

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
FEDERAL AID HIGHWAY

F.A.I. ROUTE 270 (I-270)  
SECTION 60-4 WIMDCS 2018-2  
PROJECT NO.: NHPP-KQWV (292)  
WEIGH-IN-MOTION DATA  
COLLECTION SYSTEM  
MADISON COUNTY

C-98-135-18

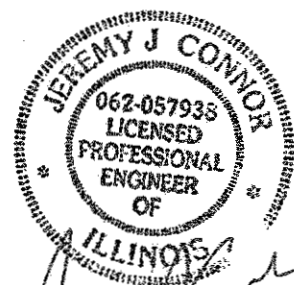
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMDCS 2018-2	MADISON	11	1
		ILLINOIS	CONTRACT NO. 76K62	

INDEX OF SHEETS

- 1 COVER SHEET
- 2 STANDARDS, GENERAL NOTES, COMMITMENTS AND TYPICAL SECTION
- 3 SUMMARY OF QUANTITIES
- 4 PLAN
- 5-11 SCALE DETAILS

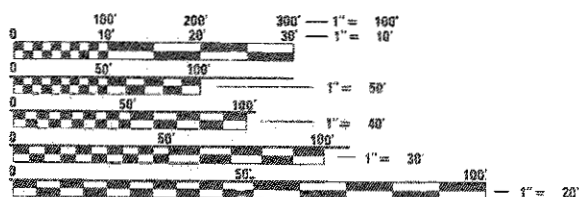


PREPARED BY:  
HURST-ROSCHKE, INC.  
HILLSBORO, ILLINOIS 62049  
PHONE (217)532-3959



10-17-17

JEREMY J. CONNOR P.E.#062-057938 DATE  
LICENSE EXPIRES: NOVEMBER 30, 2017  
HURST-ROSCHKE, INC.

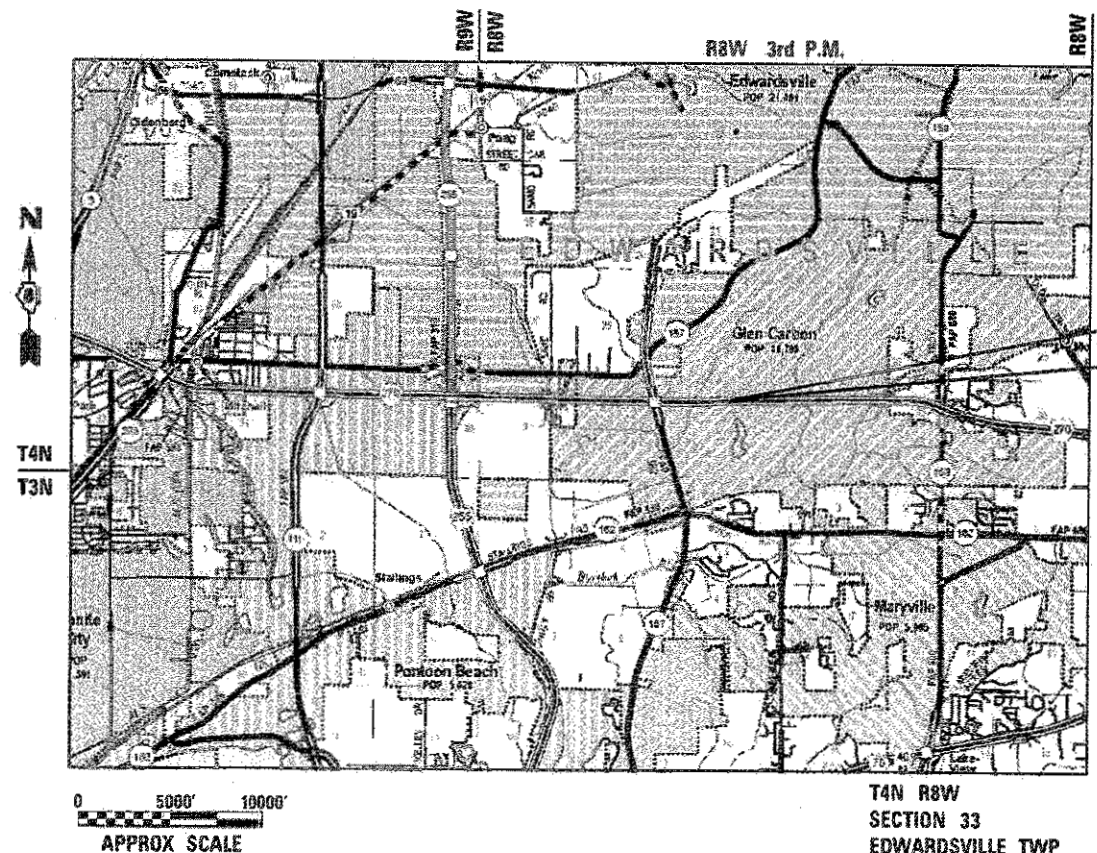


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 911

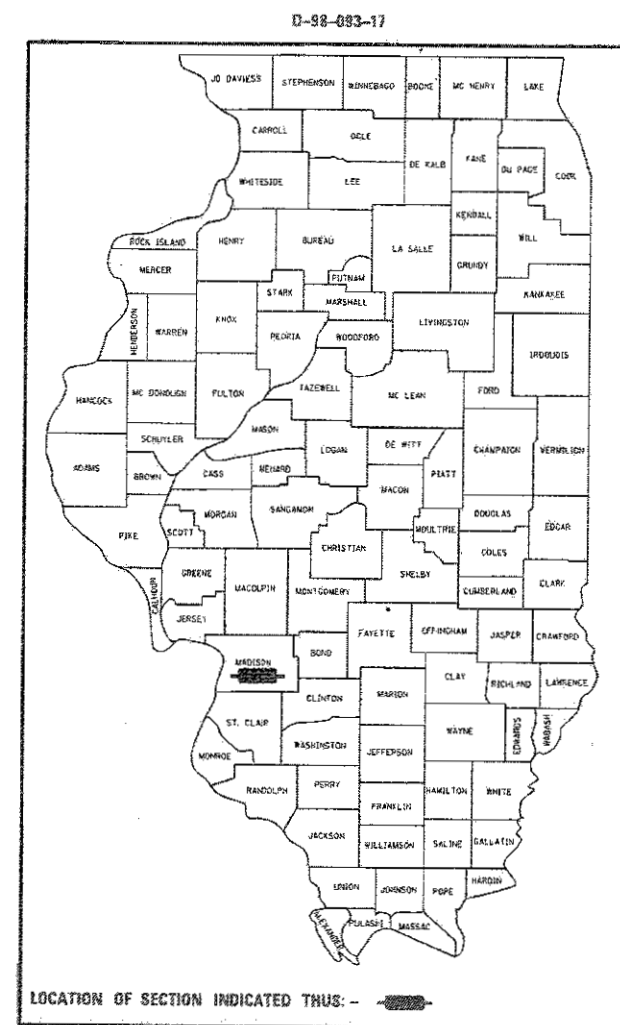
PROJECT ENGINEER: HERVE GELIN, (618) 346-3179  
PROJECT MANAGER: CRAIG S POETTKER, (618) 346-3279  
SQUAD LEADER: JEYCEA BOBO, (618) 346-3190

CONTRACT NO. 76K62



LOCATION OF IMPROVEMENT

GROSS LENGTH = 70 FT. = 0.013 MILE



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED *Oct. 17 2017*  
*Jeffrey Z. Kan...* REGIONAL ENGINEER  
*Nov 30 2017*  
*Harrison M. Addis* ENGINEER OF DESIGN AND ENVIRONMENT  
*Nov 30 2017*  
*...* DIRECTOR OF PROGRAM DEVELOPMENT

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# SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE	
				90% FEDERAL 10% STATE ROADWAY 0044 URBAN	
67100100	MOBILIZATION	LSUM	1	1	
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	EACH	2	2	
80500100	SERVICE INSTALLATION, TYPE A	EACH	1	1	
81028340	UNDERGROUND CONDUIT, PVC, 1 1/2" DIA.	FOOT	85	85	
81702400	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 2	FOOT	113	113	
81702441	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 2-12/C, 1-12/C GROUND	FOOT	46	46	
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.25	0.25	
Z0026290	FURNISHING AND INSTALLING WEIGH-IN- MOTION COMPONENTS	LSUM	1	1	

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 JOB NO. 180-2356



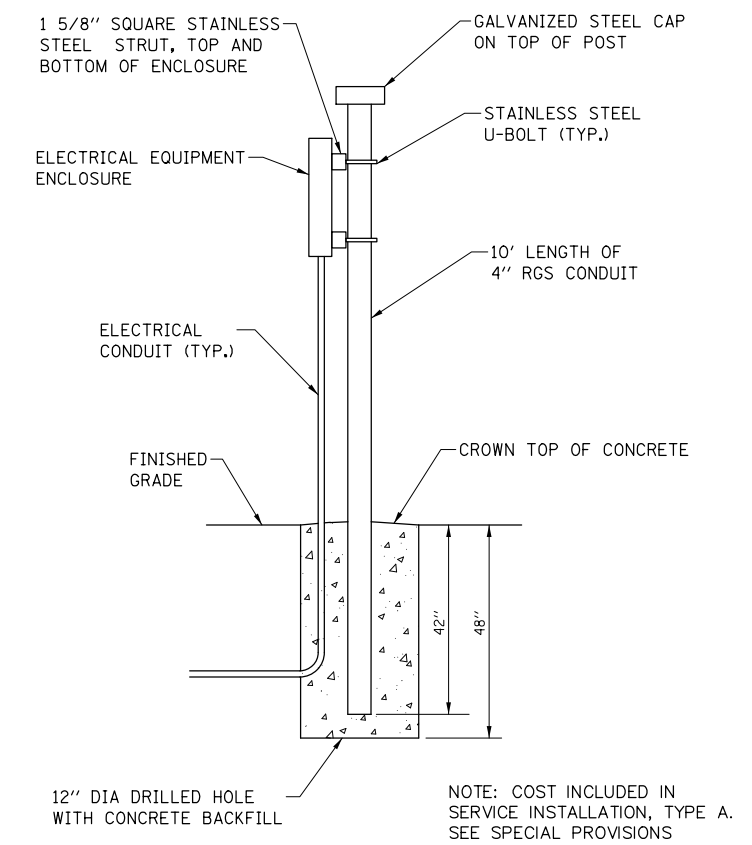
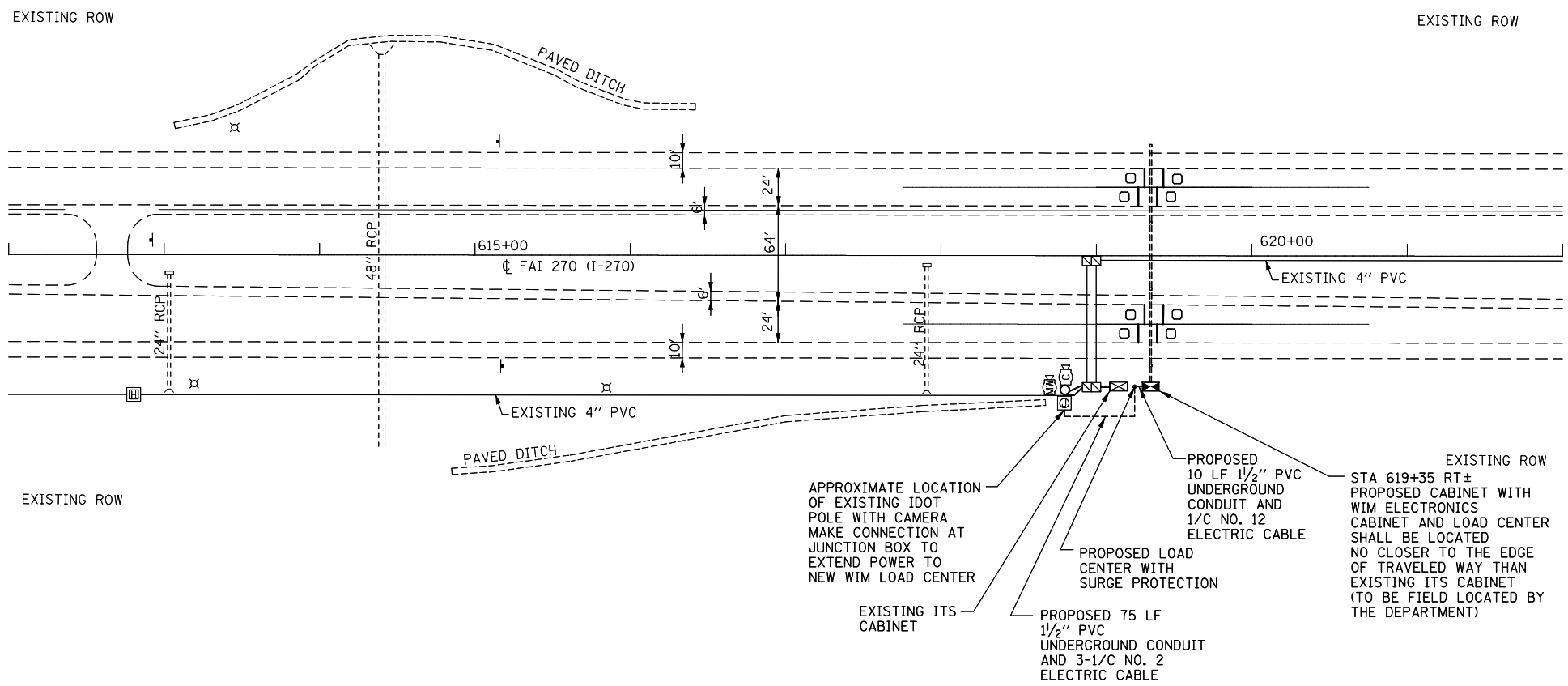
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FILE NAME =	USER NAME = bobaja	DESIGNED - JJC	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM SUMMARY OF QUANTITIES</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pl\1184E8IGINTEG.illinois.gov\FWIDOT\Do	Documents\DOT Offices\District 8\Projects\087	pl\1184E8IGINTEG.illinois.gov\FWIDOT\Do	pl\1184E8IGINTEG.illinois.gov\FWIDOT\Do			270	60-4 WIMDCS 2018-2	MADISON	11	3
PLDT SCALE = 1/8" = 100.0000' / in.	CHECKED - GR	REVIS	REVIS			CONTRACT NO. 76K62				
PLDT DATE = 8/18/2017	DATE - 6-30-17	REVIS	REVIS			FED. ROAD DIST. NO. 8 (ILLINOIS) FED. AID PROJECT				
				SCALE: NO SCALE		SHEET NO. 1 OF 1 SHEETS		STA. TO STA.		

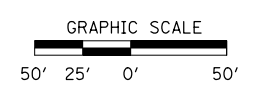
HURST-ROSCHKE, INC.  
 HILLSBORO, ILLINOIS 62049  
 PHONE (217)532-3959  
 JOB NO. 180-2356



NOTE:  
 PLAN VIEW TAKEN FROM PLANS  
 FOR CONTRACT NO. 76618



**LOAD CENTER**  
 NOT TO SCALE



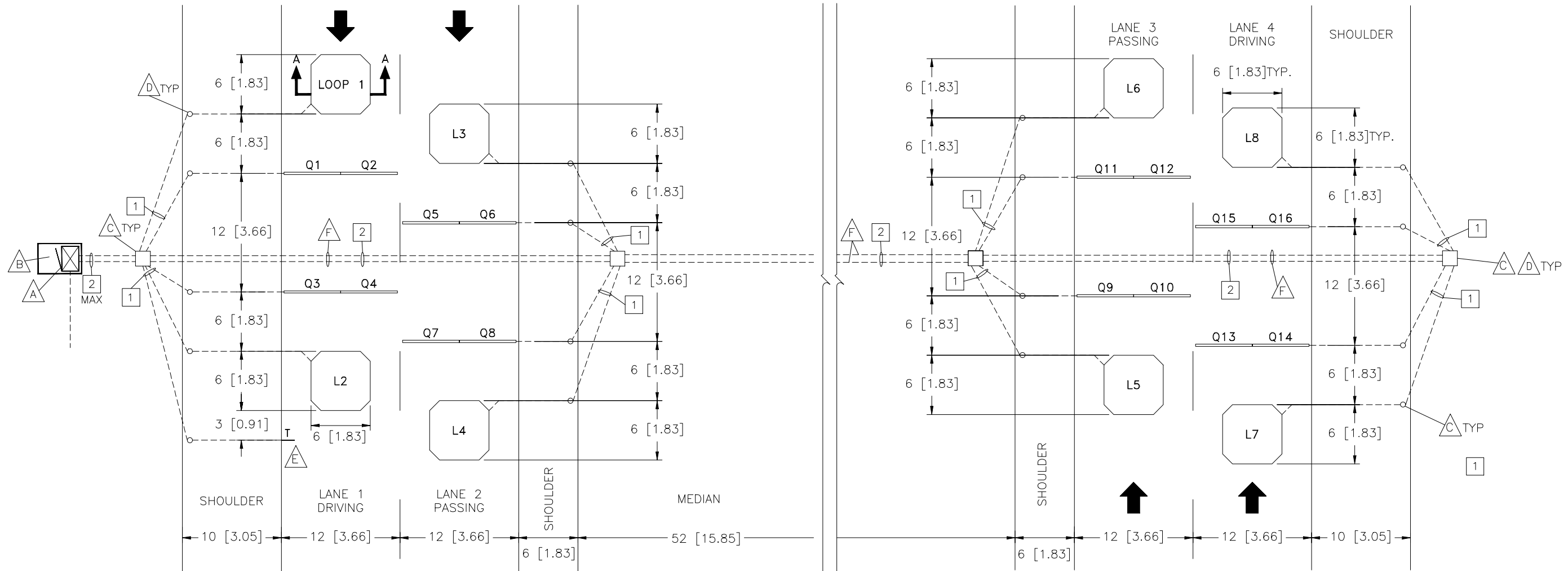
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PLOT SCALE = 100.0000' / in.	CHECKED GR		REVISED -
PLOT DATE = 8/10/2017	DATE 6-30-17		REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**FAI 270 (I270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM  
 PLAN**

SCALE: 1"=50' SHEET NO. 1 OF 1 SHEETS STA. 612+00 TO STA. 622+00

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMDCS 2018-2	MADISON	11	4
CONTRACT NO. 76K62				
FED. ROAD DIST. NO. 8 ILLINOIS FED. AID PROJECT				



**GENERAL NOTES:**

ALL CONNECTIONS BETWEEN SENSORS AND LEAD CABLES ARE DONE IN HAND HOLE AND ARE SOLDERED THEN SEALED FOR WATERPROOFING. NUMBER AND PLACEMENT OF HAND HOLES NOT SHOWN.

POWER CABLES MUST BE RUN IN SEPARATE CONDUITS/HAND HOLES FROM SIGNAL CABLES.

SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT. ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS BY THE MANUFACTURE'S FIELD REPRESENTATIVE.

ROAD SERVICE MUST MEET ASTM E1318 REQUIREMENTS TO ACHIEVE OPTIMAL SYSTEM.

CABLES MUST BE PROTECTED BY PVC SLEEVES WHERE THEY CROSS PAVEMENT. JOINTS/CRACKS.

TEMPERATURE SENSOR MUST BE INSTALLED AS SHOWN ON DRAWING.

MANUFACTURER RECOMMENDS THAT HAND HOLES BE NO FURTHER THAN 200' (61m) APART. MANUFACTURE RECOMMENDS THE MINIMUM SIZE FOR HAND HOLES IS 18" (45.7cm) X 12" (30.5cm).

EXACT ROUTING OF CONDUIT TO BE DETERMINED ON SITE. CONDUITS ARE LABELED LEFT TO RIGHT, TOP TO BOTTOM.

DRAWING NOT TO SCALE.

**NOTES:**

- CABINET WITH WIM ELECTRONICS
- CABINET BASE
- HAND HOLE
- DRILL THROUGH SHOULDER FOR CONDUIT
- TEMPERATURE SENSOR
- BORE UNDER ROADWAY

**LEGEND:**

- INDUCTIVE LOOP
- LINEAS® QUARTZ WIM SENSOR BY KISTLER
- TEMPERATURE SENSOR
- SIGNAL CONDUIT
- NOTE

**SIGNAL CONDUIT:**

- 1" (25mm) CONDUIT SENSOR LEAD
- 3" (76mm) CONDUIT SENSOR LEAD

HURST-ROSCHKE, INC.  
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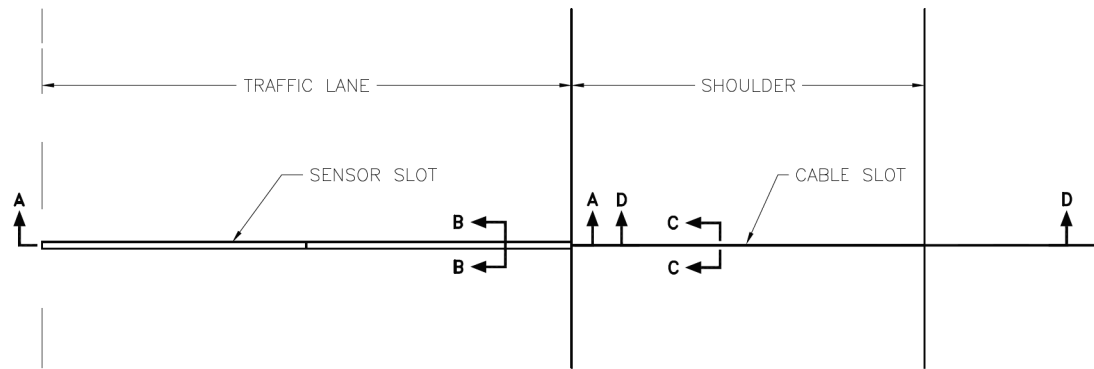
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM  
SCALE DETAILS

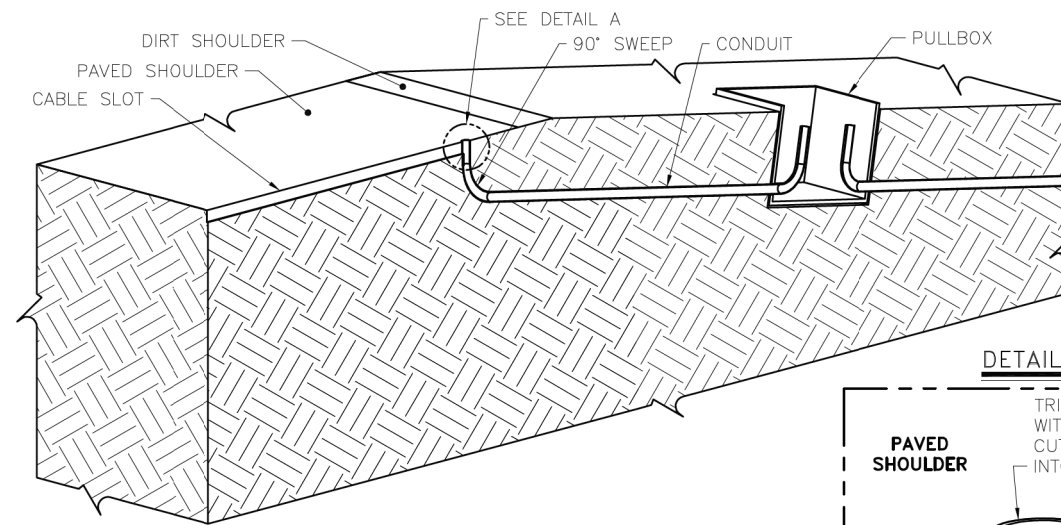
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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMCDS 2018-2	MADISON	11	5
CONTRACT NO. 76K62				
FED. ROAD DIST. NO. 8 ILLINOIS FED. AID PROJECT				

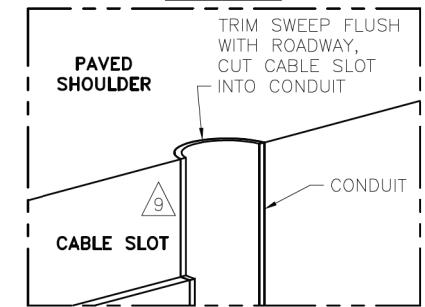
**PLAN VIEW - SENSOR INSTALLATION**



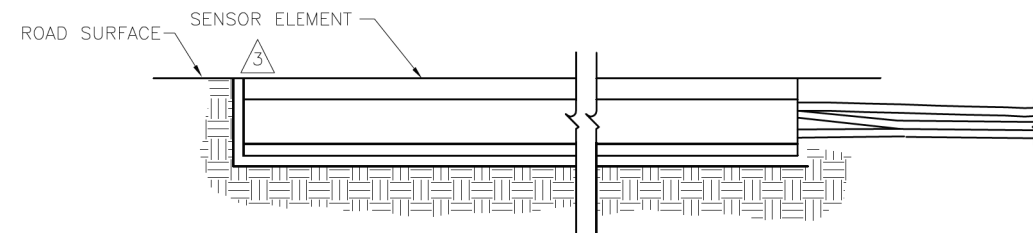
**SECTION D-D (CABLE ROUTING DETAILS)**



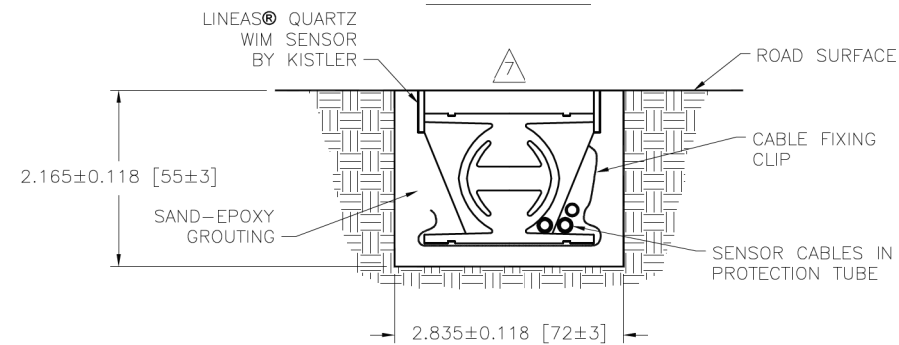
**DETAIL A**



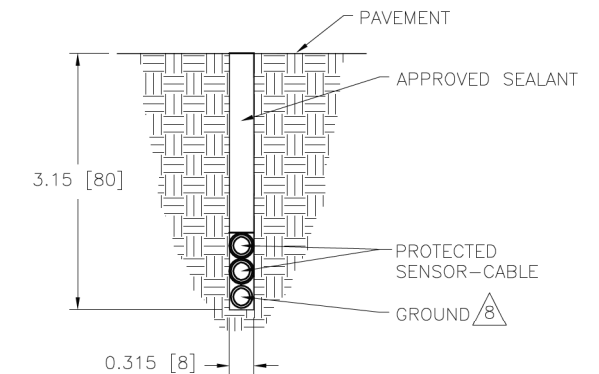
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**NOTES:**

- 1 FOR INSTALLATION PROCESS REFER TO MANUFACTURERS INSTALLATION MANUAL.
- 2 SLOT LENGTH IS 6 [152] LONGER THAN SENSOR.
- 3 SET SENSOR FLUSH WITH OR SLIGHTLY HIGHER THAN ROAD SURFACE USING INCLUDED LEVELING BEAMS.
- 4 CHECK THE RESISTANCE OF THE SENSOR BY PLACING A DIGITAL MULTIMETER ACROSS THE CENTER CONDUCTOR OF THE BNC CONNECTOR AND THE OUTER BODY. THE READING SHOULD BE INFINITY.
- 5 CHECK THE VOLTAGE OUTPUT OF THE SENSOR BY MONITORING THE METER WHEN A TRUCK PASSES OVER THE SENSOR INSTALLED IN THE ROADWAY. AS THE TRUCK PASSES OVER THE SENSOR, VOLTAGE DEFLECTION SHOULD BE OBSERVED.
- 6 CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18 [450] UPSTREAM AND 18 [450] DOWNSTREAM OF THE SENSOR.
- 7 SENSOR MUST BE GROUND FLUSH WITH ROAD SURFACE AFTER GROUT HAS CURED.
- 8 IF SIGNIFICANT NOISE SOURCES ARE IDENTIFIED, OVERHEAD POWER SOURCES ETC., CONNECT OPTIONAL GROUND WIRE AS PER 690359 SECTION 4.5 OF THE MANUFACTURE'S INSTALLATION GUIDE, OTHER END OF GROUND WIRE CONNECTS TO CABINET GROUND BUSBAR.
- 9 CORE DRILL OR CUT NOTCH IN PAVED SHOULDER FOR SWEEP. PLUG SWEEP OPENING, COVER WITH LOOP SEALANT.

HURST-ROSCHKE, INC.  
HILLSBORO, ILLINOIS 62049  
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JOB NO. 180-2356



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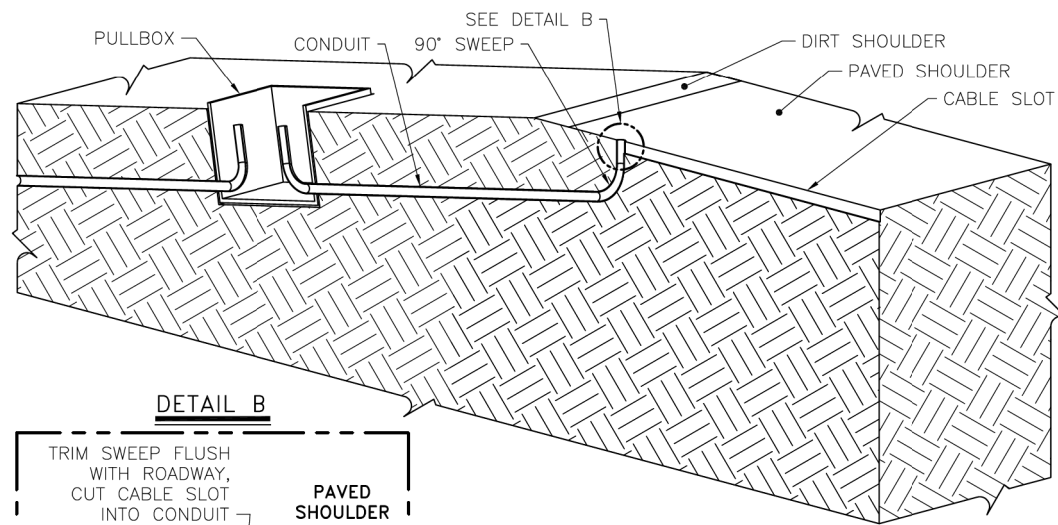
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM**  
**SCALE DETAILS**

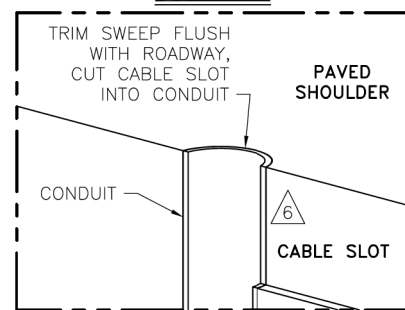
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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 76K62			FED. ROAD DIST. NO. 8 (ILLINOIS) FED. AID PROJECT	

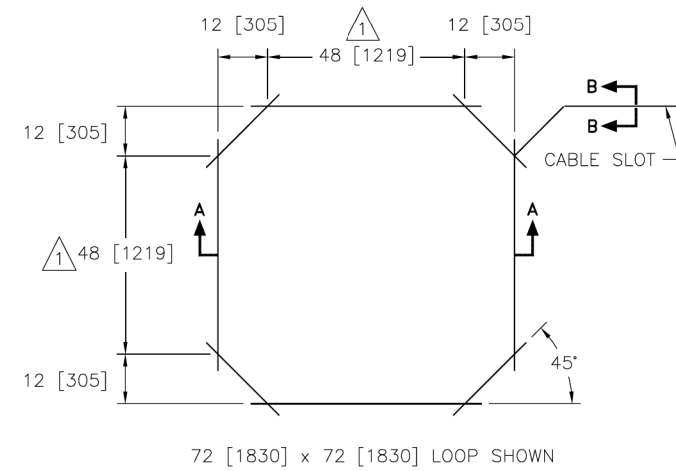
**CABLE ROUTING DETAILS**



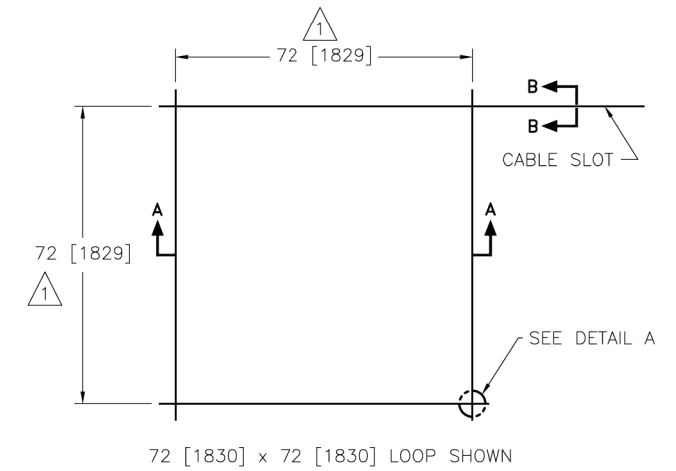
**DETAIL B**



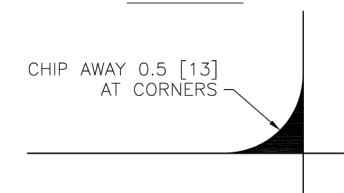
**OCTAGON LOOP DIMENSION DETAIL**



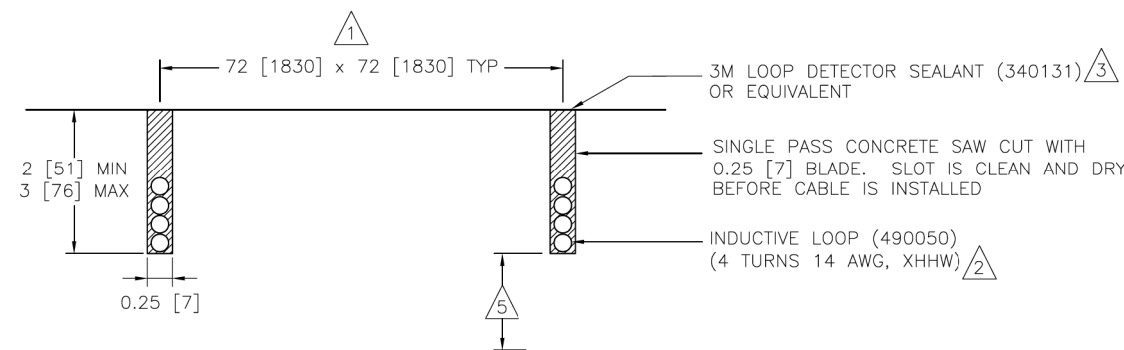
**SQUARE LOOP DIMENSION DETAIL**



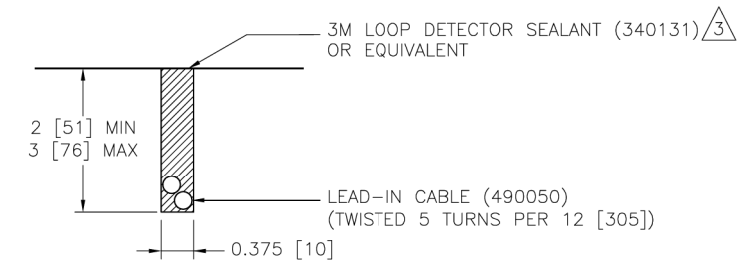
**DETAIL A**



**SECTION A-A**



**SECTION B-B**



**NOTES:**

- 1 LOOP SIZE AS SPECIFIED ON SITE LAYOUT AND IN ACCORDANCE WITH IRD 3EGR0001.
- 2 NUMBER OF TURNS AS SPECIFIED ON SITE LAYOUT AND IN ACCORDANCE WITH IRD 3EGR0001.
- 3 USE CAULKING GUN 340132 OR 340148.
- 4 LOOP INSTALLATION MANUALS:  
690279 - PERMANENT OCTAGON LOOPS  
690289 - PERMANENT SQUARE LOOPS
- 5 IF THE LOOP IS INSTALLED OVER REBAR, THERE MUST BE A MINIMUM OF 2 [50.8] CONCRETE BELOW AND A MINIMUM OF 1 [25.4] FILL ABOVE THE WIRES.
- 6 CORE DRILL OR CUT NOTCH IN PAVED SHOULDER FOR SWEEP. PLUG SWEEP OPENING, COVER WITH LOOP SEALANT.

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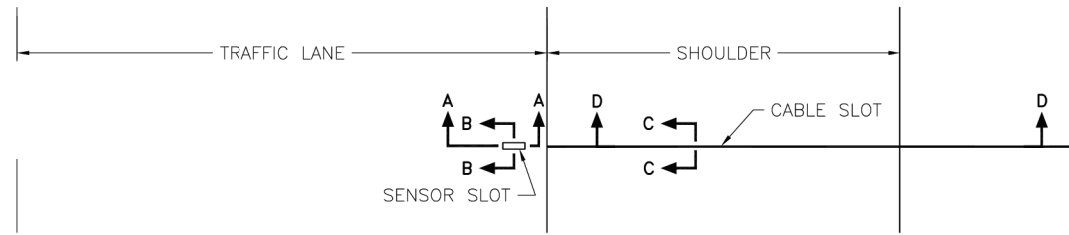
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM  
SCALE DETAILS**

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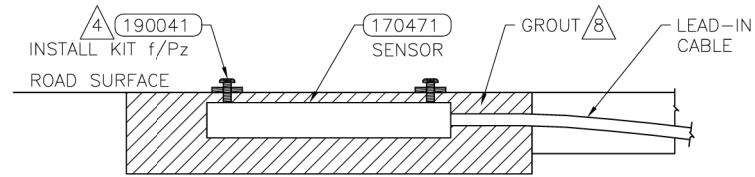
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMCDS 2018-2	MADISON	11	7
CONTRACT NO. 76K62			FED. ROAD DIST. NO. 8 ILLINOIS FED. AID PROJECT	

**PLAN VIEW - SENSOR INSTALLATION**

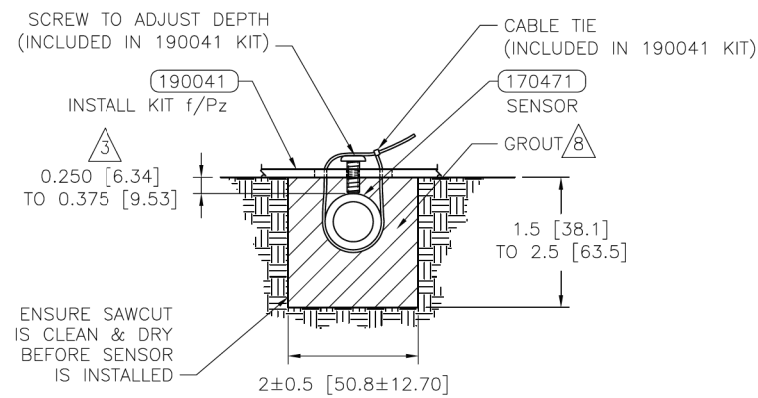


**SENSOR P/N 170471**

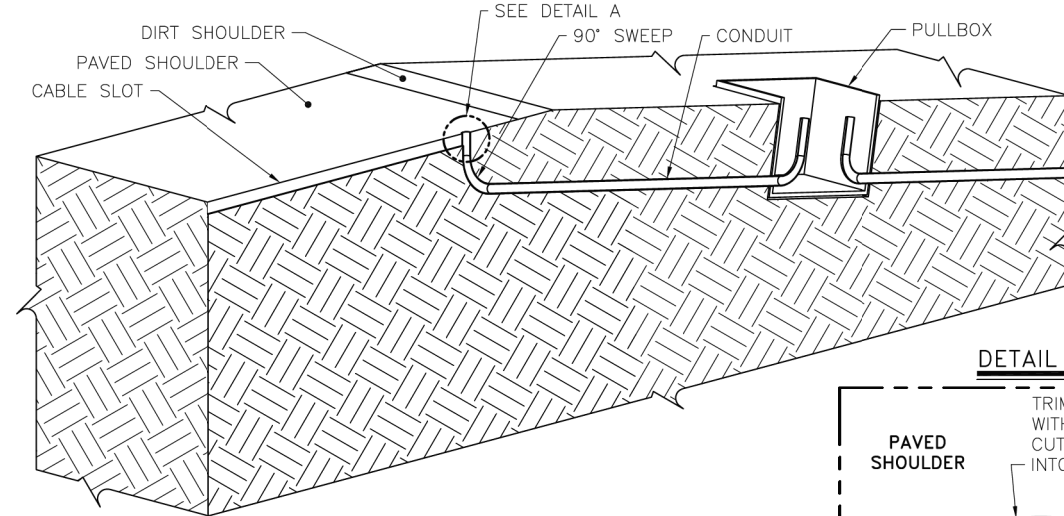
**SECTION A-A**



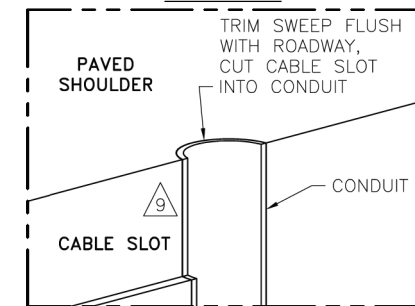
**SECTION B-B**



**SECTION D-D (CABLE ROUTING DETAILS)**

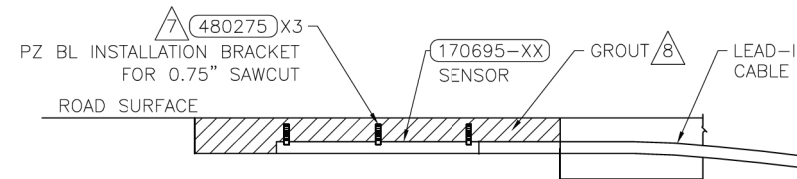


**DETAIL A**

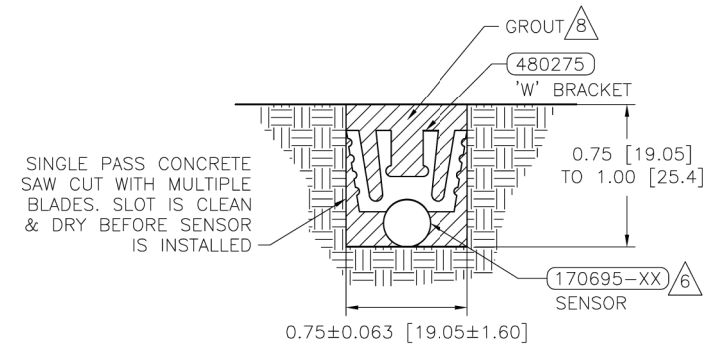


**SENSOR P/N 170695-XX**

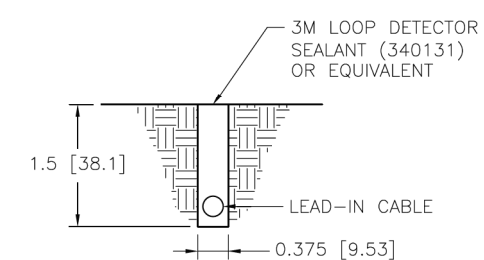
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**NOTES: (THIS SHEET ONLY)**

- 1 CRACKS OR SAW CUTS IN THE ROADWAY MUST NOT BE LOCATED CLOSER THAN 18" [450MM] UPSTREAM AND 18 [450MM] DOWNSTREAM OF THE TEMPERATURE SENSOR.
- 2 SLOT LENGTH IS 4" [102MM] LONGER THAN SENSOR.
- 3 SET THE SENSOR AT THE CORRECT DEPTH.
- 4 PLACE A BRACKET AT EACH END OF THE SENSOR,
- 5 LOCATE SENSOR IN SAME PAVEMENT AND WITHIN 6' [2M] OF THE TEMPERATURE COMPENSATED DEVICE. AVOID PLACING IN WHEEL PATH.
- 6 WEDGE SENSOR AGAINST FLOOR OF CUT UNDER "W" CLIP (P/N 480275).
- 7 SPACE THREE BRACKETS (P/N 480275) EVENLY OVER THE LENGTH OF THE SENSOR,
- 8 USE GROUT OF SAME TYPE AS THAT OF SENSOR BEING COMPENSATED:  
PIEZO - USE AS475 (340028) OR PU200 (IT2000285)  
KISTLER - USE KISTLER GROUT (340139) OR FLEXOLITH (340082)
- 9 CORE DRILL OR CUT NOTCH IN PAVED SHOULDER FOR SWEEP. PLUG SWEEP OPENING, COVER WITH LOOP SEALANT.

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PLOT SCALE = 100.0000' / 1in.	CHECKED - GR	REVISIONS	REVISED -
PLOT DATE = 8/10/2017	DATE - 6-30-17	REVISIONS	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM  
SCALE DETAILS**

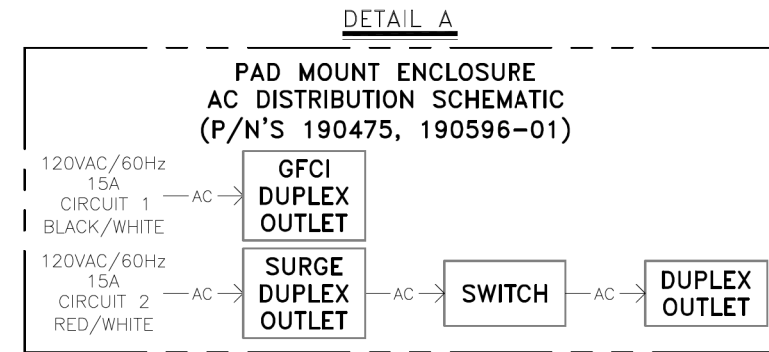
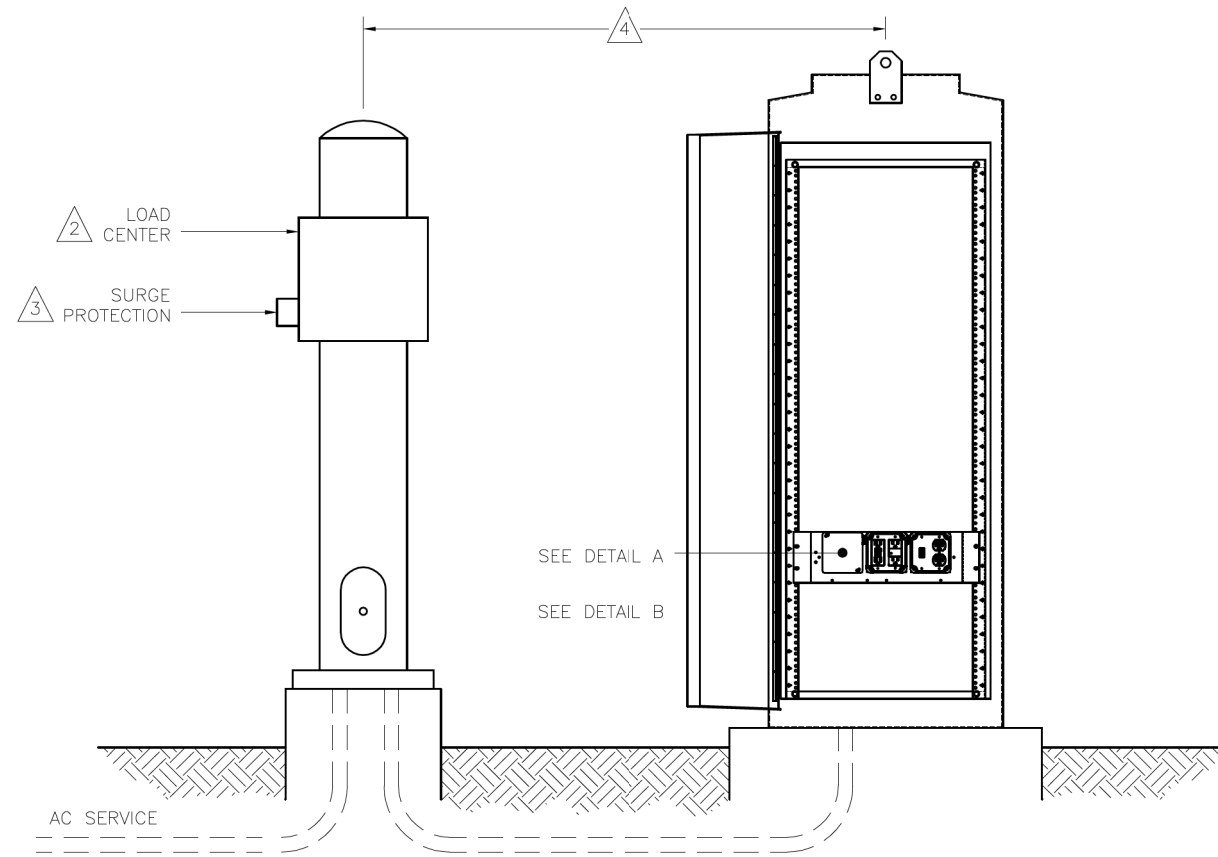
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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMCDS 2018-2	MADISON	11	8
FED. ROAD DIST. NO. 8 ILLINOIS FED. AID PROJECT			CONTRACT NO. 76K62	





**33X CABINET  
BACK INSIDE VIEW**



**NOTES:**

- 1 ALL ELECTRICAL DEVICES, GROUNDING, BONDING, WIRING AND MOUNTING MUST MEET THE NATIONAL ELECTRICAL CODE NFPA70 AND LOCAL ELECTRICAL CODE.
- 2 PROVIDE SUITABLE INDOOR OR OUTDOOR LOAD CENTER. IRD RECOMMENDS FOR CSA USE SQUARE D P/N CQ018M100RB60 OR P/N Q02L70RB, FOR UL USE P/N Q0112M100RB OR P/N Q024L70RB OR EQUIVALENT.
- 3 EQUIPMENT MUST BE PROTECTED WITH AN ANSI/IEEE C62.41 CATEGORY C RATED PROTECTION DEVICE WITH A MINIMUM PEAK CURRENT HANDLING CAPABILITY OF 36KA (8/20 $\mu$ S) INSTALLED AT THE LOAD CENTER OR SUB LOAD CENTER.
- 4 30m MAXIMUM CABLE LENGTH BETWEEN CATEGORY C PROTECTOR AND ENCLOSURE(S).

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	PLOT SCALE = 100.0000' / 1in.	CHECKED - GR	REVISED -
	PLOT DATE = 8/10/2017	DATE - 6-30-17	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FAI 270 (I-270) WEIGH-IN-MOTION DATA COLLECTION SYSTEM  
SCALE DETAILS**

SCALE: NO SCALE    SHEET NO. 6 OF 7 SHEETS    STA.    TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-4 WIMCDS 2018-2	MADISON	11	10
FED. ROAD DIST. NO. 8 ILLINOIS FED. AID PROJECT			CONTRACT NO. 76K62	

