

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

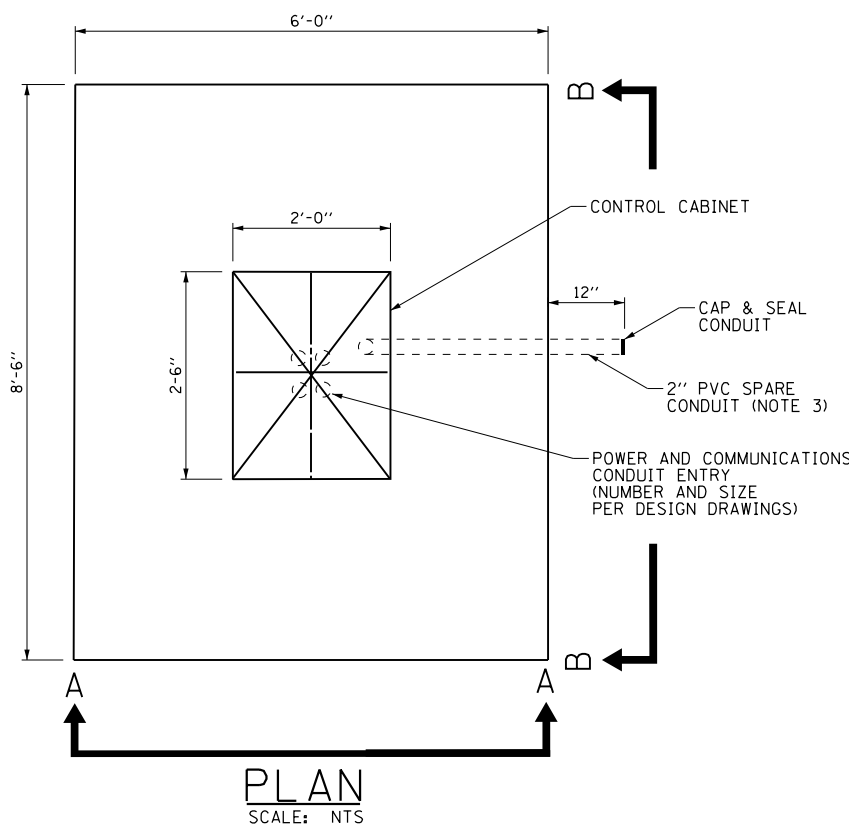
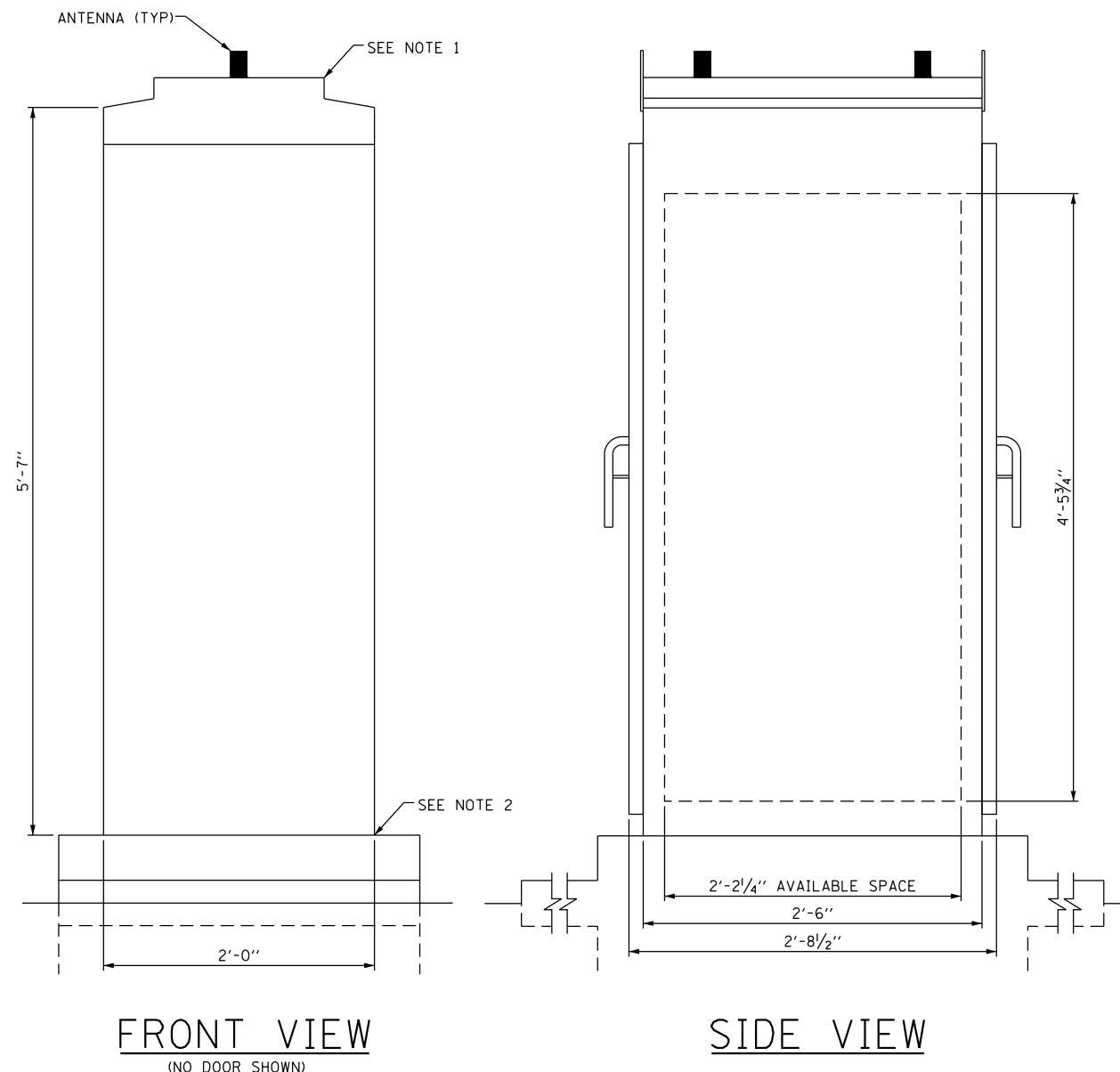
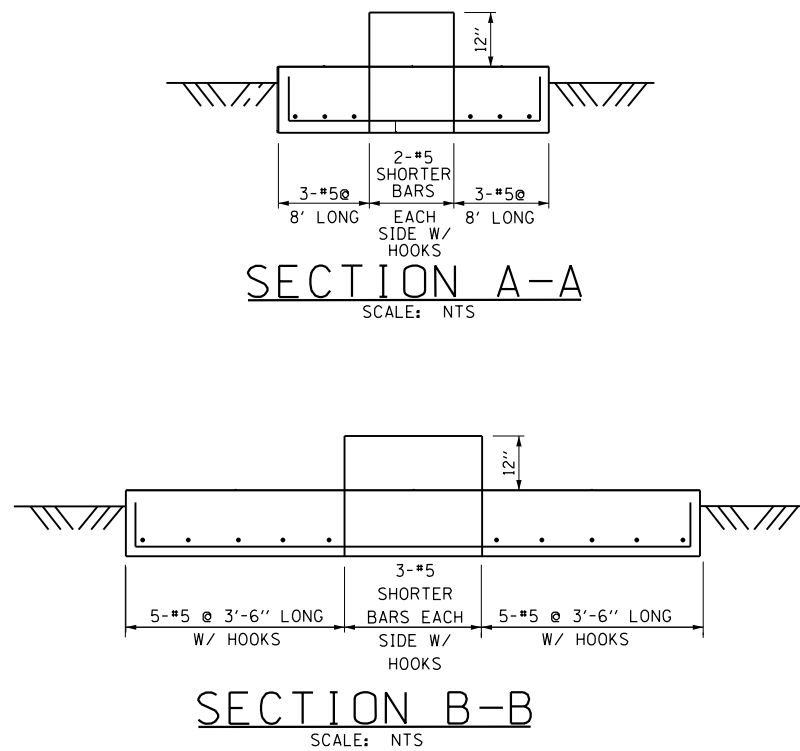
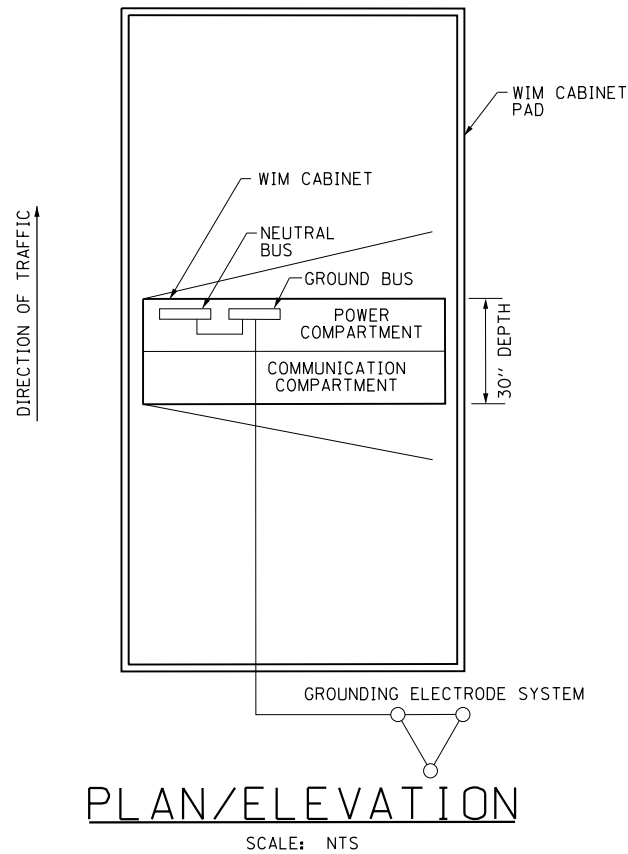
 Retired Standard

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



NOTES:

1. THE WIM INTERNAL CABINET LAYOUT SHALL BE AS PER WIM MANUFACTURER'S RECOMMENDATION AND APPROVED BY THE ILLINOIS TOLLWAY.
2. SEAL CABINET TO FOUNDATION JOINT WITH SILICONE SEALANT TO PREVENT WATER INTRUSION. LOCATE CABINET ABOVE HIGH WATER LEVEL.
3. INSTALL 2" PVC SPARE CONDUIT FOR FUTURE USE. EXTEND 12" OUTSIDE OF CONCRETE FOUNDATION. PROVIDE CONDUIT MARKING FOR EASE OF FUTURE LOCATING.

NOTE TO DESIGNER

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WIM CABINET FOUNDATION NOTES:

1. COORDINATE SIZE OF OPENING WITH WIM CONTROLLER CABINET BOTTOM CONDUIT CUT-OUTS
2. CONCRETE = 4,000 PSI (MIN.)
3. REBAR=EPOXY COATED FY=60,000 PSI (MIN.)
4. PROVIDE SHOP DRAWINGS PRIOR TO CONSTRUCTION
5. INCLUDE CONDUITS

WIM CONTROLLER FOUNDATION DETAILS

SCALE: NTS

M-ITS-1600



WEIGH-IN-MOTION CABINET AND FOUNDATION DETAILS

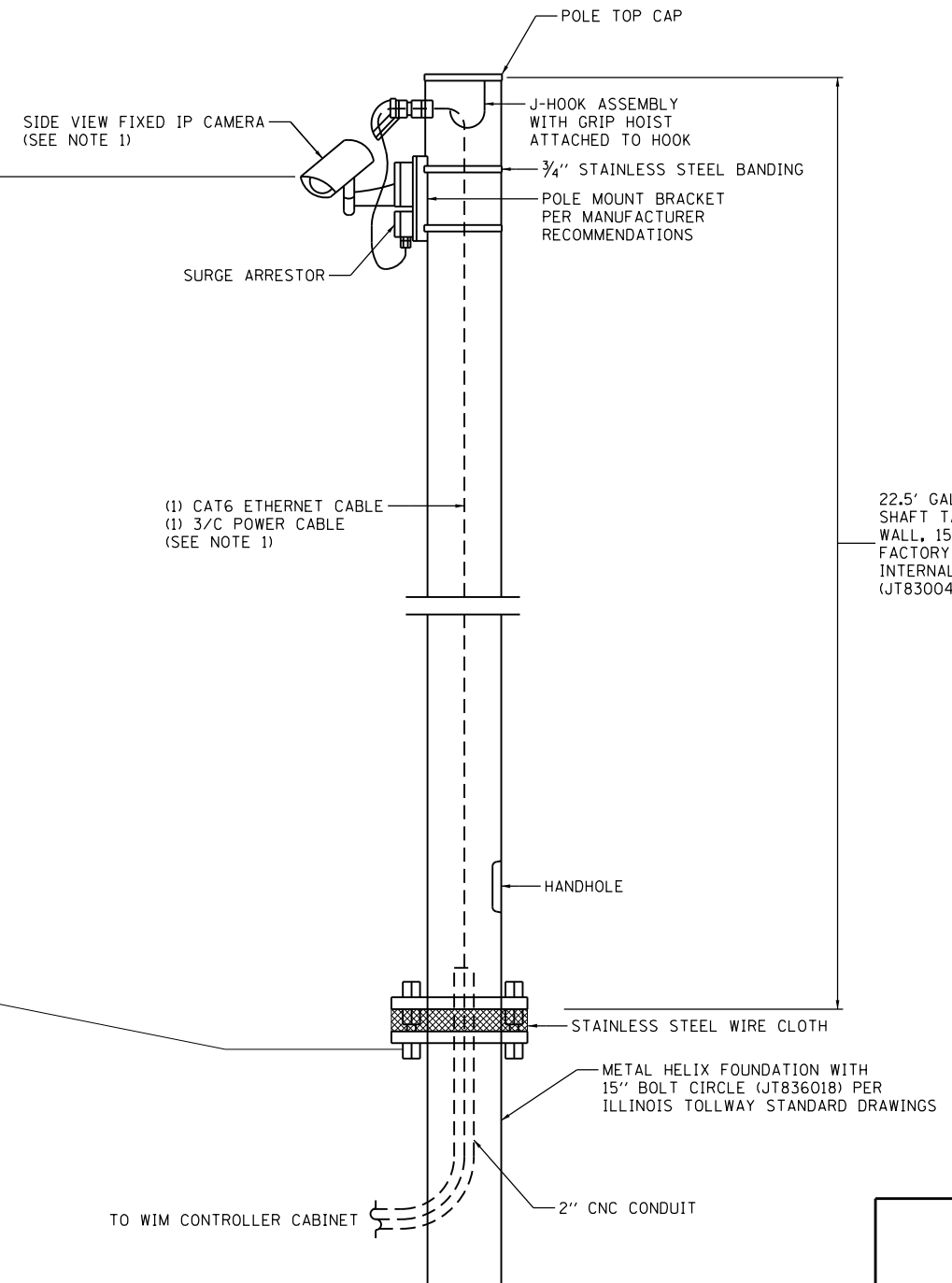
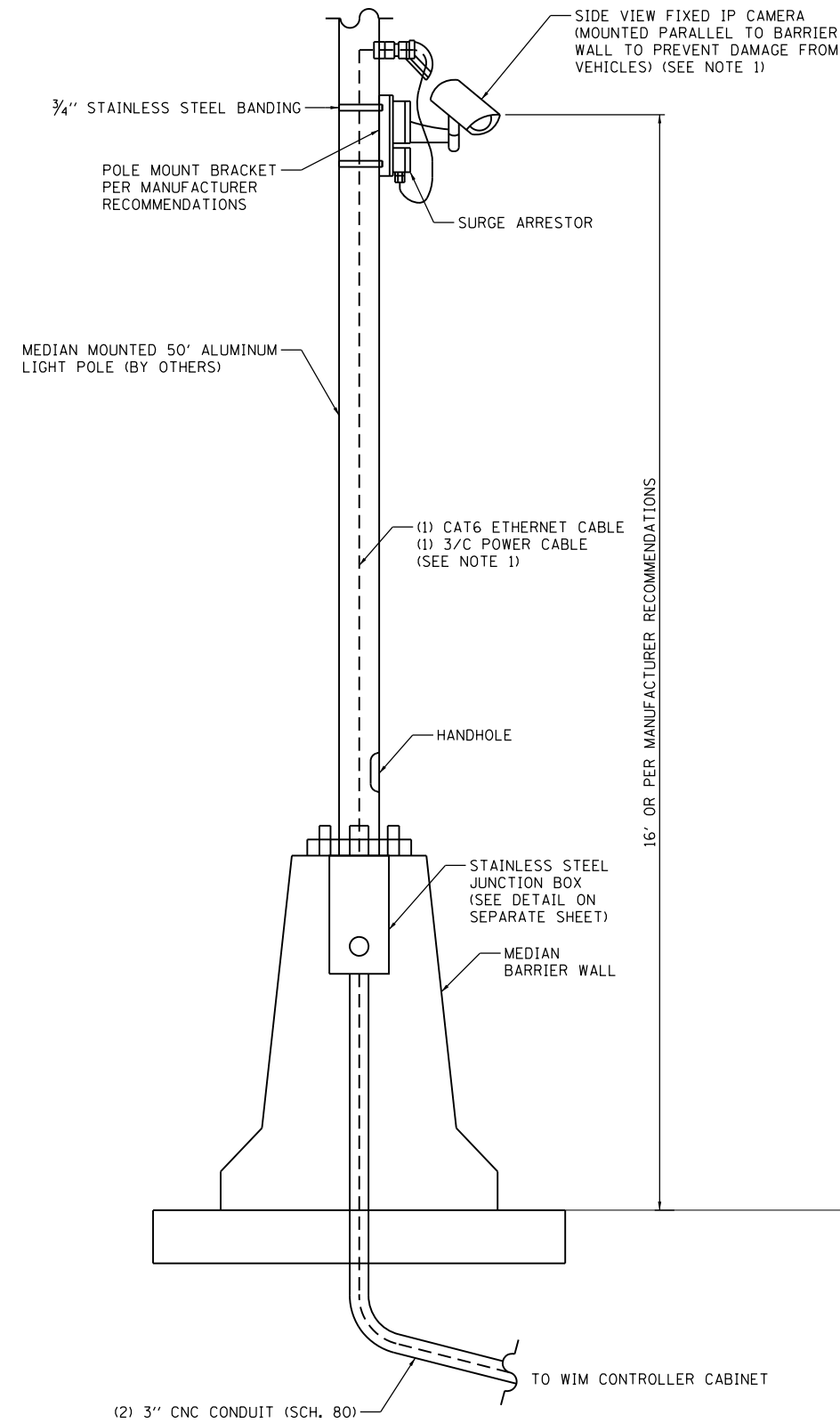
DATE
3-01-2020

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NOTE:

1. THE NUMBER OF CAMERAS AND ASSOCIATED CABLING SHALL BE IN ACCORDANCE WITH THE WEIGH-IN-MOTION MANUFACTURER REQUIREMENTS TO PROVIDE FULL ENFORCEMENT COVERAGE OF ALL LANES INDICATED ON THE PLANS.



M-ITS-1601

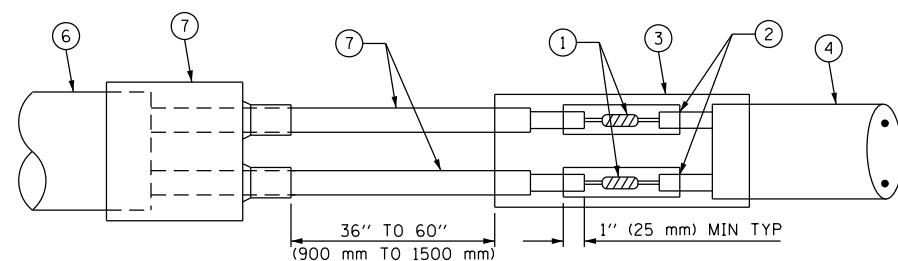


WEIGH-IN-MOTION
IP CAMERA DETAILS

DATE
3-31-2017

LOOP DETECTOR SPLICE DETAIL

- | | |
|--|--|
| <p>① WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.</p> <p>② WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.</p> <p>③ WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.</p> <p>④ NO. 14 2/C TWISTED, SHIELDED CABLE.</p> | <p>⑤ LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE.</p> <p>⑥ PRE-FORMED LOOP.</p> <p>⑦ XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL.</p> |
|--|--|

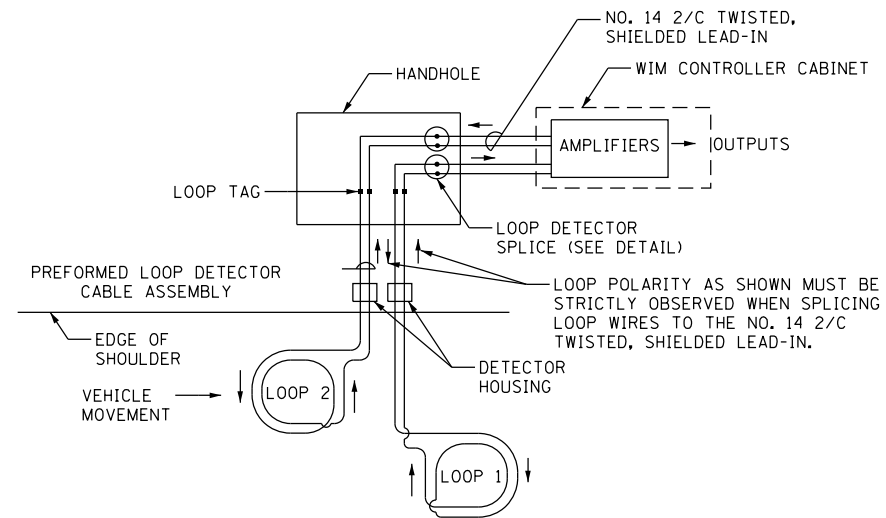


NOTE TO DESIGNER

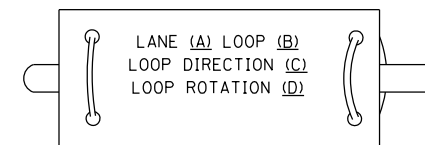
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NOTES:

1. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, SINCE NEW CONCRETE PAVEMENT IS PROPOSED. INSTALLATION SHALL BE ACCORDING TO THE STANDARD SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. FOLLOW LOOP DETECTOR MANUFACTURER RECOMMENDATIONS FOR MINIMUM SEPARATION DISTANCE FROM REBAR MATS. USE STAND OFFS AS REQUIRED.



DETECTOR LOOP WIRING SCHEMATIC



- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY.
- B. LOOP #1 IS THE LOOP IN THE LANE DOWN STREAM OF THE BENDING PLATE SENSORS.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

LOOP LEAD-IN CABLE TAG

M-ITS-1602



WEIGH-IN-MOTION
LOOP DETECTOR DETAILS

DATE
3-31-2017

SIGNAL CONDUITS:

- ① 2" CONDUIT
1-CAT6
1-POWER 3/C #10
- ② 3" CONDUIT
8-QUARTZ LEADS W/GND
4-LOOP LEADS
2-TEMPERATURE SENSOR LEAD
6-VECTORSENSE SIGNAL CABLE
- ③ 2" CONDUIT
4-QUARTZ LEADS W/GND
2-LOOP LEADS
1-TEMPERATURE SENSOR LEAD
3-VECTORSENSE SIGNAL CABLE
- ④ 2" CONDUIT
4-QUARTZ LEADS W/GND
2-LOOP LEADS
1-TEMPERATURE SENSOR LEAD
3-VECTORSENSE SIGNAL CABLE
- ⑤ 1" CONDUIT
1-LOOP LEAD
- ⑥ 2" CONDUIT
4-QUARTZ LEADS W/GND
1-TEMPERATURE SENSOR LEAD
- ⑦ 2" CONDUIT
4-QUARTZ LEADS W/GND
- ⑧ 2" CONDUIT
3-VECTORSENSE SIGNAL CABLE
- ⑨ 3" CONDUIT
8-QUARTZ LEADS W/GND
8-LOOP LEADS
2-TEMPERATURE SENSOR LEAD
6-VECTORSENSE SIGNAL CABLE
1-1 PAIR #18 (OVERHEIGHT SIGNAL CABLE)
- ⑩ 2" CONDUIT
1-CAT6
2-POWER 3/C #10
- ⑪ 2" CONDUIT
1-CAT6
2-POWER 3/C #10
- ⑫ 1" CONDUIT
1-1 PAIR #18 (OVERHEIGHT SIGNAL CABLE)
- ⑬ 2" CONDUIT
4-QUARTZ LEADS W/GND
4-LOOP LEADS
1-TEMPERATURE SENSOR LEAD
3-VECTORSENSE SIGNAL CABLE
- ⑭ 1" CONDUIT
2-LOOP LEADS

LEGEND:

- E - ELECTRONICS CABINET
- O - QUARTZ SENSOR
- L - INDUCTIVE LOOP
- T - TEMPERATURE SENSOR
- V - VECTORSENSE SENSOR
- ① - CONDUIT TAG
- [H] - HANDHOLE
- [JB] - JUNCTION BOX
- [] - DETECTOR HOUSING
- [] - WIM CAMERA
- [HD] - WIM HEIGHT DETECTOR

GENERAL NOTES:

1. SIGNAL AND POWER CABLES CAN NOT SHARE THE SAME PULL BOXES OR CONDUITS.
2. ALL LOOP LEAD-IN SPLICES MUST BE MADE IN PULL BOXES OR HAND HOLES.
3. ALL CONNECTIONS BETWEEN LOOP AND LEAD CABLES ARE DONE IN PULL BOX AND ARE SOLDERED THEN SEALED FOR WATERPROOFING. NUMBER AND PLACEMENT OF PULL BOXES NOT SHOWN.
4. ROAD SURFACE PAVEMENT CONDITIONS MUST MEET CURRENT ASTM E1318 REQUIREMENTS TO ACHIEVE OPTIMAL SYSTEM PERFORMANCE.
5. CABLES IN PAVEMENT SAW CUTS MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT JOINTS/CRACKS.
6. ALL QUARTZ LEADS SHALL INCLUDE A GROUND WIRE AS REQUIRED BY QUARTZ SENSOR MANUFACTURER.
7. CONCRETE SHOULDER LIMIT WITHIN WEIGH-IN-MOTION SITE SHALL EXTEND TO 4 FT. MINIMUM BEYOND DETECTOR HOUSING OR LOOP DETECTOR LEAD-IN/CUTS IN SHOULDER AS SHOWN.

NOTES:

1. PROPOSED ROADSIDE WIM CABINET AND FOUNDATION.
2. PAVEMENT ON EITHER SIDE OF EACH SENSOR MUST BE FREE OF JOINTS AND CRACKS FOR 2".
3. PROPOSED UNDERBORE.

NOTE TO DESIGNER

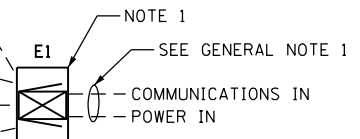
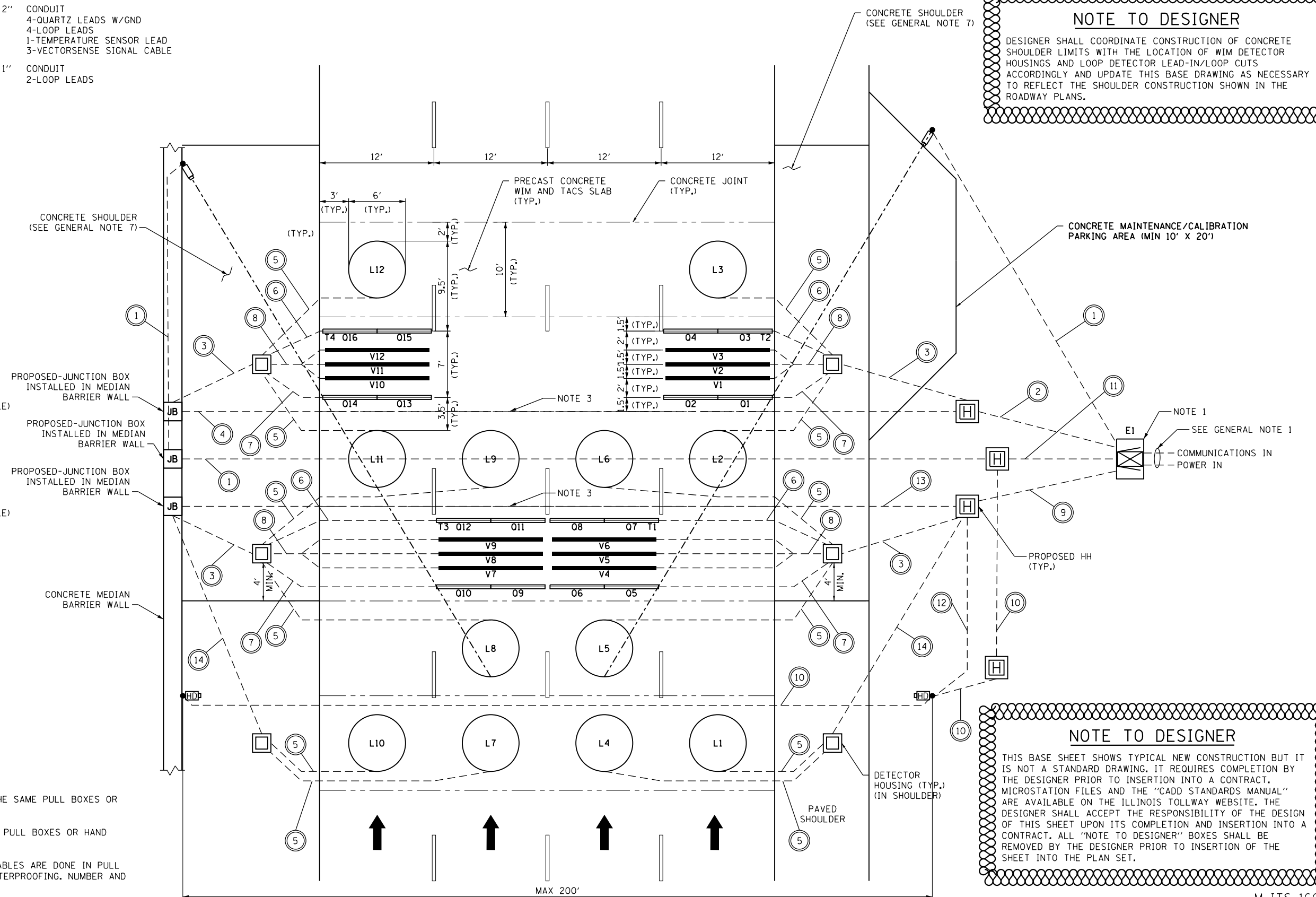
CAMERAS SHALL BE IDEALLY LOCATED 25 FT. OFFSET FROM EDGE OF TRAVELLED-WAY AND 25 FT. TRAILING (DOWNSTREAM OF THE LEADING EDGE OF THE TRIGGER LOOP). DESIGNER SHALL EVALUATE AND FINAL DESIGN CAMERA LOCATIONS.

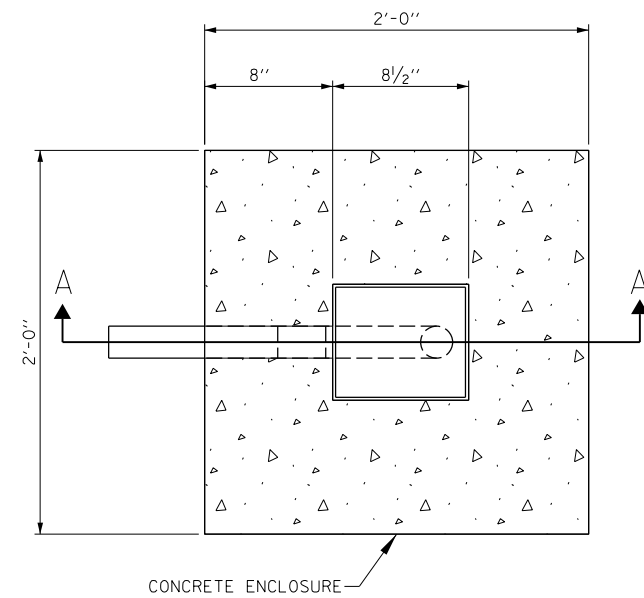
NOTE TO DESIGNER

DESIGNER SHALL COORDINATE CONSTRUCTION OF CONCRETE SHOULDER LIMITS WITH THE LOCATION OF WIM DETECTOR HOUSINGS AND LOOP DETECTOR LEAD-IN/LOOP CUTS ACCORDINGLY AND UPDATE THIS BASE DRAWING AS NECESSARY TO REFLECT THE SHOULDER CONSTRUCTION SHOWN IN THE ROADWAY PLANS.

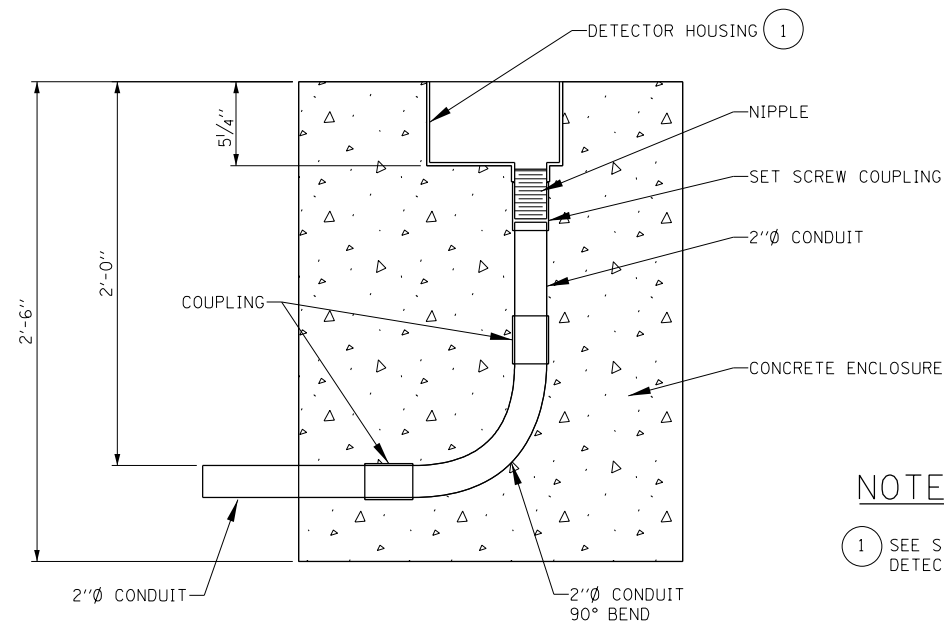
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PLAN



SECTION A-A

NOTE:

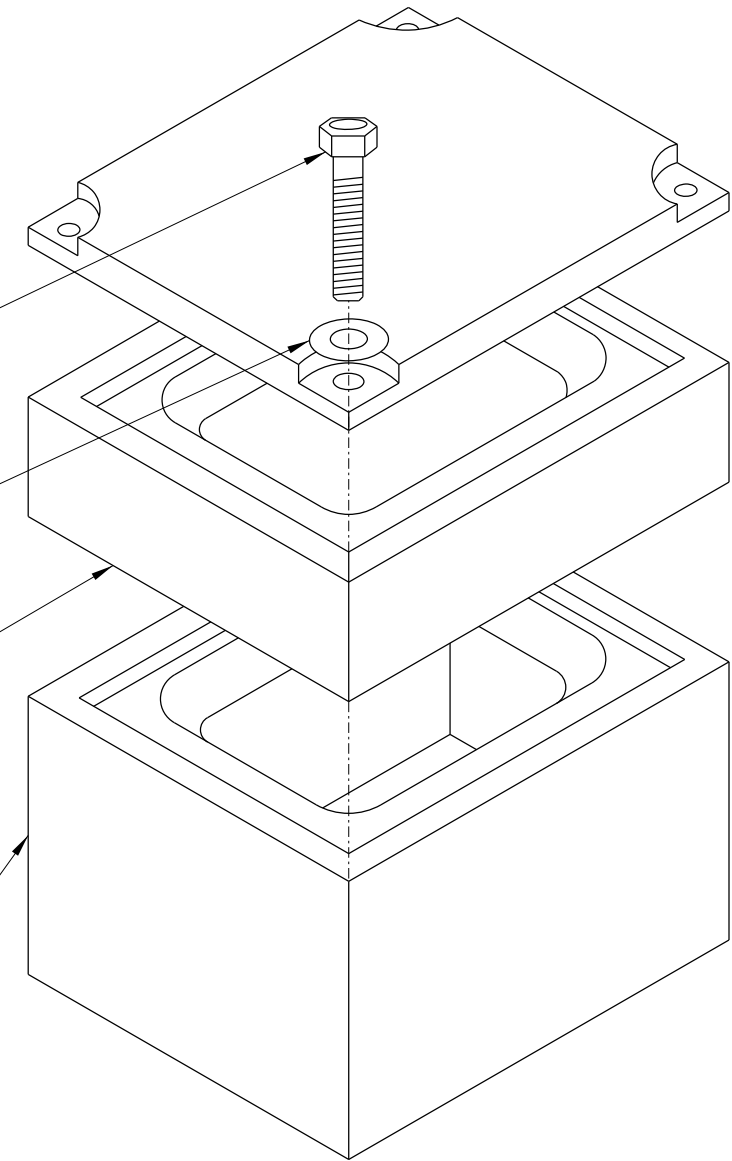
① SEE STANDARD DRAWING M-WIM-1707 FOR DETECTOR HOUSING DETAIL.

1/2"x4" HEX HEAD STAINLESS STEEL BOLT
(4 REQUIRED) THREADED 3 1/2"

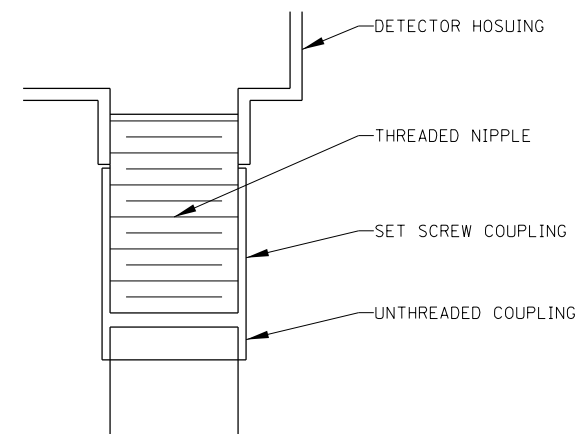
STAINLESS STEEL WASHER
1/2" (4 REQUIRED)

DETECTOR HOUSING ADAPTER

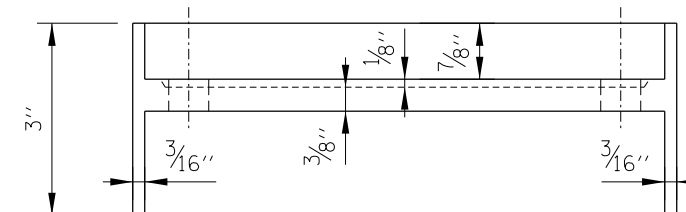
DETECTOR HOUSING



DETECTOR HOUSING
ADAPTER DETAIL



DETECTOR HOUSING
COUPLING DETAIL



CROSS SECTION OF HOUSING ADAPTER

NOTE TO DESIGNER

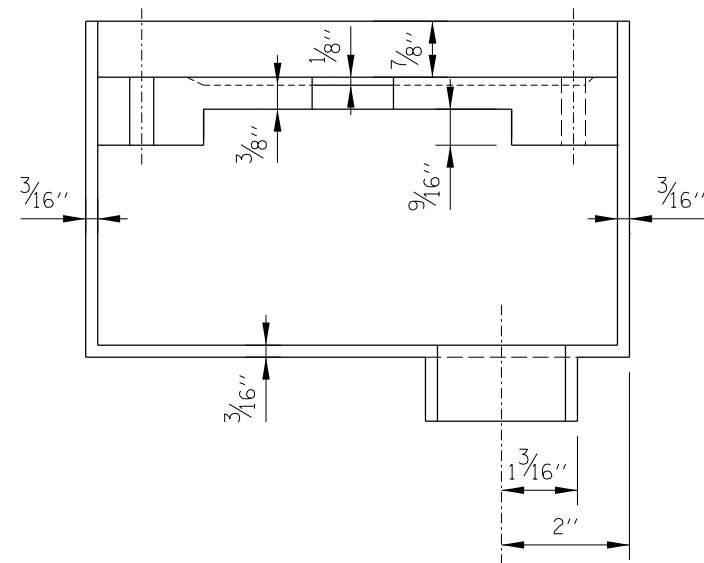
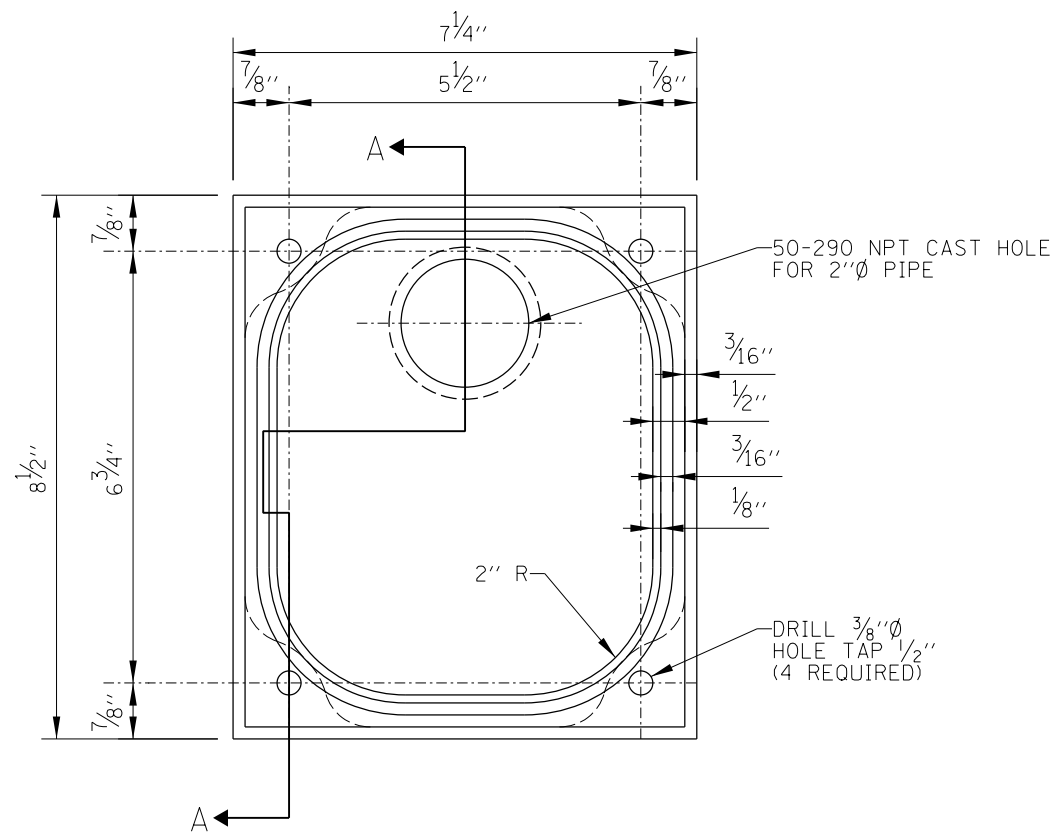
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M-ITS-1604

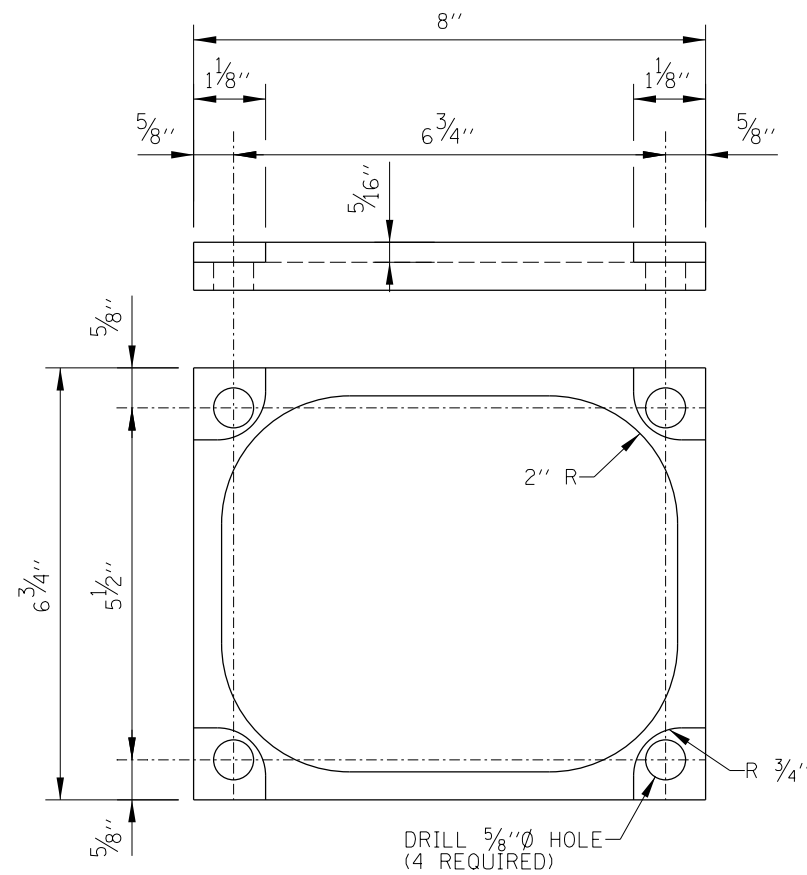
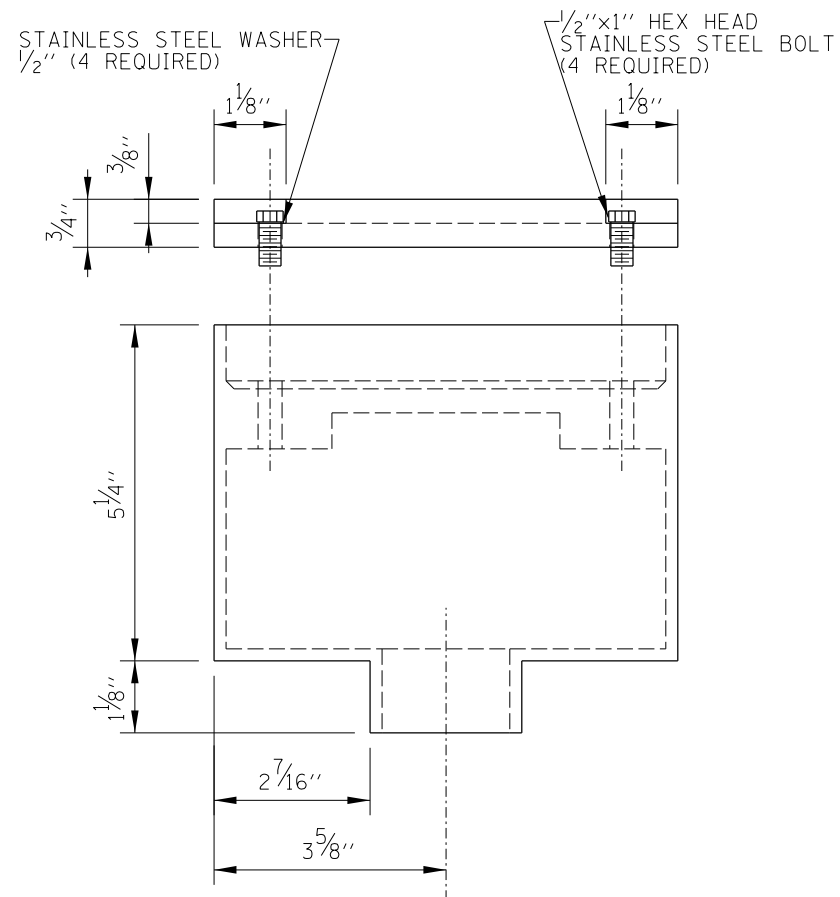


INSTALLATION DETAIL
DETECTOR HOUSING &
DETECTOR HOUSING ADAPTER

DATE
3-31-2016



SECTION A-A



NOTE TO DESIGNER

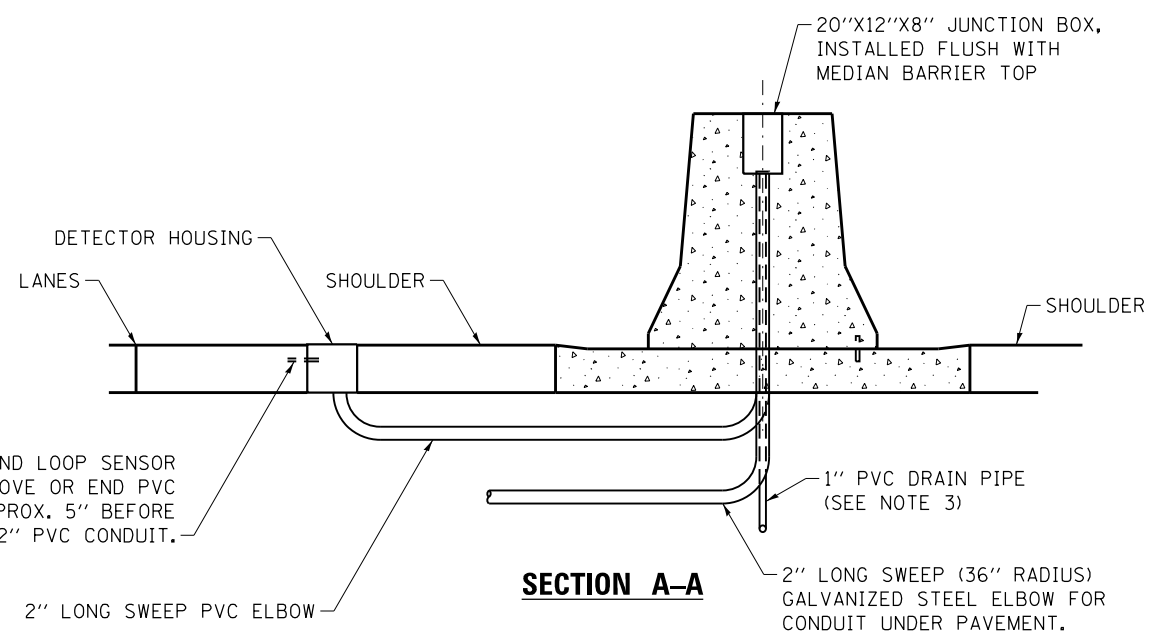
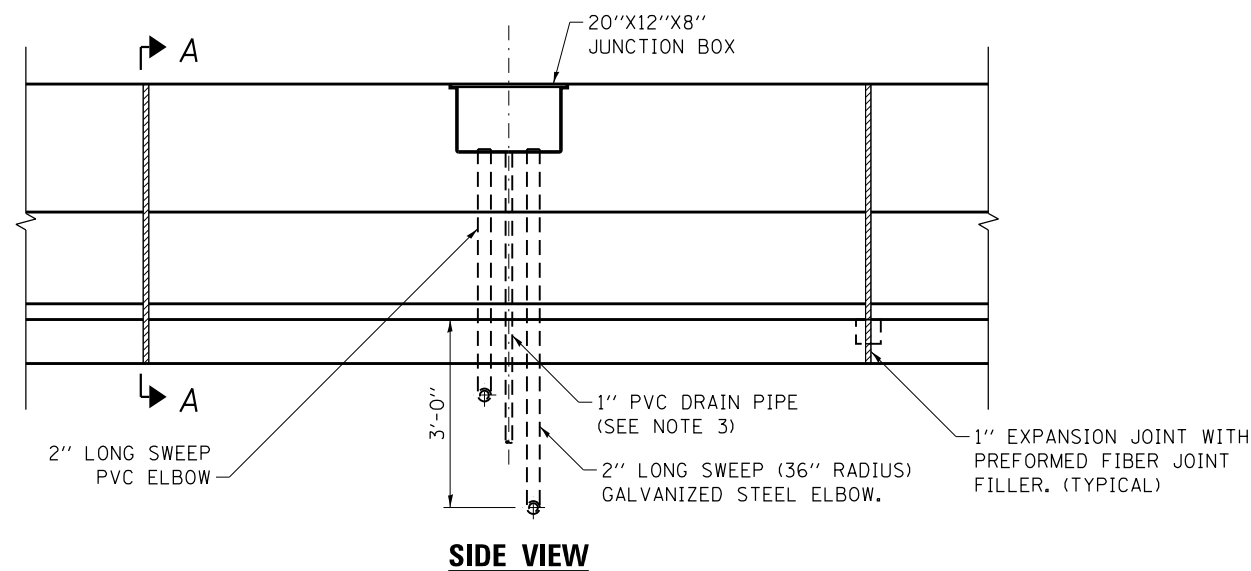
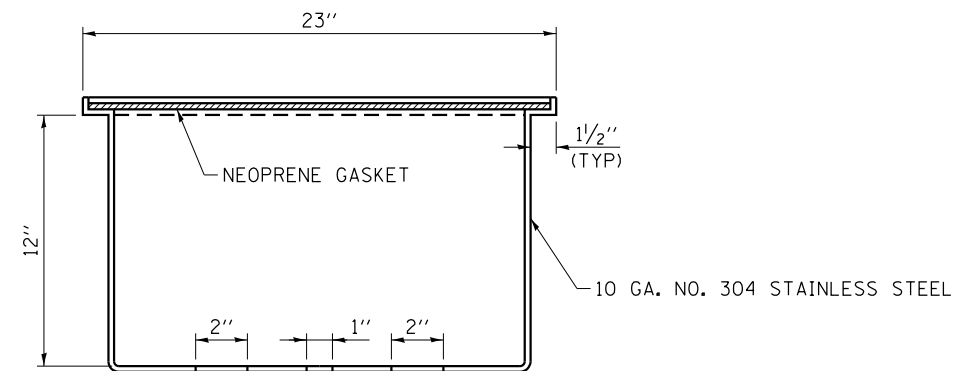
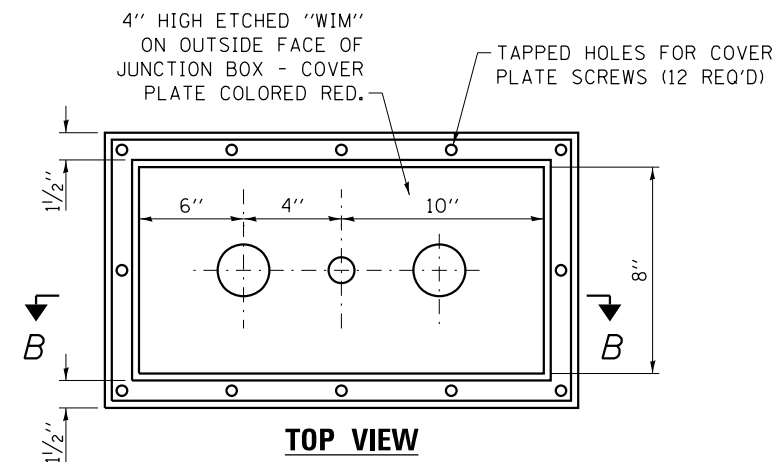
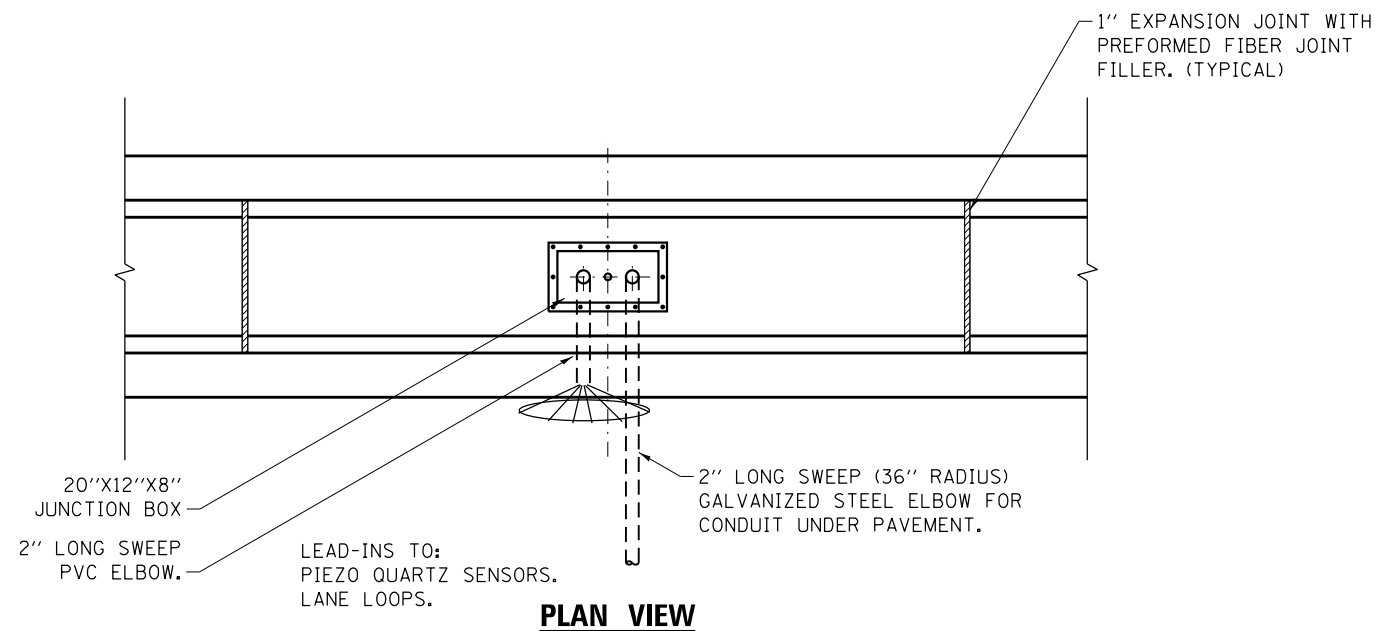
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M-ITS-1605



WEIGH-IN-MOTION
DETECTOR HOUSING DETAIL

DATE
3-31-2016



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NOTES:

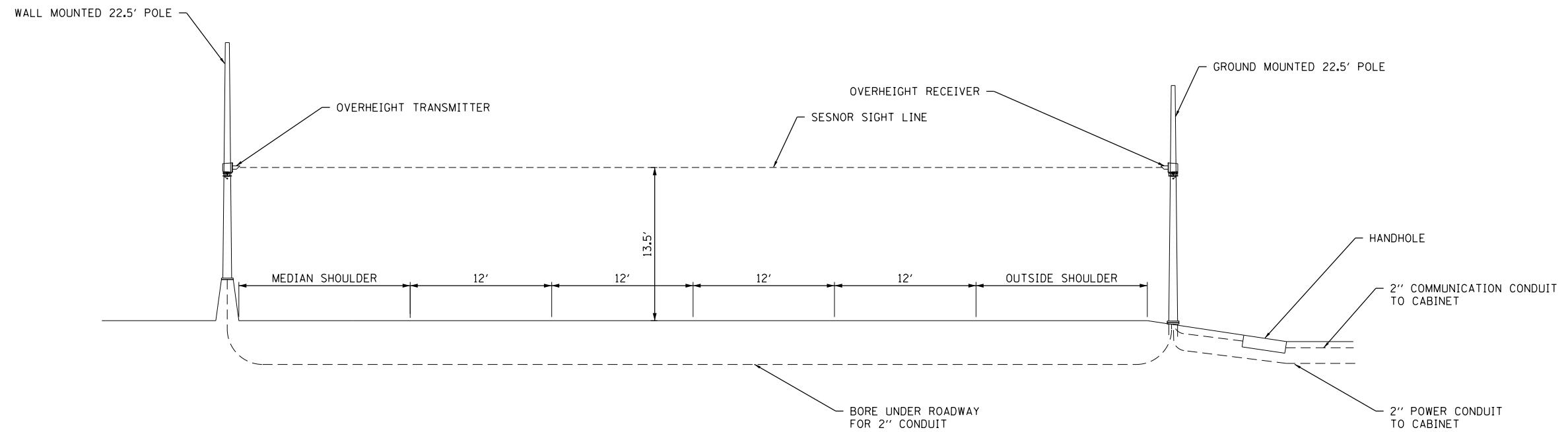
1. THE JUNCTION BOX SHALL BE ACCESSED FROM THE TOP OF MEDIAN BARRIER.
2. DUCT SHALL BE CUT AND REMOVED AT JUNCTION BOX CONDUIT OPENINGS AND INSIDE BOX. ELECTRICAL CONDUITS SHALL PROTRUDE 1/4" INTO BOX.
3. CONTRACTOR SHALL INSTALL 1" PVC PIPE TO DRAIN JUNCTION BOX TO AGGREGATE SUBGRADE.

M-ITS-1606

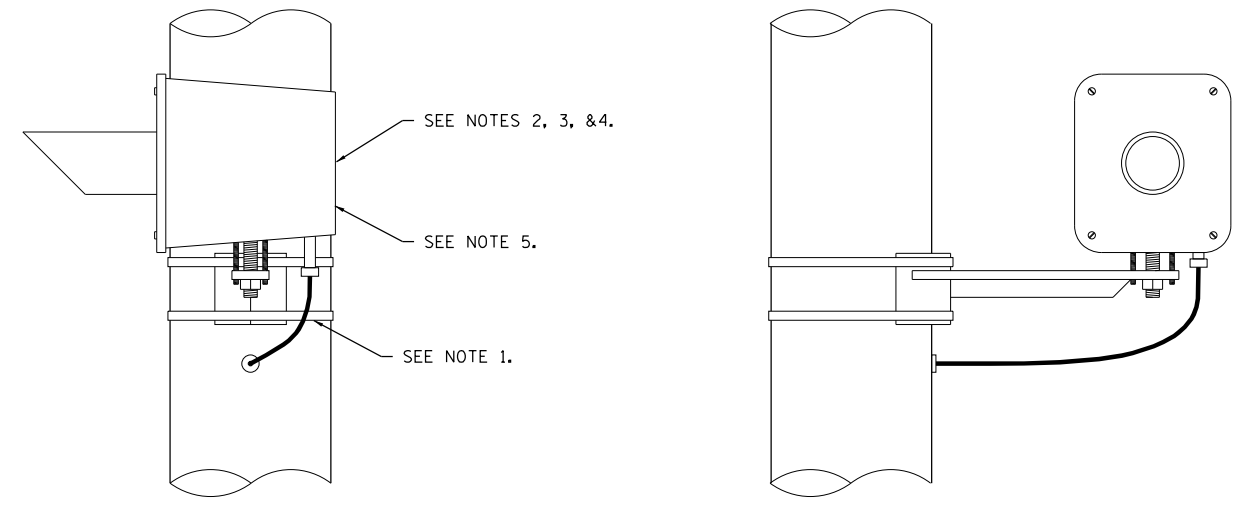


WEIGH-IN-MOTION
JUNCTION BOX DETAIL

DATE
3-31-2017



SENSOR CONFIGURATION



SENSOR DETAIL

NOTES:

1. BAND MOUNTING BRACKET TO POLE AT APPROPRIATE HEIGHT.
2. MOUNT, WIRE AND AIM THE OVERHEIGHT TRANSMITTER AND RECEIVER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. DETECTOR AND BRACKET WEIGHT: 40 lbs [18 kg]
4. DETECTOR HOUSING SIZE: 15-1/2" [394mm] X 10" [254mm] X 8-3/4" [222mm]
5. DETECTOR POWER: 115 VAC, 50/60 Hz, 0.3 AMP.

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M-ITS-1607

WEIGH-IN-MOTION HEIGHT DETECTOR
<small>DATE</small> 3-01-2020