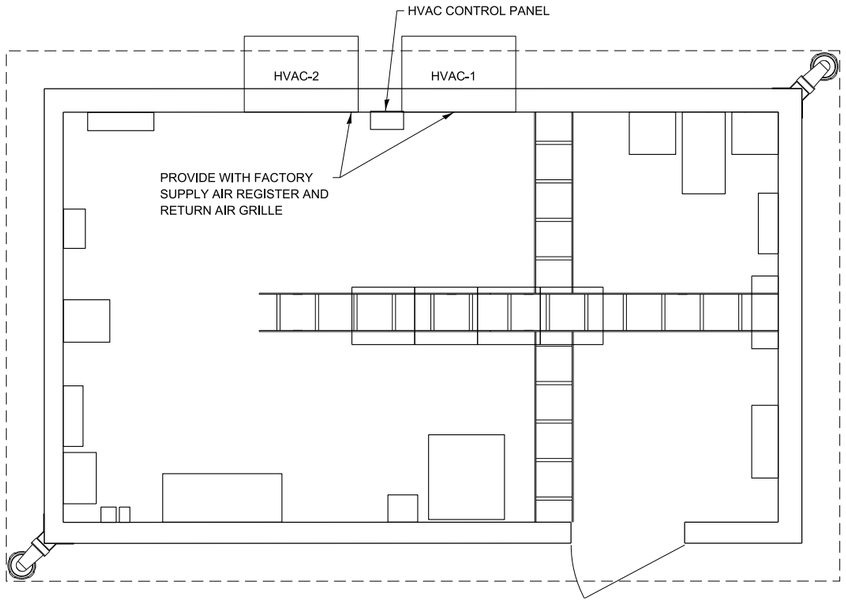
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# INTERIOR ELEVATIONS - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2522 | 1 OF 1 |




BUILDING MECHANICAL PLAN

NOTES:

1. UNIT SHALL HAVE ARI CERTIFIED COILS, AIWCA RATED FANS, AND UL LISTED & LABELED ELECTRICAL COMPONENTS.
2. PROVIDE HVAC UNITS WITH FACTORY SUPPLY AND RETURN GRILLES.
3. HVAC PROVIDE LEAD/LAG THERMOSTAT CONTROLLER BARD MODEL #MC4001-AC WITH BASE ALARMS AND ETHERNET ACCESS.
4. ALL MANUFACTURERS AND PART NUMBERS ARE FOR REFERENCE. THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR HVAC AND HEATING SYSTEM BASED ON BUILDING CONSTRUCTION AND INTERNAL BUILDING LOADS.

NOTE TO DESIGNER

THE ESTIMATED EQUIPMENT BUILDING LOADS FOR EQUIPMENT IS 19,000 BTU/HR. THE DESIGNER SHALL SIZE THE HVAC SYSTEMS ACCORDINGLY.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

ELECTRICAL ROOM

| MARK | LOCATION | SERVES | NOM. TON | TOTAL AIRFLOW CFM | OUTSIDE AIRFLOW CFM | ESP (IN WG) | REFRIG. TYPE | COOLING DATA | | | | | | HEATING DATA | | | | ELECTRICAL DATA | | | MANUFACTURER/ MODEL NUMBER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TOTAL CAP MBH | SENS CAP MBH | EAT (DEG F) DB | EAT (DEG F) WB | OUTDOOR TEMP (DEG F) | MIN. EER AT ARI CONDITIONS | CAP MBH | EAT (DEG F) DB | OUTDOOR TEMP (DEG F) | SUPPLEMENTAL HEATING (KW) | VOLTS | PH | HZ | | |
| HVAC-01 | OUTSIDE | BUILDING | 4 | 1500 | - | 0.15 | R410A | 45.5 | 34.0 | 75 | 62 | 90 | 11 | 17.1 | 70 | 0 | 5 | 240 | 1 | 60 | BARD WL4S2-A05TPXXXJ | |
| HVAC-02 | OUTSIDE | BUILDING | 4 | 1500 | - | 0.15 | R410A | 45.5 | 34.0 | 75 | 62 | 90 | 11 | 17.1 | 70 | 0 | 5 | 240 | 1 | 60 | BARD WA4S3-A05TPXXXJ | |

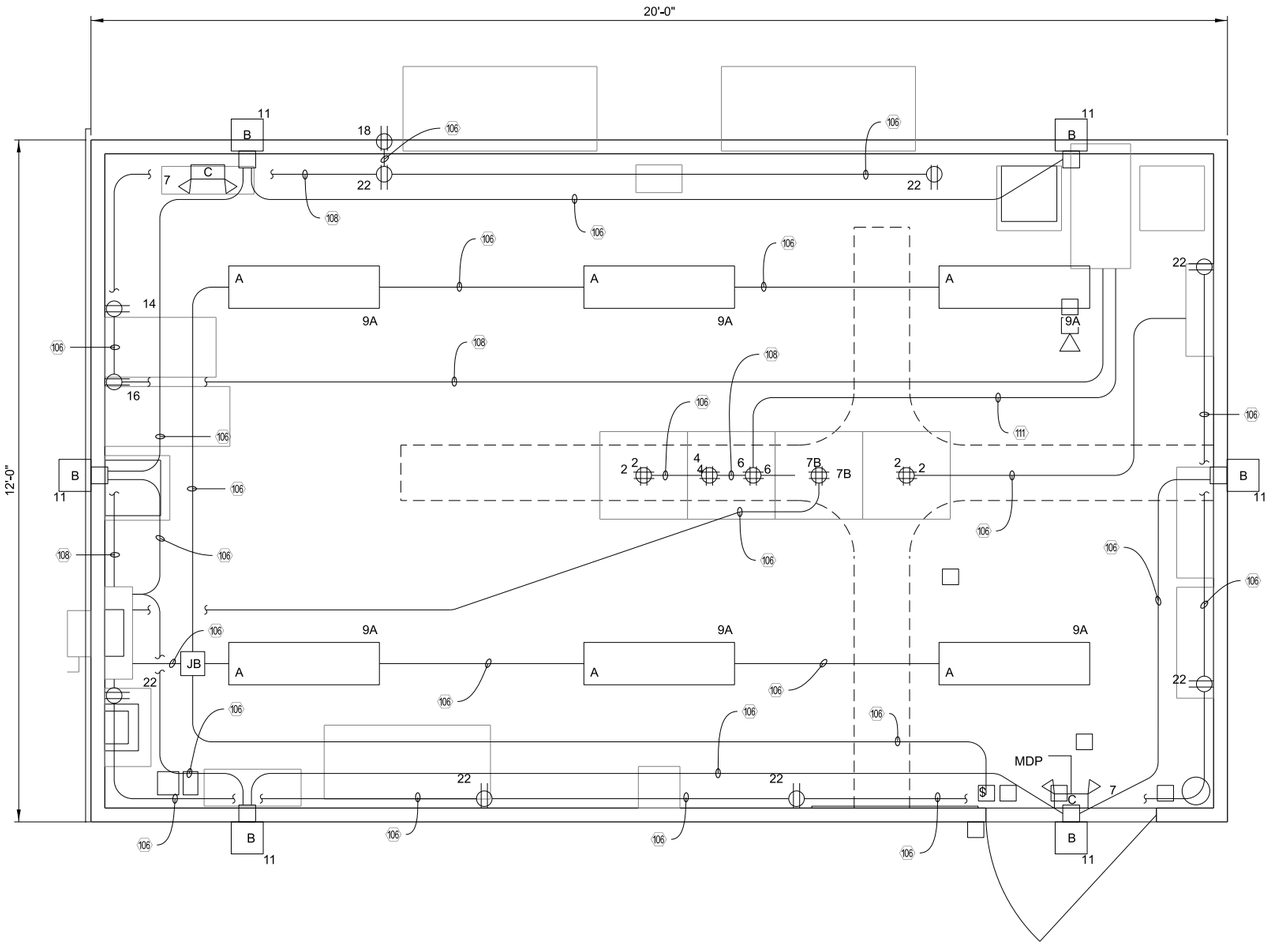
ABBREVIATION LEGEND

CFM - CUBIC FEET PER MINUTE

Illinois Tollway

MECHANICAL PLAN - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2523 | 1 OF 1 |

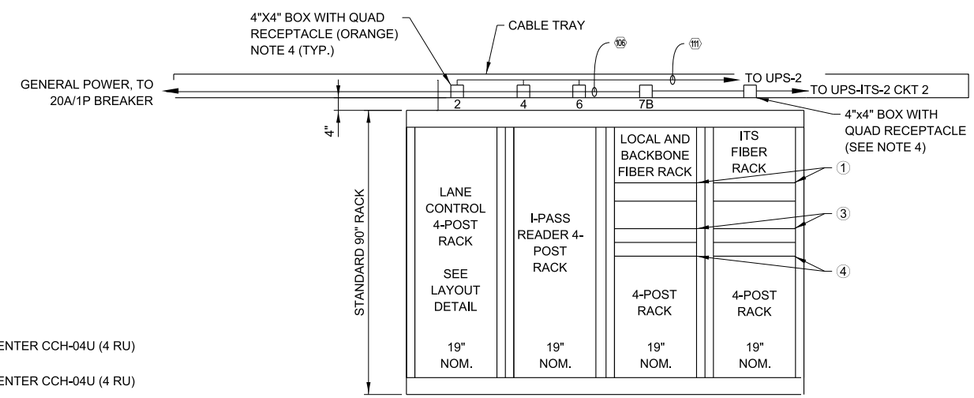



REMOTE TOLL PLAZA - BUILDING LIGHTING AND RECEPTACLE PLAN

NOT TO SCALE

NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE ¾" WITH 2-1/C #12 AND 1/C #12 GRD, UNLESS OTHERWISE NOTED.
3. FOR PANEL SCHEDULES, SEE PANELBOARD SCHEDULES SHEET.
4. PROVIDE CONNECTION TO RECEPTACLES FOR THE EQUIPMENT RACKS AS SPECIFIED. THE PLUG STRIP SHALL BE MOUNTED TO THE SIDE OF THE CABINET AS DIRECTED BY THE ENGINEER.
5. FOR LIGHTING FIXTURE SCHEDULE, ELECTRICAL SYMBOLS, LEGEND, AND ABBREVIATIONS, SEE LEGEND SHEET.
6. LIGHTING AND RECEPTACLES SHALL BE FED FROM PANEL MDP-2.
7. CONNECT EMERGENCY BATTERY PACK AHEAD OF LIGHT CIRCUIT.
8. COMMUNICATION AND EQUIPMENT RACKS SHALL BE APPROVED BY THE ENGINEER. A SAMPLE IS SHOWN BELOW.
   SAMPLE:
   I-PASS READER
   LANE CONTROL
   ITS FIBER
   LOCAL AND BACKBONE FIBER
9. CONTRACTOR SHALL COORDINATE FINAL RACK LAYOUT WITH THE ENGINEER AND THE ILLINOIS TOLLWAY.
10. NETWORK SWITCHES PROCURED BY OTHERS.




COMMUNICATIONS AND EQUIPMENT RACK ELEVATION

NOT TO SCALE

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

LEGEND:

① FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

② FIBER-OPTIC CORNING RACK INTERCONNECT CENTER CCH-04U (4 RU)

③ FUTURE NETWORK SWITCHES - (1 RU) NOTE 10

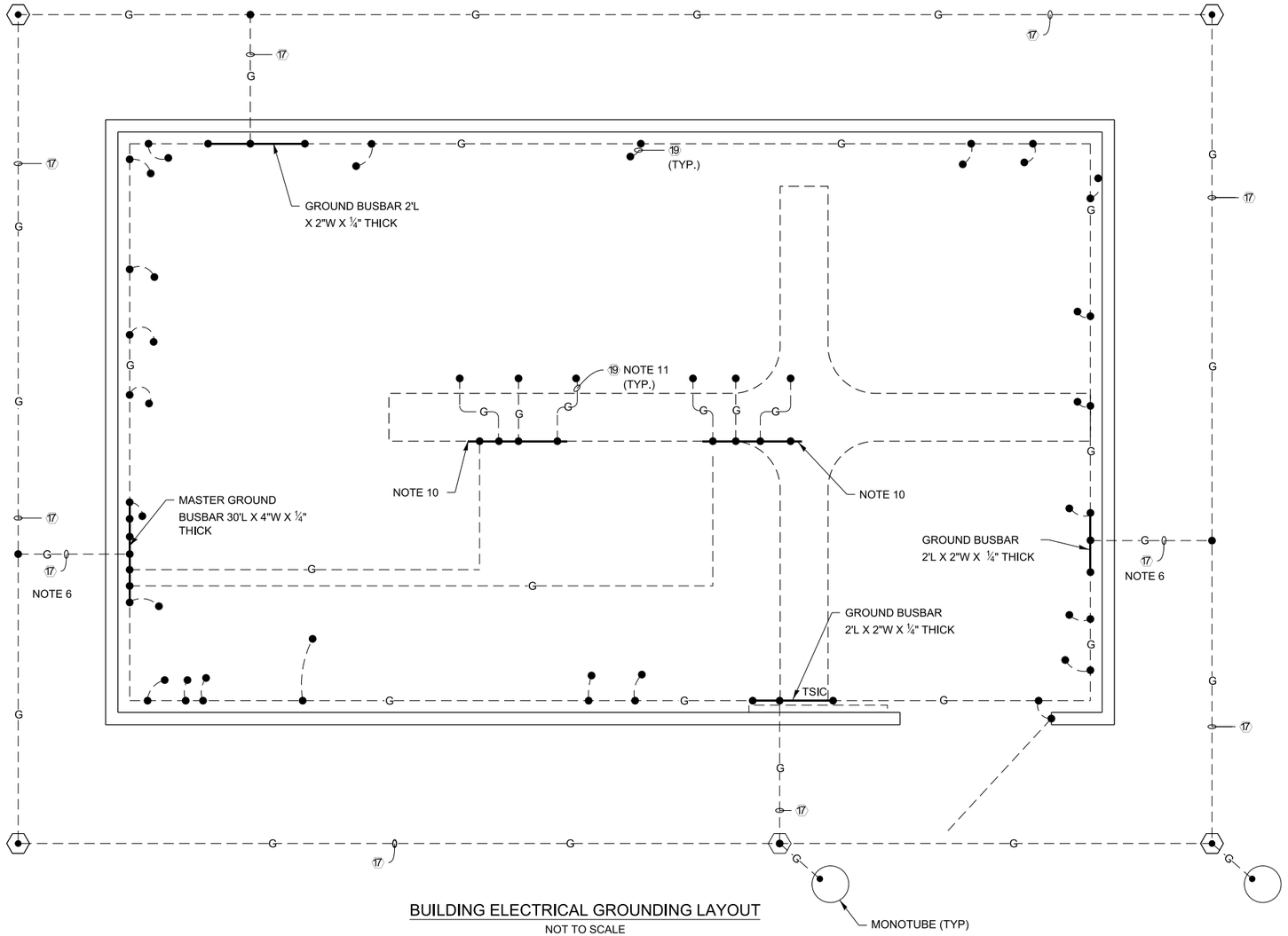
④ FUTURE NETWORK SWITCHES - (1 RU) NOTE 10

⑤ COMMSCOPE MODULAR PATCH PANEL - (2 RU)

Illinois Tollway

CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2524 | 1 OF 1 |

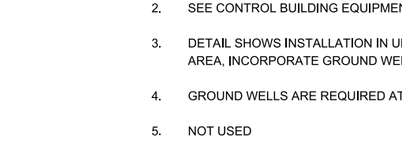



## BUILDING ELECTRICAL GROUNDING LAYOUT

NOT TO SCALE

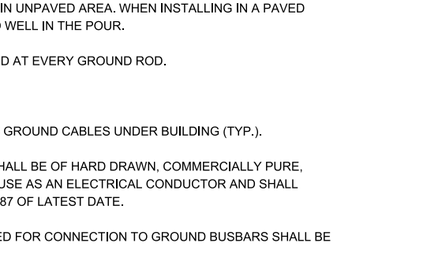
NOTES:

1. SEE CABLE/CONDUIT SCHEDULE FOR CABLE TAGS.
2. SEE CONTROL BUILDING EQUIPMENT LAYOUT SHEET FOR MORE DETAIL.
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. NOT USED
6. PROVIDE 1" PVC CONDUIT FOR GROUND CABLES UNDER BUILDING (TYP.).
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 BUSBARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUSBAR 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 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 7'-6" 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 BUSBARS MUST BE MOUNTED APPROXIMATELY 7'-6" ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.



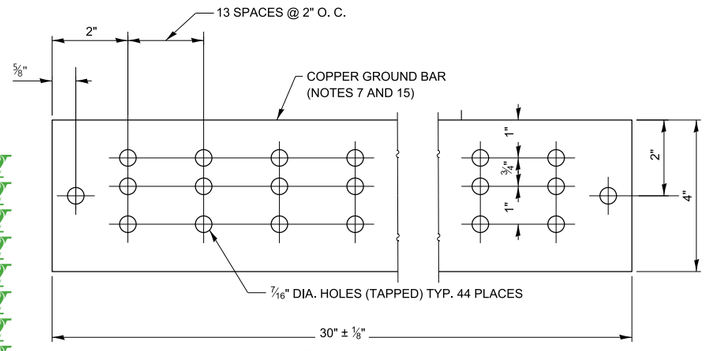

## GROUND WELL PLAN DETAIL

NOT TO SCALE (NOTE 3)



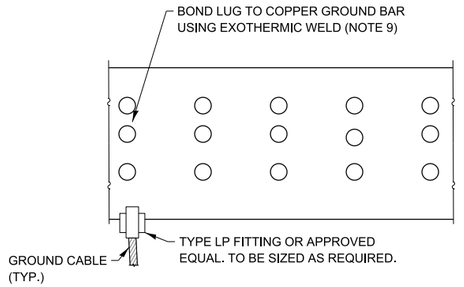

## GROUND WELL ELEVATION DETAIL

NOT TO SCALE (NOTE 3)




## MASTER GROUND BUSBAR SUPPORT SPACING DETAIL

NOT TO SCALE




## MASTER GROUND BUSBAR CONNECTION DETAIL

NOT TO SCALE

### NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# CONTROL BUILDING GROUNDING DETAILS - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2525 | 1 OF 1 |

PANELBOARD MDP-2
VOLTAGE 120/208V
PHASE/WIRE 3/4

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

| DESCRIPTION | CKT NO. | LOAD (WATTS) A | LOAD (WATTS) B | LOAD (WATTS) C | AMPS/ POLES | CKT BKR | AMPS/ POLES | LOAD (WATTS) A | LOAD (WATTS) B | LOAD (WATTS) C | CKT NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPARE | 1 | -- | | | 20/1 | | 20/1 | – | | | 2 | SPARE |
| SPARE | 3 | | – | | 20/1 | | 20/1 | | 200 | | 4 | LIGHTING CONTRACTOR (CONTROL) |
| SPARE | 5 | | | -- | 20/1 | | 30/3 | | | 2000 | 6 | HVAC UNITS |
| EMERGENCY LIGHT | 7 | 100 | | | 20/1 | | | 2000 | | | 8 | |
| INTERIOR LIGHTS | 9 | | 200 | | 20/1 | | | | 2000 | | 10 | |
| EXTERIOR BUILDING LIGHTS | 11 | | | 240 | 20/1 | | 30/1 | | | -- | 12 | SPARE |
| VES WASH SYSTEM (LOC 2) | 13 | 2500 | | | 30/1 | | 30/2 | 2500 | | | 14 | UPS-2 (5 KVA) |
| SPARE | 15 | | – | | 20/1 | | | | 2500 | | 16 | |
| SPARE | 17 | | | -- | 20/1 | | 20/1 | | | – | 18 | SPARE |
| EXTERIOR RECEPTACLE | 19 | 200 | | | 20/1 | | 20/1 | 400 | | | 20 | INTERIOR RECEPTACLES |
| EXTERIOR RECEPTACLE | 21 | | 200 | | 20/1 | | 20/1 | | 400 | | 22 | INTERIOR RECEPTACLES |
| SPARE | 23 | | | – | 20/1 | | 30/2 | | | – | 24 | LINE CONDITIONER |
| LINE CONDITIONER (LC-1) | 25 | 2500 | | | 30/2 | | | – | | | 26 | |
| | 27 | | 2500 | | | | 20/1 | | – | | 28 | SPARE |
| SPARE | 29 | | | -- | 30/1 | | 30/2 | | | 1250 | 30 | UPS-ITS-2 (5 KVA) |
| SPARE | 31 | – | | | 20/1 | | | 1250 | | | 32 | |
| ROADWAY LTG TRANSFORMER | 33 | | 960 | | 20/2 | | 20/1 | | – | | 34 | SPARE |
| ROADWAY LTG TRANSFORMER | 35 | | | 960 | | | 40/1 | | | 3600 | 36 | AIR COMPRESSOR |
| "A" | | 5300 | | | SUBTOTAL "A" = 11450 | | | 6150 | | | | "A" |
| "B" | | | 3860 | | SUBTOTAL "B" - 11960 | | | | 8100 | | | "B" |
| "C" | | | | 3700 | SUBTOTAL "C" = 7470 | | | | | 3770 | | "C" |
| TOTAL WATTS "A,B,C" | | = 28.38 KW | | | | | | | | | | |

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

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 |
|---|---|---|---|---|---|---|---|---|---|
| SPARE | 1 | – | 20/1 | | | 20/1 | 300 | 2 | RACK RECEPTACLE (LCC) RAMP L1 |
| SPARE | 3 | – | 20/1 | | | 20/1 | 300 | 4 | RACK RECEPTACLE (I-PASS) RAMP L1 |
| VIDEO POWER JUNCTION BOX 3 | 5 | 400 | 20/1 | | | 20/1 | 400 | 6 | RACK RECEPTACLE (FIBER) |
| VIDEO POWER JUNCTION BOX 4 | 7 | 400 | 20/1 | | | 20/1 | 200 | 8 | CARD READER PANEL |
| SPARE | 9 | – | 20/1 | | | 20/1 | – | 10 | SPARE |
| SPARE | 11 | – | 20/1 | | | 20/1 | – | 12 | SPARE |
| SUBTOTAL "A" | | 800 | | | | | 1200 | | |
| TOTAL WATTS "A,B,C" | | = 2.0 KW | | | | | | | |

PANELBOARD ITS 2
VOLTAGE 120V / 208V
PHASE/WIRE 1/3

MAINS 30A. 2P. MCB
BUS RATING 60A.
MOUNTING SURFACE

| DESCRIPTION | CKT NO. | LOAD (WATTS) | AMPS/ POLES | CKT BKR | CKT BKR | AMPS/ POLES | LOAD (WATTS) | CKT NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| SPARE | 1 | -- | 30/2P | | | 10/1P | 200 | 2 | ITS RACK RECEPTACLES |
| | 3 | | | | | 10/1P | -- | 4 | SPARE |
| SPARE | 5 | – | 10/1P | | | 10/1P | -- | 6 | SPARE |
| SPARE | 7 | – | 10/1P | | | 10/1P | -- | 8 | SPARE |
| | | | | | | | | | |
| | | | | | | | | | |
| SUBTOTAL = -- | | -- | | | | | 200 | | |
| TOTAL WATTS "A,B" | | = 0.2 KW | | | | | | | |

NOTE TO DESIGNER

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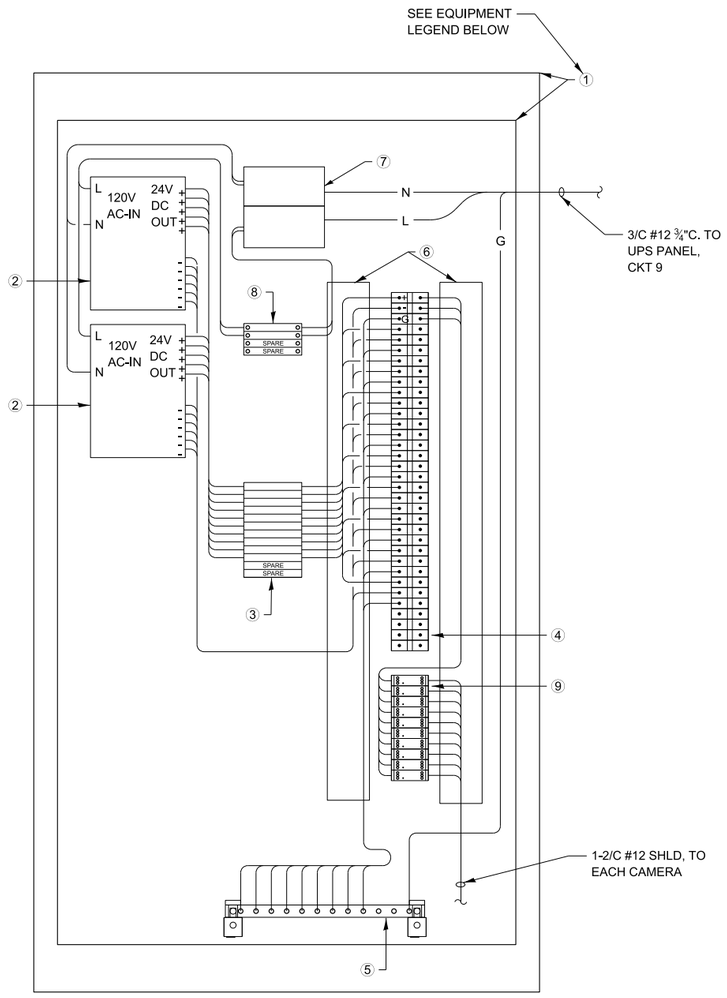
Illinois Tollway

# PANELBOARD SCHEDULES - REMOTE PLAZA AET LANES

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2526 | 1 OF 1 |




FRONT & REAR VES CAMERA
VIDEO POWER JUNCTION BOX - REMOTE PLAZA
NOT TO SCALE

## EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

| ITEM | QUANTITY (SAMPLE) | DESCRIPTION |
|---|---|---|
| ① | 1 | 48"H X 24"W X 8"D NEMA 1 ENCLOSURE WITH 44"H X 22 ½"W BACK PANEL, HOFFMAN CATALOG NO. A-48N24BLP, WITH A-48N24MP PANEL. |
| ② | 2 | POWER SUPPLY 24VDC, TDK-LAMBDA NO. QM7FSDL 24/24DMS 24/24DMS 24/24DMS 24/24DMS 24/24DMS. |
| ③ | 12 | 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-FB1M30-D1. |
| ④ | 21 | TERMINAL BLOCKS, ON POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-CD6. |
| ⑤ | 1 | GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. PGS2K. |
| 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. |
| ⑦ | 1 | POWER DISTRIBUTION BLOCK MARATHON NO. 1322580. |
| ⑧ | 4 | SQUARE D, QOU 115 1P/15A BREAKER. |
| ⑨ | 10 | SURGE SUPPRESSOR MTL MODEL ZB24580. |

NOTES:

1. LABEL JUNCTION BOX, TERMINAL STRIPS, AND ALL WIRE AND CABLES.
2. ROUTE 1-2/C #12 POWER CABLE TO EACH CAMERA.
3. ALL ELECTRICAL CABLES TO CAMERA SHALL HAVE SURGE PROTECTION.
4. CAT6 CABLE SHALL BE SURGE PROTECTED ON THE TSIC.

NOTE TO DESIGNER

THE DESIGNER SHALL INCLUDE VIDEO POWER JUNCTION BOX DETAILS (M-ITS-2100 SERIES BASE SHEETS) FOR SECURITY CAMERAS AND DATA LOGGER CAMERA.

NOTE TO DESIGNER

THE DESIGNER SHALL ADJUST DETAIL AND QUANTITIES AS REQUIRED FOR NUMBER OF VES CAMERAS.

NOTE TO DESIGNER

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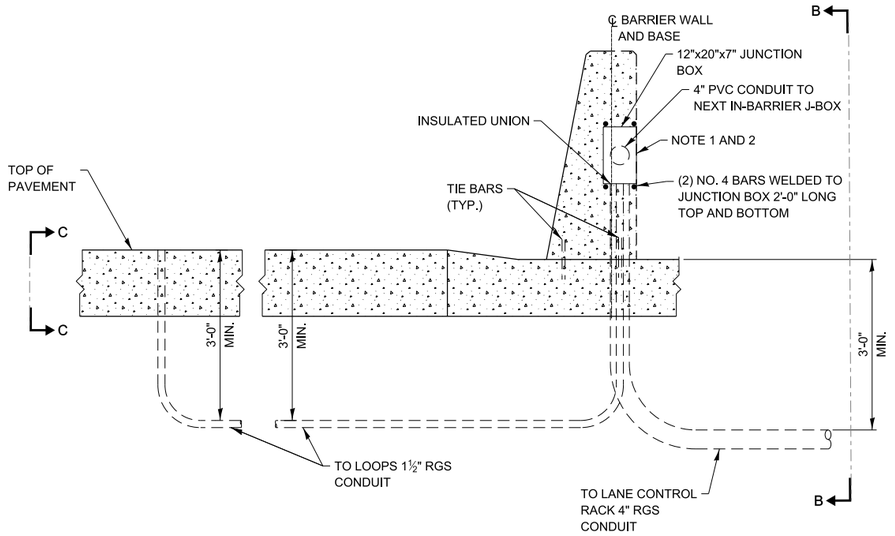
Illinois Tollway

# VIDEO POWER JUNCTION BOX DETAIL - REMOTE PLAZA

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2527 | 1 OF 1 |




SECTION A-A
(LANE LOOP LAYOUT)
NOT TO SCALE

NOTES:

1. SEE LOOP LAYOUT SHEETS FOR MORE DETAILS.
2. THE REINFORCEMENT IS NOT SHOWN FOR CLARITY.
3. CONDUITS THAT STUB UP IN THE PAVEMENT ARE 1½" FOR QUANTUM AND PIEZO STRIPS, 1½" FOR ALL OTHERS UNLESS NOTED OTHERWISE. SEE LOOP LAYOUT DETAIL. CONDUIT BETWEEN JUNCTION BOXES SHALL BE 4" DIA.
4. ELECTRICAL CONTRACTOR MUST COORDINATE WITH ILLINOIS TOLLWAY AND PAVEMENT CONTRACTOR. NO CONCRETE POUR SHALL BE DONE BEFORE CONDUIT IS LAID OUT AND APPROVED BY THE ENGINEER.
5. JUNCTION BOXES MUST BE INSTALLED A MINIMUM OF 12" APART.

NOTE TO DESIGNER

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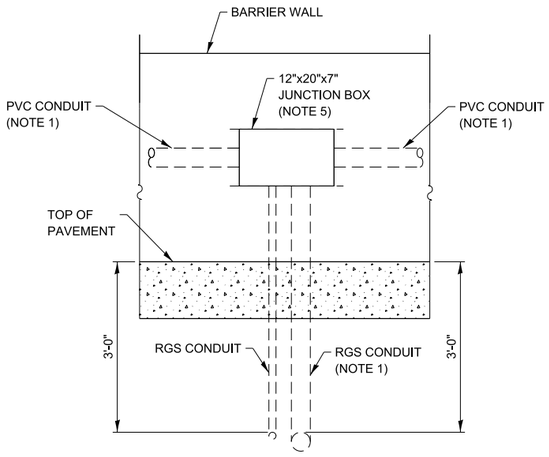
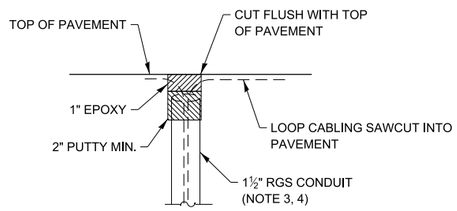
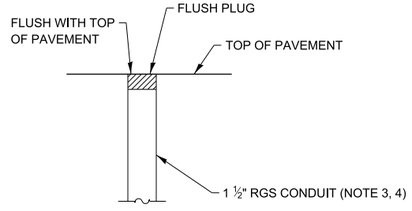


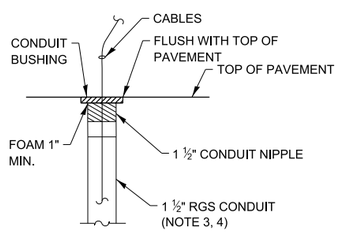

ELEVATION B-B
EMBEDDED JUNCTION BOX IN BARRIER WALL ELEVATION
NOT TO SCALE




SECTION C-C
LOOP INSTALLATION DETAILS
NOT TO SCALE




SECTION C-C
PRIOR TO ROAD OR ISLAND CONSTRUCTION
NOT TO SCALE

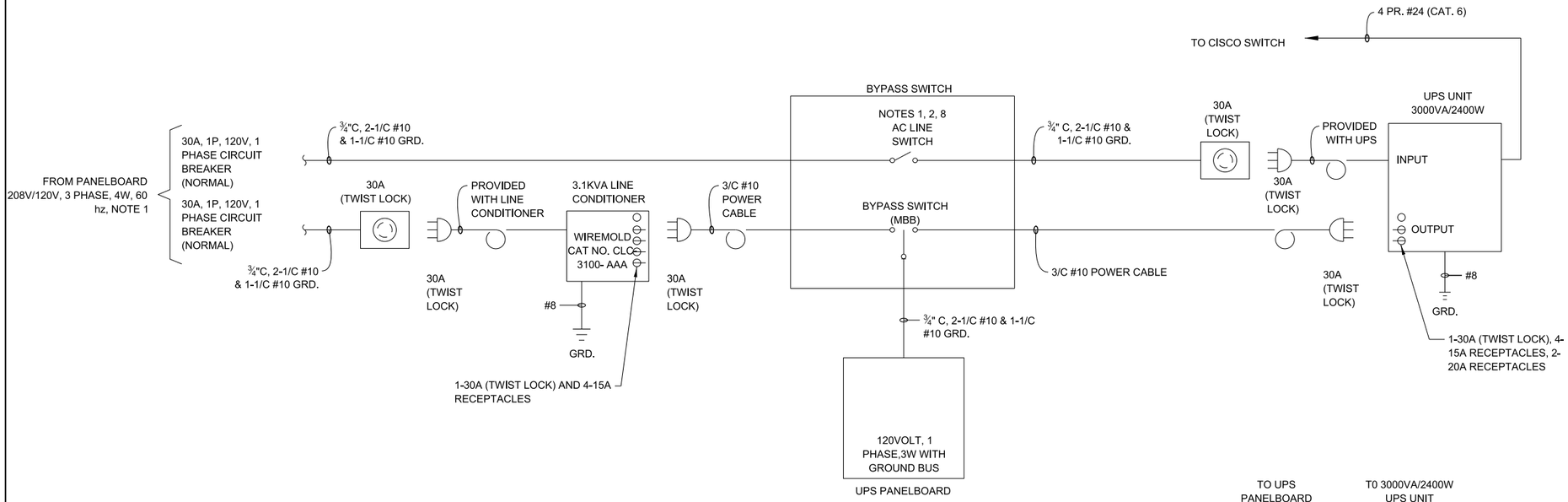



SECTION C-C
EQUIPMENT ENDS AFTER CABLE INSTALLATION
NOT TO SCALE

Illinois Tollway

LOOP JUNCTION BOX DETAIL

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2528 | 1 OF 1 |




SAMPLE UPS SINGLE LINE DIAGRAM
3000VA SHOWN

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. THE UPS SHALL BE AS MANUFACTURED BY EATON. THE BYPASS SWITCH SHALL BE AS MANUFACTURED BY POWERWARE, INC. THE LINE CONDITIONER SHALL BE AS MANUFACTURED BY WIREMOLD ELECTRONICS.
7. DASHED LINES INDICATE INTERNAL WIRING. SOLID LINES INDICATE EXTERNAL WIRING.
8. ELECTRICAL CONTRACTOR MODIFIES BYPASS SWITCH IN FIELD BY ADDING 30A (TWIST LOCK) RECEPTACLE.
9. VERIFY DETAILS WITH ILLINOIS TOLLWAY PRIOR TO PURCHASING EQUIPMENT

NOTE TO DESIGNER

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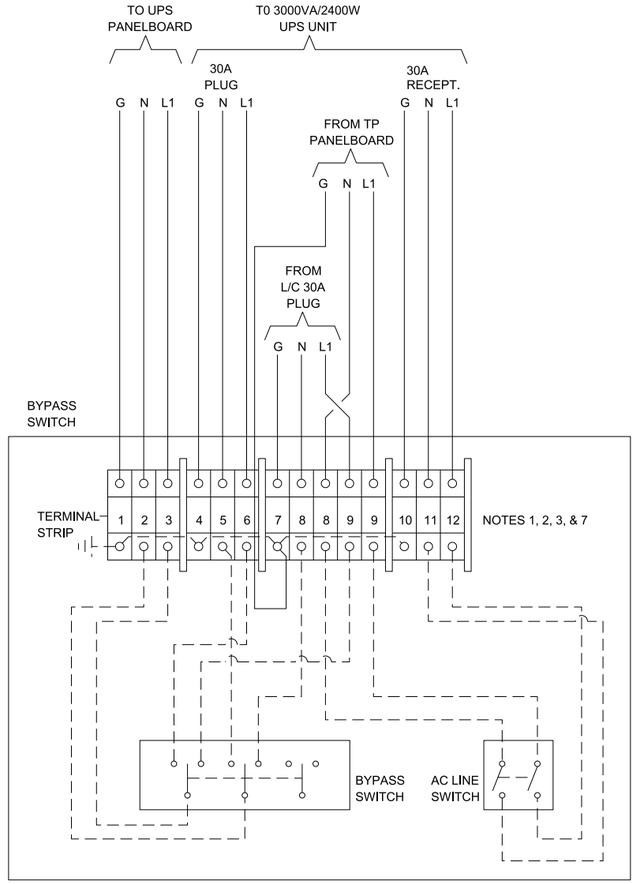
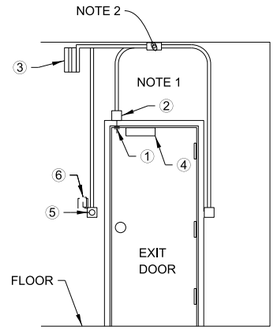



BYPASS SWITCH WIRING DIAGRAM

Illinois Tollway

UPS SINGLE LINE AND WIRING DIAGRAM

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2529 | 1 OF 1 |




DOOR ALARM JUNCTION BOX DETAIL- SINGLE DOOR

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 ILLINOIS TOLLWAY UNLESS OTHERWISE NOTED.
2. ROUTE TO CARD READER PANEL, TERMINATION BY THE ILLINOIS TOLLWAY. 4-1PR #22 SHLD. CABLE IN ¾" CONDUIT.
3. MECHANICAL LOCKS SHALL BE SCHLAGE BRAND (OR APPROVED EQUAL) AND SECURED WITH A CONSTRUCTION KEY WITH THREE COPIES PROVIDED TO ILLINOIS TOLLWAY BUSINESS SYSTEMS.

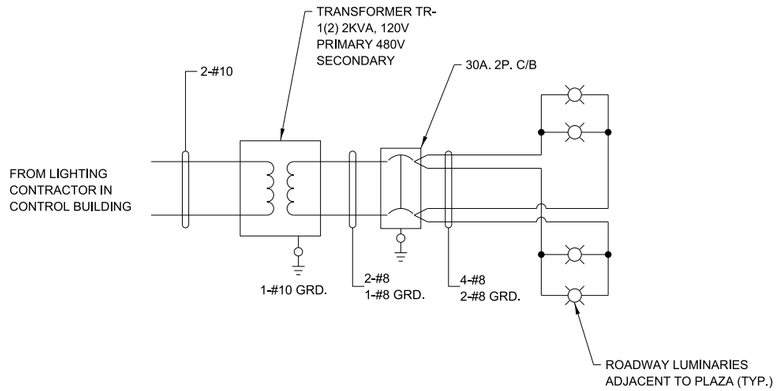
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

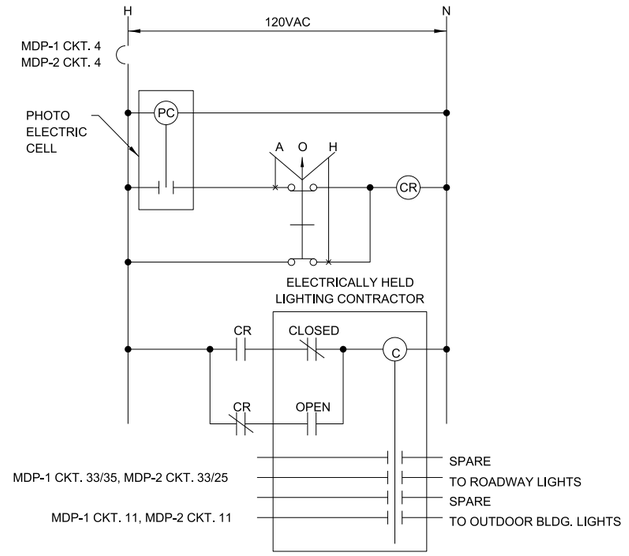
Illinois Tollway

# DOOR ALARMS DETAIL

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2530 | 1 OF 1 |




SCHEMATIC WIRING DIAGRAM
EMERGENCY ROADWAY PLAZA LIGHTING




LIGHTING CONTRACTOR WIRING DIAGRAM

NOTES:

1. SEE SYMBOLS AND ABBREVIATIONS SHEET FOR LEGEND.
2. SEE PLANS FOR CABLE AND CONDUIT ROUTING.

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

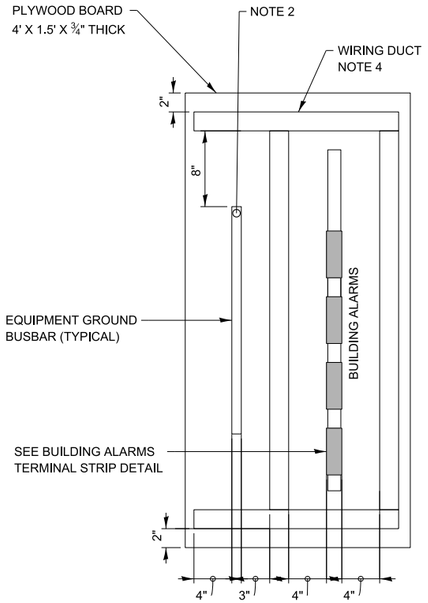
Illinois Tollway

MISCELLANEOUS SCHEMATIC DIAGRAMS

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2531 | 1 OF 1 |

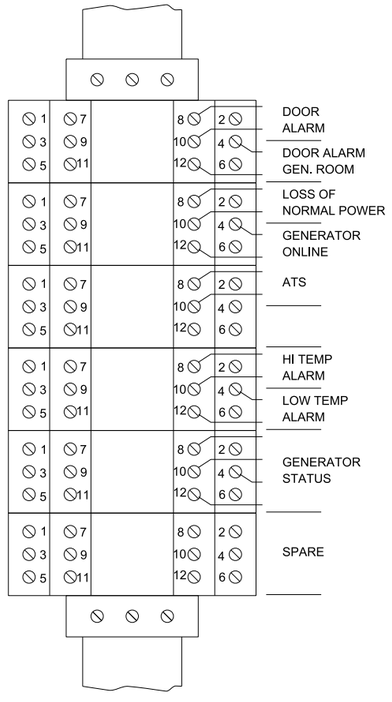
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.




TERMINAL STRIP INTERCONNECT CENTER (TSIC)

NOT TO SCALE (SEE NOTE 1)




BUILDING ALARMS TERMINAL STRIP

NOT TO SCALE

NOTES:

1. TERMINAL STRIP INTERCONNECT CENTER (TSIC) IS LOCATED IN THE CONTROL BUILDING. SEE BUILDING EQUIPMENT LAYOUT DRAWINGS, FOR LOCATION.
2. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUSBAR TO INTERNAL PERIMETER GROUND BUS CONDUCTOR.
3. ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
4. 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 SHIELDED PAIRS 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

**9 CONDUCTOR ALARM CABLE COLOR CODE CHART**

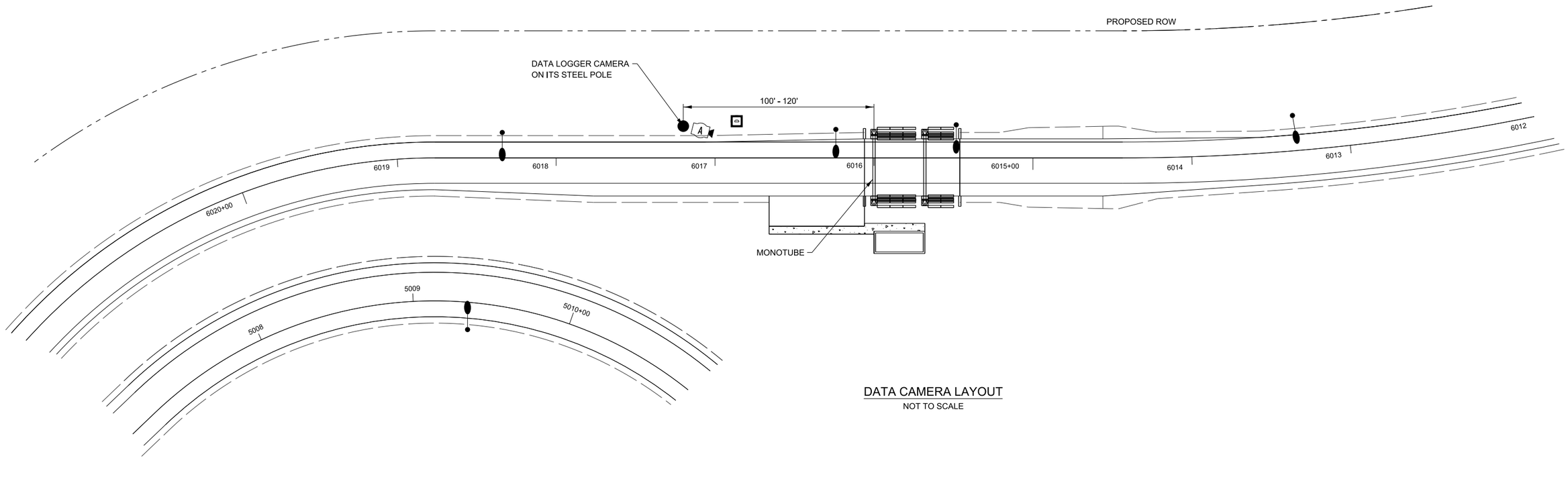
| CONDUCTOR NO. | MFGR'S COLOR CODE CHART COLOR COMBINATION |
|---|---|
| CABLE-3 | |
| 1 | BLACK |
| 2 | WHITE |
| 3 | RED |
| 4 | GREEN |
| 5 | ORANGE |
| 6 | BLUE |
| 7 | WHITE/BLACK |
| 8 | RED/BLACK |
| 9 | GREEN/BLACK |

9 CONDUCTOR #22 SHIELDED CABLE SHALL BE BELDEN #83559.

Illinois Tollway

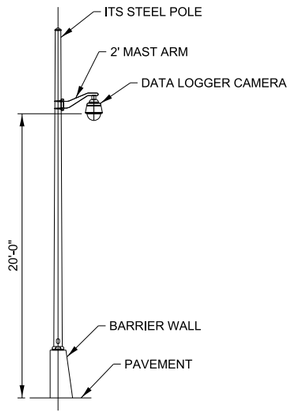
# TSIC TERMINAL BLOCK LAYOUT MAIN AND REMOTE PLAZAS - AET LANES

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2532 | 1 OF 1 |




DATA CAMERA LAYOUT

NOT TO SCALE




DATA LOGGER INSTALLATION

NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

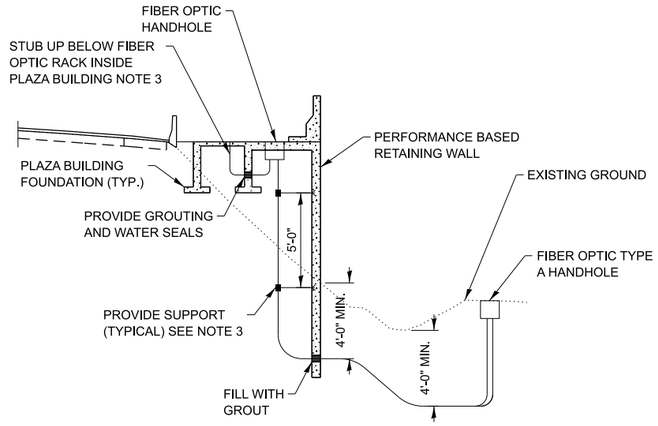
NOTES:

1. SEE CABLE/CONDUIT SCHEDULES SHEET FOR CABLE TAGS.
2. INSTALL CABLES BETWEEN THE PLAZA AND CAMERA PER MANUFACTURER'S RECOMMENDATIONS.
3. THE CAMERA'S FINAL MOUNTING LOCATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. THE COST FOR THE WORK TO FURNISH AND INSTALL THE CAMERA, CABLES, CONDUIT, AND ASSOCIATED MOUNTING HARDWARE ON THE POLE SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR ELECTRICAL WORK FOR THE PLAZA.
5. LOOP 3' OF CABLE FOR CAMERA IN POLE TO FACILITATE CAMERA MAINTENANCE.

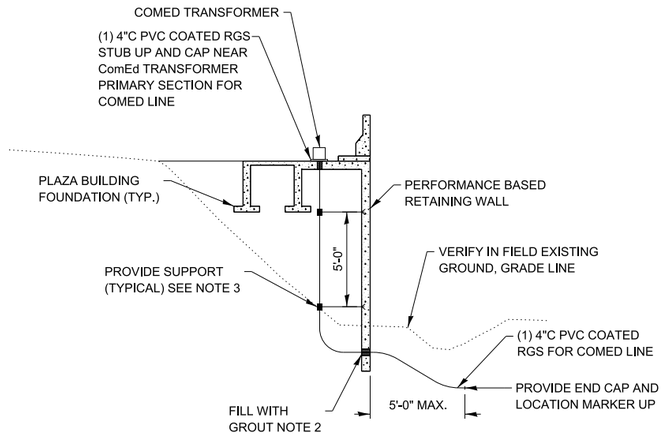
Illinois Tollway

# DATA LOGGER CAMERA

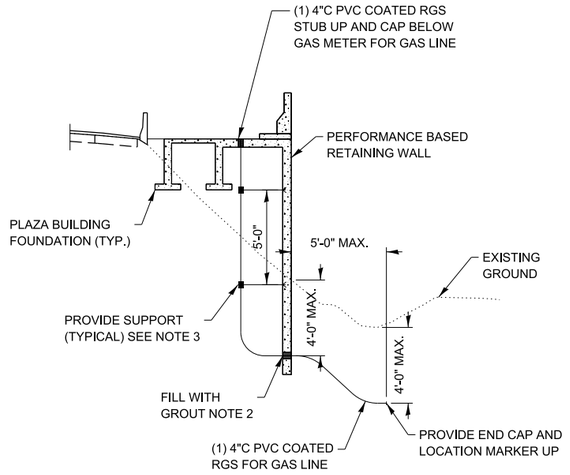
| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2533 | 1 OF 1 |



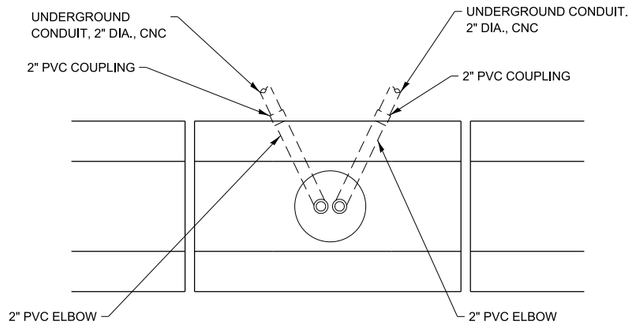

DETAIL FOR FIBER STUB UP




DETAIL FOR COMED LINE STUB UP




DETAIL FOR GAS LINE STUB UP




PLAN - DOUBLE FACE BARRIER

NOTES:

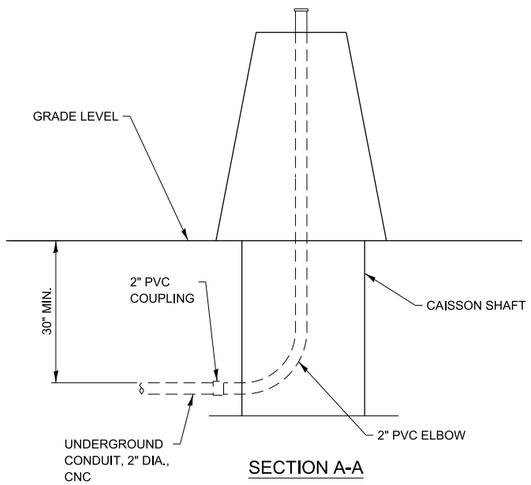
1. DETAILS ARE ONLY SCHEMATICS FOR GUIDANCE, AND CONTRACTOR MUST COORDINATE WITH COMED AND NICOR GAS SERVICE LINES.
2. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL FOR LOCATION OF OPENINGS THROUGH RETAINING WALL. THE HOLE DIA./SLOT SHALL BE LARGE ENOUGH SO THAT IT DOES NOT CAUSE ANY STRAIN ON UTILITY DUE TO SETTLEMENT OF THE WALL.
3. SUPPORTS ARE REQUIRED TO HOLD THE SLEEVES VERTICALLY BEFORE FILL UP ONLY. THIS HAS TO BE COORDINATED WITH COMED AND NICOR UTILITIES. PROVIDE CONDUIT CLAMP/ANCHOR BOLT OF POWER STRUT, B-LINE OR UNISTRUT AND MOUNTING HARDWARE.
4. ALL DIMENSIONS AND REINFORCEMENT SHALL BE PER ILLINOIS TOLLWAY STANDARD DRAWING H8 FOR TYPE 1 CENTERED CAISSON, 42" BARRIER.

NOTE TO DESIGNER

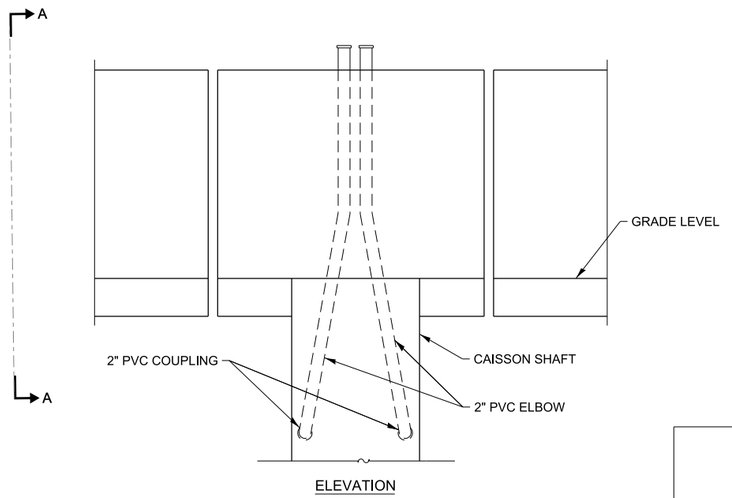
THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTE TO DESIGNER

THIS BASE SHEET REFLECTS THE USE OF PERFORMANCE BASED RETAINING WALL. THE DESIGNER SHALL MODIFY THE BASE SHEETS ACCORDINGLY FOR DESIGNED RETAINING WALLS.




SECTION A-A




ELEVATION

CONDUIT DETAIL AT LIGHT POLE FOUNDATION INTEGRAL WITH BARRIER WALL

(NOT TO SCALE)

Illinois Tollway

MISCELLANEOUS CROSS SECTION DETAILS

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2534 | 1 OF 1 |

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C5288
PAGE 1 OF 1

REVISES STANDARD DATED 4–1–98
COMPATIBLE UNITS AVAILABLE IN PASSPORT

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C5288
PAGE 1 OF 1

# 1–PH COMPT TR PAD – ESS/RSS

## 167kVA MAXIMUM CAPACITY

SIZE OF TRANSFORMER (12)

C5288.A TO 167kVA

| ITEM | CAT ID DESCRIPTION TABLE–1 | | CAT ID | UNIT | QUANTITY A |
|---|---|---|---|---|---|
| A | GROUNDING INSTALLATION C8550. GD | (1) | | | 1 |
| C | WIRE,COPPER, OVERHEAD, BARE, 1/0, 19 STR, SOFT DRAWN TINNED, 3 | (1) | 0000355082 | FT | 35 |
| D | CONNECTOR, COMPRESSION, 1/0 OR 2/0 STR CU. RUN & TAP, BURNDY C | | 0000368545 | EA | 1 |

NOTES:

APPLICATION

- THIS STANDARD SHALL BE USED FOR THE INSTALLATION OF AN ELECTRIC OR RESIDENTIAL SERVICE STATION FOUNDATION AS DESCRIBED IN "ComEd's GENERAL TERMS AND CONDITIONS".

SUPPLEMENTARY MATERIAL

(1) WHEN BARE LEAD COVERED CABLES ARE LOCATED OR PLANNED WITHIN 200 FEET, OMIT ITEM "C" AND REPLACE WITH 1/O LEAD CLAD COPPER CONDUCTOR (CATID 0000360809). SPECIFY STAINLESS STEEL GROUNDS PER C8550.020.

(2) PRECAST ALTERNATIVES TO THIS POURED DESIGN MAY BE AVAILABLE. CONTACT CONSTRUCTION STANDARDS GROUP.

INFORMATION

(11) THE CUSTOMER TO INSTALL THE TRANSFORMER FOUNDATION, 1 INCH CONDUITS, AND TRENCH FOR ComEd GROUND WIRE.

(12) ComEd TO PROVIDE AND INSTALL THE GROUND WIRE AND GRID.

(13) AFTER PRIMARY AND SECONDARY CONDUITS ARE IN PLACE, BACKFILL WITH SCREENINGS, SAND, OR FINE EXCAVATED MATERIAL. COMPACT THOROUGHLY BEFORE POURING FOUNDATION.

(14) CONCRETE TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE ACI CODE AND AIR ENTRAINED. IT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. AIR ENTRAINMENT SHALL BE 4 TO 7 PERCENT OF THE VOLUME OF CONCRETE.

(18) TOP OF FOUNDATION TO BE SMOOTH AND LEVEL.

(16) GRADE AWAY FROM FOUNDATION. FINAL GRADE SHALL BE WELL DRAINED AT ALL TIMES.

(17) PRIMARY AND SECONDARY CONDUIT MUST COME THROUGH FOUNDATION IN DESIGNATED AREAS.

(18) SEE C7723 FDR BURNDY–HUSKY DIE SET CROSS REFERENCE.

(19) DO NOT PLACE CONDUITS UNDER THIS SECTION OF FOUNDATION IF AVOIDABLE.

20 DO NOT DISTURB EARTH IN FOUNDATION AREA MORE THAN NECESSARY WHEN INSTALLING CONDUIT.

(21) TERMINATE PRIMARY AND SECONDARY CONDUITS FLUSH WITH TOP OF FOUNDATION.

(22) BOX OUT CONDUIT OPENING.

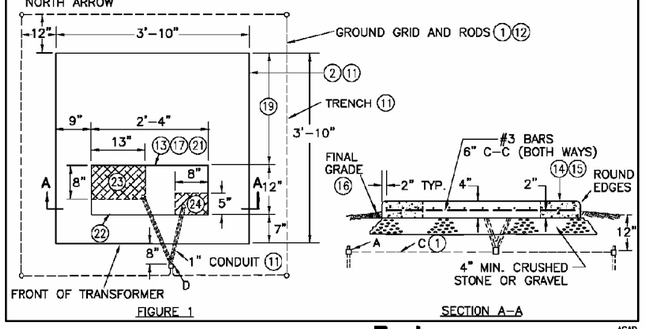
(23) SECONDARY CONDUIT LOCATION.

(24) PRIMARY CONDUIT LOCATION.

25 CONSULT SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PROGRAM OR ENVIRONMENTAL SERVICES IF TOTAL OIL CAPACITY EQUAL TO OR EXCEEDING 1320 GALLONS EXISTS OR IS PLANNED AT ESS/RSS SITE.

| CRIMPING TABLE (10) | | |
|---|---|---|
| ITEM | TOOL & DIE | NO. OF CRIMPS |
| D | Y–35 | 1 |
| | U–O | 1 |
| | U–E | 3 |

NORTH ARROW




ACAD



Exelon. Energy Delivery SYSTEM STANDARD

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C5286
PAGE 1 OF 6

REVISES STANDARD DATED 10–31–02
COMPATIBLE UNITS AVAILABLE IN PASSPORT

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C5286
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# 3–PH RADIAL COMPT TR PAD – ESS (11)(23)(29)

SIZE OF TRANSFORMER

C5286.B 45 – 225kVA 120/208V
.C 112.5 – 300kVA 120/208V
.D 225 – 500kVA 120/208V
.E 750kVA 120/208V
.F 45 – 75kVA 277/480V
.G 112.5 – 300kVA 277/480V
.H 225 – 1000kVA 277/480V
.J 1500 – 2500kVA 277/480V
.K 500 – 750kVA 4kV
.L 1000 – 2500kVA 4kV

| ITEM | CAT ID DESCRIPTION TABLE–1 | | CAT ID | UNIT | QUANTITY B | C | D | E | F | G | H | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | GROUNDING INSTALLATION C8550. GD | (1) | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| B | WIRE,COPPER, OVERHEAD, BARE, 1/0, 19 STR, SOFT DRAWN TINNED, 3 | (1)(2) | 0000355082 | FT | 55 | 55 | 60 | 60 | 50 | 55 | 60 | 70 | 60 | 65 |
| C | CONNECTOR, COMPRESSION, 1/O OR 2/O STR CU. RUN & TAP, BURNDY C | (2) | 0000368545 | EA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

NOTES:

APPLICATION

- THIS STANDARD SHALL BE USED TO INSTALL AN ELECTRIC SERVICE STATION FOUNDATION FOR A 3Ø RADIAL–FED COMPARTMENTAL TRANSFORMER AS DESCRIBED IN "ComEd's GENERAL TERMS AND CONDITIONS".

SUPPLEMENTARY MATERIAL

(1) WHEN BARE LEAD COVERED CABLES ARE LOCATED OR PLANNED WITHIN 200 FEET, REPLACE ITEM "B" WITH 1/O LEAD CLAD COPPER CONDUCTOR (CAT ID 0000360809) AND SPECIFY GROUND RODS IN ACCORDANCE WITH C8550. ENGINEER TO SPECIFY WHEN THIS CONDITION EXISTS.

(2) WHEN JUNCTION CABINET IS USED, ADD ONE OF ITEM "C" AND ADD 15 FEET OF ITEM "B".

(3) STEEL PLATE NOT FURNISHED WITH STANDARD. ORDER FROM SYSTEMS SHOPS AT TECH CENTER OR LOCAL VENDOR.

INFORMATION

(11) CUSTOMER SHALL SUPPLY AND INSTALL ALL ITEMS WITHIN THIS STANDARD EXCEPT FOR THE GROUNDING MATERIAL.

(12) PRECAST ALTERNATIVES TO THIS POURED DESIGN MAY BE AVAILABLE. CONTACT DISTRIBUTION ENGINEERING DEPARTMENT FOR DETAILS.

(13) DO NOT PLACE CONDUITS UNDER THIS SECTION OF FOUNDATION IF AVOIDABLE.

(14) DO NOT DISTURB GROUND IN FOUNDATION AREA MORE THAN NECESSARY WHEN INSTALLING CONDUIT.

(15) PRIMARY AND SECONDARY CONDUIT MUST COME THROUGH FOUNDATION IN DESIGNATED AREAS.

(16) CONDUIT SHALL TERMINATE FLUSH WITH THE TOP OF THE FOUNDATION UNLESS OTHERWISE DESIGNATED.

(17) IF METAL CONDUIT IS USED, THE GROUNDING BUSHING SHALL NOT PROTRUDE ABOVE THE TOP OF THE FOUNDATION.

(18) AFTER PRIMARY AND SECONDARY CONDUITS ARE IN PLACE, BACKFILL WITH SCREENINGS, SAND OR FINE EXCAVATED MATERIAL. COMPACT THOROUGHLY BEFORE PLACING AGGREGATE AND POURING FOUNDATION.

(19) CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE ACI CODE. IT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. AIR ENTRAINMENT SHALL BE 4 TO 7% OF THE VOLUME OF CONCRETE.

(20) TOP OF THE FOUNDATION SHALL BE SMOOTH AND LEVEL.

(21) GROUND GRID CONSISTS OF A CONTINUOUS COPPER GROUND LOOP. BRING ONE TAIL OF GROUND LOOP INTO EACH OPENING IN FOUNDATION. CONNECT GROUND CABLE (ITEM "B") TO GROUND RODS AS SHOWN IN C8550. CLOSE LOOP WITH COMPRESSION CONNECTOR (ITEM "C").

WHEN LEAD CLAD CABLE IS USED FOR THE GROUND CABLE, COVER THE ITEM "C" CONNECTION WITH MOISTURE SEALING COMPOUND AND PLASTIC TAPE AS SHOWN IN DETAIL–1.

(22) FINAL GRADE SHALL SLOPE AWAY FROM FOUNDATION. FINAL GRADE SHALL BE WELL DRAINED AT ALL TIMES.

(23) A JUNCTION CABINET IS REQUIRED IF SECONDARY CONDUIT SPACE REQUIREMENTS EXCEED LIMITS SPECIFIED IN TABLE–A. REFER TO PAGE 3 FOR DETAILS OF NECESSARY FOUNDATION.

(24) CONTACT DISTRIBUTION ENGINEERING DEPARTMENT FOR APPROVED SUPPLIERS OF JUNCTION CABINET. ALTERNATIVE DESIGNS MAY BE SUBMITTED FOR APPROVAL.

(25) CABINET SHALL BE ANCHORED TO THE FOUNDATION.

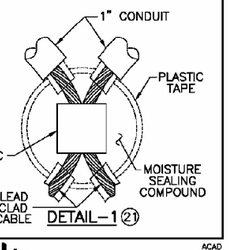
(26) ComEd WILL FURNISH AND INSTALL CABLE AND LUGS BETWEEN JUNCTION CABINET BUS AND TRANSFORMER SECONDARY TERMINALS.

(27) CUSTOMER SHALL NOT CONNECT THEIR CABLES TO BUS IN AREAS DESIGNATED AS ComEd POSITIONS.

(28) BUS BAR SHOWN CAN ACCOMMODATE A MAXIMUM OF 20 CABLES PER PHASE FROM CUSTOMER AND 10 CABLES PER PHASE FROM ComEd TRANSFORMER.

(29) CONSULT SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PROGRAM OR ENVIRONMENTAL SERVICES IF TOTAL OIL CAPACITY EQUAL TO OR EXCEEDING 1320 GALLONS EXISTS OR IS PLANNED AT ESS SITE.

30 FOR TRANSFORMER CLEARANCES REFER TO STANDARDS C5284, C5285, AND C7500.




ACAD



Exelon. Energy Delivery SYSTEM STANDARD

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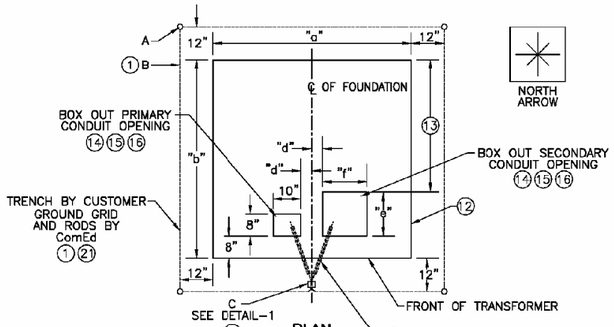
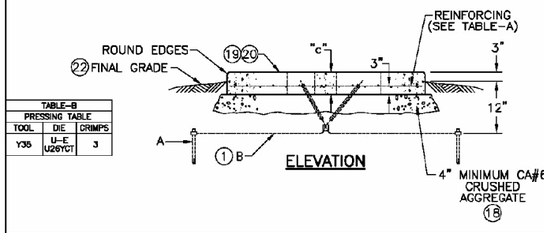



| TABLE–B PRESSING TABLE | | |
|---|---|---|
| TOOL | DIE | CRIMPS |
| Y35 | U–E U20YCT | 3 |

TABLE–A

| C5286 | TRANSFORMER kVA MIN | TRANSFORMER kVA MAX | MIN SEC VOLTAGE | DIMENSIONS a | b | c | d | e | f | SECONDARY CONDUIT FORMATIONS 3.5" MAX NO. (23) | 4" MAX NO. (23) | REINFORCING (BARS BOTH WAYS) | ESTIMATING DATA REINFORCING BARS (FT) | CONCRETE (CU YD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .B | 45 | 225 | 208/120 | 6'–0" | 5'–6" | 6" | 4" | 14" | 14" | 4 | 4 | #3 BARS 5" C.C. | 159 | .54 |
| .C | 112.5 | 300 | 208/120 | 6'–0" | 5'–6" | 6" | 4" | 14" | 18" | 6 | 6 | #3 BARS 5" C.C. | 159 | .53 |
| .D | 225 | 500 | 208/120 | 7'–0" | 6'–6" | 6" | 4" | 18" | 18" | 9 | 9 | #3 BARS 4" C.C. | 259 | .74 |
| .E | 750 | 750 | 208/120 | 7'–0" | 6'–6" | 6" | 4" | 18" | 26.5" | 16 | 12 | #4 BARS 6" C.C. | 174 | .68 |
| .F | 45 | 75 | 480/277 | 5'–0" | 5'–6" | 6" | 4" | 14" | 14" | 4 | 4 | #2 BARS 4" C.C. | 142 | .39 |
| .G | 112.5 | 300 | 480/277 | 6'–0" | 5'–6" | 6" | 4" | 14" | 18" | 6 | 6 | #3 BARS 5" C.C. | 159 | .53 |
| .H | 225 | 1000 | 480/277 | 8'–0" | 7'–0" | 7" | 4" | 18" | 18" | 9 | 9 | #4 BARS 5" C.C. | 266 | .94 |
| .J | 1500 | 2500 | 480/277 | 8'–6" | 8'–6" | 8" | 4" | 18" | 26.5" | 16 | 12 | #4 BARS 5" C.C. | 330 | 1.64 |
| .K | 500 | 750 | 4kV | 7'–0" | 6'–0" | 6" | 10" | 8" | 10" | 2 | 2 | #4 BARS 5" C.C. | 196 | .70 |
| .L | 1000 | 2500 | 4kV | 8'–0" | 8'–0" | 8" | 6" | 14" | 14" | 4 | 4 | #4 BARS 5" C.C. | 292 | 1.51 |

ACAD



Exelon. Energy Delivery SYSTEM STANDARD

NOTE:

CONCRETE PAD DETAIL FOR PROPOSED 480/240 V, SINGLE PHASE TRANSFORMER FOR ROADWAY LIGHTING CONTROLLER.

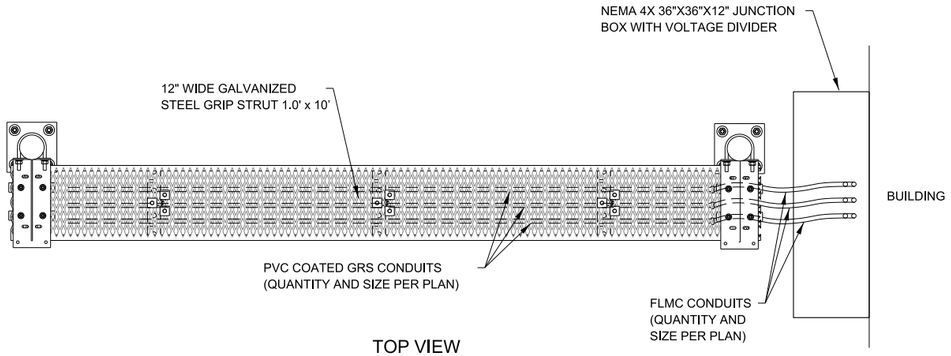
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

COMED TRANSFORMER PAD DETAIL

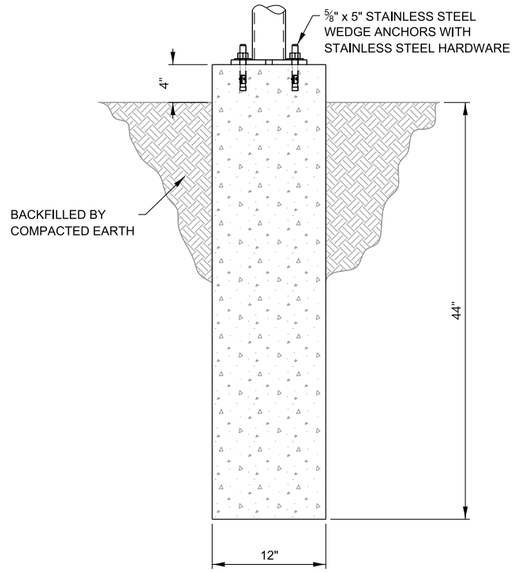
| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2535 | 1 OF 1 |



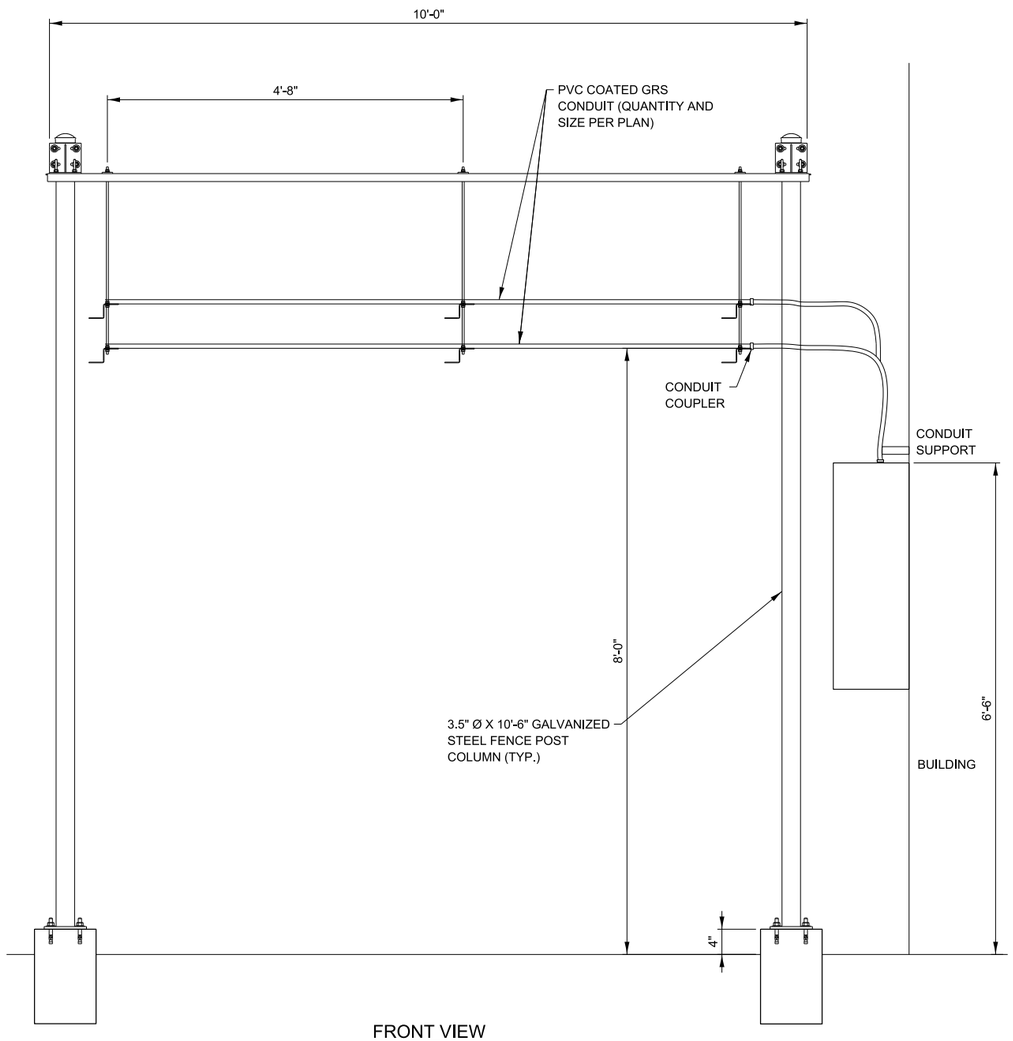

TOP VIEW

NOTES:

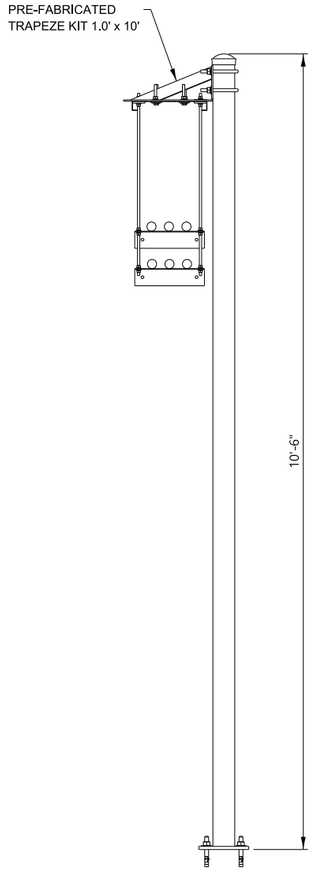
1. COST OF OVERHEAD CONDUIT TRAYS AND FOOTINGS ARE INCIDENTAL TO PLAZA ELECTRICAL WORK.
2. INSTALL CONDUIT TRAY AND FOOTINGS PER MANUFACTURERS RECOMMENDATIONS.
3. SECURE CONDUIT TO CABLE TRAY AND STRUCTURES AS REQUIRED BY CODE.



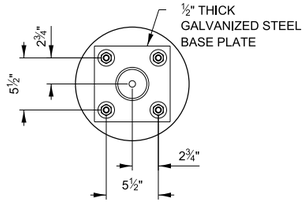

CONCRETE BASE PLATE FOUNDATION




FRONT VIEW




SIDE VIEW




BASE PLATE LAYOUT

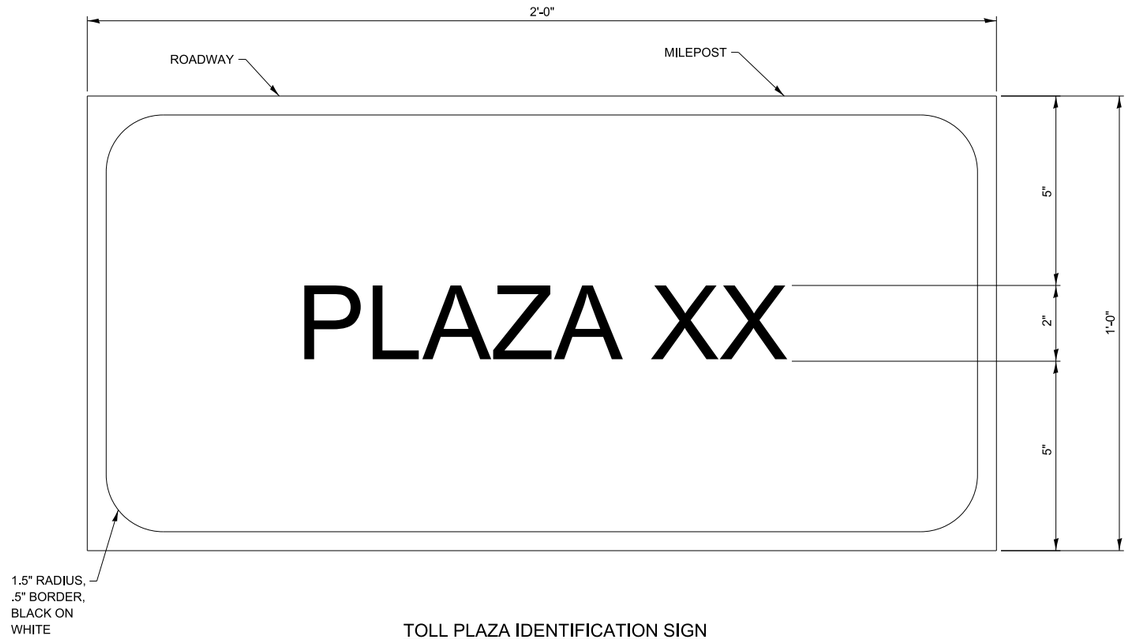
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS **NOT** A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# OVERHEAD CONDUIT TRAY

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2536 | 1 OF 1 |




TOLL PLAZA IDENTIFICATION SIGN

NOTES:

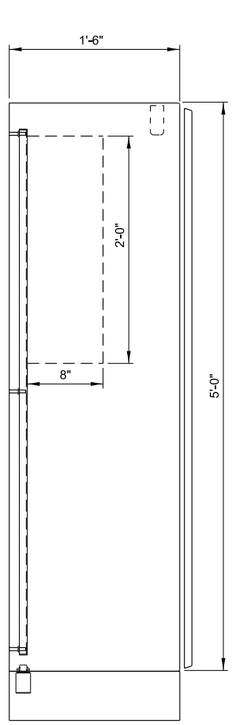
1. IDENTIFICATION SIGN MATERIAL SHALL MEET THE REQUIREMENTS OF ARTICLE 720.02 OF THE STANDARD SPECIFICATIONS.

2. IDENTIFICATION SIGNS SHALL BE MOUNTED ONTO THE BUILDING USING BOLTS AND WASHERS ACCORDING TO ARTICLE 720.04 OF THE STANDARD SPECIFICATIONS.

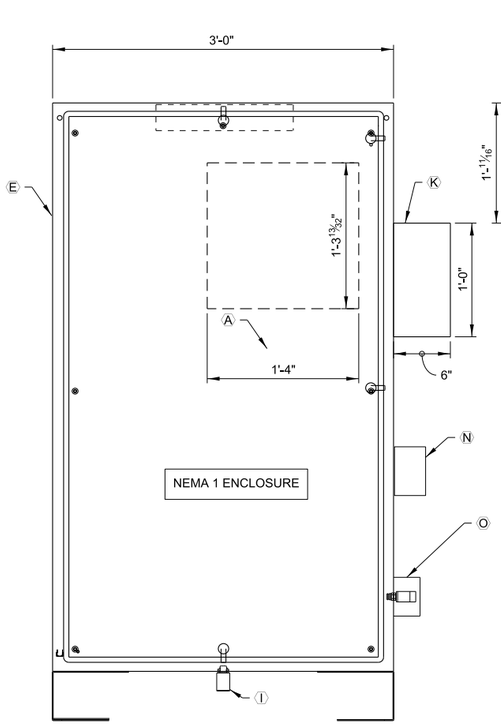
Illinois Tollway

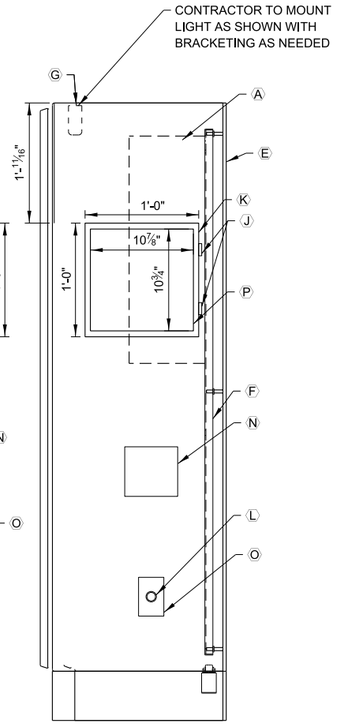
TOLL PLAZA
IDENTIFICATION SIGN

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2537 | 1 OF 1 |




LEFT SIDE VIEW

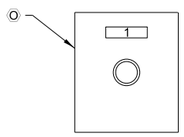



RIGHT SIDE VIEW

MAIN ENCLOSURE

SCALE: 1 ½"=1'-0"



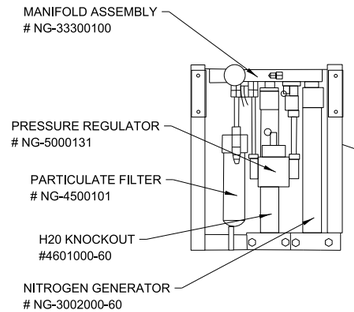

| NAMEPLATE LEGEND | | | |
|---|---|---|---|
| NUMBER | QTY. | TEXT HEIGHT | INSCRIPTION |
| 1 | 1 | ⅛" | AIR CONNECTION |
| | | | |

CONNECTION DETAIL

NOT TO SCALE

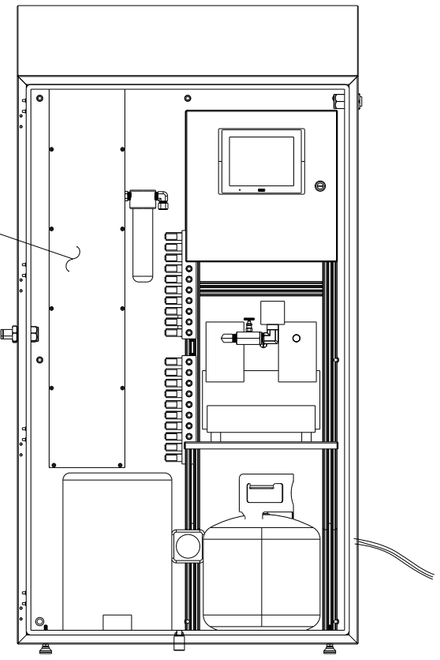
NOTES:

1. MAXIMUM SYSTEM PRESSURE IS 80 PSI.
2. EXACT OPERATING PRESSURE TO BE DETERMINED.
3. FOR PRODUCT SUBSTITUTIONS SEE THE SPECIFICATIONS.
4. ALL CONDUITS, FITTINGS AND ENTRY POINTS INTO EACH OF THE ENCLOSURES SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.
5. THIS DETAIL IS APPLICABLE TO VES WASH SYSTEM MAIN ENCLOSURE INSIDE THE BUILDINGS. FOR OUTSIDE INSTALLATION OF MAIN VES WASH SYSTEM ENCLOSURE, USE NEMA 4X ENCLOSURE - 60"H X 36"W X 16"D, *HOFFMAN CAT. NO. WS603616SS*, & PAD LOCKING HANDLE KIT, HOFFMAN CAT. NO WSHPL. FOR OUTSIDE INSTALLATION OF SIDE MOUNTED CONTROL PANEL JUNCTION BOX, USE NEMA 4X ENCLOSURE - 12"H X 12"W X 6"D, *HOFFMAN CAT. NO. A1212CHNFSS*




NOTE TO DESIGNER:
THIS IS A REPRESENTATION OF THE NITROGEN FILTER ARRANGEMENT AND MANUFACTURE CAN REARRANGE TO FIT COMPONENTS TO ACCOMMODATE TO AVAILABLE SPACE.

NOTE:
THE VES WASH SYSTEM WITH NITROGEN GENERATOR IS PRODUCED BY ECD COMPANY WITH THE MODEL NUMBER: NS-CMP-SY-I-0100, AS ASSIGNED BY ECD (OR APPROVED EQUAL MODEL BY THE ILLINOIS TOLLWAY BUSINESS SYSTEM).

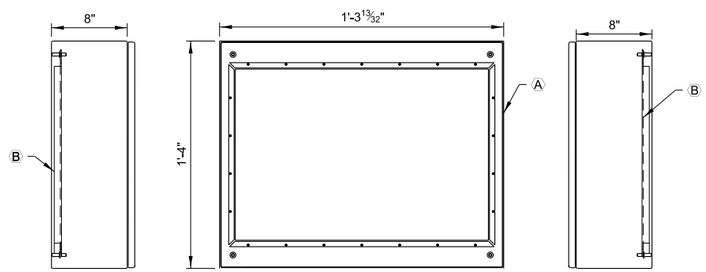


***FOR COMPLETE ASSEMBLY USE ECD # NS-CMP-SY-I-0100 (OR APPROVED EQUAL)***

VES WASH SYSTEM SINGLE CABINET INSIDE DETAILS

| BILL OF MATERIALS COMPONENTS (OR APPROVED EQUAL) | | | | |
|---|---|---|---|---|
| | MARK NO. | QTY. | SPARE | DESCRIPTION |
| | A | 1 | | NEMA 1 STEEL ENCLOSURE - 30"H X 24"W X 8"D (HOFFMAN CATALOG No. CSD30248W) |
| | B | 1 | | SUBPANEL FOR ENCLOSURE (HOFFMAN CATALOG No. CP3024) |
| | D | 1 | | GROUNDING BAR (HOFFMAN CATALOG No. PGS2K) (NOT ILLUSTRATED ON DRAWING) |
| (1) | E | 1 | | NEMA 1 ENCLOSURE - 60"H X 36"W X 18"D (HOFFMAN CATALOG No. A60N3618FSLP) WITH MOUNTING BRACKETS (HOFFMAN CAT. No. CMFKSS) |
| | F | 1 | | SUBPANEL FOR NEMA 1 ENCLOSURE (HOFFMAN CATALOG No. A49P32N) |
| | G | 1 | | FLUORESCENT LIGHT FIXTURE FOR ENCLOSURE WITH 120VAC OUTLET (HOFFMAN CATALOG No. LF120V15) WITH DOOR SWITCH (HOFFMAN CATALOG No. ALFSWD) |
| | H | | | NOT USED |
| | I | 1 | | SS VENT DRAIN HOFFMAN CATALOG No. AVDR4SS4 |
| | J | 2 | | FAST OPERATING STAINLESS STEEL CLAMP HOFFMAN CATALOG No. AL23SS |
| (1) | K | 1 | | NEMA 1 ENCLOSURE - 12"H X 12"W X 6"D HOFFMAN CATALOG No. A1212CH |
| | L | 1 | 2 | ⅜" S.S. QUICK DISCONNECT ALPHA FITTINGS CATALOG No. 8013106 |
| | M | | | NOT USED |
| | N | 1 | | ELECTRICAL DUAL OUTLET GFCI 20A WITH COVER (THOMAS & BETTS CATALOG No. CKMUV) |
| | O | 1 | | IN DOOR COVER |
| | P | 1 | | SUBPANEL FOR NEMA 1 JUNCTION BOX A1212CH (HOFFMAN CATALOG No. A12P12) |
| | Q | 1 | | JUNCTION BOX SWING OUT PANEL KIT (HOFFMAN CATALOG No. AJCDFK) |

(1) SEE NOTE 5.




ELECTRICAL ENCLOSURE

SCALE: 1 ½"=1'-0"

NOTE TO DESIGNER

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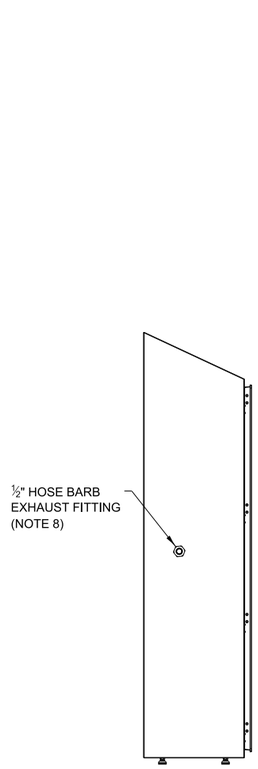
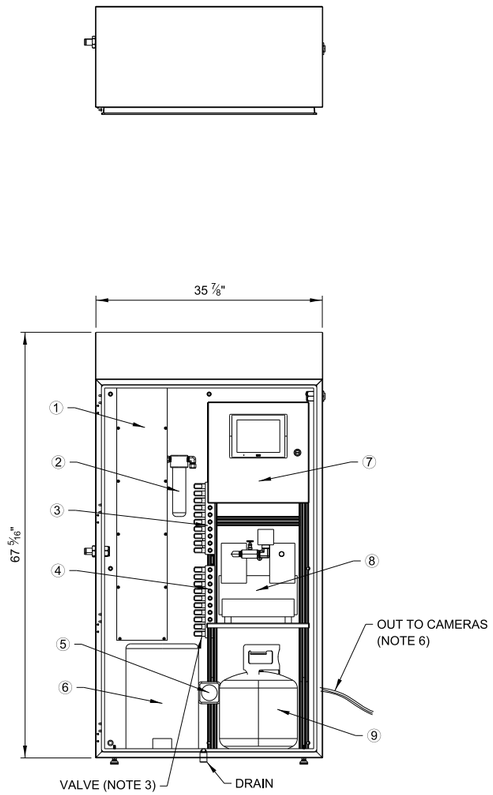
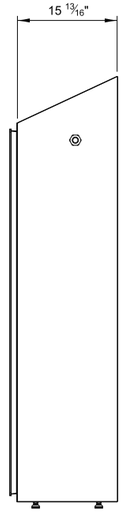
Illinois Tollway

# VES WASH SYSTEM SINGLE CABINET DETAIL

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2538 | 1 OF 1 |




NOTES:

1. 1. 20A 115VAC SERVICE REQUIRED.
2. WILL REQUIRE: LOCATION, IP ADDRESS AND LANE CONFIGURATION
3. VALVE IS IP 69 RATED.
4. EXHAUST TO FREE AIR.
5. PNEUMATIC FITTINGS TO BE BRASS IN CONSTRUCTION AND MEET SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) SPECIFICATIONS.
6. THE ⅜" NYLON TUBING MAY HAVE TO BE LONGER THAN 100'. TUBING MUST RUN CONTINUOUS FROM THE MANIFOLD VALVES IN THE VES CABINET TO THE CAMERA NOZZLE, WITHOUT ANY INTERMEDIATE SPLICES. CONTRACTOR TO DETERMINE THE ACTUAL LENGTH OF THE TUBING REQUIRED FOR EACH OF THE VES CAMERAS AT THE SITE.
7. ALL CONDUIT FITTINGS AND ENTRY POINTS INTO THE ENCLOSURE SHALL BE PROPERLY SEALED WITH DUCT SEAL TO PREVENT MOISTURE ENTRY.
8. EXHAUST TO FREE AIR.
9. OUTDOOR INSTALLATION WILL REQUIRE OPTIONAL HEATER.

***FOR COMPLETE ASSEMBLY USE ECD # NS-CMP-SY-I-0100 (OR APPROVED EQUAL)***

## VES WASH SYSTEM SINGLE CABINET DETAIL

NOTE:
THE VES WASH SYSTEM WITH NITROGEN GENERATOR IS PRODUCED BY ECD COMPANY WITH THE MODEL NUMBER: NS-CMP-SY-I-0100, AS ASSIGNED BY ECD (OR APPROVED EQUAL MODEL BY THE ILLINOIS TOLLWAY BUSINESS SYSTEM).

| MATERIALS LIST | | | | |
|---|---|---|---|---|
| ITEM | PART NO. | DESCRIPTION | MANUAL | QUANTITY |
| 0 | NS-CMP-SY-I-0100 | COMPLETE ASSEMBLY | ECD | 1 |
| 1 | NS-SUB-SY-I-0100 | NITROGEN GENERATOR | ECD | 1 |
| 2 | NG-ECD-00100 | REPLACEMENT PARTICULATE FILTER | ECD | 1 |
| 3 | NG-ECD-00200 | NITROGEN VALVE SYSTEM | ECD | 1 |
| 4 | NG-ECD-00201 | LIQUID VALVE SYSTEM | ECD | 1 |
| 5 | NG-ECD-00300 | LIQUID PUMP | ECD | 1 |
| 6 | NG-ECD-00350 | LIQUID TANK | ECD | 1 |
| 7 | NG-ECD-01101 | SYSTEM CONTROL | ECD | 1 |
| 8 | NG-ECD-00310 | PNEUMATIC PUMP | ECD | 1 |
| 9 | NG-ECD-00311 | NITROGEN TANK | ECD | 1 |

NOTE TO DESIGNER

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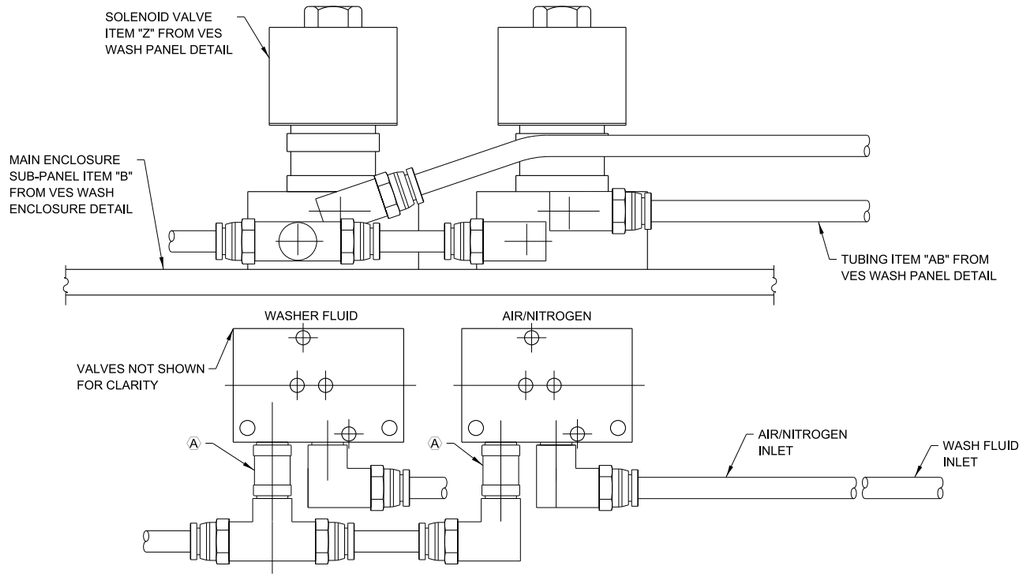
Illinois Tollway

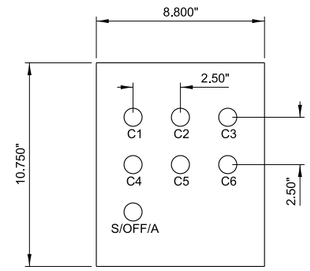
VES WASH SYSTEM PANEL DETAIL

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2024-03 | M-BUS-2539 | 1 OF 1 |




## INLET VALVE DETAIL

NOT TO SCALE

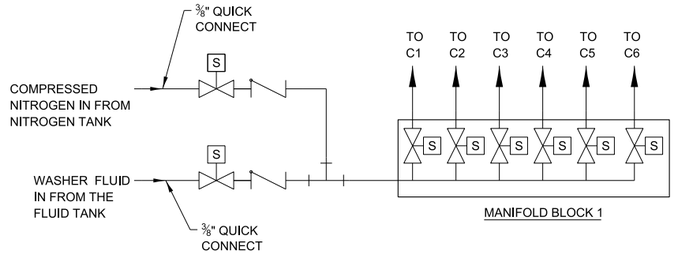



## EXTERNAL SWITCHES

| SWITCH NAMEPLATE LEGEND | | | |
|---|---|---|---|
| NUMBER | QTY. | TEXT HEIGHT | INSCRIPTION |
| 1 | 1 | ⅛" | S / OFF / A |
| 2-6 | 6 | ⅛" | C1, C2, ..., C6 (NOTE 5) |

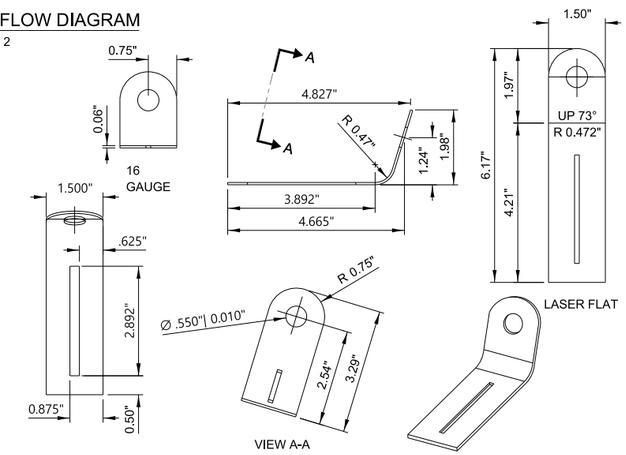
| BILL OF MATERIAL COMPONENTS (OR APPROVED EQUAL) | | | |
|---|---|---|---|
| MARK NO. | QTY. | SPARE | DESCRIPTION |
| A | 2 | 1 | ¼" NPT CHECK VALVE<br>McMASTER-CARR CATALOG No. 7775K62 |
| B | AS REQ'D | | SILICONE HOSE SLEEVE (50' SPOOL)<br>McMASTER-CARR CATALOG No. 7453K49 |
| C | 6 | * | SPRAY NOZZLE<br>GRAINGER CATALOG No. 1MDH2 |
| E | 6 | | MINIATURE CORROSION RESISTANT STRAIN RELIEF<br>HUBBELL CATALOG No. SHC1021CR |
| F | 2 | | ADJUSTABLE MOUNTING STRAP<br>McMASTER-CARR CATALOG No. 7572K12 (50 PER PACK) |
| G | 5 | 2 | 30.5 MM, ON / OFF SWITCH (NOTE 4)<br>SQUARE D PART NUMBER SKS11BH13 |
| H | 1 | 1 | 30.5 MM, ON / OFF / ON SWITCH (NOTE 5)<br>SQUARE D PART NUMBER SKS43BH13 |
| I | 1 | * | NOZZLE BULKHEAD FITTING (10 PACK)<br>SMC FITTING CATALOG No. KQ2E07-35 |

* MATCH CONTRACT QUANTITY



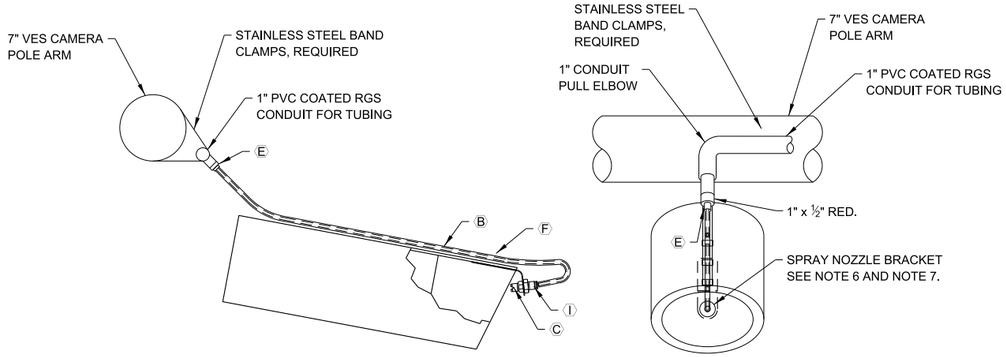

## WASHER SYSTEM FLOW DIAGRAM

NOTE 2




## VES CAMERA NOZZLE BRACKET DETAIL

NOT TO SCALE




## NOZZLE DETAIL - VES CAMERA MONOTUBE

NOT TO SCALE

NOTES:

1. QUANTITIES ILLUSTRATED ARE FOR A 1-LANE RAMP PLAZA THAT HAS SIX (6) VES CAMERAS (3 REAR AND 3 FRONT VES).
2. A 1-LANE RAMP PLAZA CONFIGURATION IS ILLUSTRATED. THE MANIFOLD-VALVE SYSTEM SHOWN ILLUSTRATES TEN (10) PORTS, ONE EACH FOR THE SIX (6) VES CAMERAS INSTALLED (3 REAR VES AND 3 FRONT VES) AND FOUR (4) SPARE PORTS PLUGGED FOR FUTURE USE.
3. A 3-LANE MAINLINE PLAZA WILL HAVE TEN (10) CAMERAS (5 REAR AND 5 FRONT VES). THE MANIFOLD-VALVE SYSTEM FOR A 3-LANE RAMP PLAZA WILL HAVE TEN (10) PORTS, ONE EACH FOR THE TEN (10) VES CAMERAS INSTALLED AND NO SPARE PORTS PLUGGED FOR FUTURE USE.
4. THE SWITCHES ARE NOT SHOWN ON THIS DRAWING. THE QUANTITY ILLUSTRATED ARE FOR A 2-LANE RAMP PLAZA. THESE SWITCHES ARE MOUNTED ON THE BACKPLATE OF THE HOFFMAN SWITCH ENCLOSURE.
5. THIS SWITCH IS NOT SHOWN ON THIS DRAWING. THIS SINGLE SWITCH WILL CONTROL THE LIQUID AND AIR INLET VALVES. THIS SWITCH IS MOUNTED ON THE BACKPLATE OF THE HOFFMAN SWITCH ENCLOSURE.
6. CAMERA NOZZLE BRACKET SHALL BE FABRICATED USING 12 GA. STAINLESS STEEL. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL.
7. CAMERA NOZZLE BRACKET SHALL BE ADJUSTABLE. STAINLESS STEEL NUT-BOLT COMBINATION SHALL BE USED FOR MOUNTING THE CAMERA NOZZLE BRACKET TO THE CAMERA LENS HOUSING. CONTRACTOR TO VERIFY THAT THE MOUNTING HARDWARE SECURELY HOLDS THE BRACKET BUT ALSO ALLOWS EASY ADJUSTMENT. CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS CLEARLY IDENTIFYING PART NUMBERS USED FOR MOUNTING HARDWARE. INSTALLATION DRAWINGS SHALL ALSO INDICATE THE POSITION OF THE MOUNTING HARDWARE ON THE CAMERA NOZZLE BRACKET. THE INSTALLATION DRAWINGS SHALL BE APPROVED BY THE ILLINOIS TOLLWAY BEFORE INSTALLATION IN THE FIELD.

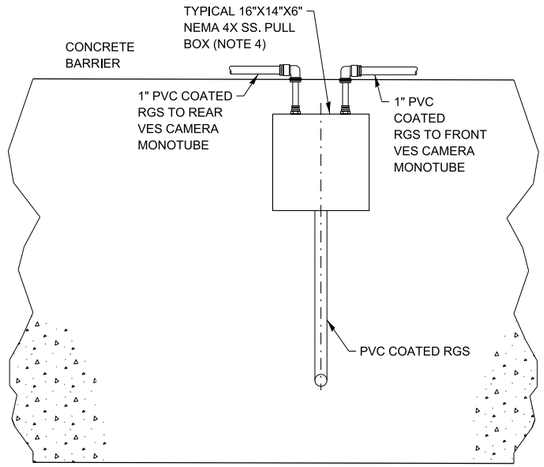
### NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

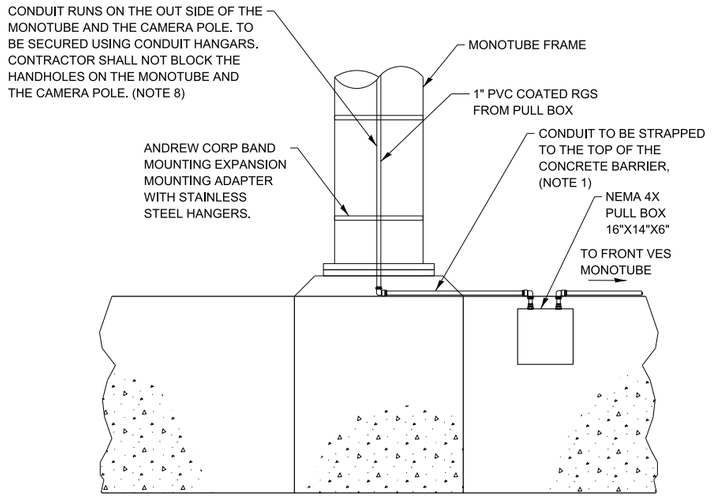
# VES WASH SYSTEM FLOW DIAGRAM AND SYSTEM

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2540 | 1 OF 1 |

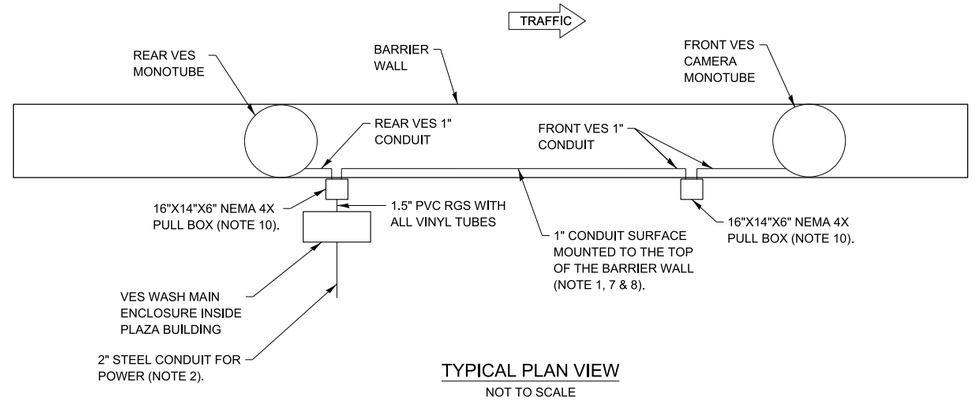



PARTIAL SECTION A-A

NOT TO SCALE

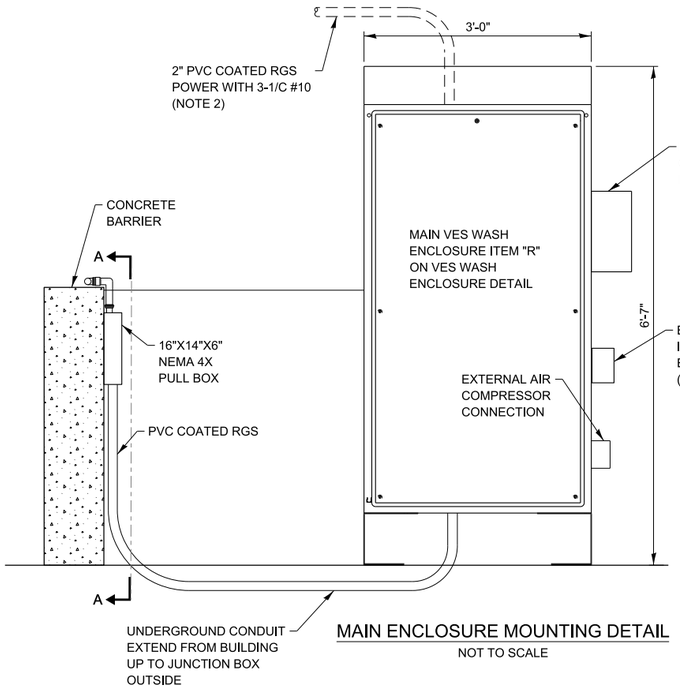



COLLECTION STRUCTURE CONDUIT DETAIL



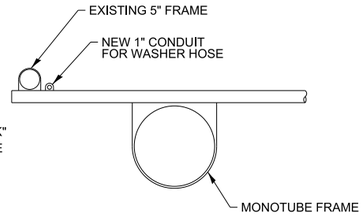

TYPICAL PLAN VIEW

NOT TO SCALE



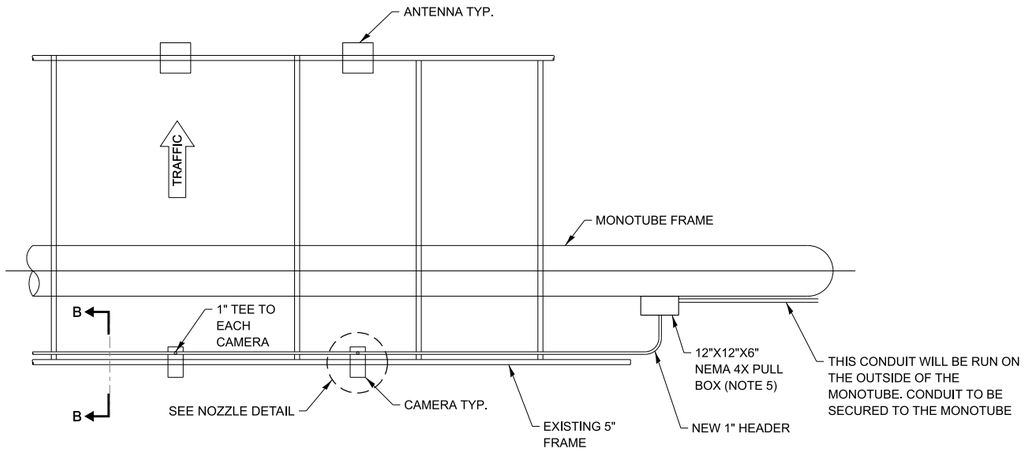

MAIN ENCLOSURE MOUNTING DETAIL

NOT TO SCALE




SECTION B-B

NOT TO SCALE




OVERHEAD TOLL LAYOUT

NOTES:

1. ALL CONDUIT ROUTING AND EQUIPMENT PLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ROUTING AND PLACEMENT DEPICTED IS SUGGESTED ONLY. ACTUAL ENCLOSURE LOCATION WILL VARY BASED ON SITE CONDITIONS. THE CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATION AND CONDUIT ROUTING WITH CONSTRUCTION ENGINEER AND ILLINOIS TOLLWAY ENGINEER.
2. THE POWER CONDUIT WILL RUN TO THE POWER PANEL INSIDE THE PLAZA BUILDING. THE NORMAL BREAKER PANEL WILL BE UTILIZED FOR THE VES WASH POWER SOURCE.
3. UNLESS OTHERWISE NOTED ALL CONDUIT IS PVC COATED RGS.
4. ONE (1) NEMA 4X 12"X12"X6" ENCLOSURE WILL BE PLACED ON THE REAR AND FRONT VES CAMERA MONOTUBE AND ONE (1) NEMA 4X 16"X14"X8" WILL BE PLACED ON THE BARRIER WALL AT EACH AET ZONE.
5. MONOTUBE MOUNTED NEMA 4X PULL BOXES LOCATION TO BE DETERMINED IN FIELD. PULL BOX TO BE SECURELY FASTENED TO THE CONCRETE BARRIER. AT LEAST 1' OF SPOOLED UP VINYL TUBING FOR EACH CAMERA WILL BE PLACED IN THE MONOTUBE PULL BOXES.
6. NOT USED.
7. CONDUITS FOR SPRAY TUBING SHALL BE SEALED ON BOTH ENDS TO PREVENT WATER FROM PENETRATING.
8. CONTRACTOR SHALL PROVIDE STRAIN RELIEF FOR WASHER TUBING IN POLES/MONOTUBES.
9. FINAL POSITION AND NUMBER OF VES CAMERAS INSTALLED TO BE DETERMINED IN THE FIELD. NUMBER OF REAR VES CAMERAS SHOWN IS FOR ILLUSTRATION PURPOSES ONLY.
10. 16"x14"x6" NEMA 4X PULL BOXES FOR THE REAR AND FRONT VES CAMERA MONOTUBE SHALL BE SURFACE MOUNTED ON THE RIGHT SHOULDER BARRIER WALL, AWAY FROM TRAFFIC.
11. NEMA 4X ENCLOSURE (ITEM "K" ON VES WASH ENCLOSURE DETAIL), EXTERNAL AIR COMPRESSOR CONNECTION AND ELECTRICAL DUAL OUTLET (ITEM "N" ON VES WASH ENCLOSURE DETAIL) SHALL BE MOUNTED ON THE SIDE OF THE MAIN ENCLOSURE, AWAY FROM ANY OBSTRUCTION.
12. ALL CONDUITS, FITTINGS AND PENETRATIONS INTO EACH OF THE ENCLOSURES IN THE SYSTEM SHALL BE PROPERLY SEALED WITH ELECTRICAL PUTTY OR OTHER APPROVED SEALING METHODS TO PREVENT MOISTURE AND RODENT ENTRY.
13. CONTRACTOR MUST VERIFY THAT THERE SHALL BE SUFFICIENT ROOM FOR CABINET DOOR TO OPEN.

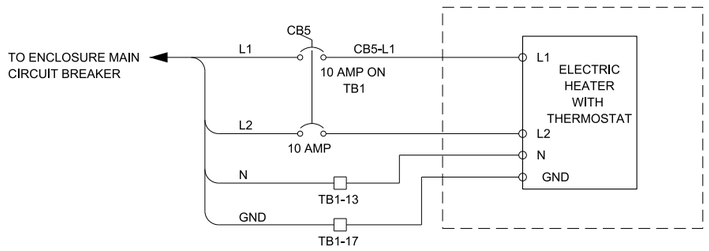
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

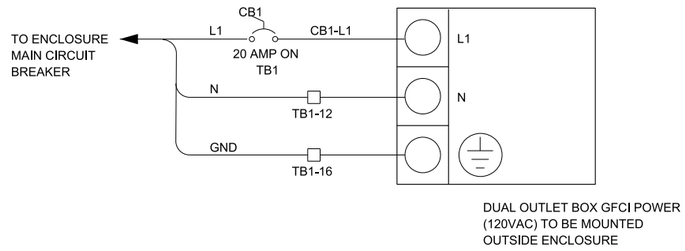
# VES WASH SYSTEM SUGGESTED CONDUIT ROUTING

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2541 | 1 OF 1 |

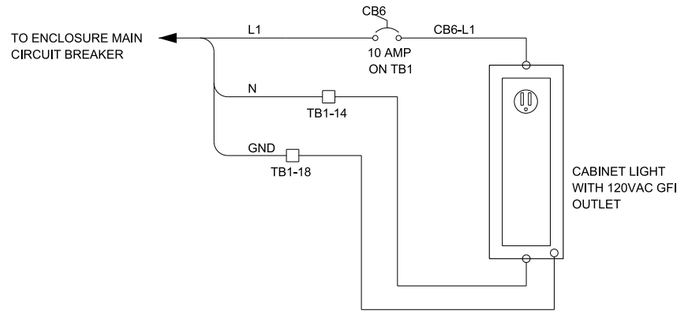



ELECTRIC HEATER WITH THERMOSTAT (IF REQUIRED)

NOTE 4




ELECTRICAL DUAL OUTLET GFCI 20A




CABINET LIGHTING AND GFI OUTLET

NOTES:

1. ALL CABLING ON THIS DRAWING IS #12 AWG
2. MAIN BREAKER IS 25A. ILLUSTRATED ON VES WASH PANEL DETAIL ITEM U . LOCATED ON TOP DIN RAIL.
3. THREE 1-C #10 CABLES WILL BE ROUTED FROM THE MDP TO THE VES POWER WASH ENCLOSURE. THE POWER FEED WILL BE INITIATED FROM THE NORMAL BREAKER PANEL. THE CONTRACTOR TO SUPPLY AND INSTALL A 30A BREAKER IN THE MDP PANEL. POWER IS 120VAC WITH A HOT, NEUTRAL AND GROUND. THIS POWER FEED WILL THEN TERMINATE ON THE MAIN 25A BREAKER IN THE VES POWER WASH ENCLOSURE.
4. ELECTRIC HEATER IS INSTALLED IN OUTSIDE CABINETS ONLY.

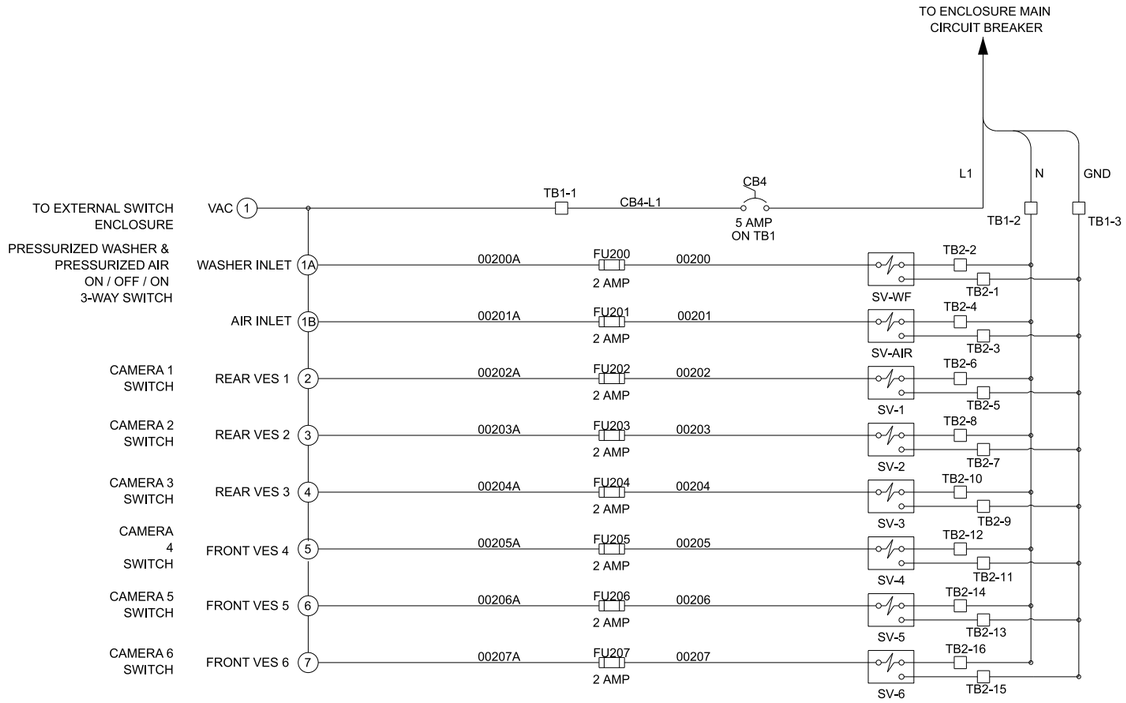
NOTE TO DESIGNER

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway

# VES WASH SYSTEM MISCELLANEOUS POWER WIRING DIAGRAM

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2542 | 1 OF 1 |




## SWITCH CONFIGURATION

**NOTE TO DESIGNER**

THIS BASE SHEET SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE *"CADD STANDARDS MANUAL"* ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. **ALL** "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

NOTES:

1. SCHEMATIC ILLUSTRATES ONE (1) LANE PLAZA WITH SIX (6) VES CAMERAS INSTALLED (3 REAR AND 3 FRONT VES).

Illinois Tollway

# VES WASH SYSTEM CONTROL SWITCH SCHEMATIC

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2543 | 1 OF 1 |

GENERAL NOTES:

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" x 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL.

REINFORCEMENT BARS:

1. REINFORCEMENT BARS, INCLUDING REINFORCEMENT BARS, EPOXY-COATED SHALL CONFORM TO THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS SECTION 508 AND ARTICLE 1006.10.

2. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY-COATED.

3. REINFORCEMENT BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".

4. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT-TO-OUT.

5. COVER FROM THE FACE OF CONCRETE TO FACE OF REINFORCEMENT BARS SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.

CONSTRUCTION SPECIFICATIONS:

1. ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS ISSUED MARCH, 2023 TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

2. ILLINOIS DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS ADOPTED JANUARY 1, 2023.

3. ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2022.

DESIGN LOADING:

LIVE LOAD, CONTROLLING CASE OF THE FOLLOWING:
100 P.S.F.
2,000 LB. CONCENTRATED FORCE OR
KNOWN LOADING PROVIDED BY ITS
SNOW LOAD: 50 P.S.F.
WIND SPEED: 120 M.P.H. APPLIED TO BUILDING WALLS, PER ASCE 7-16
DEAD LOAD: 30,000 POUNDS (12'x30' BUILDING) OR 20,000 POUNDS (12'x20' BUILDING) SELF WEIGHT OF SLAB

DESIGN STRESSES FOR REINFORCED CONCRETE:

f'c = COMPRESSIVE STRENGTH OF CONCRETE (CLASS SI) = 3,500 P.S.I.
fy = YIELD STRENGTH OF REINFORCEMENT BARS (GRADE 60) = 60,000 P.S.I.

DESIGN SPECIFICATIONS:

1. ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL ISSUED MARCH, 2023.

2. INTERNATIONAL BUILDING CODE, 2021.

3. ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES, 2017.

4. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2022.

5. ILLINOIS DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL, JANUARY 2023.

6. ILLINOIS TOLLWAY GEOTECHNICAL ENGINEER MANUAL DATED MARCH 2022.

NOTE TO DESIGNER

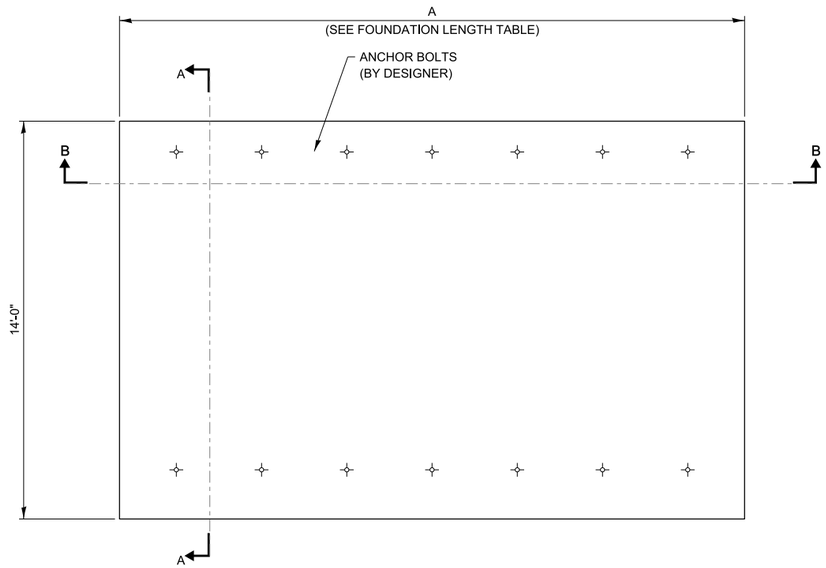
ALL "NOTE TO DESIGNER" BOXES SHALL BE REMOVED BY THE DESIGNER PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

THIS DRAWING IS A CONCEPT FOUNDATION FROM A BUILDING MANUFACTURER. THE FOUNDATION MUST HAVE A FLAT TOP SLAB AS SHOWN IN THE DRAWING TO SUPPORT THE BUILDING FRAME.

THE DESIGNER SHALL DESIGN THE TOP SLAB, FOOTERS, WALLS AND REINFORCING DETAILS AS NECESSARY TO SUPPORT THE BUILDING AND MEET LOCAL CODES.

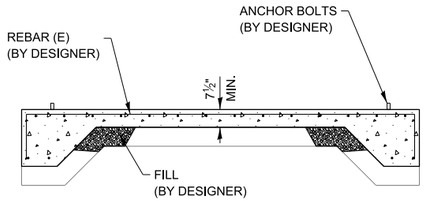
LOADS SHOWN ARE MINIMUM. IF ACTUAL LOADS ARE LARGER, REPLACEMENT MINIMUM LOADS SHOWN.

THE DESIGN IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2,000 P.S.F.

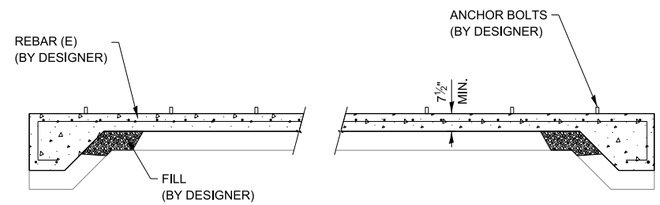



PLAN VIEW

| FOUNDATION LENGTH TABLE | |
|---|---|
| TOLL PLAZA BUILDING TYPE | DIMENSION |
| MAIN TOLL PLAZA BUILDING WITH GENERATOR | A = 32' |
| REMOTE TOLL PLAZA BUILDING WITHOUT GENERATOR | A = 22' |




SECTION A-A




SECTION B-B

Illinois Tollway

PLAZA CONTROL BUILDING CONCRETE FOUNDATION

| VERSION: | STANDARD: | SHEET: |
|---|---|---|
| 2021-03 | M-BUS-2544 | 1 OF 1 |