

<b>Illinois Tollway Base Sheet Revisions</b>
----------------------------------------------

<b>Section M Base Sheet Drawings</b>		<b>Effective: 2019-03-01</b>
<b>Drawing</b>	<b>Modification Summary</b>	
<b>Pole Assembly (ITS)-Series 1000</b>		
M-ITS-1000	<b>Elevation Views Pole Mounted ITS Element Assembly</b> Changed disconnect switch to unfused.	
M-ITS-1003	<b>ITS Concrete Service Pad (2 sheets)</b> New drawing with three types of service pads for ITS poles for flat and slope installation.	
M-ITS-1004	<b>Cabinet Wiring Diagram - ITS Pole Mounted Enclosure (Solar Powered MVDS) (2 sheets)</b> New cabinet layout separating ITS enclosure and dedicated co-located solar generator/battery cabinet with four 6 V batteries.	
<b>Dynamic Message Sign (ITS)-Series 1100</b>		
M-ITS-1108	<b>DMS Cabinet Wiring Diagram</b> Changed to Cisco 4000 series switch. Changed IP Relay to DIN IV.	
<b>Cabinet Wiring (ITS)-Series 1200</b>		
M-ITS-1200 to M-ITS-1217	<b>Cabinet Wiring Diagrams</b> 18 new ITS enclosure drawings replace old 56 ITS enclosure drawings for clarification. Drawings 1200 to 1217 have been redone completely. Consolidated equipment configurations. Standardized to-scale equipment layout. Changed to Cisco 4000 series switch. Eliminated 24 VAC transformer and 24 VAC CCTVs. Additional 24 VDC power supply. Cat6 Ethernet surge protectors revised to PoE++ compatible models.	
<del>M-ITS-12018 to M-ITS-1255</del>	<b>Cabinet Wiring Diagrams</b> Retired due to consolidation.	
<b>Roadway Weather Information System (ITS)-Series 1300</b>		
M-ITS-1300	<b>RWIS Pole, Sensor Mounting Detail</b> Pole height changed to 50 feet as standard pole for ITS with 17.5 inch bolt circle.	
M-ITS-1301	<b>RWIS Cabinet Wiring Diagram</b> Changed to Cisco 4000 series switch. Not connected to RWIS controller, for future use. Added IP Relay. Disconnected, for future use. Added secondary sensor pole cabinet wiring diagram. Cabinet is part of the design but was omitted in last year release.	
M-ITS-1303	<b>Typical RWIS Grounding Schematic</b> New drawing showing RWIS grounding system with grounding cable.	
<b>Solar Powered Generator (ITS)-Series 1400</b>		
<del>M-ITS-1402</del>	<b>Pole Mounted Solar MVDS Assembly</b> Co-located solar generator cabinet redesigned as M-ITS-1004.	
<b>Tower Mounted CCTV (ITS)-Series 1500</b>		
M-ITS-1500	<b>Tower Mount Camera Details</b> Cameras shown at offset height to avoid view obstruction. Pole mounting arm revised to Axis Q6155-E IP camera.	
M-ITS-1503	<b>Cabinet Wiring Diagram - Tower Mounted CCTV</b> Revised to show 24 VDC power supply, drawing drawn to scale.	
<b>Flashing Beacon (ITS)-Series 1700</b>		
M-ITS-1701	<b>Flashing Sign Beacon Installation Wiring Diagram</b> Revised to show full cabinet layout accomodating flasher beacon. Re-drawn to scale. Added flashing beacon, new surge suppressor.	
<b>IPDC Facility (ITS)-Series 1800</b>		
M-ITS-1802, 1803, 1805, 1806, 1809, 1810	<b>IPDC Facility</b> Building modified to accommodate larger generator room door, door stoppers. Additional exterior CCTV cameras. Added bird deterrant. Added exterior GFCI outlets.	
M-ITS-1802	Note 2: Seal door opening and protrusion/access against rodent and bugs. Note 3: Install removable stainless bollards per Illinois Tollway Maintenance.	
M-ITS-1803	Added 240 V service power outlet outside side wall.	
<b>Conduit Details at Integral Abutment Bridge (ITS)-Series 1900</b>		
M-ITS-1900	<b>Conduit Details at Integral Abutment Bridge with MSE Wall (Sheet 3)</b> Removed note stating concrete encasement to be placed monolithic with the approach slab. Added 0.5" PJF at the back of the abutment and approach bent. Added 0.75" PJF between the approach slab and encasement. Added detail for deflection and expansion fittings at the encasement and pile bent. Added detail for deflection fitting at encasement and abutment.	
<b>100 FT. Monopole (ITS)-Series 2000</b>		
M-ITS-2000 Sheet 4	<b>100 FT. Monopole Closed Circuit Television (CCTV) Camera Tower</b> Added sheet 4 of 4 showing hexagonal service pad.	

 New Sheet

 Retired Sheet

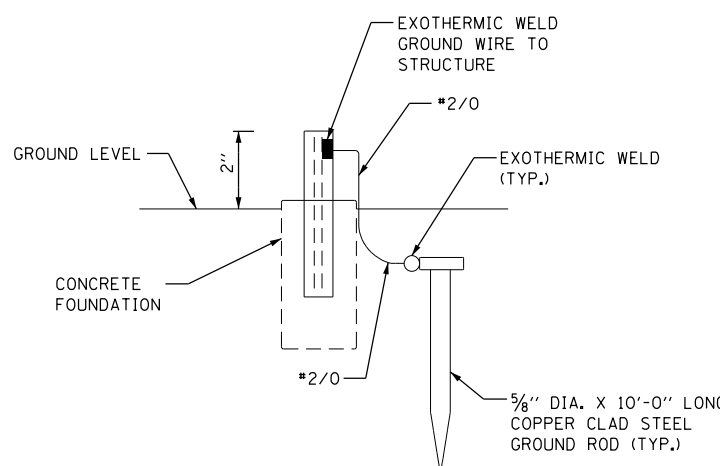
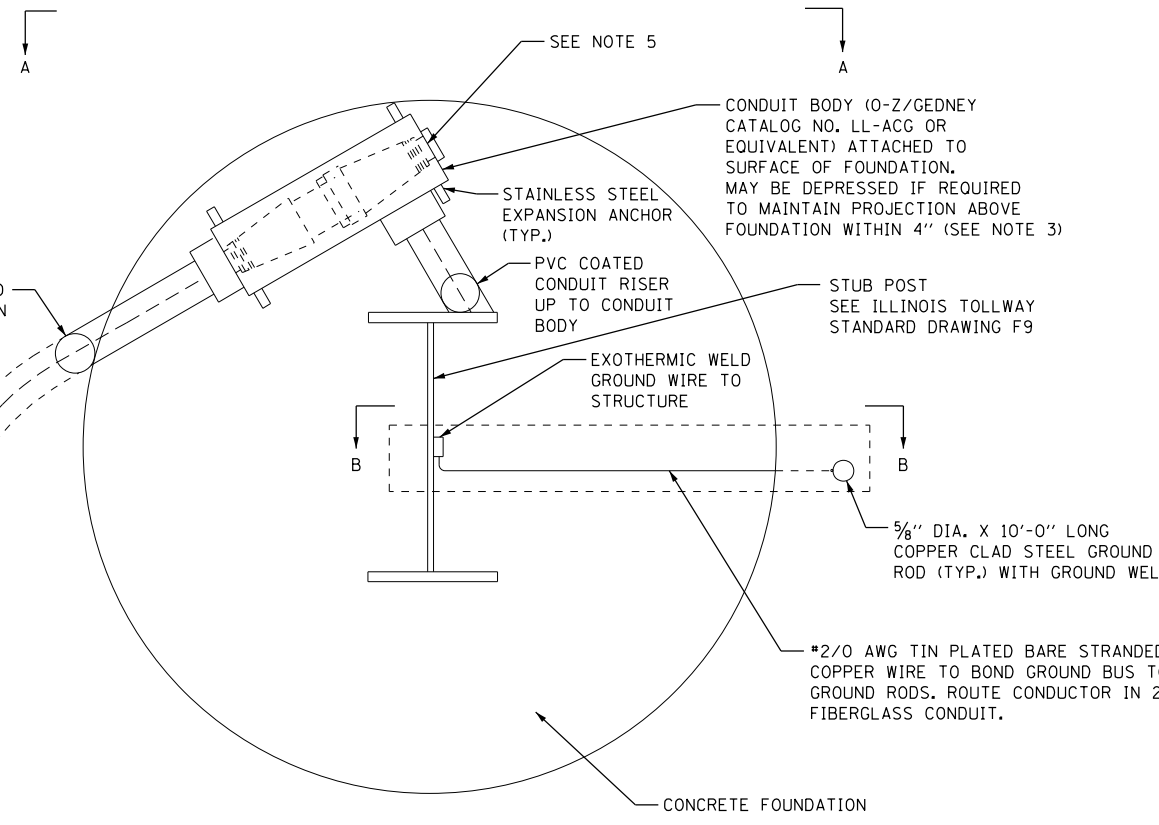
**NOTE TO DESIGNER**

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.

DIRECTION OF TRAVEL  
↑

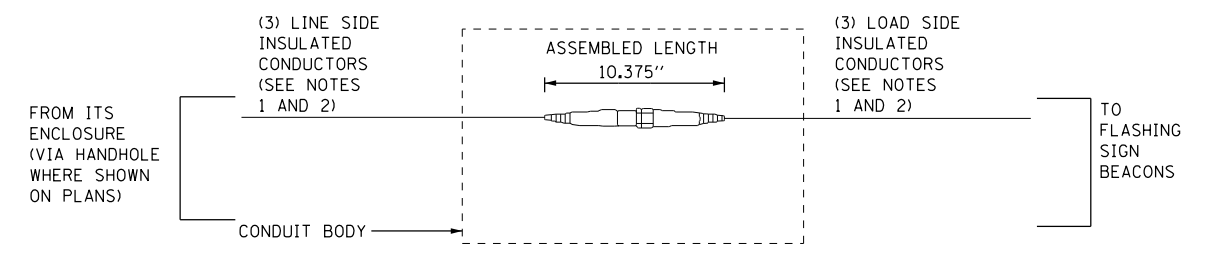
60"  
2" UNDERGROUND PVC COATED GALVANIZED STEEL

CONDUIT RISER UP TO CONCRETE FOUNDATION

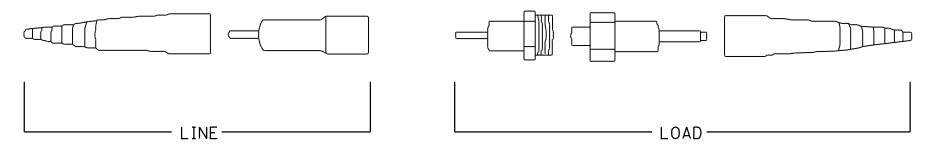


**SECTION B-B**  
SCALE: N.T.S.

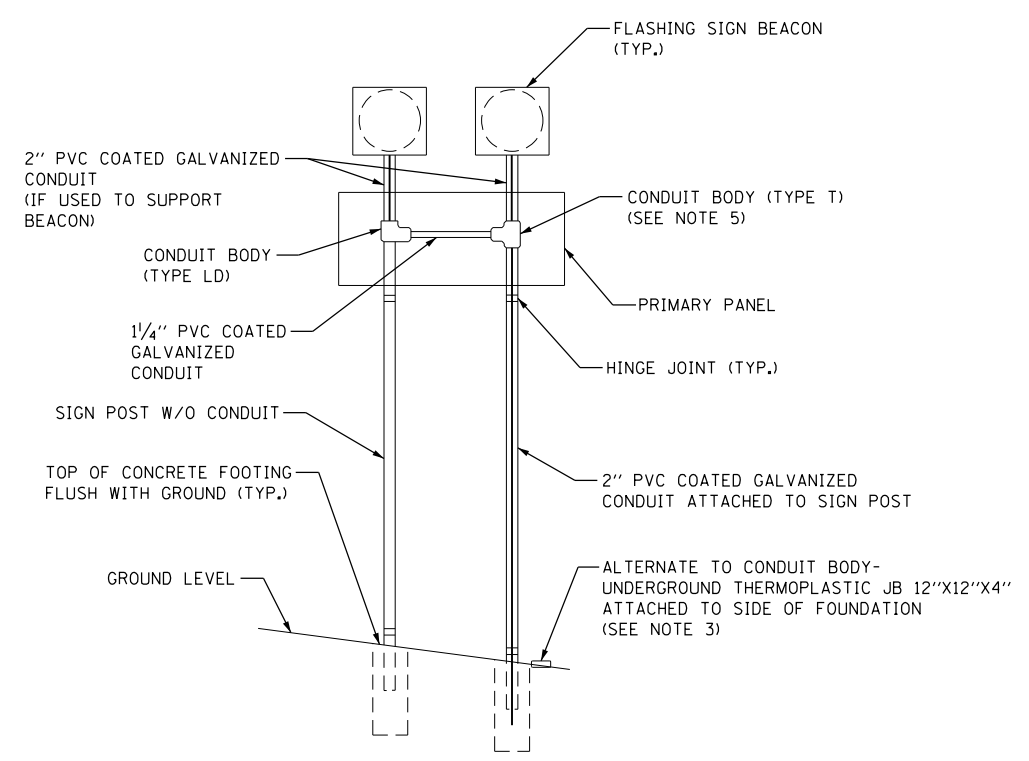
**TYPICAL PLAN AT FLASHING BEACON**  
SCALE: N.T.S.



**NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS**

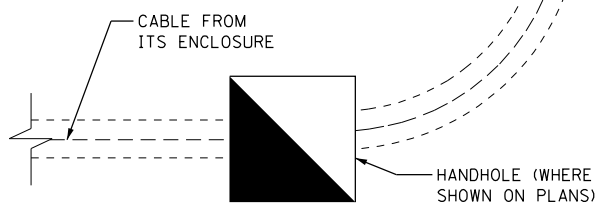


**NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS EXPLODED VIEW**



**ELEVATION A-A**  
SCALE: N.T.S.

- NOTES:**
1. SEE PLANS FOR REQUIRED CONDUCTOR SIZES.
  2. ALL THREE CONDUCTORS SHALL BE IN ONE HARNESS.
  3. AS AN ALTERNATE TO THE CONDUIT BODY ON FOUNDATION, USE THERMOPLASTIC JUNCTION BOXES (CARLON PART NO. E989UUN OR APPROVED EQUAL)
  4. SLACK IN LINE SIDE CABLE SHALL BE PROVIDED IN HANDHOLE.
  5. SLACK IN LOAD SIDE CABLE SHALL BE PROVIDED IN TYPE "T" CONDUIT BODY, BUT CABLE SHALL BE TIED.

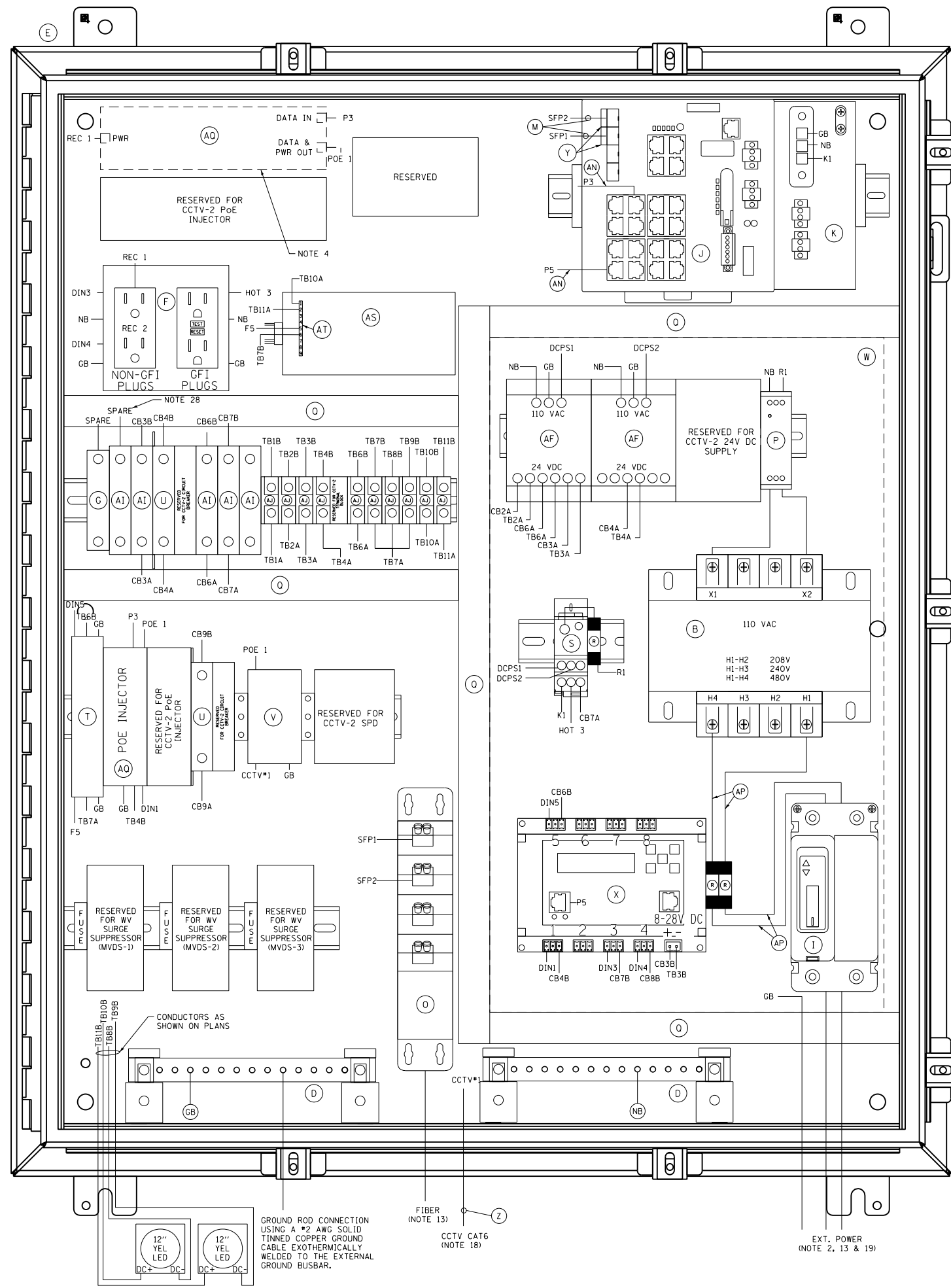


M-ITS-1700



FLASHING SIGN BEACON  
INSTALLATION BREAKAWAY  
ELECTRICAL DETAIL

DATE  
3-31-2016



- | ITEM | DESCRIPTION                                                                                                                                                                                                                                                        |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| B    | CONTROL POWER TRANSFORMER, 1000VA, 208/240/480-120VAC, 1PH SQUARE D/CLASS 9070 - T1000 D95                                                                                                                                                                         |
| C    | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| D    | TWO (2) GROUNDING BAR SYSTEM HOFFMAN/PGS2K, BONDED OR SEPARATED AS REQUIRED.                                                                                                                                                                                       |
| E    | NEMA 4X STAINLESS STEEL, 36"X 30"W X 12"D ENCLOSURE WITH 33"X27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30                                                                                                                                                             |
| F    | TWO DUPLEX 120V RECEPTACLES, ONE GFCI AND NON-GFI (SEE NOTE 9) HUBBELL/GFR5362 & BR20WR                                                                                                                                                                            |
| G    | 24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510                                                                                                                                                                                                         |
| H    | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| I    | 480V, 2P, 30A CIRCUIT BREAKER WITH TERMINAL SHIELD EATON/HFD2030L & 625B229G07                                                                                                                                                                                     |
| J    | NETWORK SWITCH CISCO IE-4000-8GT8GP4G-E                                                                                                                                                                                                                            |
| K    | CISCO POWER SUPPLY, PWR-1E170W-PC-AC=                                                                                                                                                                                                                              |
| L    | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| M    | 2 METER - SMFO LC-LC DUPLEX JUMPERS, CORNING/040402R5Z200Q2M                                                                                                                                                                                                       |
| N    | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| O    | SMF PATCH PANEL WITH LC CONNECTORS FIBER CONNECTIONS G420U08LAB-100-0                                                                                                                                                                                              |
| P    | 120VAC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL COOPER CROUSE HINDS/MA15/D/1/SI OR APPROVED EQUAL                                                                                                                                                                     |
| Q    | PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIXILG6 WITH COVER-FIX2LGG                                                                                                                                                                                             |
| R    | 10 AMP FUSE, GOULD (MERSEN)/ATM-10                                                                                                                                                                                                                                 |
| S    | SPLICE BLOCK, ALTECH/38041                                                                                                                                                                                                                                         |
| T    | 24VAC/VDC SURGE SUPPRESSOR, MOUNTED ON DIN RAIL MTL INSTRUMENTS/ZB24580                                                                                                                                                                                            |
| U    | 5A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB050                                                                                                                                                                                                                    |
| V    | CAT6 PoE+ SURGE SUPPRESSOR, DITEK SURGE PROTECTION/DTK-MRJPOES                                                                                                                                                                                                     |
| W    | CLEAR POLY METHYL METHACRYLATE (PMMA, PLEXIGLAS) SAFETY COVER ENCOMPASSING ITEMS AF, P, S, R, B, X, & I. (THE INSTALLER SHALL PERMANENTLY AFFIX A LABEL STATING "DANGER 480 VAC" OR "DANGER 240 VAC" OR "DANGER 120 VAC" FOR 120 VAC AS FIELD CONDITIONS WARRANT.) |
| X    | POWER CONTROLLER, 8-CHANNEL DIN ETHERNET RELAY DIGITAL LOGGERS/DIN 4                                                                                                                                                                                               |
| Y    | (2) CISCO GLC-LX-SM-RGD = 1 GBPS SM SFP MODULES                                                                                                                                                                                                                    |
| Z    | CATEGORY 6 CABLE, 23 AWG, OUTDOOR RATED CABLE BELDEN/7953A                                                                                                                                                                                                         |
| AA   | SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZB24510                                                                                                                                                                                       |
| AB   | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| AC   | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| AD   | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| AE   | RS-232 / RS-485 TO ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA P5150A, 0K-35A                                                                                                                                                                            |
| AF   | AC/DC POWER SUPPLY, 24VDC WAVETRONIX - CLICK-204 OR ISS LAMBDA DSP100-24                                                                                                                                                                                           |
| AG   | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| AH   | NOT USED FOR THIS SHEET APPLICATION                                                                                                                                                                                                                                |
| AI   | 2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB020                                                                                                                                                                                                                    |
| AJ   | TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8                                                                                                                                                                                                                             |
| AK   | MVDS ASSEMBLY (NOT SHOWN), SEE SPECIAL PROVISIONS WAVETRONIX (SMART SENSOR HDSS-126) OR ISS (SX-300)                                                                                                                                                               |
| AL   | TRANSFORMER COVERS, SQUARE D/9070FSC2                                                                                                                                                                                                                              |
| AM   | 5-CONDUCTOR JUMPER (Tx, Rx, GND, RTS, CTS), RS-232 SERIAL COMMUNICATIONS (APPLICABLE TO ISS/MOXA)                                                                                                                                                                  |
| AN   | INDOOR/OUTDOOR RATED CAT6 (1000MBS, TEMPERATURE HARDENED) THESE ARE THE CAT6 CABLES ROUTED INSIDE CABINET                                                                                                                                                          |
| AO   | MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60                                                                                                                                                                                                             |
| AP   | #10 AWG                                                                                                                                                                                                                                                            |
| AQ   | PoE INJECTOR AS APPROVED BY CAMERA MANUFACTURER SEE SPECIAL PROVISIONS FOR SPECIFIC MODEL NUMBERS (ONLY REQUIRED FOR PoE CAMERAS)                                                                                                                                  |
| AR   | T-BUS CONNECTOR (WAVETRONIX)                                                                                                                                                                                                                                       |
| AS   | ELTEC FS-3 DC FLASHER                                                                                                                                                                                                                                              |
| AT   | 9 PIN HARNESS FOR FS-3                                                                                                                                                                                                                                             |

- NOTES:
- ALL POWER WIRING SHALL BE RHH/RHW WITH WIRE TERMINALS OR TINNED.
  - CONTRACTOR TO VERIFY CORRECT TRANSFORMER TAPS ARE USED BASED ON INCOMING POWER SOURCE.
  - ALL CABLES AND EQUIPMENT SHALL BE PROPERLY DRESSED AND LABELED. ALL CONDUITS SHALL BE PROPERLY PLUGGED WITH DUCT SEAL PUTTY (RAINBOW TECHNOLOGIES OR EQUIVALENT).
  - SHEET SHOWS BOTH POE INJECTOR OPTIONS USING A 120VAC SUPPLY AND 24VDC SUPPLY. DEVICES REQUIRED FOR THE 120VAC SUPPLY ARE DENOTED WITH A DASHED LINE.
  - EACH 120VAC OUTLET, PS OR TRANSFORMER (ITEM F, K, L, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
  - MOUNT ITEMS J & K ON A 11.75 INCH CONTINUOUS SECTION OF DIN RAIL. THE DIN RAIL SHALL BE INSTALLED WITH THE CENTER LINE NO LESS THAN 5 INCHES FROM ANY OBSTACLE ABOVE AND NO LESS THAN 4 INCHES FROM ANY OBSTACLE BELOW. ALL DIN RAIL SHALL BE GROUNDED.
  - ALL CABLES INSTALLED WITHIN THE CABINET AND POLE SHALL BE OUTDOOR RATED.
  - WIFI COMMUNICATION SHALL BE DISABLED ON DIN ETHERNET RELAY.
  - THE GFI OUTLETS LOAD SHALL NOT BE CONNECTED TO ANY OTHER LOAD IN THE ENCLOSURE. THE 1900 QUAD BOX GFIS ARE INTENDED TO BE UTILIZED FOR EXTERNAL EQUIPMENT ONLY. EACH OUTLETS TAB SHALL BE BROKEN SO THEY ARE INDEPENDENT.
  - ALL BREAKERS SHALL BE LABELED (E.G. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
  - NOT USED FOR THIS SHEET APPLICATION
  - USE THE MOUNTING TABS ON THE IP RELAY UNIT TO MOUNT THE UNIT DIRECTLY TO THE BACK PLATE. REFER TO THE IP RELAY WIRING TABLE FOR WIRING DETAILS.
  - ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THE HANDHOLE.
  - POWER FEED TO THE CISCO IE4000 SWITCH SHALL BE FROM THE 120VAC INPUT WHEN THE ENCLOSURE IS AC POWERED.
  - NOT USED FOR THIS SHEET APPLICATION
  - IF A SOLAR GENERATOR IS CONNECTED, THEN ITEM P AND THE SECONDARY SIDE OF ITEM B SHALL BE CONNECTED UNTIL A FINAL AC CONNECTION IS MADE.
  - ITEM X IS USED TO CONTROL POWER TO THE CAMERAS AND DETECTORS. ALL 120VAC CONNECTIONS ON ITEM X SHALL BE PROTECTED.
  - CABLES TO BE ROUTED THROUGH POLE.
  - WHEN A 24VDC TO 120VAC POWER GENERATOR IS CONNECTED, THEN THE 480VAC TO 120VAC STEP DOWN TRANSFORMER IS BYPASSED.
  - NOT USED FOR THIS SHEET APPLICATION
  - NOT USED FOR THIS SHEET APPLICATION
  - DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
  - BOND NEUTRAL AND GROUND BUSES TOGETHER, WHEN REQUIRED. TIE THE ENCLOSURE INTO THE GROUND BUS.
  - ITEM W SHALL BE FORMED AND MOLDED TO FIT AROUND THE AREA DENOTED BY THE DASHED LINE. THE PLEXIGLASS SHALL BE MOUNTED TO THE BACKPLATE WITH SUFFICIENT AIR HOLES TO ALLOW HEAT TO ESCAPE THE AREA. THERE SHALL ALSO BE OPENINGS ON THE BOTTOM TO ALLOW CABLES TO BE PASSED FROM THE AC SECTION TO THE OTHER SECTIONS OF THE ENCLOSURE.
  - ITEM AL SHALL BE PLACED ON ITEM B.
  - ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
  - ALL INTERNAL 24VAC, 120VAC (STARTING ON SECONDARY SIDE OF ITEM B) AND ANY DC VOLTAGE POWER FEEDS USE #16 AWG CABLE.
  - SPARE BREAKER RESERVED FOR CONNECTED VEHICLE TECHNOLOGY.
  - ALL CONDUIT EXITING THE BOTTOM OF THE CABINET SHALL BE INSTALL IN-LINE WITH THE EQUIPMENT IT IS CONNECTED TO. THE CABLES SHALL BE INSTALLED IN A NEAT AND PROFESSIONAL MANNER.

**NOTE TO DESIGNER**

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 PRIOR TO INSERTION OF THE DRAWING INTO THE PLAN SET.

DESIGNER SHALL SPECIFY THE GATOR PATCH CABLE LENGTH PER SITE AND UPDATE ITEM (O) TO INCLUDE THIS LENGTH.