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SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8	9	10	12	39	40	41	86	87	99	100	01/SAF /PV							
			480		3,567						4,047		254	01000	4,047	SY	PAVEMENT PLANING, ASPHALT CONCRETE	
					3,076						3,076		255	20000	3,076	FT	FULL DEPTH PAVEMENT SAWING	
					1,911						1,911		301	56000	1,911	CY	ASPHALT CONCRETE BASE, PG64-22, (449)	
						75					75		301	56100	75	CY	ASPHALT CONCRETE BASE, PG64-22, (449), (DRIVEWAYS)	
					1,313	225					1,538		304	20000	1,538	CY	AGGREGATE BASE	
			39		1,320	42					1,401		407	20000	1,401	GAL	NON-TRACKING TACK COAT	
					67						67		441	70000	67	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	
					318						318		441	70100	318	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22M	
					721						721		441	70300	721	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)	
						34					34		441	70500	34	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), (DRIVEWAYS)	
					3,299						3,299		SPECIAL	69098200	3,299	SF	MALTENE BASED LONGITUDINAL JOINT STABILIZER	10A
							0.32				0.32		618	43000	0.32	MILE	RUMBLE STRIPES, CENTER LINE (ASPHALT CONCRETE)	
							57				57		621	00100	57	EACH	RPM	
							23				23		621	54000	23	EACH	RAISED PAVEMENT MARKER REMOVED	
								248.7			248.7		630	03100	248.7	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
							13.6				13.6		630	04100	13.6	FT	GROUND MOUNTED SUPPORT, NO. 4 POST	
									4		4		630	79500	4	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
								137.2	12		149.2		630	80100	149.2	SF	SIGN, FLAT SHEET	
								29			29		630	84900	29	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
								19			19		630	86002	19	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
			0.05								0.05		642	00300	0.05	MILE	CENTER LINE, TYPE 1	
							0.97				0.97		644	00104	0.97	MILE	EDGE LINE, 6"	
							0.67				0.67		644	00300	0.67	MILE	CENTER LINE	
							687				687		644	00400	687	FT	CHANNELIZING LINE, 8"	
							71				71		644	00500	71	FT	STOP LINE	
							241				241		644	00700	241	FT	TRANSVERSE/DIAGONAL LINE	
								8			8		644	01300	8	EACH	LANE ARROW	
									2		2		625	00450	2	EACH	CONNECTION, FUSED PULL APART	
									2		2		625	00460	2	EACH	CONNECTION, UNFUSED PULL APART	
									2		2		625	18510	2	EACH	BRACKET ARM, 30'	
									35		35		625	25408	35	FT	CONDUIT, 2", 725.051	
									35		35		625	25604	35	FT	CONDUIT, 4", 725.051	
									2		2		625	26253	2	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, 150W, 120V, TYPE II	96
									35		35		625	29002	35	FT	TRENCH, 24" DEEP	
									1		1		625	30700	1	EACH	PULL BOX, 725.08, 18"	
									5		5		625	32000	5	EACH	GROUND ROD	
									35		35		625	36010	35	FT	UNDERGROUND WARNING/MARKING TAPE	
									1		1		625	76000	1	EACH	ARC FLASH CALCULATIONS AND LABEL	
									10		10		632	05006	10	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	
									2		2		632	05086	2	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	
									12		12		632	25000	12	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
										445	445		632	30200	445	FT	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES	
										445	445		632	30600	445	FT	TETHER WIRE, WITH ACCESSORIES	
										482	482		632	40400	482	FT	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG	
										1,925	1,925		632	40700	1,925	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
										4	4		632	64000	4	EACH	STRAIN POLE FOUNDATION	
										4	4		632	64950	4	EACH	TEST HOLE PERFORMED	
										85	85		632	67300	85	FT	POWER CABLE, 3 CONDUCTOR, NO. 8 AWG	
										1	1		632	70001	1	EACH	POWER SERVICE, AS PER PLAN	98
										2	2		632	86140	2	EACH	STRAIN POLE, TYPE TC-81.11, DESIGN 12	
										2	2		632	87140	2	EACH	COMBINATION STRAIN POLE, TYPE TC-81.11, DESIGN 12	

GENERAL SUMMARY

FAI-158-07.25

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809 ADVANCE RADAR DETECTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.
8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO MILLING/DISABLING EXISTING LOOPS.
9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION.

PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

809 STOP-LINE RADAR DETECTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX DETECTION UNIT. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER. EACH UNIT IS TO USE 3 BANDS TO ATTACH UNITS PER MANUFACTURERS RECOMMENDATIONS.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.
8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO MILLING/DISABLING EXISTING LOOPS.
9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION.

PAYMENT FOR ITEM 809 STOP-LINE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 - POWER SERVICE, AS PER PLAN

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

SOUTH CENTRAL POWER COMPANY
2780 COONPATH ROAD NE
LANCASTER, OH 43130
PHONE: (800) 282-5064
CONTACT: MICHAEL CONRAD

THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. A MINIMUM OF THREE MONTHS NOTICE SHALL BE GIVEN TO THE POWER COMPANY FOR NEW INSTALLATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK-UP.

UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE SERVICE CABLE INTO THE POWER COMPANY'S CIRCUITS.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES ASSOCIATED WITH THE SERVICE. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNALS AND LIGHTING SYSTEM IS ACCEPTED BY ODOT.

IF THE PROPOSED POWER SERVICE LOCATION SHOWN IN THE PLANS IS NOT FEASIBLE THEN THE CONTRACTOR SHALL MOVE THE POWER SERVICE LOCATION AT THE APPROVAL OF THE ENGINEER. ITEMIZED QUANTITIES SHALL BE ADJUSTED.

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660A, AND KEYING SHALL BE TO THE ODOT MASTER.

THE CONTRACTOR SHALL INSTALL A POWER SERVICE CONFORMING TO SCD TC-83.10. THE PHOTO-CELL SHALL BE MOUNTED 10 FEET ABOVE THE NEAREST EDGE OF PAVEMENT ELEVATION. THE POWER SERVICE SHALL BE A MINIMUM OF 60 AMP SERVICE. PROVIDE SEPARATE DISCONNECTS FOR THE 120/240V LIGHTING CIRCUIT, AS WELL AS THE 120/240V TRAFFIC SIGNALS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR THE POWER SERVICE, COMPLETE AND IN PLACE, INCLUDING, PHOTO-CELL, CONDUIT RISER, ALL CABLE, CONDUIT, CLAMPS, TRENCHING, POWER CABLE, FITTINGS, DISCONNECT SWITCH WITH ENCLOSURE, METER BASE, GROUND RODS, PADLOCK AND KEY, PULL BOX, AND ALL INCIDENTALS NECESSARY FOR COMPLETE SERVICE, ALL CONNECTIONS TESTED AND ACCEPTED.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 632, POWER SERVICE, AS PER PLAN 1 EACH

POWER SERVICE DATA					
POWER SERVICE	LINE VOLTS	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CONDUCTOR SIZE NO.	ENCLOSURE RATING (AMPS)	CIRCUIT NO.
EXISTING POWER POLE STA 312+82.05, 71.96' LT	120/240V 1 PHASE 3-WIRE 3-COND. W/ GND. NEUTRAL	5	1/0	60	SIGNAL
		CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
		7	30	6	ODOT DISTRICT 5

CALCULATED
AC
CHECKED
SUB

TRAFFIC SIGNAL GENERAL NOTES

FAI-158-07.25

SHEET NO.	REFERENCE		STATION	CODE	SIZE (INCHES)			625	625	625	625	625	625	625	625	625	625	625	630	630	632	632	632	CALCULATED AC CHECKED SUB	
	FROM	TO			W	x	H	EACH	EACH	EACH	FT	FT	EACH	FT	EACH	EACH	LF	EACH	EACH	SF	EACH	EACH	EACH		
INTERSECTION OF LANCASTER-KIRKERSVILLE ROAD (SR 158) AND PLEASANTVILLE ROAD (CR 17)																									
104	C1		313+25.94																						
	C1	PB1							25	25		25				1									
	PB1	SP1						10	10		10						25	10							
		PB1	313+00.00																						
		SP1	312+92.69	R9-3-18	18	x	24												1	3	1		1		
		SP2	311+82.07	R9-3-18	18	x	24												1	3	1		1		
		SP3	313+18.53	R9-3-18	18	x	24												1	3	1		1		
		SP4	312+23.33	R9-3-18	18	x	24												1	3	1		1		
	SP1	SP3																			1		2		
	SP3	SP4																			2		2		
	SP4	SP2																			1		2		
	SP2	SP1																			2		2		
	L-SP1							1	1	1				1											
	L-SP4							1	1	1				1											
TOTALS CARRIED TO GENERAL SUMMARY										2	2	2	35	35	2	35	1	5	35	1	4	12	10	2	12

TRAFFIC SIGNAL SUBSUMMARY

SHEET NO.	REFERENCE		STATION	632	632	632	632	632	632	632	632	632	633	633	633	633	809	809	809				
	FROM	TO		FT	FT	FT	FT	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH				
	INTERSECTION OF LANCASTER-KIRKERSVILLE ROAD (SR 158) AND PLEASANTVILLE ROAD (CR 17)																						
104	C1																						
	PB1	313+23.68																					
	SP1	312+92.69																					
	SP2	311+82.07																					
	SP3	313+18.53																					
	SP4	312+23.33																					
	SP1	SP3		115	115			1	1														
	SP3	SP4		105	105			1	1														
	SP4	SP2		115	115			1	1														
	SP2	SP1		110	110			1	1														
	L-SP1					121																	
	L-SP4					361																	
	SP1	PB1								50													
	PB1	C1								35													
	C1	2A/2B					185																
	C1	4A/4B					290																
	C1	8A/8B					165																
	C1	6A/6B					290																
	C1	6C					105																
	C2	8C					260																
	C3	4C					255																
	C4	2C					375																
TOTALS CARRIED TO GENERAL SUMMARY				445	445	482	1925	4	4	85	1	2	2	1	1	1	1	4	6	1			

CALCULATED	AC	
	CHECKED	
	SUB	
TRAFFIC SIGNAL SUBSUMMARY		
FAI-158-07.25		
100		
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PULLBOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB1	313+00.00	LT	55.00	18
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

GROUND MOUNTED CONTROLLER W/ UPS
STA 313+25.94, 52.02' LT

25'-2" CONDUIT - POWER (SIGNALS)
25'-4" CONDUIT - (8) 7/C, (8) 8/C
IN TRENCH

10'-2" CONDUIT - POWER (SIGNALS)
10'-4" CONDUIT - (8) 7/C, (8) 8/C
IN TRENCH

LOCATION OF PROPOSED POWER SERVICE AND SIGNAL POLE
STA 312+92.69, 47.84' LT

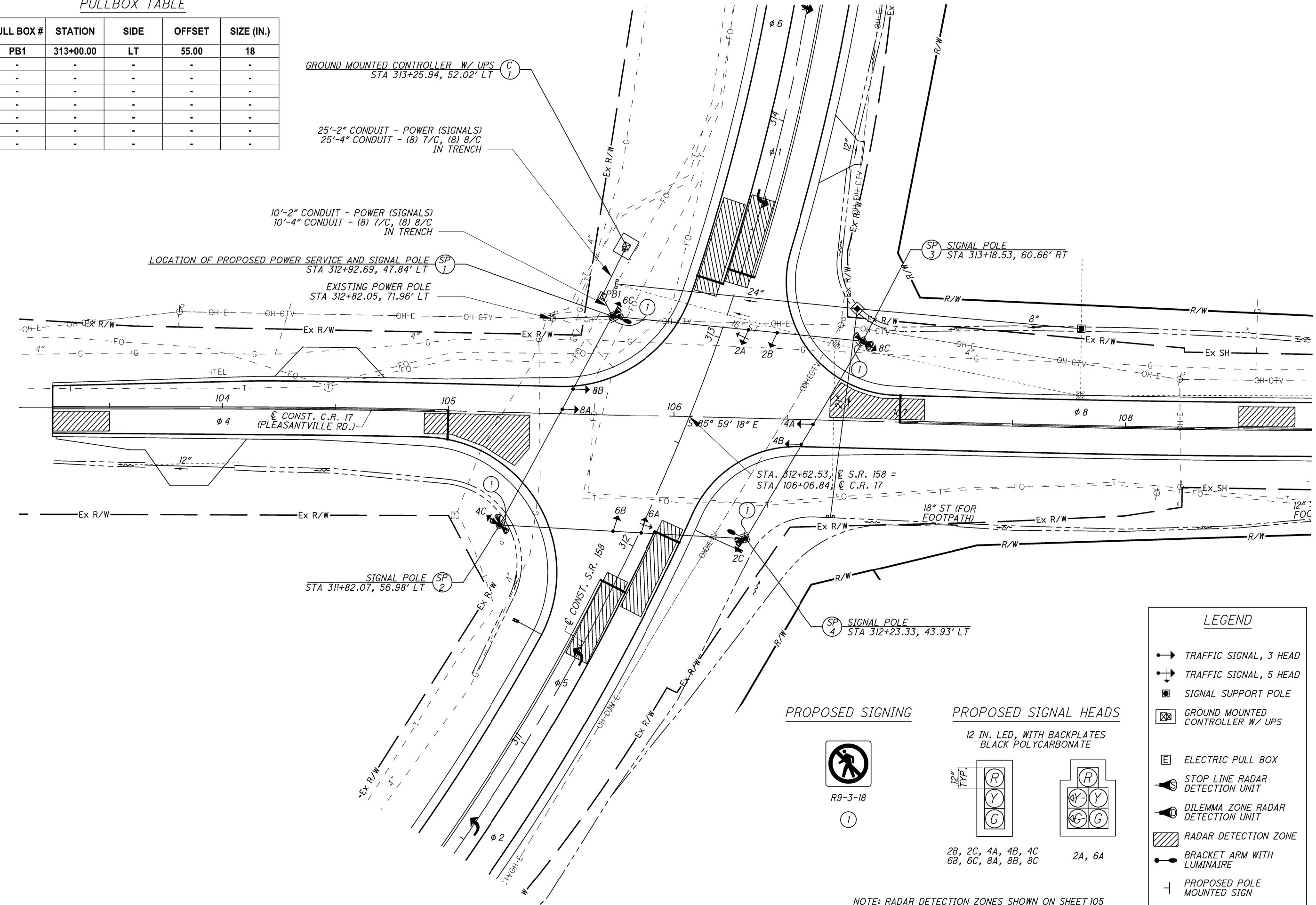
EXISTING POWER POLE
STA 312+82.05, 71.96' LT

SIGNAL POLE
STA 313+18.53, 60.66' RT

SIGNAL POLE
STA 311+82.07, 56.98' LT

SIGNAL POLE
STA 312+23.33, 43.93' LT

STA. 312+62.53, C S.R. 158 =
STA. 106+06.84, C C.R. 17



PROPOSED SIGNING

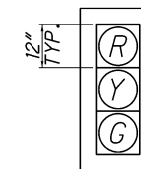


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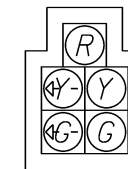


PROPOSED SIGNAL HEADS

12 IN. LED, WITH BACKPLATES
BLACK POLYCARBONATE



2B, 2C, 4A, 4B, 4C
6B, 6C, 8A, 8B, 8C



2A, 6A

LEGEND

- TRAFFIC SIGNAL, 3 HEAD
- TRAFFIC SIGNAL, 5 HEAD
- SIGNAL SUPPORT POLE
- GROUND MOUNTED CONTROLLER W/ UPS
- ELECTRIC PULL BOX
- STOP LINE RADAR DETECTION UNIT
- DILEMMA ZONE RADAR DETECTION UNIT
- RADAR DETECTION ZONE
- BRACKET ARM WITH LUMINAIRE
- PROPOSED POLE MOUNTED SIGN

NOTE: RADAR DETECTION ZONES SHOWN ON SHEET 105



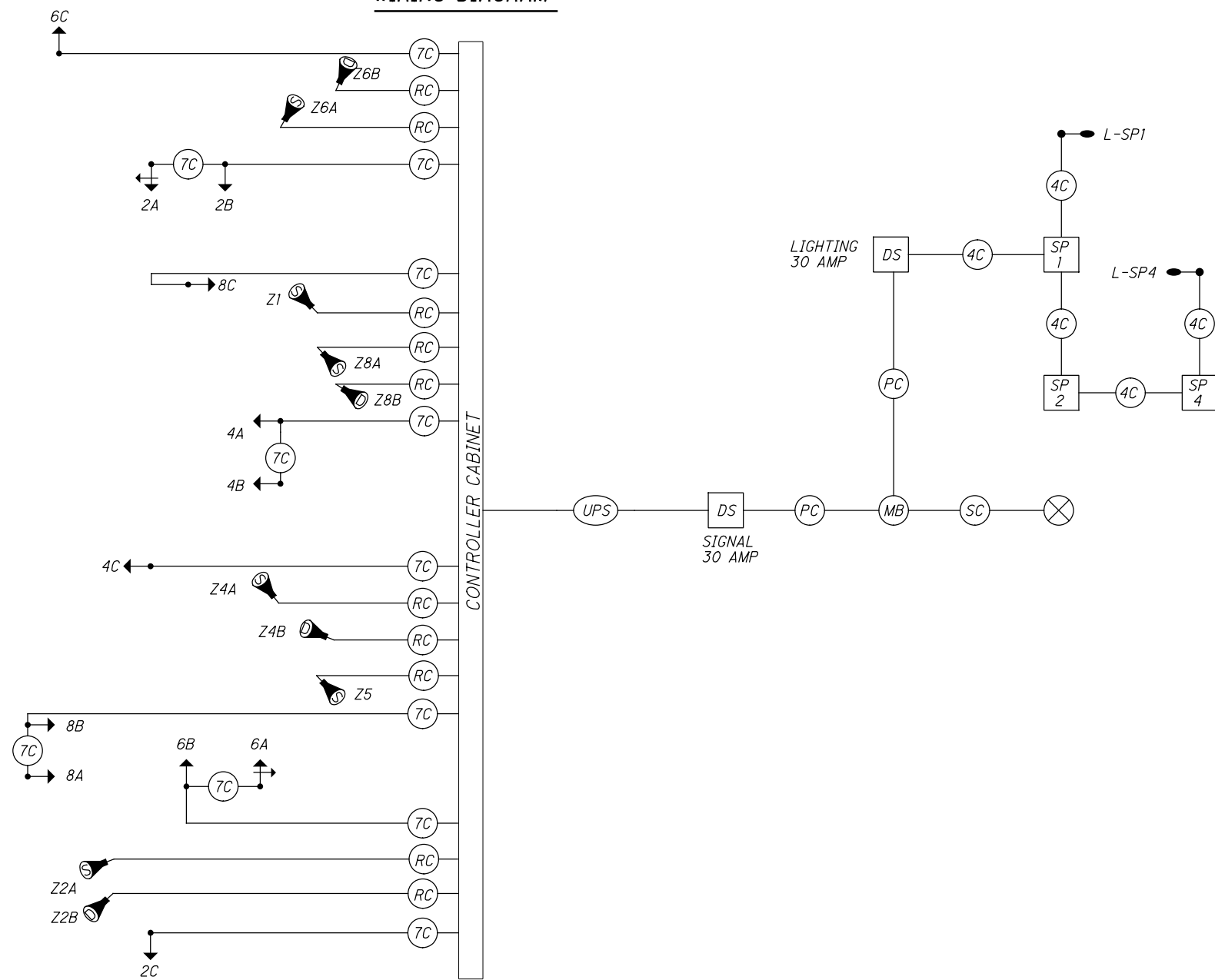
CALCULATED AC
CHECKED SJB

TRAFFIC SIGNAL PLAN
S.R. 158 AND PLEASANTVILLE ROAD (C.R. 17)

FAI-158-07.25

104
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WIRING DIAGRAM



FIELD WIRING HOOK-UP CHART

TEM Form 496-16 Field Wiring Hook-up Chart

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A (NB LT)	R	Ø2 R	Y	8A, 8B, 8C (WB)	R	Ø8 R	R
	Y	Ø2 Y			Y	Ø8 Y	
	G	Ø2 G			G	Ø8 G	
	<-Y--	Ø5 Y/LS 5 Y			PEDESTRIAN MOVEMENTS		
	<-G--	Ø5 G/LS 5 G					
2B, 2C (NB)	R	Ø2 R	Y				
	Y	Ø2 Y					
	G	Ø2 G					
4A, 4B, 4C (EB)	R	Ø4 R	R				
	Y	Ø4 Y					
	G	Ø4 G					
6A (SB LT)	R	Ø6 R	Y	OVERLAPS			
	Y	Ø6 Y					
	G	Ø6 G					
	<-Y--	Ø1 Y/LS 1 Y					
	<-G--	Ø1 G/LS 1 G					
6B, 6C (SB)	R	Ø6 R	Y				
	Y	Ø6 Y					
	G	Ø6 G					

LS = LOAD SWITCH

LEGEND

	BRACKET ARM WITH LUMINAIRE		DISCONNECT SWITCH
	TRAFFIC SIGNAL, 5 UNIT HEAD, 12"		POWER SERVICE
	TRAFFIC SIGNAL, 3 UNIT, 12"		SERVICE CABLE, 3 CONDUCTOR, NO. 8 AWG
	DILEMMA ZONE RADAR DETECTION UNIT		POWER CABLE, 3 CONDUCTOR, NO. 8 AWG
	STOP LINE RADAR DETECTION UNIT		PHOTOELECTRIC CELL
	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		SIGNAL SUPPORT POLE NO. ...
	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG		METER BASE
	RADAR DETECTION CABLE		UNINTERRUPTIBLE POWER SUPPLY CABLE