

Illinois Tollway Base Sheet Revisions

Section M		Base Sheet Drawings	
Drawing	Modification Summary	Effective: 2020-03-01	
Pole Assembly (ITS)-Series 1000			
M-ITS-1000	Elevation Views Pole Mounted ITS Element Assembly		
	Use 1 1/2" stainless conduits for power and fiber to ITS Enclosure instead of 2". Corrected the MVDS mounting height on elevation details Use 1 1/2" stainless conduit for ITS Disconnect switch		
M-ITS-1001	General Notes Pole Mounted ITS Assembly		
	Note added on placement of battery enclosure		
M-ITS-1002	ITS Standard Foundation		
	Note added to use 12 ft helix foundation for slopes over 1:6		
M-ITS-1003	ITS Concrete Service Pad		
	Shows option for back-to-back mounted ITS enclosures.		
M-ITS-1004	Cabinet Wiring Diagram - ITS Pole Mounted Enclosure (Solar Powered MVDS) (2 sheets)		
	Sheet 1: Revised layout to better accommodate future expansion.		
Dynamic Message Sign (ITS)-Series 1100			
M-ITS-1100 to M-ITS-1108	DMS		
	(Typical) Revised Type 1 nomenclature to Walk-in (Typical) Revised Type 2 nomenclature to Front Access		
M-ITS-1101	DMS Type 1 Site Grounding Plan		
	Revised to show paved median structure		
M-ITS-1108	DMS Cabinet Wiring Diagram		
	Clarified wiring diagram Updated switch model		
Cabinet Wiring (ITS)-Series 1200			
M-ITS-1200 to M-ITS-1217	Cabinet Wiring Diagrams		
	New Cat6 surge suppressor Axis T8061 for Axis PoE camera and Ditek for Cohu PoE camera Revised layout for Cisco 4000 switch, power supply, Cohu PoE injectors Revised 1214-1216 plan to remove Cisco switch Added Level 3 Cisco license (L-IE4000-RTU=) Modified gator patch model number		
Roadway Weather Information System (ITS)-Series 1300			
M-ITS-1300	RWIS Pole, Sensor Mounting Detail		
	General note to have manufacturer to supervise installation and commissioning Revised to show option for co-located CCTV camera and ITS enclosure Clarified the mounting height measured from pavement surface Installed new ITS Enclosure back to back to the RPU enclosure Add ITS Disconnect switch within 50 feet from primary pole Show RWIS cabinet configuration for the 3 electrical services		
M-ITS-1301	RWIS Cabinet Wiring Diagram		
	Removed Cisco switch and gator patch from RPU enclosure		
M-ITS-1302	Typical RWIS Site Installation Plan		
	Proposed location of temperature sensors are site specific, final position to be determined by the Engineer in consultation with manufacturer. Correct sensor beam position to be in the wheel track for primary and secondary pole. Power cable from primary pole to secondary pole not to be spliced		
M-ITS-1303	RWIS Grounding Schematic		
	Corrections and additional detail to grounding diagram		

 New Sheet

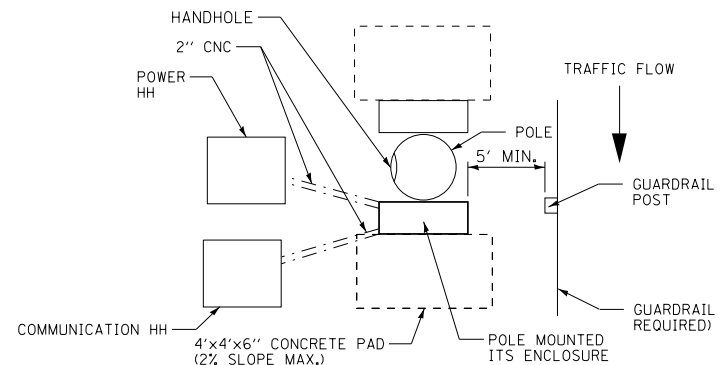
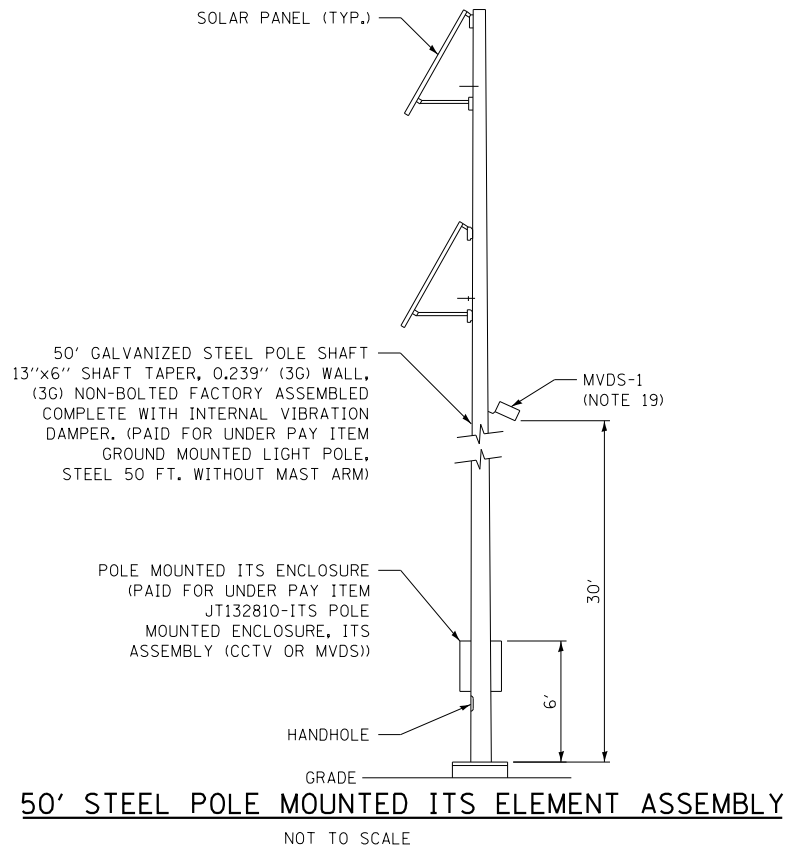
 Retired Standard

Illinois Tollway Base Sheet Revisions

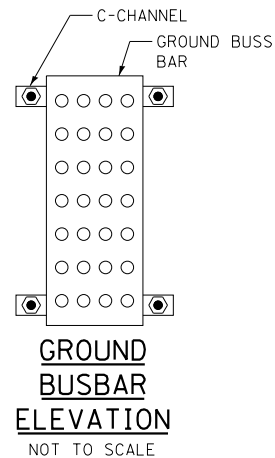
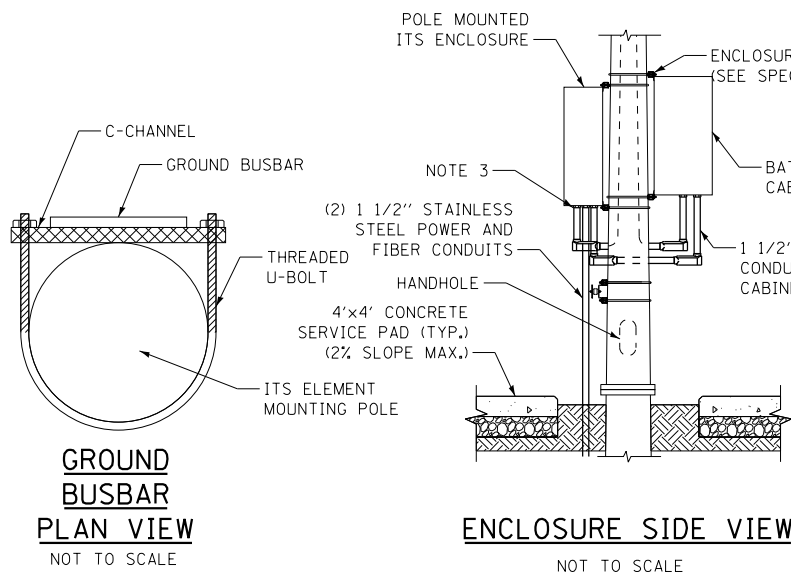
Section M		Base Sheet Drawings	
Drawing	Modification Summary	Effective: 2020-03-01	
Solar Powered Generator (ITS)-Series 1400			
M-ITS-1400	Solar Power Generator Details		
	Enclosure changed to Nema 4X		
Tower Mounted CCTV (ITS)-Series 1500			
M-ITS-1500	ITS Details Tower Mount Camera Details		
	Vertical distance between the two cameras is 24 in min. Both cameras to be installed on same side of the tower structure		
M-ITS-1501	ITS Details Tower Mount Camera Details, 300' Cat6 or More		
	Retired		
M-ITS-1502	ITS Details Tower Mount Camera Details, 300' Cat6 or Less		
	Vertical distance between the two cameras is 24 in min. Both cameras to be installed on same side of the tower structure		
M-ITS-1503	Cabinet Wiring Diagram Tower Mounted CCTV ITS Assembly		
	New Cat6 surge suppressor model		
	Revised layout of Cisco switch, power supply and Cohu PoE injector		
Weigh-in-Motion (ITS)-Series 1600			
M-ITS-1600	Weigh-In-Motion Cabinet and Foundation Details		
	Show two permanent antennas installed on top of WIM cabinet		
M-ITS-1603	Weigh-In-Motion Detector Loop and Quartz Sensor Detail		
	Show parking area for one vehicle for annual calibration		
M-ITS-1607	Weigh-In-Motion Height Detector		
	Added detail for overheight detector		
Flashing Sign Beacon (ITS)-Series 1700			
M-ITS-1701	Cabinet Layout and Wiring ITS Pole Mounted Enclosure (1-CCTV and Flashing Sign Beacon)		
	Update enclosure layout		
IPDC Facility (ITS)-Series 1800			
M-ITS-1800	IPDC Facility		
	No change		
Conduit Details at Integral Abutment Bridge (ITS)-Series 1900			
M-ITS-1900	Conduit Details at Integral Abutment Bridge with MSE Wall (Sheet 3)		
	No change		
100 FT. Monopole (ITS)-Series 2000			
M-ITS-2000	100 FT. Monopole Closed Circuit Television (CCTV) Camera Tower		
	Pole cap to use hex head screws		
	Show revised grounding around service pad		

 New Sheet

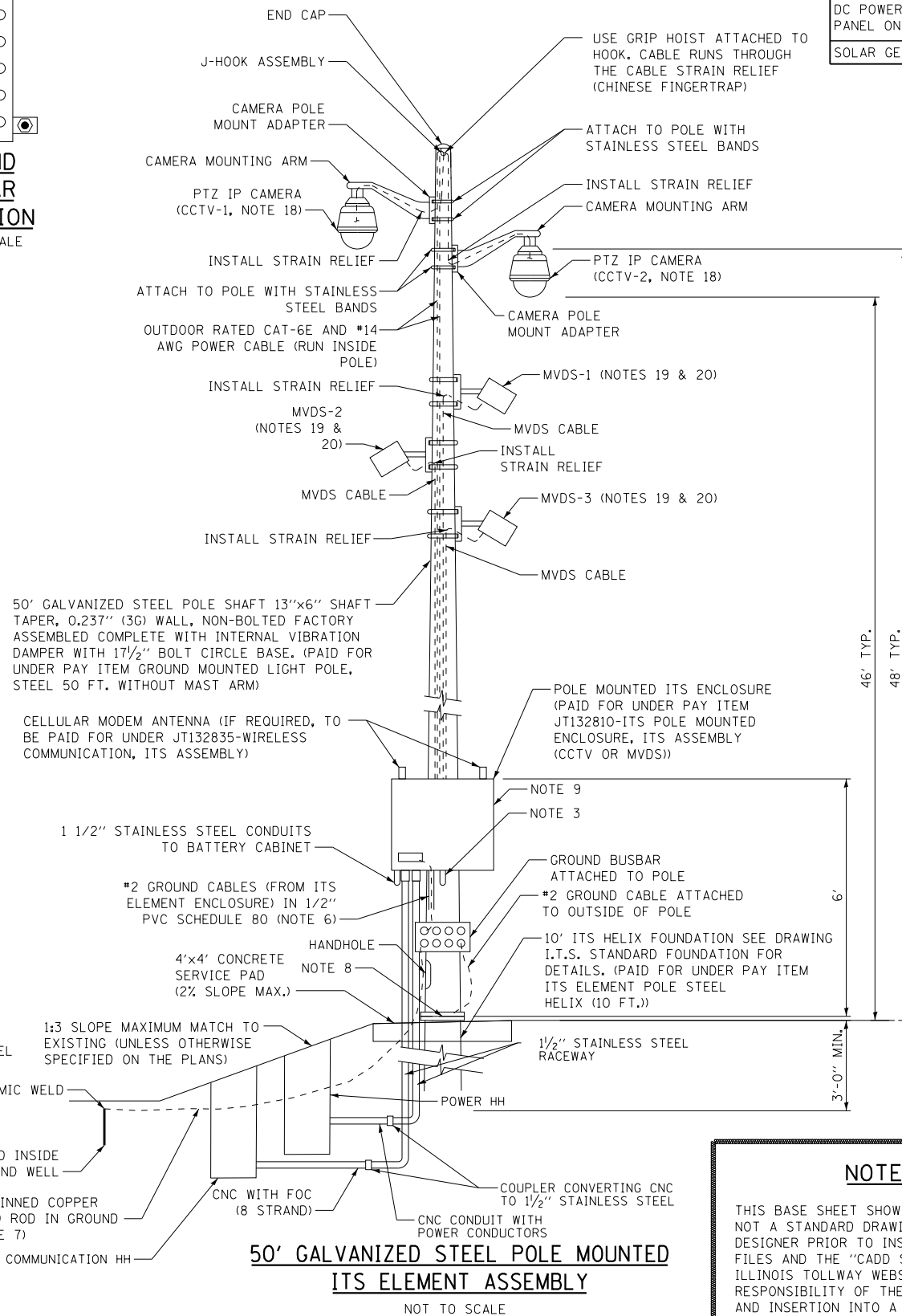
 Retired Standard



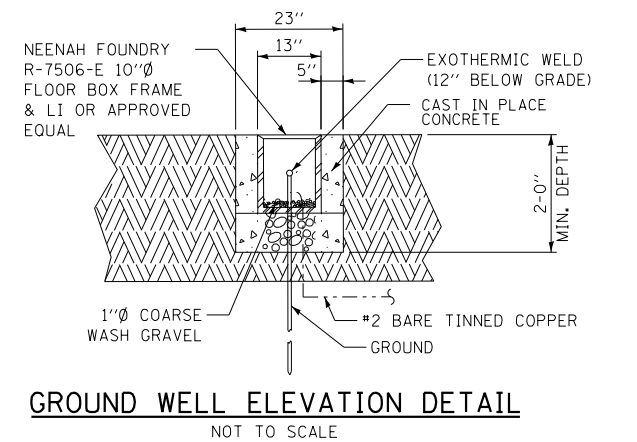
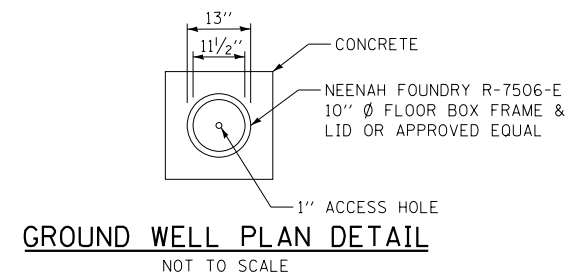
POLE MOUNTED ITS ELEMENT ASSEMBLY - TOP VIEW
NOT TO SCALE



NOTE 2 TO DESIGNER
THE DESIGNER SHALL COMPLETE THE COMPONENT REQUIREMENTS TABLE AS REQUIRED TO INDICATE WHICH COMPONENTS ARE TO BE INSTALLED ON EACH POLE MOUNTED ITS ASSEMBLY. DESIGNER TO EXPAND CHART AS NECESSARY.



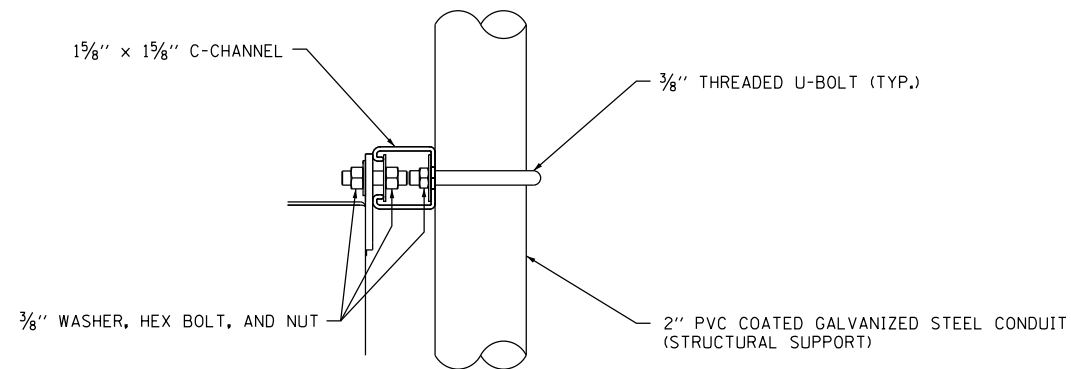
ELEMENT	SITE				SUPPORT TYPE		
	MILEPOST	STATION	OFFSET	ORIENTATION	POLE	FOUNDATION	MOUNTING HEIGHT
CCTV-1							
CCTV-2							
MVDS-1							
MVDS-2							
MVDS-3							
WIRELESS MODEM							
DC POWER (SOLAR PANEL ON POLE)							
SOLAR GENERATOR							



NOTE:
1. SEE M-ITS-1001 FOR NOTES.

NOTE 1 TO DESIGNER
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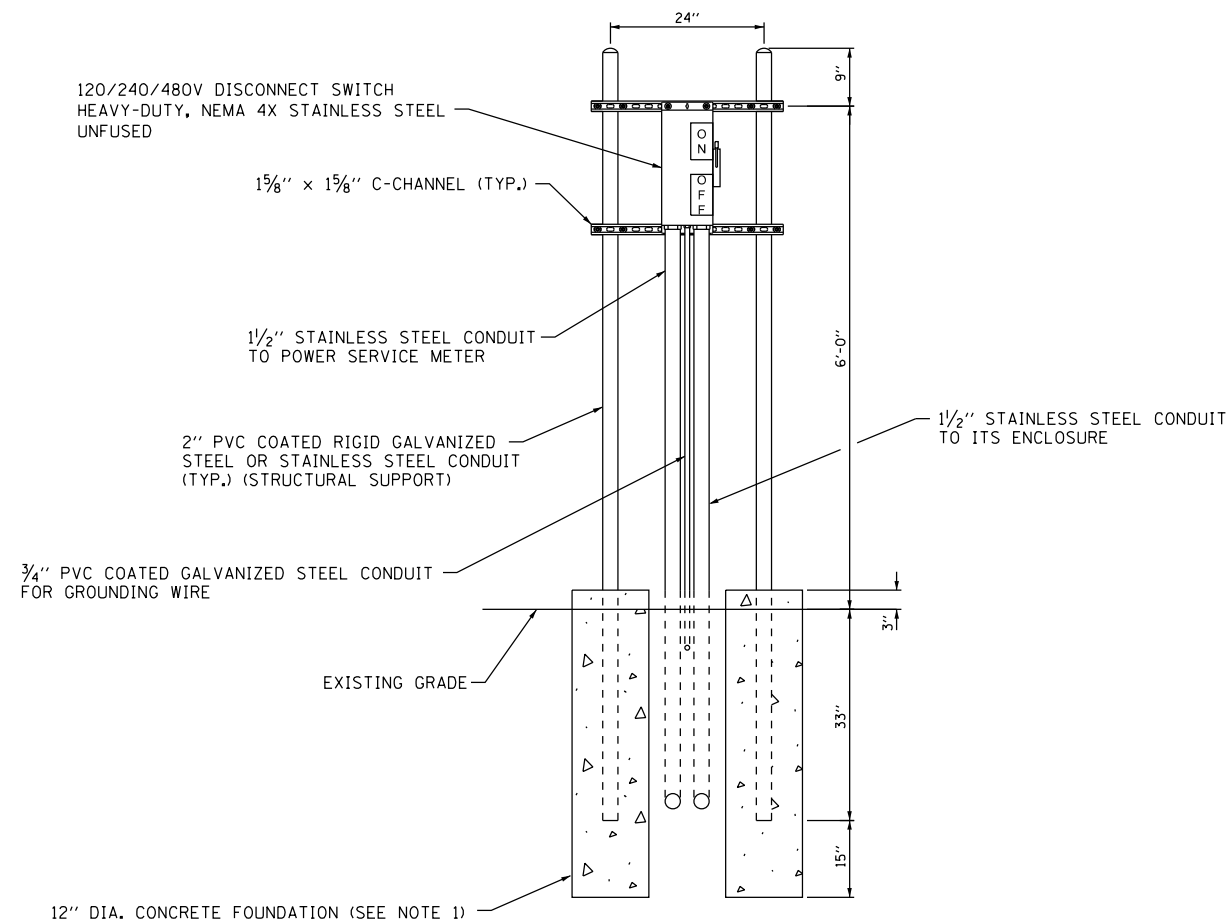




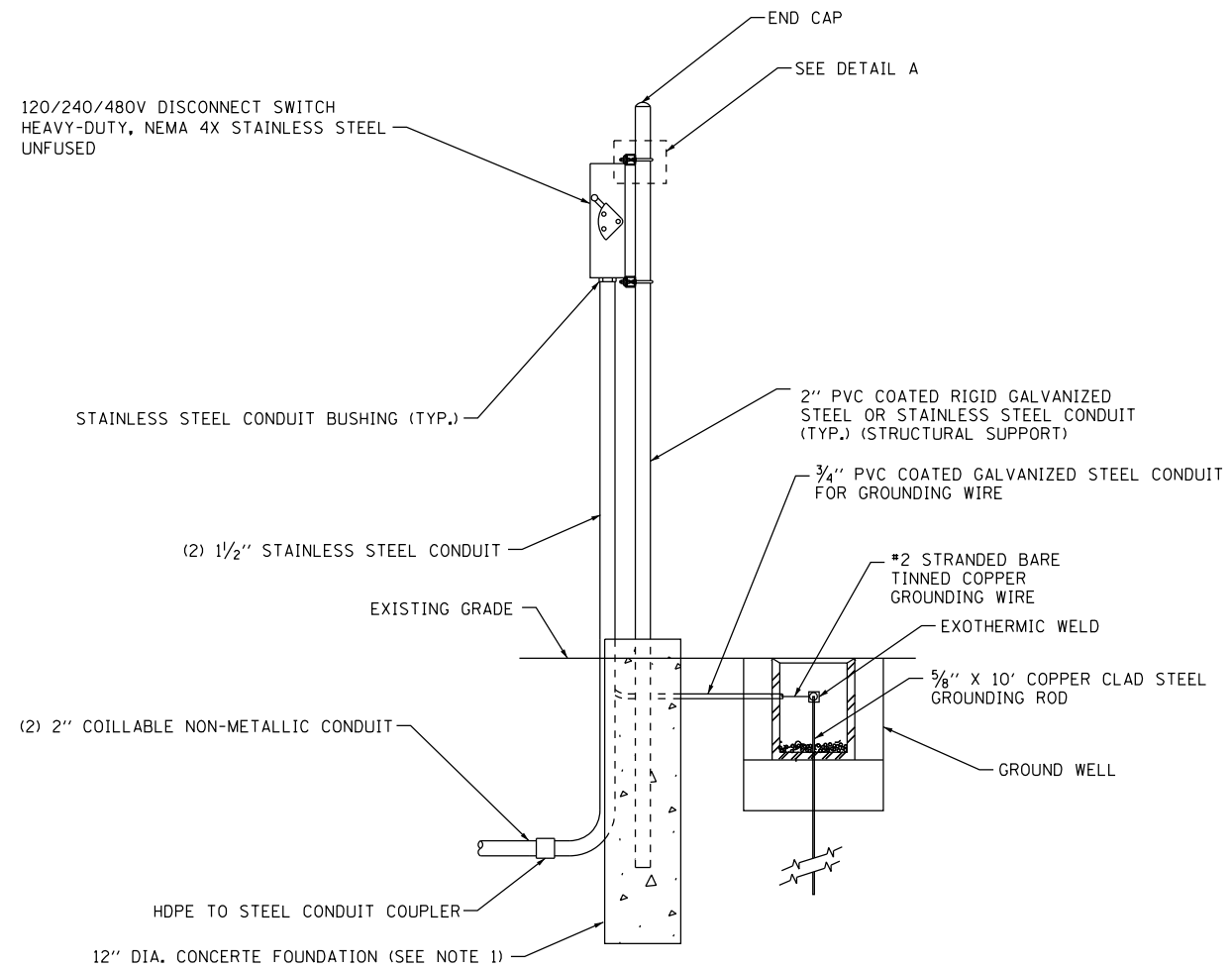
DETAIL A - TYPICAL MOUNTING ATTACHMENT CONNECTION

NOTES:

1. CONTRACTOR MAY ELECT TO CONSTRUCT A SINGLE, MONOLITHIC FOUNDATION IN PLACE OF THE FOUNDATION SHOWN ON THIS SHEET. CONTRACTOR SHALL SUBMIT ALTERNATE FOUNDATION DESIGN TO ENGINEER PRIOR TO CONSTRUCTION.
2. ALL CONCRETE SHALL BE IDOT CLASS SI.
3. DISCONNECT SWITCH, POSTS, FOUNDATION, AND MOUNTING HARDWARE ARE INCLUDED IN PAY ITEM "ITS DISCONNECT SWITCH ASSEMBLY" (JT132814).
4. DETAILS SHOWN IN THIS DRAWING APPLY ONLY TO LOCATIONS WHERE A STANDALONE DISCONNECT SWITCH IS REQUIRED AT AN ITS POLE.



ITS DISCONNECT SWITCH ASSEMBLY
FRONT VIEW



ITS DISCONNECT SWITCH ASSEMBLY
SIDE VIEW



GENERAL NOTES:

1. ITS ELEMENT POLES SHIELDED BY GUARDRAIL SHALL BE LOCATED A MINIMUM OF 5' TO A MAXIMUM OF 20' BEHIND THE GUARDRAIL POST. SEE ILLINOIS TOLLWAY GUARDRAIL STANDARD (SECTION C OF STANDARDS) FOR MORE INFORMATION. ALL OTHER POLES SHALL BE LOCATED OUTSIDE THE CLEAR ZONE. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.
2. ANY GROUND CABLES ROUTED INSIDE THE ENCLOSURE SHALL BE GREEN INSULATED TYPE RHW CONDUCTORS. ANY GROUND CONDUCTORS THAT ARE BURIED SHALL BE BARE COPPER TINNED. ANY GROUND CONNECTED TO THE EXTERNAL GROUND BUSBAR SHALL BE CADWELDED TO THE BUSBAR. PVC SCH 80 CONDUIT SHOULD BE GROMMETTED ON END GOING TO BUSBAR TO PREVENT RODENTS AND INSECTS FROM ENTERING.
3. PROVIDE A 1/2" ALUMINUM CONDUIT NIPPLE WITH LB FITTING FOR ROUTING ITS ELEMENT CABLES INSIDE THE POLE TO THE EQUIPMENT ENCLOSURE. DRILL AND TAP POLE FOR THE CONDUIT NIPPLE. CABLE SLACK SHALL BE PULLED AND FASTENED WITHIN THE TOP OF THE POLE. PROPER CABLE STRAIN RELIEF SHALL BE INSTALLED AND APPROVED BY THE ENGINEER. ALL CABLE RUN INSIDE THE POLE SHALL NOT HANG BELOW THE TOP OF THE HANDHOLE COVER ON THE POLE.
4. ALL CONDUITS ENTERING THE ENCLOSURE SHALL BE SEALED. SEE "ITS POLE MOUNTED ENCLOSURE, ITS ASSEMBLY (CCTV OR MVDS)" SPECIAL PROVISION FOR MORE DETAIL FOR RODENT PROTECTION.
5. CONTRACTOR TO PROVIDE ALL POWER, COMMUNICATIONS AND GROUND WIRING REQUIRED FOR SYSTEM OPERATION.
6. ATTACH PVC SCH 80 CONDUIT TO POLE FOR SUPPORT. USE METAL BUSHING WHEN CONNECTING PVC TO CABINET. USE GROMMETS AT BOTH ENDS OF CONDUIT TO SEAL CONDUIT BUT ALLOW GROUND CABLE TO RUN THROUGH BOTH ENDS.
7. GROUND ROD SHALL BE PLACED A MINIMUM OF 10' FROM THE FOUNDATION. A GROUND WELL SHALL BE INCLUDED TO PERMIT ACCESS TO THE GROUND ROD CONNECTION. CONNECTION TO THE GROUND BUSBAR AND THE GROUND ROD SHALL BE CADWELD.
8. A FLAT STEEL MESH PANEL ALONG WITH A COMMERCIALY AVAILABLE HYDROPHOBIC LOW DENSITY COMPOSITE BACKFILL MATERIAL (KNOWN AS O-SET 250) SHALL BE INSTALLED BETWEEN THE ANCHOR BASE AND THE POLE TO PREVENT THE ENTRY OF RODENTS INTO THE POLE. SEE SPECIAL PROVISIONS FOR MORE DETAILS.
9. THIS ITS ELEMENT ENCLOSURE DETAIL WILL BE UTILIZED FOR POLE MOUNTED APPLICATIONS ONLY, IT CANNOT BE UTILIZED FOR TOWER MOUNTED APPLICATION.
10. BACKFILL PER ILLINOIS TOLLWAY STANDARD H1. BACKFILL SHALL BE TO THE TOP OF THE POLE BASE ON ALL SIDES.
11. ALL CABLING (INCLUDING CABLING INSIDE THE ENCLOSURE) IS OUTDOOR RATED. CAMERA CABLE PART NUMBERS ARE: CAT-6E CABLE (BELDEN CATALOG NO. 7953A) AND #14 AWG 3/C CCTV POWER CABLE (BELDEN CATALOG NO. 9367). THE GROUND WIRE (WHITE) IN THE 3/C #14 AWG POWER CABLE SHALL BE TAPED GREEN. ANY OTHER ITS ELEMENT WILL USE SPECIFIC CABLE ASSOCIATED TO THAT ELEMENT.
12. THE J-HOOK SHALL BE WELDED IN PLACE TO THE SIDE OF THE POLE, NEAR THE TOP OF THE POLE. THE CONTRACTOR SHALL PROVIDE A CUSTOM FLAT TOP POLE CAP THAT WILL FIT THE POLE TOP WITH THE J-HOOK WELDED TO THE SIDE. THE POLE CAP SHALL BE SECURED TO THE POLE BY DRILLING AND INSERTING SET SCREWS.
13. THIS DRAWING IS A MULTI-PURPOSE DRAWING THAT INCLUDES TWO TYPES OF CONNECTIONS TO A SOLAR POWERED BATTERY ENCLOSURE. IF SOLAR POWER IS UTILIZED, THEN THE SPECIAL PROVISIONS WILL CALL OUT THE MATERIAL AND NECESSARY CONNECTIONS TO THE ITS ELEMENT ENCLOSURE.
14. CONSTRUCT A 4 FT. X 4 FT. CONCRETE SERVICE PAD 6-INCHES FROM THE POLE BASE ON THE SAME SIDE AS THE ITS ENCLOSURE, CENTERED WITH THE ITS ENCLOSURE.
15. THIRTY DAYS PRIOR TO INSTALLING ANY NEW CCTV CAMERA, MVDS, SWITCH, WIRELESS OR FIBER OPTIC MODEM, THE CONTRACTOR SHALL COORDINATE DEVICE CONFIGURATION WITH THE ENGINEER.
16. THE DISCONNECT SWITCH, SUPPORT, AND ASSOCIATED CONDUIT SHALL BE INSTALLED FOR ITS SITES WHERE THE UTILITY SERVICE INSTALLATION IS GREATER THAN 500 FEET FROM THE ITS SITE OR LOCATED ON THE OPPOSITE SIDE OF THE ROADWAY FROM THE ITS SITE.
17. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

CCTV NOTES:

18. FINAL PLACEMENT HEIGHTS OF THE CCTV CAMERAS SHALL BE BASED ON SITE CONDITIONS, ILLINOIS TOLLWAY OPERATIONAL NEEDS, AND AS PER MANUFACTURER'S MOUNTING RECOMMENDATIONS. THE HEIGHT SHALL BE APPROVED BY THE ENGINEER ONLY AFTER REVIEW BY ILLINOIS TOLLWAY ITS OPERATIONS.

MVDS NOTES:

19. FINAL PLACEMENT HEIGHT OF THE MVDS SHALL BE BASED ON SITE CONDITIONS. REFER TO THE MVDS MANUFACTURER'S INSTALLATION GUIDE FOR RECOMMENDATIONS. THE HEIGHT SHALL BE APPROVED BY THE ENGINEER. THE MVDS SHALL BE PERPENDICULARLY ALIGNED TO THE ROADWAY IT IS INTENDING TO BE SENSING.
20. TWO MVDS UNITS ARE REQUIRED FOR THE FOLLOWING APPLICATIONS:
 - A) GATHER DATA FROM A MAINLINE ROADWAY SENSOR APPLICATION THAT REQUIRES TWO SENSORS.
 - B) ONE MVDS MAY BE UTILIZED FOR MAINLINE ROADWAY SENSING, WHILE THE SECOND IS UTILIZED FOR RAMP COUNTING OR ROD. THE CONTRACTOR SHALL ORIENT THE MVDS UNITS PERPENDICULAR TO THE ROADWAY BEING DETECTED.
21. BATTERY ENCLOSURE TO BE ATTACHED ON THE SIDE OF THE POLE UPSTREAM TO TRAFFIC.

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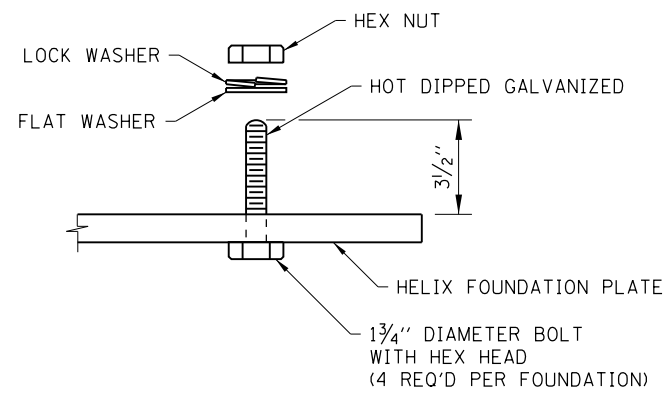
M-ITS-1001



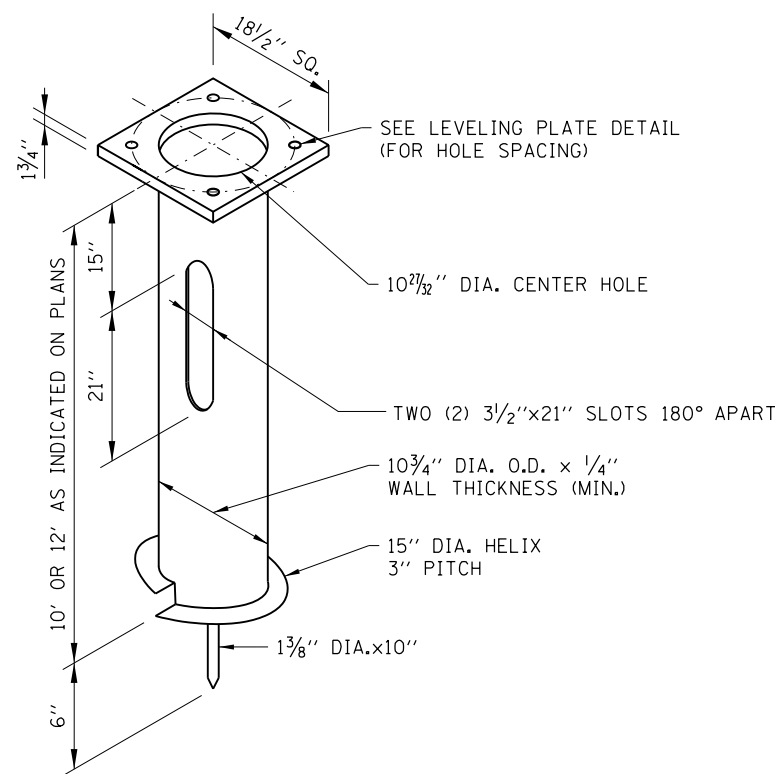
GENERAL NOTES
POLE MOUNTED ITS
ELEMENT ASSEMBLY

DATE

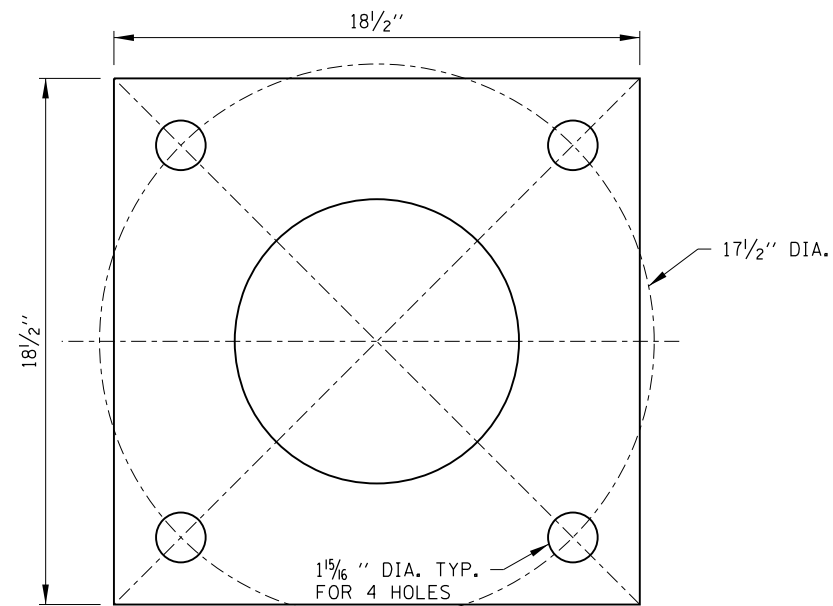
3-01-2020



BASE ATTACHMENT DETAIL
17 1/2" BASE DIA.



ISOMETRIC



LEVELING PLATE

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NOTE TO DESIGNER

ALL NEW 50 FT. STEEL ITS POLES REQUIRE A 17 1/2" DIA. BOLT CIRCLE. SHOULD A 15" DIA. BOLT CIRCLE BE REQUIRED, THE DSE SHALL REFERENCE ILLINOIS TOLLWAY STANDARD DRAWING HI (LIGHT STANDARD FOUNDATION).

NOTE TO DESIGNER

12 FT. STEEL HELIX FOUNDATIONS TO BE USED FOR SLOPES GREATER THAN 1:6. DESIGNER SHALL PROVIDE A TABLE TO BE INCLUDED ON THE PLANS WHICH INDICATES LOCATION, DEPTH OF FOUNDATION, AND ANY OTHER INFORMATION DEEMED NECESSARY FOR CONTRACTOR TO INSTALL PROPER FOUNDATION.

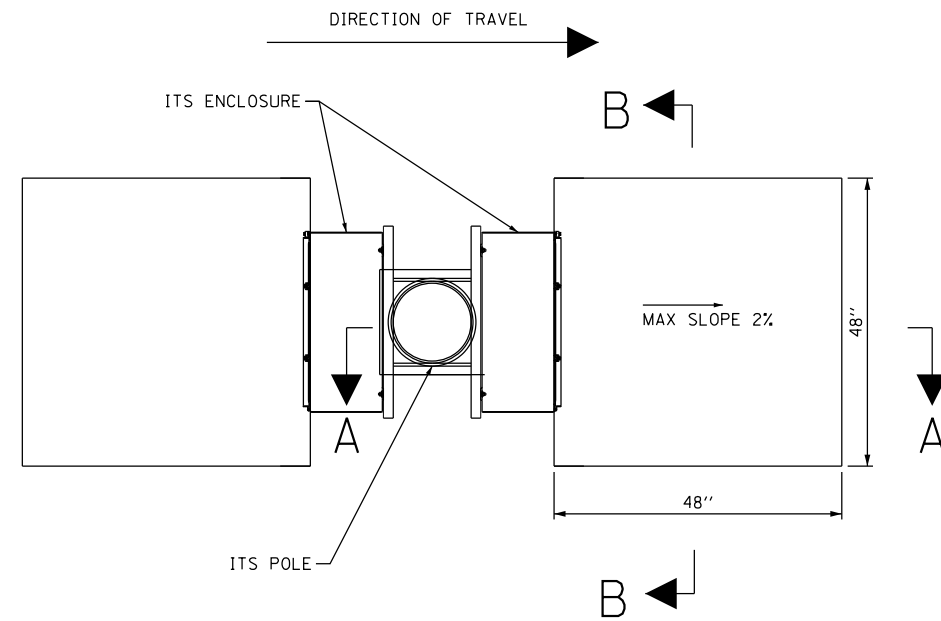
HELIX - GROUND MOUNTED ASSEMBLY

M-ITS-1002

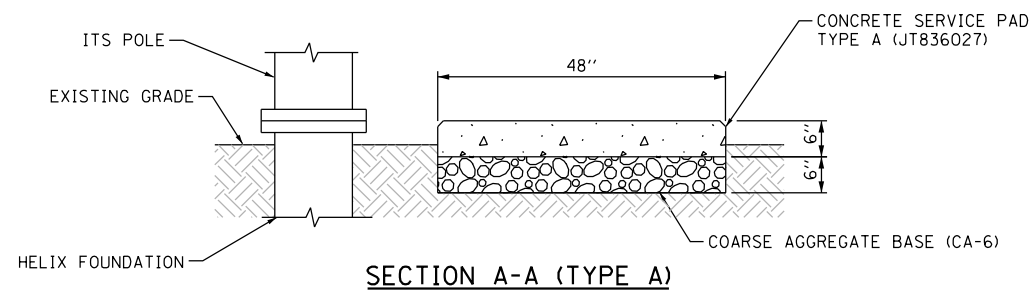


ITS STANDARD FOUNDATION

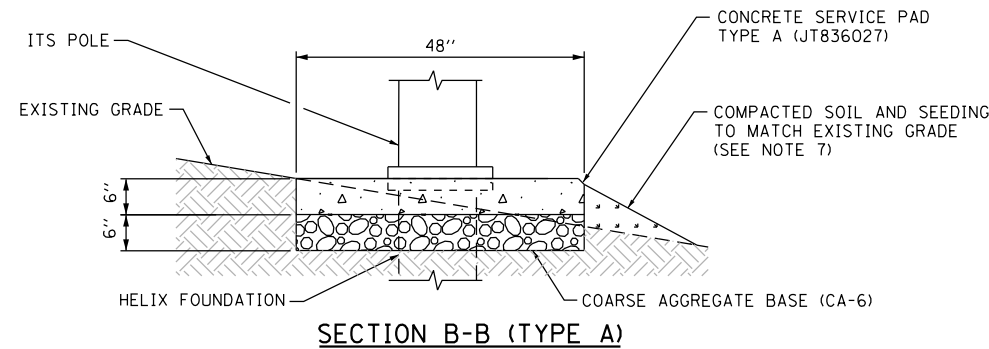
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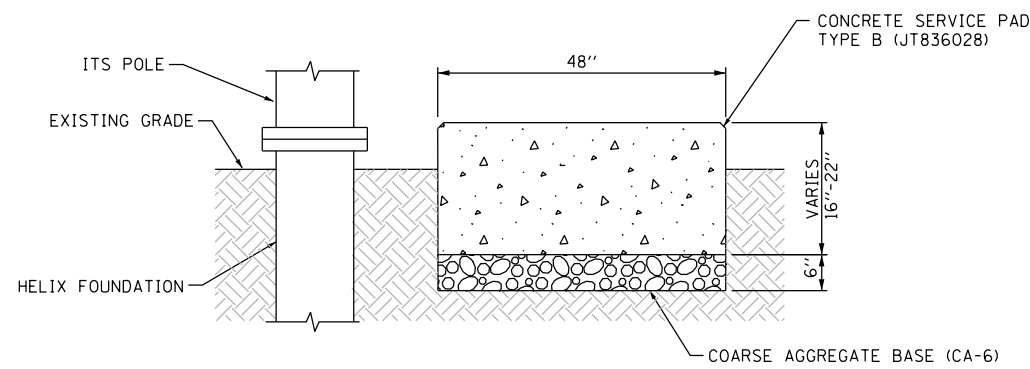
**CONCRETE SERVICE PAD FOR ITS POLE
PLAN VIEW**



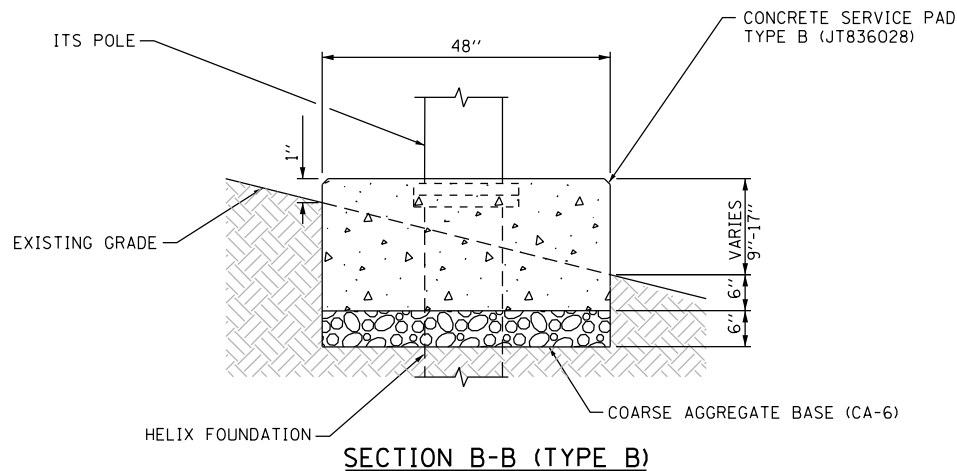
SECTION A-A (TYPE A)



SECTION B-B (TYPE A)



SECTION A-A (TYPE B)



SECTION B-B (TYPE B)

CONCRETE SERVICE PAD DETAILS

NOT TO SCALE

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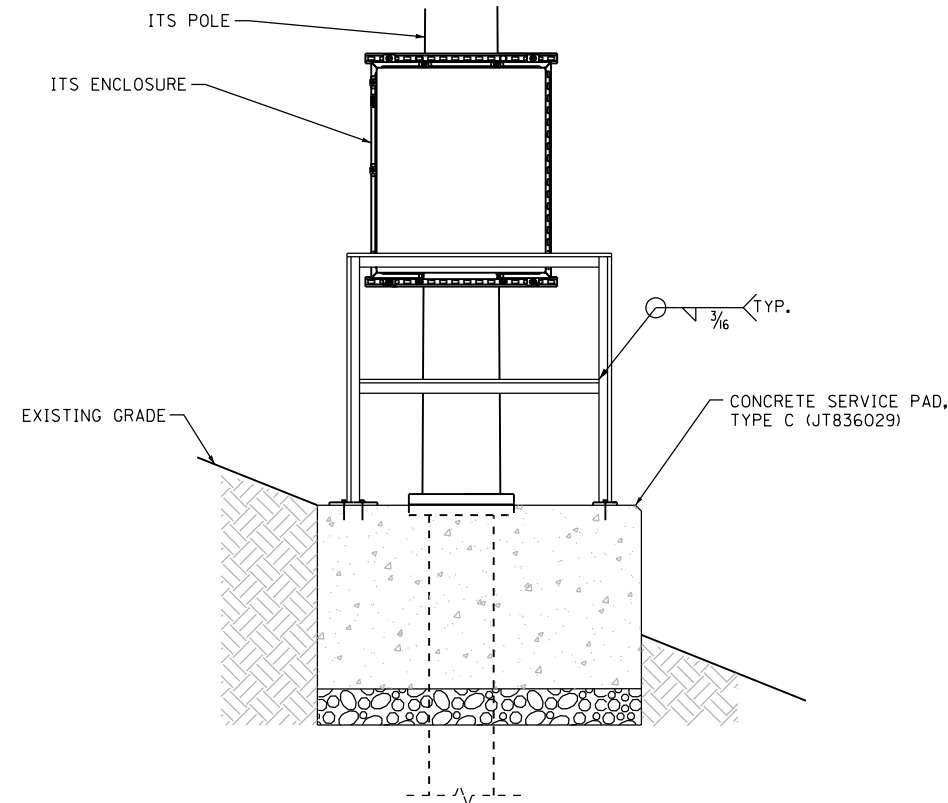
NOTES:

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2. TYPE B SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:6 AND LESS THAN OR EQUAL TO 1:3.
3. TYPE C SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:3 AS SHOWN ON SHEET M-ITS-1003 SHEET 2 OF 2.
4. CONCRETE SHALL BE IDOT CLASS SI.
5. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" MINIMUM CHAMFER.
6. CONTRACTOR SHALL TAKE PRECAUTIONS TO STABILIZE EXISTING ITS POLES AND HELIX FOUNDATIONS WHILE EXCAVATING SOIL FOR INSTALLATION OF CONCRETE SERVICE PADS.
7. COMPACTED SOIL SHALL BE PLACED TO BE LEVEL WITH THE SERVICE PAD. CONTRACTOR MAY USE EXCAVATED SOIL FROM PLACING THE PAD'S AGGREGATE BASE FOR GRADING PURPOSES WITH APPROVAL OF THE ENGINEER. SEEDING AND EROSION CONTROL SHALL BE PER THE GENERAL NOTES ON SHEET GN-08.
8. SOIL EXCAVATED FOR THE PURPOSE OF MAINTAINING A STABLE WORKING SLOPE WHILE INSTALLING THE SERVICE PAD SHALL BE REPLACED. BACKFILL SHALL BE EARTH WHICH IS FREE FROM DEBRIS, CINDERS, AND ROCKS MEASURING 2" OR GREATER IN DIAMETER. IN THE EVENT THAT EXCAVATED MATERIAL IS UNSUITABLE FOR USE AS BACKFILL, THE CONTRACTOR SHALL USE A CLEAN, NATURAL SAND. THIS SUBSTITUTE BACKFILL SHALL BE INCIDENTAL TO THE SERVICE PAD INSTALLATION AND WILL NOT BE PAID FOR SEPARATELY. ALL BACKFILL MATERIALS SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER.
9. THE TOP SURFACE OF SOIL DISTURBED BY EXCAVATION FOR PLACING THE SERVICE PADS SHALL BE SEEDING AND PROTECTED WITH EROSION CONTROL MEASURES PER THE GENERAL NOTES ON SHEET GN-08



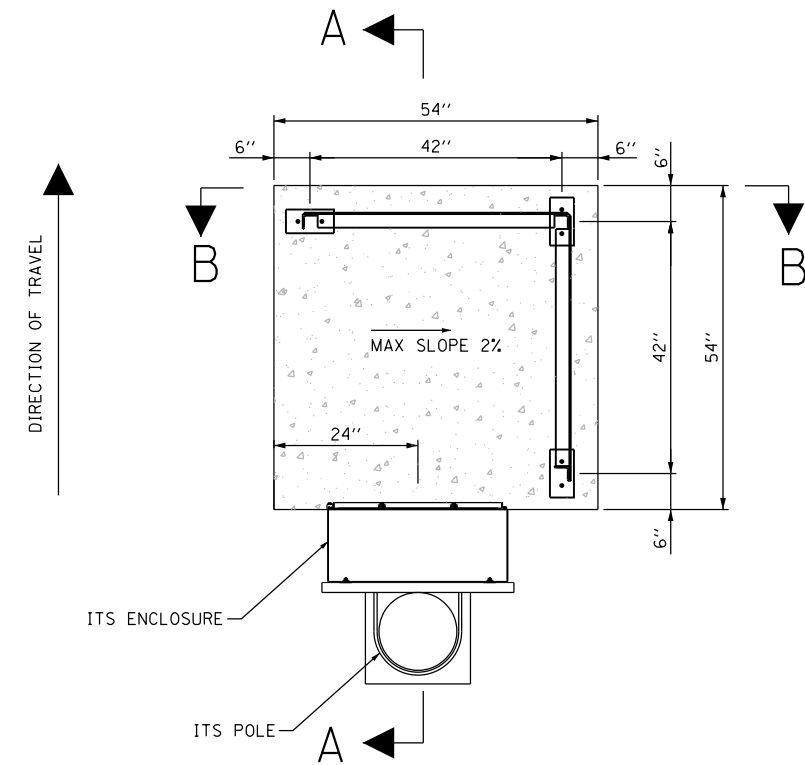
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3. TYPE C SERVICE PADS SHALL BE INSTALLED ON SLOPES GREATER THAN 1:3 AS SHOWN ON SHEET M-ITS-1003.
4. CONCRETE SHALL BE IDOT CLASS S1.
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**CONCRETE SERVICE PAD, TYPE C
ELEVATION VIEW**

NOT TO SCALE



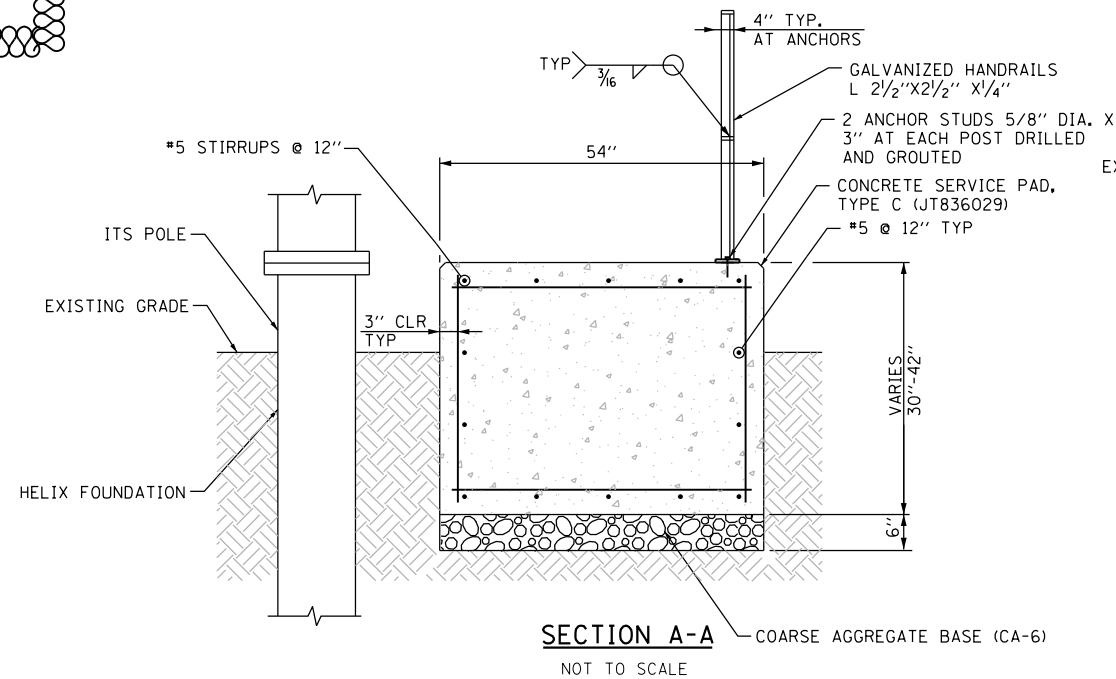
**CONCRETE SERVICE PAD, TYPE C
PLAN VIEW**

NOT TO SCALE

TYP. $\frac{3}{16}$

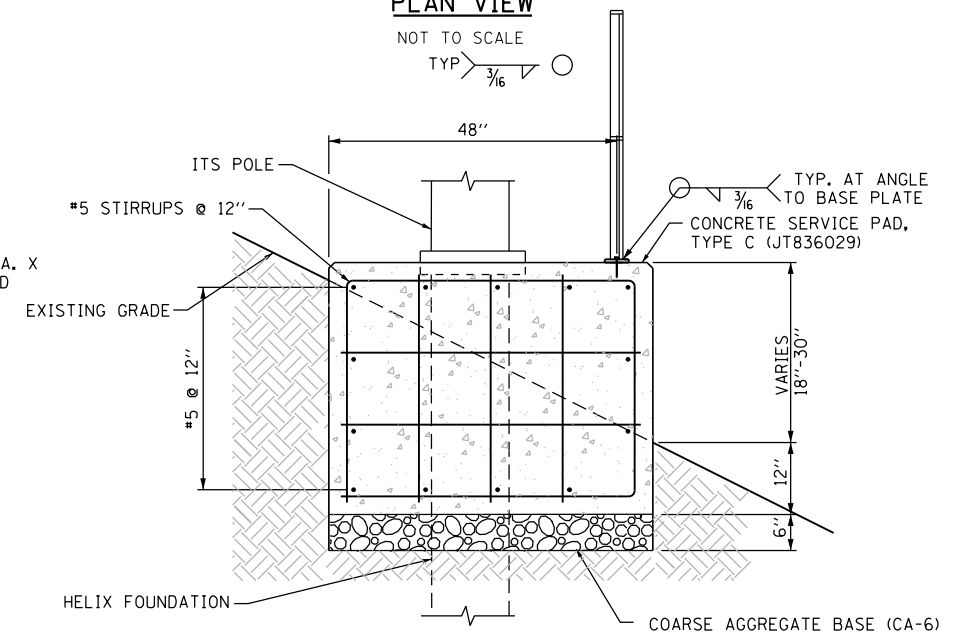
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SECTION A-A

NOT TO SCALE



SECTION B-B

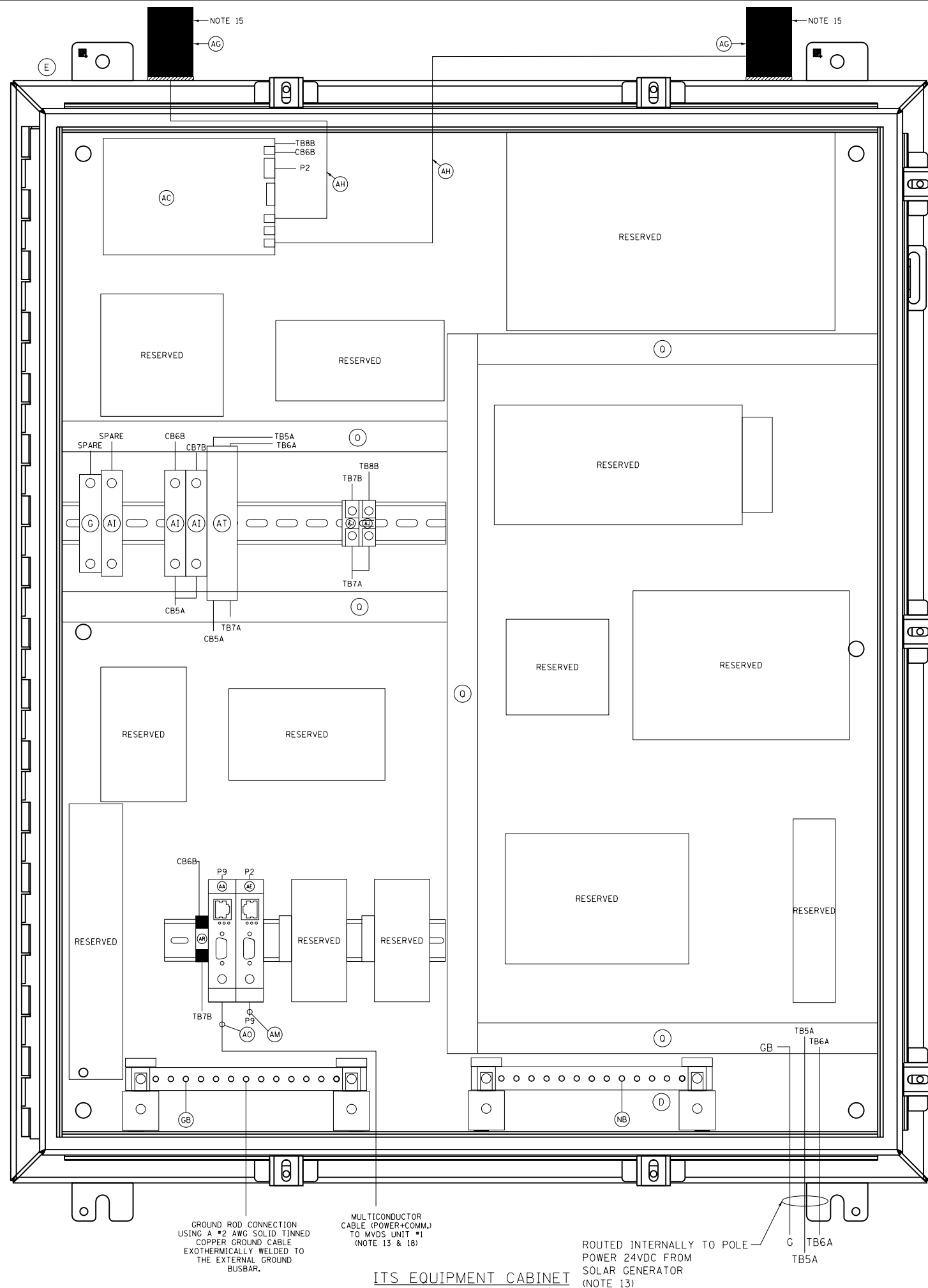
NOT TO SCALE

M-ITS-1003
SHEET 2 OF 2



ITS CONCRETE SERVICE PAD

DATE
3-01-2020



ITEM	DESCRIPTION
A	NOT USED FOR THIS SHEET APPLICATION
B	NOT USED FOR THIS SHEET APPLICATION
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" H X 30" W X 12" D ENCLOSURE WITH 33" X 27" PANEL, HOFFMAN/A36H3012SS6LP & A36P30
F	NOT USED FOR THIS SHEET APPLICATION
G	24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510
H	NOT USED FOR THIS SHEET APPLICATION
I	NOT USED FOR THIS SHEET APPLICATION
J	NOT USED FOR THIS SHEET APPLICATION
K	NOT USED FOR THIS SHEET APPLICATION
L	NOT USED FOR THIS SHEET APPLICATION
M	NOT USED FOR THIS SHEET APPLICATION
N	NOT USED FOR THIS SHEET APPLICATION
O	NOT USED FOR THIS SHEET APPLICATION
P	NOT USED FOR THIS SHEET APPLICATION
Q	PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX1LG6 WITH COVER-FIX2LG6
R	NOT USED FOR THIS SHEET APPLICATION
S	NOT USED FOR THIS SHEET APPLICATION
T	NOT USED FOR THIS SHEET APPLICATION
U	NOT USED FOR THIS SHEET APPLICATION
V	NOT USED FOR THIS SHEET APPLICATION
W	NOT USED FOR THIS SHEET APPLICATION
X	NOT USED FOR THIS SHEET APPLICATION
Y	NOT USED FOR THIS SHEET APPLICATION
Z	NOT USED FOR THIS SHEET APPLICATION
AA	SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZB 24510
AB	NOT USED FOR THIS SHEET APPLICATION
AC	CDMA MODEM ASSEMBLY (FOR VERIZON NETWORK)
AD	NOT USED FOR THIS SHEET APPLICATION
AE	RS-232 / RS-485 TO ETHERNET CONVERTOR WAVETRONIX - CLICK-301 OR ISS-MOXA P5150A, OK-35A
AF	NOT USED FOR THIS SHEET APPLICATION
AG	WIRELESS MODEM ANTENNAS, PCTEL/BMLPVD8700/2500
AH	WIRELESS MODEM ANTENNA CABLE, WITH SMA CONNECTORS PCTEL/PROFLEX PLUS 195-R058/U
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	NOT USED FOR THIS SHEET APPLICATION
AM	5-CONDUCTOR JUMPER (Tx, Rx, GND, RTS, CTS), RS-232 SERIAL COMMUNICATIONS (APPLICABLE TO ISS/MOXA)
AN	NOT USED FOR THIS SHEET APPLICATION
AO	MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60
AP	NOT USED FOR THIS SHEET APPLICATION
AQ	NOT USED FOR THIS SHEET APPLICATION
AR	T-BUS CONNECTOR (WAVETRONIX)
AS	NOT USED FOR THIS SHEET APPLICATION
AT	EATON ZONE BARRIER ZB24580 (OR EQUIVALENT)
AU	NOT USED FOR THIS SHEET APPLICATION
AV	NOT USED FOR THIS SHEET APPLICATION

- 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).
 - NOT USED FOR THIS SHEET APPLICATION.
 - EACH 120VAC OUTLET, PS OR TRANSFORMER (ITEM F, K, L, & AF) SHALL BE FED FROM A SEPARATE INPUT LINE.
 - NOT USED FOR THIS SHEET APPLICATION
 - 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.
 - THE CELL MODEM ANTENNAS SHALL BE PROPERLY SEALED WITH HIGH DENSITY NEOPRENE GASKETS RATED FOR HIGH TEMPERATURE TO PREVENT WATER PENETRATION INTO THE CABINET.
 - 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.
 - 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 INSTALLED 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.

M-ITS-1004
SHEET 1 OF 2

NOTE TO DESIGNER

DESIGNER SHALL CONTACT THE TOLLWAY'S ITS UNIT WHEN THE DESIGN NEEDS 2 OR 3 MVDS UNITS.

Illinois Tollway

CABINET LAYOUT AND WIRING
ITS POLE MOUNTED ENCLOSURE
(SOLAR POWERED 1-MVDS)

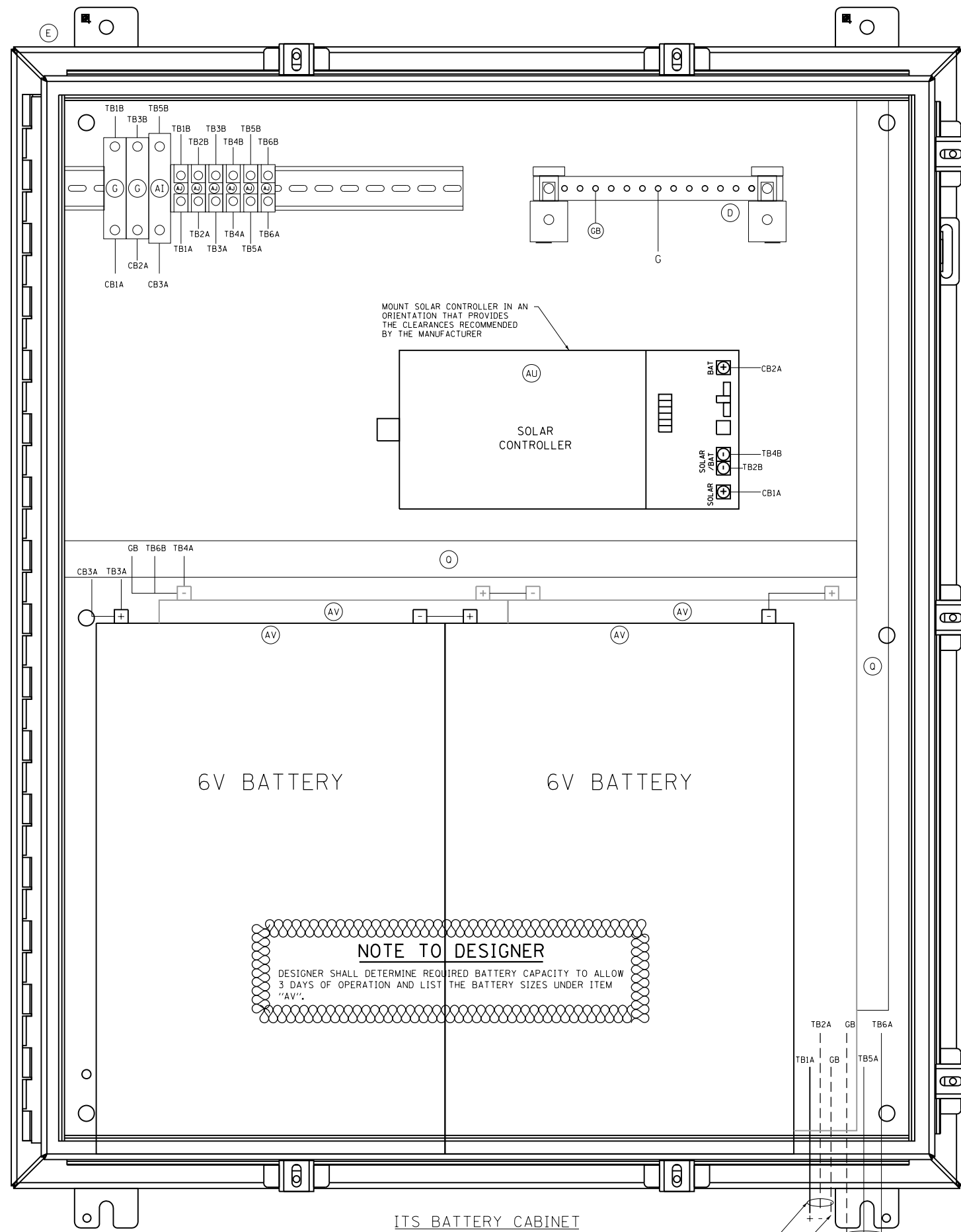
DATE
3-01-2020

GROUND ROD CONNECTION USING A #2 AWG SOLID TINNED COPPER GROUND CABLE EXOTHERMICALLY WELDED TO THE EXTERNAL GROUND BUSBAR.

MULTI-CONDUCTOR CABLE (POWER-COMM.) TO MVDS UNIT #1 (NOTE 13 & 18)

ROUTED INTERNALLY TO POLE
POWER 24VDC FROM SOLAR GENERATOR (NOTE 13)

ITS EQUIPMENT CABINET



ITEM	DESCRIPTION	NOTES:
A	NOT USED FOR THIS SHEET APPLICATION	1. ALL POWER WIRING SHALL BE RHH/RHW WITH WIRE TERMINALS OR TINNED.
B	NOT USED FOR THIS SHEET APPLICATION	2. NOT USED FOR THIS SHEET APPLICATION
C	NOT USED FOR THIS SHEET APPLICATION	
D	GROUNDING BAR SYSTEM HOFFMAN/PGS2K.	3. ALL CABLES AND EQUIPMENT SHALL BE PROPERLY DRESSED AND LABELED. ALL CONDUITS SHALL BE PROPERLY PLUGGED WITH DUCT SEAL PUTTY (RAINBOW TECHNOLOGIES OR EQUIVALENT).
E	NEMA 4X STAINLESS STEEL, 36" H X 30" W X 18" D ENCLOSURE WITH 33" X 27" PANEL	4. NOT USED FOR THIS SHEET APPLICATION.
F	NOT USED FOR THIS SHEET APPLICATION	5. NOT USED FOR THIS SHEET APPLICATION
G	24VDC, 1P, 15A CIRCUIT BREAKER SCHNEIDER ELECTRIC/MGN61510	6. NOT USED FOR THIS SHEET APPLICATION
H	NOT USED FOR THIS SHEET APPLICATION	
I	NOT USED FOR THIS SHEET APPLICATION	
J	NOT USED FOR THIS SHEET APPLICATION	7. ALL CABLES INSTALLED WITHIN THE CABINET AND POLE SHALL BE OUTDOOR RATED.
K	NOT USED FOR THIS SHEET APPLICATION	8. NOT USED FOR THIS SHEET APPLICATION
L	NOT USED FOR THIS SHEET APPLICATION	9. NOT USED FOR THIS SHEET APPLICATION
M	NOT USED FOR THIS SHEET APPLICATION	
N	NOT USED FOR THIS SHEET APPLICATION	
O	NOT USED FOR THIS SHEET APPLICATION	10. ALL BREAKERS SHALL BE LABELED (e.g. CAMERA-AC, CAMERA-DC, DIN RELAY-AC, DIN RELAY-DC, CELL MODEM-AC ETC.).
P	NOT USED FOR THIS SHEET APPLICATION	11. NOT USED FOR THIS SHEET APPLICATION
Q	PANDUIT WIRING DUCT (OR EQUIVALENT) PANDUIT/FIX1LG6 WITH COVER-FIX2LG6	12. NOT USED FOR THIS SHEET APPLICATION
R	NOT USED FOR THIS SHEET APPLICATION	
S	NOT USED FOR THIS SHEET APPLICATION	13. ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM. ALL POWER AND COMMUNICATION CABLE SLACK SHALL BE PLACED IN THE POLE.
T	NOT USED FOR THIS SHEET APPLICATION	14. NOT USED FOR THIS SHEET APPLICATION
U	NOT USED FOR THIS SHEET APPLICATION	
V	NOT USED FOR THIS SHEET APPLICATION	15. NOT USED FOR THIS SHEET APPLICATION
W	NOT USED FOR THIS SHEET APPLICATION	
X	NOT USED FOR THIS SHEET APPLICATION	16. NOT USED FOR THIS SHEET APPLICATION
Y	NOT USED FOR THIS SHEET APPLICATION	
Z	NOT USED FOR THIS SHEET APPLICATION	17. NOT USED FOR THIS SHEET APPLICATION
AA	NOT USED FOR THIS SHEET APPLICATION	18. CABLES TO BE ROUTED THROUGH POLE.
AB	NOT USED FOR THIS SHEET APPLICATION	19. NOT USED FOR THIS SHEET APPLICATION
AC	NOT USED FOR THIS SHEET APPLICATION	
AD	NOT USED FOR THIS SHEET APPLICATION	20. NOT USED FOR THIS SHEET APPLICATION
AE	NOT USED FOR THIS SHEET APPLICATION	21. NOT USED FOR THIS SHEET APPLICATION
AF	NOT USED FOR THIS SHEET APPLICATION	22. DIN RAIL SHALL BE INSTALLED AS ILLUSTRATED ON DRAWING. DIN RAIL SHALL BE GROUNDED TO THE GROUND BUS.
AG	NOT USED FOR THIS SHEET APPLICATION	
AH	NOT USED FOR THIS SHEET APPLICATION	23. TIE THE ENCLOSURE INTO THE GROUND BUS.
AI	2A CIRCUIT BREAKER, ALLEN BRADLEY/1492-SPMIB020	24. NOT USED FOR THIS SHEET APPLICATION
AJ	TERMINAL BLOCK, ALLEN BRADLEY/1492-CD8	
AK	NOT USED FOR THIS SHEET APPLICATION	
AL	NOT USED FOR THIS SHEET APPLICATION	25. NOT USED FOR THIS SHEET APPLICATION
AM	NOT USED FOR THIS SHEET APPLICATION	26. ALL INTERNAL ENCLOSURE ROUTED AND TERMINATED CAT6 CABLE SHALL BE TEMPERATURE RATED.
AN	NOT USED FOR THIS SHEET APPLICATION	
AO	NOT USED FOR THIS SHEET APPLICATION	27. NOT USED FOR THIS SHEET APPLICATION
AP	NOT USED FOR THIS SHEET APPLICATION	
AQ	NOT USED FOR THIS SHEET APPLICATION	28. NOT USED FOR THIS SHEET APPLICATION
AR	NOT USED FOR THIS SHEET APPLICATION	29. 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.
AS	NOT USED FOR THIS SHEET APPLICATION	
AT	NOT USED FOR THIS SHEET APPLICATION	
AU	MORNINGSTAR TRISTAR TS-MPPT-60	
AV	4-6V AGM BATTERIES CONNECTED IN SERIES.	

NOTE TO DESIGNER
 DESIGNER SHALL DETERMINE REQUIRED BATTERY CAPACITY TO ALLOW 3 DAYS OF OPERATION AND LIST THE BATTERY SIZES UNDER ITEM "AV".

NOTE TO DESIGNER
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NOTE TO DESIGNER
 DESIGNER SHALL CONTACT THE TOLLWAY'S ITS UNIT WHEN THE DESIGN NEEDS 2 OR 3 MVDS UNITS.



CABINET LAYOUT AND WIRING
 ITS POLE MOUNTED ENCLOSURE
 (SOLAR POWERED MVDS)

DATE
 3-01-2020

