

| | | | |
|---|---|--|-----------------------|
| Illinois Tollway Base Sheet Revisions | | | |
| Section M | Base Sheet Drawings | | |
| | Drawing | Modification Summary | Effective: 03-31-2016 |
| | | | |
| | All | The electronic (pdf) version of the Standard Drawing are now made searchable (text). | |
| | | | |
| Erosion Sediment Control (ESC)-Series 200 | | | |
| M-ESC-205 | Sediment Basin Dewatering Device | | |
| | Revised Note 7, removed proprietary name from skimmer device. | | |
| | | | |
| Roadway (RDY)-Series 400 | | | |
| M-RDY-408 | Approach Slab, Mainline | | |
| All | Changed Transverse Reinforcement size and spacing in the bottom mat of the bridge approach slab and transition approach shoulder slabs from #6@9" to #8@4" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Changed Transverse Reinforcement size and spacing in the top mat of the bridge approach slab and transition approach shoulder slabs from #5@12" to #5@6" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Changed Longitudinal Reinforcement size and spacing in the top mat of the bridge approach slab and transition approach shoulder slabs from #4@15" to #5@6" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Added note *** to clarify that base sheet reinforcement is for approach slabs not located on retaining walls. If approach slab is placed on retaining wall, reinforcement shall be designed for TL-5 crash loading. | | |
| All | Changed spacing and shape of both dxv vertical bars in the barrier on the bridge approach slab and transition approach shoulder slab to match the vertical bars in the bridge parapet and moment slab barrier. | | |
| All | Changed top mat reinforcement cover to 2.25" to be consistent with deck and moment slab clearances. | | |
| Sheets 1,2 | Updated Note to Designer for Drainage Structures. Designer to determine size, type and location. | | |
| Sheets 1,2 | Changed approach slab shoulder width requirements to match Structures Design Manual. | | |
| Sheet 3 | Added option of using subgrade aggregate, special under the transition approach slab. | | |
| Sheet 3 | Added additional Approach Slab Barrier Elevation to distinguish between non-integral and integral/semi-integral abutments. | | |
| Sheet 3 | Eliminated Optional Longitudinal Joint Within a Traffic Lane detail. | | |
| Sheet 4 | Changed Neoprene Sheet to Elastomeric Sheet to keep call out generic and not specific. | | |
| Sheet 5 | Revised Bill of Material to clarify Pay Items and Pay Item Numbers to be included. | | |
| Sheet 5 | Added note to Typical Barrier Transition Detail to clarify where the 1'-9" dimension should be measured. | | |
| | | | |
| M-RDY-409 | Approach Slab, Ramp | | |
| All | Changed Transverse Reinforcement size and spacing in the bottom mat of the bridge approach slab and transition approach shoulder slabs from #6@9" to #8@4" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Changed Transverse Reinforcement size and spacing in the top mat of the bridge approach slab and transition approach shoulder slabs from #5@12" to #5@6" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Changed Longitudinal Reinforcement size and spacing in the top mat of the bridge approach slab and transition approach shoulder slabs from #4@15" to #5@6" to be in conformance with IDOT ABD Memo 15.8. | | |
| All | Added note *** to clarify that base sheet reinforcement is for approach slabs not located on retaining walls. If approach slab is placed on retaining wall, reinforcement shall be designed for TL-5 crash loading. | | |
| All | Changed spacing and shape of both dxv vertical bars in the barrier on the bridge approach slab and transition approach shoulder slab to match the vertical bars in the bridge parapet and moment slab barrier. | | |
| All | Changed top mat reinforcement cover to 2.25" to be consistent with deck and moment slab clearances. | | |
| Sheets 1,2 | Updated Note to Designer for Drainage Structures. Designer to determine size, type and location. | | |
| Sheets 1,2 | Changed approach slab shoulder width requirements to match Structures Design Manual. | | |
| Sheet 3 | Added option of using subgrade aggregate, special under the transition approach slab. | | |
| Sheet 3 | Added additional Approach Slab Barrier Elevation to distinguish between non-integral and integral/semi-integral abutments. | | |
| Sheet 3 | Eliminated Optional Longitudinal Joint Within a Traffic Lane detail. | | |
| Sheet 4 | Changed Neoprene Sheet to Elastomeric Sheet to keep call out generic and not specific. | | |
| Sheet 5 | Revised Bill of Material to clarify Pay Items and Pay Item Numbers to be included. | | |
| Sheet 5 | Added note to Typical Barrier Transition Detail to clarify where the 1'-9" dimension should be measured. | | |
| | | | |
| M-RDY-410 | Reserved | | |
| | | | |
| M-RDY-411 | Emergency Turnaround Median Width ≥ 35 Ft | | |
| | | | |
| Bridge (BRG)-Series 500 | | | |
| M-BRG-506 | Expansion Joint Repair | | |
| | Base Sheet was removed since details did not match Special Provision. | | |
| | | | |
| M-BRG-507 | Crash Wall Modifications Median Piers | | |
| | Note 4 - Changed Reinforcing bars to Reinforcement Bars. | | |
| | | | |
| M-BRG-508 | Crash Wall Modifications Shoulder Piers | | |
| | Note 4 - Changed Reinforcing bars to Reinforcement Bars. | | |
| | | | |
| M-BRG-525 | Slopedwall Details | | |
| | | | |
| Drainage (DRN)-Series 600 | | | |
| M-DRN-601 | Slope Drain | | |
| | Revised storm sewer to "Class B, 12". | | |
| | | | |
| M-DRN-602 | Bioswale | | |
| | | | |
| | | | |

| | | |
|------------------------------|--|---|
| Tollway Base Sheet Revisions | | |
| Section M | Base Sheet Drawings | |
| | Drawing | Modification Summary Effective: 03-31-2016 |
| | | |
| | Maintenance of Traffic (MOT)-Series 700 | |
| | M-MOT-700 | Temporary Concrete Barrier "Y" Connector Segment |
| | | Revised Barrier Details Notes. |
| | | Changed barrier edges chamfered from 1/2" to 1" on all edges (optional). |
| | | |
| | Overhead Sign (OHS)-Series 720 | |
| | M-OHS-720 | Overhead Sign Structure Span Type Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | |
| | | |
| | M-OHS-721 | Overhead Sign Structure Cantilever Type Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | |
| | M-OHS-722 | Overhead Sign Structure Entrance Monotube Type (Steel) Mainline Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Clarified Concrete Structures is for Single Face Barrier and included in Summary Table and Total Bill of Material. |
| | | |
| | M-OHS-723 | Overhead Sign Structure Exit Monotube Type (Steel) Mainline Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Clarified Concrete Structures is for Single Face Barrier and included in Summary Table and Total Bill of Material. |
| | | |
| | M-OHS-724 | Overhead Sign Structure Butterfly Type (Steel) Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Removed Truss Extension for Mounting Walkway detail and references |
| | | Added "L" column and removed TGL and TGL1 from the Summary Table |
| | | |
| | M-OHS-725 | Overhead Sign Structure Entrance Monotube Type (Steel) AET Ramp Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Clarified Concrete Structures is for Single Face Barrier and included in Summary Table. |
| | | |
| | M-OHS-726 | Overhead Sign Structure Exit Monotube Type (Steel) AET Ramp Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Clarified Concrete Structures is for Single Face Barrier and included in Summary Table. |
| | | |
| | M-OHS-727 | Overhead Sign Structure Exit Monotube Type (Steel) Cash-IPO Ramp Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | Clarified Concrete Structures is for Single Face Barrier and included in Summary Table. |
| | | |
| | M-OHS-728 | Overhead Sign Structure Span Type (Steel) Summary and Total Bill of Material |
| | | Added Protective Coat (SQ YD) to Summary Table |
| | | Clarified Class SI and Class DS Concrete are included in Foundation For Overhead Sign Structure. |
| | | |
| | M-OHS-729 | Overhead Sign Structure ITS Gantry Frame (Steel) Single Span Structure Details |
| | Sheet 1 | Revised Material Specification Table to specify ASTM A500 Gr C & B for Frame & Mounting Beam HSS, respectively. |
| | Sheet 4 | Removed Note 6, referring to ASTM requirements of HSS members. |
| | Sheet 5 | Revised Note 1 to clarify requirements for Contractor when soil conditions are not met in the field. |
| | Sheet 5 | Removed Protective Coat quantity since not required to be applied to shoulder foundation. |
| | Sheet 5 | Updated anchor bolt note to allow ASTM F1554 bolts. |
| | Sheet 6 | Revised Note 1 to clarify requirements for Contractor when soil conditions are not met in the field. |
| | Sheet 6 | Removed Protective Coat quantity since not required to be applied to shoulder foundation. |
| | Sheet 7 | Added note 5 to clarify limits of protective coat and revised protective coat quantity in Median Foundation Schedule. |
| | | |
| | M-OHS-730 | Overhead Sign Structure ITS Gantry Frame (Steel) Two-Span Structure Details |
| | Sheet 1 | Revised Material Specification Table to specify ASTM A500 Gr C & B for Frame & Mounting Beam HSS, respectively. |
| | Sheet 4 | Removed Note 6, referring to ASTM requirements of HSS members. |
| | Sheet 6 | Revised Note 1 to clarify requirements for Contractor when soil conditions are not met in the field. |
| | Sheet 6 | Removed Protective Coat quantity since not required to be applied to shoulder foundation. |
| | Sheet 6 | Updated anchor bolt note to allow ASTM F1554 bolts. |
| | Sheet 7 | Revised Note 1 to clarify requirements for Contractor when soil conditions are not met in the field. |
| | Sheet 7 | Removed Protective Coat quantity since not required to be applied to shoulder foundation. |
| | Sheet 8 | Added note 5 to clarify limits of protective coat and revised protective coat quantity in Median Foundation Schedule. |
| | | |
| | Pole Assembly-Series 1000 | |
| | M-ITS-1000 | ELEVATION VIEWS POLE MOUNTED ITS ELEMENT ASSEMBLY |
| | | Added 30A-2P NEMA 4X DISC MTD ON SUPPORT DETAIL. |
| | M-ITS-1001 | GENERAL NOTES POLE MOUNTED ITS ELEMENT ASSEMBLY |
| | | Added Note 16 regarding disconnect switch usage. |
| | M-ITS-1002 | ITS STANDARD FOUNDATION: New Sheet |
| | Dynamic Message Sign (ITS) - Series 1100 | |
| | M-ITS-1100 | Revised conduit call-outs |
| | M-ITS-1103 | Revised 30A-2P NEMA 4X DISC MTD ON SUPPORT DETAIL. Removed pad mounted transformer. |
| | M-ITS-1104 | Revised 30A-2P NEMA 4X DISC MTD ON SUPPORT DETAIL. Revised Note 2 to eliminate 120/208V and pad mount. |
| | Cabinet Wiring-Series 1200 | |
| | M-ITS-1200 | Cabinet Wiring |
| | All | Added HOT3, NB, and GB to Duplex Receptacle. |
| | M-ITS-1255 | Added HOT5 to Duplex Receptacle. |
| | M-ITS-1256 | Deleted HOT5 from Video Distribution Panel. |

| Base Sheet Drawings | | |
|------------------------------|--|---|
| Drawing | Modification Summary | Effective: 03-31-2016 |
| Tollway Base Sheet Revisions | | |
| | Weigh-In-Motion - Series 1600 | |
| Section M | M-WIM-1600 | WEIGH-IN-MOTION CABINET AND FOUNDATION DETAILS |
| | M-WIM-1601 | WEIGH-IN-MOTION IP CAMERA DETAILS |
| | M-WIM-1602 | WEIGH-IN-MOTION LOOP DETECTOR DETAILS |
| | M-WIM-1603 | WEIGH-IN-MOTION DETECTOR LOOP AND QUARTZ SENSOR DETAIL |
| | M-WIM-1604 | INSTALLATION DETAIL DETECTOR HOUSING & DETECTOR HOUSING ADAPTER |
| | M-WIM-1605 | WEIGH-IN-MOTION DETECTOR HOUSING DETAIL |
| | | |
| | Flashing Sign Beacon - Series 1700 | |
| | M-ITS-1700 | FLASHING SIGN BEACON INSTALLATION BREAKAWAY ELECTRICAL DETAIL |
| | M-ITS-1701 | FLASHING SIGN BEACON INSTALLATION WIRING DIAGRAM |
| | | |
| | Conduit Details at Integral Abutment-Series 1900 | |
| | M-ITS-1900 | CONDUIT DETAILS AT INTEGRAL ABUTMENT BRIDGE STANDARD SLOPE WALL |
| | | |
| | Business Systems (BUS)- Series 2500 | |
| | M-BUS-2500 | CABLE CONDUIT SCHEDULE AND GENERAL NOTES |
| | M-BUS-2501 | LEGEND SYMBOL LIST, ABBREVIATIONS AND EQUIPMENT SCHEDULES |
| | M-BUS-2502 | SINGLE LINE DIAGRAM AND UTILITY POWER CABLE/CONDUIT SCHEDULE |
| | M-BUS-2503 | CONTROL BUILDING LIGHTING PLAN AND MISCELLANEOUS DETAILS - MAIN PLAZA |
| | M-BUS-2504 | CONTROL BUILDING LIGHTING PLAN AND MISCELLANEOUS DETAILS - REMOTE PLAZA |
| | M-BUS-2505 | CONTROL BUILDING GROUNDING DETAILS - MAIN PLAZA |
| | M-BUS-2506 | CONTROL BUILDING GROUNDING DETAILS - REMOTE PLAZA |
| | M-BUS-2507 | GROUNDING SCHEMATIC |
| | M-BUS-2508 | CONTROL BUILDING MISCELLANEOUS DETAILS |
| | M-BUS-2509 | UPS SINGLE LINE AND WIRING DIAGRAM |
| | M-BUS-2510 | MISCELLANEOUS SCHEMATIC DIAGRAMS |
| | M-BUS-2511 | VIDEO POWER JUNCTION BOX DETAIL - MAIN PLAZA |
| | M-BUS-2512 | VIDEO POWER JUNCTION BOX DETAIL - REMOTE PLAZA |
| | M-BUS-2513 | VIDEO WATCHDOG CAMERA DETAILS |
| | M-BUS-2514 | RAMP PLAZA MONOTUBE DETAILS ACM AND IPO LANES |
| | M-BUS-2515 | LOOP JUNCTION BOX DETAIL |
| | M-BUS-2516 | CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN - MAIN PLAZA |
| | M-BUS-2517 | CONTROL BUILDING LIGHTING AND RECEPTACLE PLAN -REMOTE PLAZA |
| | M-BUS-2518 | MISCELLANEOUS CROSS SECTION DETAILS |
| | M-BUS-2519 | COMED TRANSFORMER PAD DETAIL |
| | M-BUS-2520 | ELECTRICAL SITE PLAN - ACM AND IPO LANES |
| | M-BUS-2521 | UNDERGROUND ELECTRICAL PLAN - ACM AND IPO LANES - MAIN PLAZA |
| | M-BUS-2522 | PLAZA I-PASS PLANS - ACM AND IPO LANES |
| | M-BUS-2523 | UNDERGROUND ELECTRICAL PLAN - ACM AND IPO LANES - REMOTE PLAZA |
| | M-BUS-2524 | AUTOMATIC LANE ISLAND PLAN AND DETAILS 12 FOOT WIDE LANE |
| | M-BUS-2525 | IPASS ONLY (IPO) LANE ISLAND PLAN AND DETAILS 12 FOOT WIDE LANE |
| | M-BUS-2526 | TOLL EQUIPMENT WIRING DIAGRAM - ACM AND IPO LANES |
| | M-BUS-2527 | LOOP AND TREADLE INSTALLATION DETAILS - ACM AND IPO LANES |
| | M-BUS-2528 | CONTROL BUILDING TSIC - ACM AND IPO LANES - MAIN PLAZA |
| | M-BUS-2529 | CONTROL BUILDING TSIC - ACM AND IPO LANES - REMOTE PLAZA |
| | M-BUS-2530 | TSIC TERMINAL BLOCK LAYOUT - ACM AND IPO LANES |
| | M-BUS-2531 | CONTROL BUILDING EQUIPMENT LAYOUT - ACM AND IPO LANES - MAIN PLAZA |
| | M-BUS-2532 | CONTROL BUILDING EQUIPMENT LAYOUT - ACM AND IPO LANES - REMOTE PLAZA |
| | M-BUS-2533 | CONTROL BUILDING R3 RACK - MAIN PLAZA |
| | M-BUS-2534 | CONTROL BUILDING R3 RACK - REMOTE PLAZA |
| | M-BUS-2535 | MISCELLANEOUS DETAILS -ACM AND IPO LANES |
| | M-BUS-2536 | PANELBOARD SCHEDULES FOR TP1 AND TP2 - ACM AND IPO LANES |
| | M-BUS-2537 | PANELBOARD SCHEDULES FOR MDP AND UPS UNITS - ACM AND IPO LANES |
| | M-BUS-2538 | FIBER INTERCONNECTIONS BETWEEN MAIN AND REMOTE PLAZAS - ACM AND IPO LANES |
| | M-BUS-2539 | PLAZA LANE CONTROL SIGNAL - ACM AND IPO LANES |
| | M-BUS-2540 | TRAFFIC LIGHT DETAILS - ACM LANES |
| | M-BUS-2541 | TRAFFIC LIGHT DETAILS - IPO LANES |
| | M-BUS-2542 | ELECTRICAL SITE PLAN AET LANES |
| | M-BUS-2543 | UNDERGROUND CONDUIT PLAN - MAIN PLAZA |
| | M-BUS-2544 | UNDERGROUND CONDUIT PLAN - MAIN PLAZA PLAN - REMOTE PLAZA |
| | M-BUS-2545 | CONTROL BUILDING EQUIPMENT LAYOUT - REMOTE PLAZA |
| | M-BUS-2546 | CONTROL BUILDING EQUIPMENT LAYOUT - MAIN PLAZA |
| | M-BUS-2547 | CONTROL BUILDING TSIC - MAIN AND REMOTE PLAZAS - AET LANES |
| | M-BUS-2548 | TSIC TERMINAL BLOCK LAYOUT - ACM AND IPO LANES REMOTE PLAZAS - AET LANES |
| | M-BUS-2549 | PANELBOARD SCHEDULES - MAIN PLAZA AET LANES |
| | M-BUS-2550 | PANELBOARD SCHEDULES - REMOTE PLAZA AET LANES |
| | M-BUS-2551 | WIRING DIAGRAM - AET 1-LANE LAYOUT |
| | M-BUS-2552 | WIRING DIAGRAM - AET 3-LANE LAYOUT |
| | M-BUS-2553 | LOOP PLAN - AET 1-LANE LAYOUT |
| | M-BUS-2554 | LOOP PLAN - AET 3-LANE LAYOUT |
| | M-BUS-2555 | VES WASH SYSTEM ENCLOSURE DETAIL |
| | M-BUS-2556 | VES WASH SYSTEM PANEL DETAIL |
| | M-BUS-2557 | VES WASH SYSTEM FLOW DIAGRAM AND MECHANICAL DETAIL |
| | M-BUS-2558 | VES WASH SYSTEM SUGGESTED CONDUIT ROUTING |
| | M-BUS-2559 | VES WASH SYSTEM MISCELLANEOUS POWER WIRING DIAGRAM |
| | M-BUS-2560 | VES WASH SYSTEM CONTROL SWITCH SCHEMATIC |

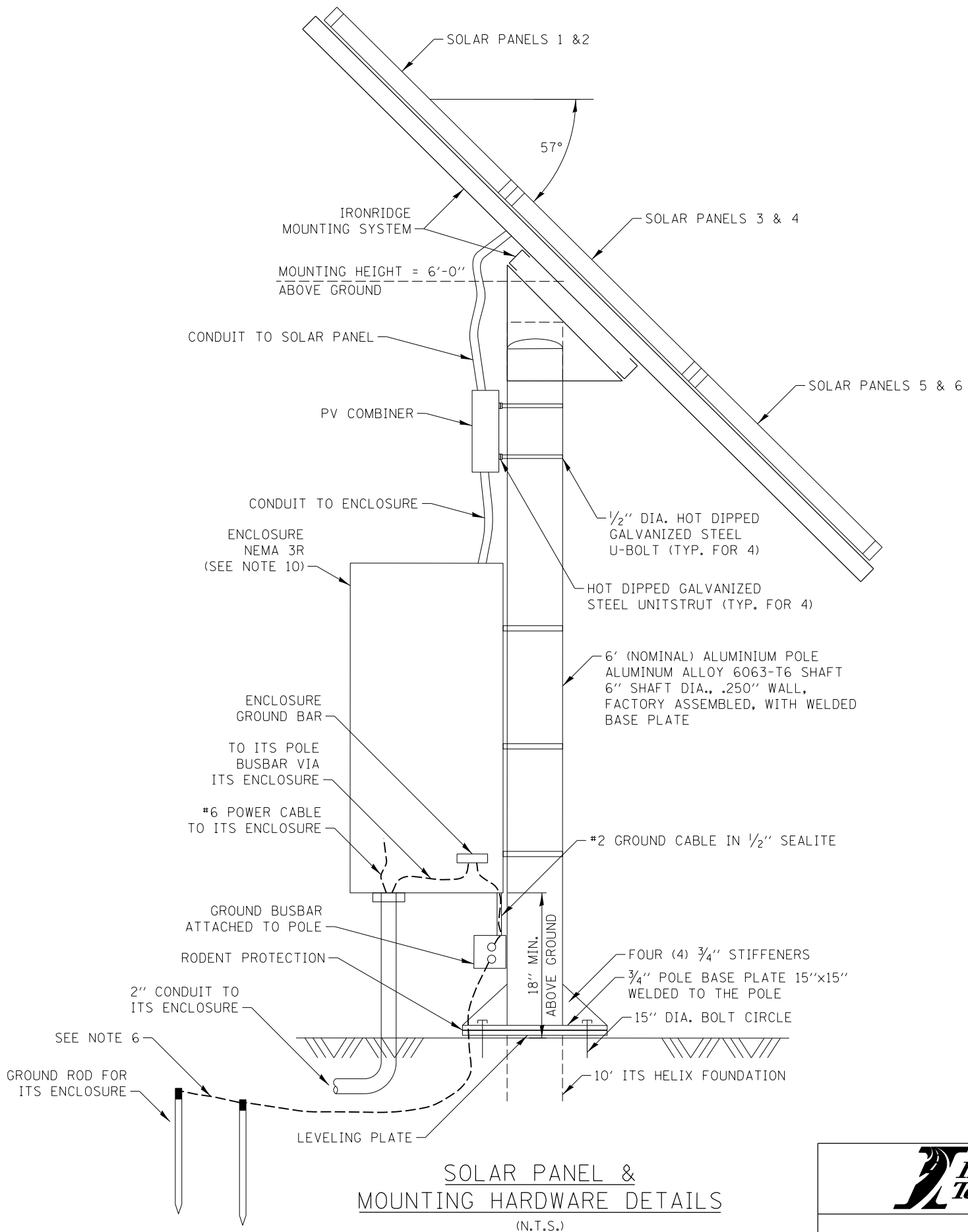
New Sheet

NOTES:

1. SOLAR POWER GENERATOR TO INCLUDE PANEL, BRACKETS, CABINET, CHARGER REGULATOR, BATTERIES, AND CABLES. STRUCTURE TO BE DESIGNED TO MEET STRUCTURAL DESIGN CRITERIA IN SPECIFICATION.
2. THE BATTERIES SHALL BE WIRED TO PROVIDE 24V DC POWER TO AN INVERTER FOR 120V AC DELIVERY TO ITS ENCLOSURE.
3. CONTRACTOR SHALL LOCATE THE GROUND MOUNTED SOLAR PANEL SYSTEM LESS THAN 20' FROM THE POLE-MOUNTED ITS SYSTEM AND ENSURE THAT THE SOLAR PANELS HAVE UNOBSTRUCTED SUN EXPOSURE.
4. GROUND MOUNTED SOLAR PANEL POLES INSTALLED WITHIN THE CLEAR ZONE SHALL BE SHIELDED BY BARRIER, LOCATED A MINIMUM OF 5' BEHIND THE PLANE OF ANY GUARDRAIL POSTS. SEE ILLINOIS TOLLWAY GUARDRAIL STANDARD (SECTION C OF STANDARDS) FOR MORE INFORMATION. ALL OTHER POLES SHALL BE LOCATED OUTSIDE THE CLEAR ZONE OR AS DIRECTED BY THE ENGINEER. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.
5. ALL EQUIPMENT MUST BE CONNECTED TO A COMMON GROUND THROUGH THE ADJACENT ITS POLE BUSBAR. CONNECT A #2 AWG GROUND CABLE FROM THE EXTERNALLY SOLAR POLE MOUNTED GROUND BUSBAR TO THE GROUND BAR IN THE SOLAR ENCLOSURE. ANY GROUND CONNECTED TO THE EXTERNAL GROUND BUSBAR SHALL BE CADWELDED TO THE BUSBAR. SEALTITE CONDUIT SHOULD BE GROMMETTED ON END GOING TO BUSBAR TO PREVENT RODENTS AND INSECTS FROM ENTERING. A #2 AWG GROUND CABLE SHALL BE ATTACHED TO THE GROUND BUSBAR ATTACHED TO THE ADJACENT ITS POLE AND ROUTED THROUGH THE CONDUIT CONNECTING THE TWO ENCLOSURES AND ATTACHED TO THE GROUND BUSBAR ATTACHED TO THE SOLAR POLE. THE GROUND BUSBAR SHALL CONNECT TO A GROUND ROD (IN AN INSPECTION WELL) FOR THE SOLAR GENERATOR.
6. THE SOLAR POWER GENERATOR GROUND ROD SHALL BE CONNECTED TO THE GROUND ROD FOR THE ITS ENCLOSURE VIA A #2 AWG BARE GROUND CABLE CAD WELDED TO BOTH GROUND RODS.
7. CONTRACTOR TO PROVIDE ALL POWER AND GROUND WIRING REQUIRED FOR SYSTEM OPERATION WITHIN AND OUTSIDE THE ENCLOSURE.
8. BACKFILL HELIX FOUNDATION TO THE TOP OF THE POLE BASE ON ALL SIDES.
9. ALL CABLING (INCLUDING CABLING INSIDE THE ENCLOSURE) SHALL BE OUTDOOR RATED. THE GROUND WIRE (WHITE) IN THE POWER CABLE SHALL BE TAPED GREEN.
10. ENCLOSURE SHALL BE VENTED AND CONTAIN BATTERIES AND SOLAR CONTROLLER.
11. SOLAR PANELS SHALL FACE 186 DEGREES FROM MAGNETIC NORTH AND SHALL BE TILTED 57 DEGREES FROM THE HORIZON.

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-1400



SOLAR POWER
GENERATOR DETAILS

DATE
3-31-2016

NEMA 3R ELECTRICAL BOX
(SHALL CONTAIN SOLAR CONTROLLER, INVERTER, BATTERIES AND ELECTRONICS)

POLE MOUNTED ENCLOSURE
30"W X 36"H X 16"D
MIN. SIZE

24V BATTERY SYSTEM
(4) AGM BATTERIES (6V, 400 AH)
ARRANGED IN SERIES

SOLAR PV BATTERY SYSTEM
1800 WATT ARRAY
(6) 300W, (NOMINAL) SOLAR PANELS
(3) SOURCE CIRCUITS (IN PARALLEL)
(2) SOLAR MODULES (IN SERIES)

TEMPERATURE
SENSOR CABLE

BATTERY TO BATTERY CONDUCTORS
2/0 AWG THWN-2 CU
(SHALL BE EQUAL LENGTH TO
EQUALIZE BATTERY SYSTEM)

PVC COMBINER
NEMA 3R

(3) SOURCE CIRCUITS
(6) #10 AWG CU USE-2/PV WIRE
(1) #6 AWG CU GROUND

(1) SOURCE CIRCUIT
(2) #6 AWG THWN-2 CU
(1) #10 AWG THWN-2 CU GND
3/4" EMT CONDUIT

NOTE TO DESIGNER

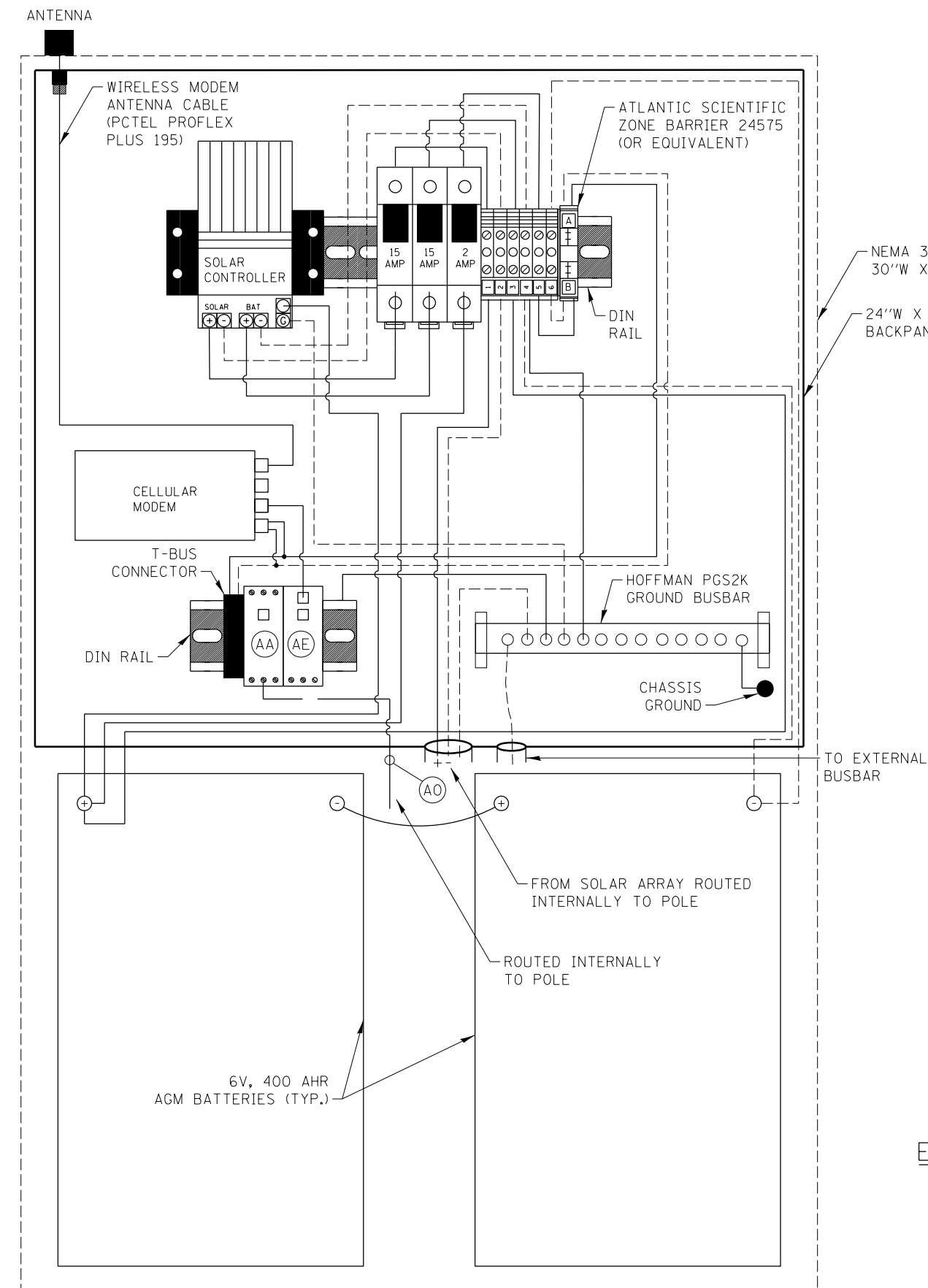
THIS BASE SHEET SHOWS TYPICAL NEW CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. IT REQUIRES COMPLETION BY THE DESIGNER PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES AND THE "CADD STANDARDS MANUAL" ARE AVAILABLE ON THE ILLINOIS TOLLWAY WEBSITE. THE DESIGNER SHALL ACCEPT THE RESPONSIBILITY OF 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.

M-ITS-1401

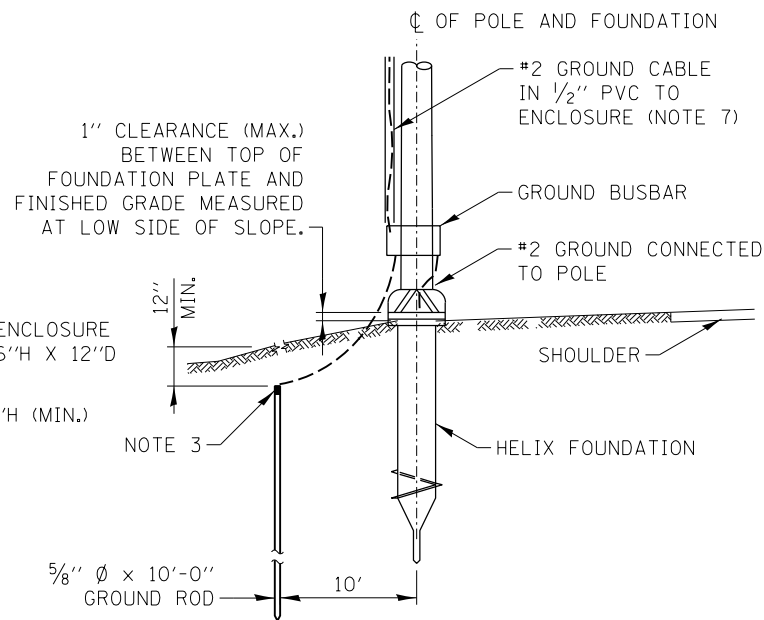


SOLAR POWER
GENERATOR CABINET
1-LINE ELECTRICAL DIAGRAM

DATE
1-31-2015



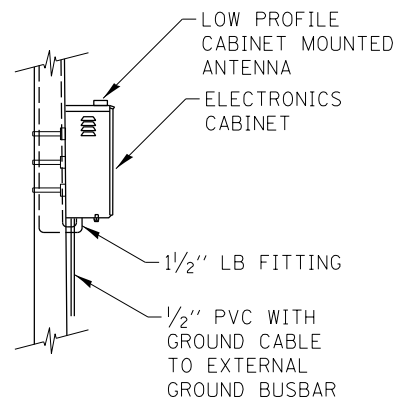
TYPICAL ELECTRONICS CABINET LAYOUT
(NOT TO SCALE)



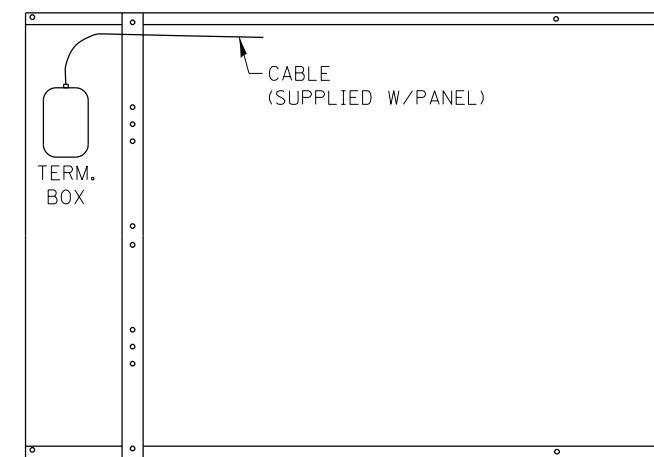
TYPICAL INSTALLATION
(NOT TO SCALE)

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.



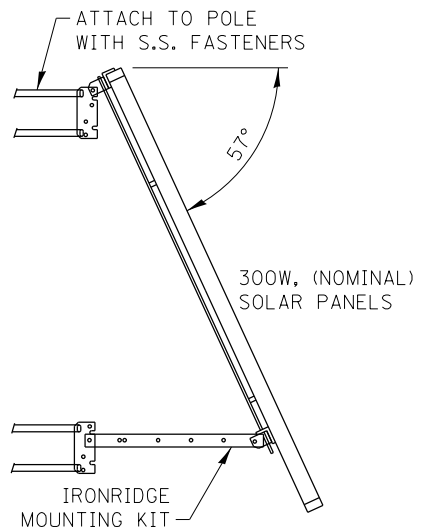
ELECTRONICS CABINET MOUNTING DETAIL



BACK VIEW

SOLAR PANEL (TYPICAL)

SOLAR PANEL & MOUNTING HARDWARE DETAILS (TYPICAL)



SIDE VIEW

SOLAR PANEL VERTICAL MOUNT (TYPICAL)

NOTES:

- SOLAR PANELS SHALL BE OPENED 186 DEGREES FROM MAGNETIC NORTH AND SHALL BE TILTED 57 DEGREES (+/-0 DEGREES) FROM THE HORIZON.
- MOUNT CABINET ON SIDE OF POLE DOWNSTREAM OF TRAFFIC WHERE PRACTICAL.
- ALL GROUNDS SHALL BE CONNECTED TO THE GROUND BUSBAR. THIS INCLUDES THE BACKPLATE, ANY EQUIPMENT AND SURGE PROTECTION DEVICES. A #2 STRANDED WIRE GROUND CABLE SHALL BE UTILIZED TO CONNECT THE CABINET GROUND BUSBAR TO THE EXTERNAL POLE MOUNTED GROUND BUSBAR. ATTACHMENT TO THE POLE SHALL UTILIZE A 1/4" STAINLESS STEEL HEX HEAD NUT AND BOLT INCLUDING A RING CONNECTOR. THE GROUND WIRE SHALL BE ROUTED EXTERNAL TO POLE. THE EXTERNAL GROUND BUSBAR SHALL BE CONNECTED TO GROUND ROD UTILIZING A #2 BARE TINNED GROUND CABLE. CAD WELDS SHALL BE USED ON THE EXTERNAL GROUND BUSBAR ALONG WITH THE CONNECTION AT THE GROUND ROD. PVC SHALL BE SECURED TO THE POLE.
- POLE MUST BE LOCATED OUTSIDE THE CLEAR ZONE OR IN AREAS SHIELDED BY BARRIER.
- THE POLE BASE AND FOUNDATION SHALL BE SEALED USING 3/4" POLE BASE PLATE (SIZED TO MATCH HELIX FOUNDATION PLATE) TO PREVENT RODENT ENTRY INTO THE INTERIOR OF THE POLE.
- THE HELIX FOUNDATION SHALL BE INSTALLED WITH ITS AXIS PLUMB AND BACKFILLED TO COVER EXPOSED OPENINGS IN THE FOUNDATION.
- PVC CONDUIT TO BE SECURED TO POLE. USE METAL BUSHING TO CONNECT TO ENCLOSURE.
- ALL RACEWAYS AND ENTRY POINTS SHALL BE SEALED WITH ELECTRICAL PUTTY AFTER INSTALLATION.
- MODEM SHALL BE MOUNTED TO BACK PANEL.
- ALL CABLES SHALL ENTER THE ENCLOSURE FROM THE BOTTOM.

| ITEM | DESCRIPTION |
|------|--|
| AA | SENSOR SURGE SUPPRESSION, WAVETRONIX - CLICK-200 OR ISS ZONE BARRIER ZB24510 |
| AE | RS-232 / RS-485 TO ETHERNET CONVERTOR WAVETRONIX - CLICK-3010R ISS-MOXA P5150A, OK-35A |
| AO | MVDS CABLE, WAVETRONIX - WX-SS-706-60 OR ISS G4-CBL-60 |

M-ITS-1402



POLE MOUNTED SOLAR MVDS ASSEMBLY

DATE
3-31-2016