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**ITEM 608 - CURB RAMP, AS PER PLAN**

THE TYPE B3, AND C2 CURB RAMPS SHALL BE MODIFIED TO ACCOMMODATE THE USE OF A WHEEL CHAIR BETWEEN THE SIDE STREET ADJOINING PAVEMENT AND THE PROPOSED CURB RAMP AND SIDEWALK. WHERE THE RETURN RADIUS OF THE COMBINATION CURB AND GUTTER TYPE 2 TERMINATES IN ASPHALT PAVEMENT OR PARKING LOT ADJACENT TO THE SIDE STREET OF AN INTERSECTION.

ALL DESIGN CRITERIA FOR CURB RAMPS, TYPE B3, AND C2 SHALL APPLY EXCEPT THAT THE RADIAL BARRIER AT THE EDGE OF THE RAMP SHALL NOT BE CONSTRUCTED. THE ADJOINING PAVEMENT TO THE CURB RAMP LANDING AREA SHALL BE TAPERED AT A RATE OF 8.33% TO MEET EXISTING, AND THE BACK OF WALK BARRIER SHALL BE EXTENDED TO MEET EXISTING. FOR DETAILS SEE SHEET 117.

PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE, INCLUDING ALL LABOR, EQUIPMENTS, MATERIALS, AND INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR ITEM 608 CURB RAMP, AS PER PLAN.

**ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE**

AS NOTED ON THE TYPICAL SECTIONS THE PROPOSED SHOULDER AREA WITHIN THE EXISTING PAVEMENT TO REMAIN HAS A 4% CROSS SLOPE. THE CONTRACTOR SHALL ENSURE THAT THE MILLING IN THESE AREAS ARE PERFORMED AT THE REQUIRED CROSS SLOPE TO PROVIDE A UNIFORM THICKNESS OF PROPOSED ASPHALT AS INDICATED ON THE TYPICAL SECTIONS.

PAYMENT FOR ALL NECESSARY WORK, LABOR, AND EQUIPMENT SHALL BE UNDER THE PERTINENT PAVEMENT PLANING ITEM.

THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE CONTRACTORS EQUIPMENT THAT MAY RESULT FROM THE PLANING OPERATION, INCLUDING DAMAGE CAUSED BY CASTINGS AND LOOP DETECTORS. THE DEPTH OF PLANING CLOSE TO THE CASTINGS SHALL BE AS DIRECTED; TO ACHIEVE A SMOOTH RIDING FINISHED PAVEMENT. GREAT CARE SHALL BE TAKEN TO PREVENT THE REMOVAL OF THE EXISTING PAVEMENT CROSS-SLOPE (CROWN) DURING THE PLANING OPERATIONS.

ALL PLANED PAVEMENT SHALL BE PLANED TO A DEPTH OF 1 INCH MINIMUM AND RESURFACED WITH 1.5 INCHES OF THE ASPHALT CONCRETE SURFACE COURSE WITHIN THE SAME WORK PERIOD. FAILURE TO MEET THIS REQUIREMENT WILL SUBJECT THE CONTRACTOR TO A DISINCENTIVE OF \$900/DAY FOR EACH DAY THE PLANED SURFACE IS NOT RESURFACED.

**CB-3, AND CB-3A, AS PER PLAN**

ALL CB-3, AND CB-3A, AS PER PLAN, LOCATED IN THE PAVEMENT ARE PLACED ON SHOULDERS WITH 4% CROSS SLOPE. THE CONTRACTOR SHALL ENSURE THAT THE CATCH BASINS SHALL BE IN CONFORMANCE WITH THE APPLICABLE STANDARD CONSTRUCTION DRAWINGS EXCEPT THAT THE DEPRESSION IS 1/2" AND THAT THE GRATE SLOPE DOES NOT CAUSE THE EDGE OF GRATE AT THE PAVEMENT EDGE TO BE HIGHER THAN THE PAVEMENT SURFACE. THE GRATE SHALL BE BICYCLE SAFE.

**ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT**

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 12 IN DIAMETER CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET [METERS] (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED IN ACCORDANCE WITH THE PROVISIONS OF 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

**MANHOLES IN PAVEMENT**

ANY MANHOLE TO BE CONSTRUCTED WITHIN THE PROPOSED PAVEMENT SHALL HAVE A BOLT DOWN COVER.

**SAWCUT FOR CONCRETE PAVEMENT**

LOCATION OF CONCRETE PAVEMENT VARIES ALONG THE US 40 CORRIDOR AS SHOWN IN ORIGINAL CONSTRUCTION PLANS AND SUSQUENT WIDENINGS AND IMPROVEMENTS. THESE PLANS CAN BE OBTAINED FROM ODOT.

THE FOLLOWING ESTIMATED CONTINGENCY QUANTITY HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 252 - FULL DEPTH PAVEMENT SAWING 10,000 FT

**BLIND TAPS**

NO BLIND TAPS ARE ALLOWED. ITEM 611 CATCH BASIN, NO. 7 AS SHOWN IN CB-4.1 SHALL BE USED WHERE BLIND TAPS ARE ENCOUNTERED. A FOLLOWING CONTINGENCY QUANTITY HAS BEEN ADDED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER. ITEM 611 - CATCH BASIN NO. 7 5 EACH

**EXISTING UNDERDRAINS**

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS ENCOUNTERED DURING CONSTRUCTION.

PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO A SLOPE.

UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

611 6" CONDUIT, TYPE F 50 FT.  
605 6" UNCLASSIFIED PIPE UNDERDRAINS 50 FT.

**ITEM 625 - CONDUIT, 4", 725.04, AS PER PLAN ( CONDUIT FOR FUTURE IRRIGATION )**

2-4" CONDUITS FOR FUTURE IRRIGATION, SHALL BE INSTALLED FROM B/C TO B/C AT THE LOCATIONS SHOWN IN THE PLANS. IF CONFLICTS WITH UTILITIES OCCUR, THE CONDUITS SHALL BE DEFLECTED ABOVE OR BELOW THE CONFLICTING UTILITIES IN A MANNER SO THAT THE DEFLECTION IS GRADUAL AS DIRECTED BY THE ENGINEER. AT LEAST 18" OF VERTICAL SEPARATION SHALL BE HELD BETWEEN THE CONFLICTING UTILITIES WHILE MAINTAINING AT LEAST 36" OF COVER TO THE TOP OF THE CONDUIT.

PAYMENT FOR ALL MATERIAL, LABOR, EQUIPMENT, EXCAVATION, BEDDING AND BACKFILL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625 - CONDUIT, 4", 725.04, AS PER PLAN.

**PAVEMENT REPAIR PROCEDURE**

ALL AREAS OF PAVEMENT REPAIR SHALL BE COMPLETED AT THE END OF EACH DAYS OPERATION AND OPEN TO THE NORMAL FLOW OF TRAFFIC.

**ITEM 253 - PAVEMENT REPAIR**

FULL DEPTH REPAIRS SHALL BE COMPLETED PRIOR TO PLANING. AREAS SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE PAID AT THE CONTRACT UNIT PRICE BID FOR ITEM 253 - PAVEMENT REPAIR. THE PAVEMENT REPAIR MATERIAL SHALL CONSIST OF 13" OF ITEM 301, ASPHALT CONCRETE BASE, PG64-22, (449) A CONTINGENCY QUANTITY OF 100 SY HAS BEEN ADDED TO THE GENERAL SUMMARY.

**ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (441)**

PARTIAL DEPTH REPAIRS SHALL BE COMPLETED PRIOR TO PLANING. AREAS SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE PAID AT THE CONTRACT UNIT PRICE BID FOR ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR. PARTIAL DEPTH PAVEMENT REPAIR MATERIAL SHALL CONSIST OF THE PROPOSED PAVEMENT COMPOSITION AS DESCRIBED IN THE TYPICAL SECTIONS. A CONTINGENCY QUANTITY OF 100 SY HAS BEEN ADDED TO THE GENERAL SUMMARY.

**ITEM 202 - REMOVAL MISC.: WHITE CASTLE SIGN**

THIS ITEM SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING WHITE CASTLE SIGN, FOUNDATION, ELECTRICAL SERVICE, ETC. THE FOUNDATION SHALL BE REMOVED TO A MINIMUM OF 18" BELOW FINISHED GRADE. THE ELECTRICAL SERVICE SHALL BE DISCONNECTED AT THE SOURCE AND THE WIRING REMOVED. PAYMENT FOR ALL MATERIAL, LABOR, EQUIPMENT, ETC. SHALL BE INCLUDED WITH THIS ITEM.

**FRANKLIN COUNTY NOTES**

1. FRANKLIN COUNTY ENGINEER'S MONUMENTATION-THE CONTRACTOR SHALL CONTACT THE FRANKLIN COUNTY ENGINEER'S OFFICE, SURVEY DEPARTMENT AT (614)462-2489 TWO WORKING DAYS BEFORE DISTURBING ANY FRANKLIN COUNTY GEODETIC MONUMENTS (VERTICAL AND/OR HORIZONTAL) FOR REFERENCE AND REPLACEMENT.

2. FRANKLIN COUNTY PERMIT (FOR PROJECTS INVOLVING STORM SEWERS, WATERLINES, AND/OR SANITARY LINES)-THE CONTRACTOR SHALL SECURE A WRITTEN PERMIT FROM FRANKLIN COUNTY ENGINEER'S OFFICE, 970 DUBLIN RD., A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING WORK WITHIN FRANKLIN COUNTY ROAD RIGHT-OF-WAY. THE CONTRACTOR SHALL PROVIDE THE FRANKLIN COUNTY ENGINEER'S OFFICE A 24-HOUR TELEPHONE NUMBER TO BE USED IN CASE OF EMERGENCY. THE CONTRACTOR WILL BE REQUIRED TO POST A BOND FOR A PERIOD OF TWO YEARS FROM THE ONE-YEAR ANNIVERSARY OF THE DATE OF FINAL ACCEPTANCE OF THE WORK, WITH THE FRANKLIN COUNTY ENGINEER AS THE BENEFICIARY, PRIOR TO ISSUANCE OF THE PERMIT TO INSURE PROPER RESTORATION OF THE PAVEMENT AND RIGHT-OF-WAY. THIS BOND WILL BE 100% OF THE BID PRICE OF ITEMS 301, 402, AND 404 ASPHALT CONCRETE (OR ITEM 252 PERMANENT PAVEMENT REPLACEMENT) WITH A MINIMUM OF \$5,000.00 AND A MAXIMUM OF \$100,000.00.

3. FRANKLIN COUNTY PERMIT (FOR ALL OTHER PROJECTS)-THE CONTRACTOR SHALL SECURE A WRITTEN PERMIT FROM THE FRANKLIN COUNTY ENGINEER'S OFFICE, 970 DUBLIN RD., A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING WORK WITHIN FRANKLIN COUNTY RIGHT-OF-WAY. THE CONTRACTOR MAY BE REQUIRED TO POST A BOND WITH THE FRANKLIN COUNTY ENGINEER PRIOR TO ISSUANCE OF THE PERMIT TO INSURE PROPER RESTORATION OF THE PAVEMENT AND RIGHT-OF-WAY. THE CONTRACTOR SHALL PROVIDE THE FRANKLIN COUNTY ENGINEER'S OFFICE A 24-HOUR TELEPHONE NUMBER TO BE USED IN CASE OF AN EMERGENCY.

4. UNTREATED SEPTIC CONNECTIONS-THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY UNTREATED SEPTIC DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM. ANY PIPE CARRYING POSSIBLY UNTREATED SEPTIC FLOW SHALL BE LEFT EXPOSED. CALL FRANKLIN COUNTY HEALTH DEPARTMENT AT 462-3909 FOR DIRECTION ON TYING THE PIPE INTO THE HIGHWAY DRAINAGE SYSTEM OR PLUGGING THE PIPE AT THE RIGHT-OF-WAY LINE WITH CLASS C CONCRETE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN CONTRACT PRICE FOR THE PERTINENT 202 OR 203 ITEM.

5. EROSION CONTROL-THE CONTRACTOR SHALL OBTAIN AN OEPA PERMIT AND NOI AS PER NPDES REQUIREMENTS INCLUDING ANY OFFSITE DUMPING OR BORROW AREAS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY HIS SUBCONTRACTORS OF THE OEPA REQUIREMENTS. FURNISH COPIES OF THE DOCUMENTS TO FRANKLIN COUNTY ENGINEER'S OFFICE. THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION UNTIL AN NOI HAS BEEN ISSUED BY THE OEPA AND THE PERMIT NUMBER IS PROVIDED TO THE SITE CONTACT LISTED BELOW.

SITE IS A TRIBUTARY TO SCIOTO BIG RUN AND DRY RUN.

ON SITE CONTACT  
ANDREW OPSITNIC  
(740)833-8085  
ANDREW.OP SITNIC@DOT.OHIO.GOV

**PERMITS**

WHEN EXCAVATING WITHIN COLUMBUS PUBLIC RIGHT OF WAY LIMITS, THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE CITY OF COLUMBUS, DEPARTMENT OF PUBLIC SERVICE-PERMIT OFFICE BETWEEN THE HOURS OF 7:30 AM AND 4:00 PM, MONDAY THROUGH FRIDAY. PHONE (614)645-7497; FAX (614)645-1876  
EMAIL: COLSPERMIT@COLUMBUS.GOV

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GENERAL NOTES

FRA-40-7.00





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REF. NO.	SHEET NO.	STATION		SIDE	CAD MEASURED AREA (SF)	204	254	254	304	305	407	442		452	609	609
		FROM	TO			SUBGRADE COMPACTION SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE, 1" SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE, 3.5" SQ YD	10" AGGREGATE BASE CU YD	6" CONCRETE BASE, CLASS QC 1P SQ YD	NON-TRACKING TACK COAT GAL	1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446) CU YD	2" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) CU YD	10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P SQ YD	CU YD	FT
<b>CONCRETE MEDIAN</b>																
PPP-1	78-79	388+98.50	395+37.00	LT & RT												709
PPP-2	79-50	396+00.81	398+08.00	LT & RT												154
<b>PAVEMENT PLANNING &amp; OVERLAY</b>																
PP-1	78	389+05.50	392+50.00	LT	15338		1475	230			196	71	95			
PP-2	78	389+05.50	392+50.00	RT	12917		1206	230			165	60	80			
PP-3	79	392+50.00	398+00.00	LT & RT	50132		5204	367			641	232	309			
PP-4	80	398+00.00	403+50.00	LT & RT	46577		4809	367			595	216	288			
PP-5	81	403+50.00	409+00.00	LT & RT	42669		4374	367			546	198	263			
PP-6	82	409+00.00	414+50.00	LT & RT	44666		4596	367			568	207	276			
PP-7	83	414+50.00	420+00.00	LT & RT	48570		5030	367			621	225	300			
PP-8	84	420+00.00	425+50.00	LT & RT	44901		4622	367			574	208	277			
PP-9	85	425+50.00	427+50.00	LT & RT	6117		547	133			78	28	38			
<b>FULL DEPTH PAVEMENT</b>																
P-1	78	389+05.50	392+50.00	LT	569.3 1626	181			30	63	8	3	4	99	343	
P-2	78	389+64.83	392+50.00	LT	579.1 717.1	80			153	552	8	3	4		276	
P-3	78	389+64.83	392+50.00	RT	570.3 707.8	79			13		8	3	4		275	
P-4	78	389+05.50	392+50.00	RT	350.9 1693.1	188			31	39	5	2	2	130	345	
P-5	79	392+50.00	398+00.00	LT	1293 1568	174			29	144	17	6	8		550	
P-6	79	392+50.00	395+38.99	LT & RT	8986.8 2584.1	999			124	446	33	12	16			
P-7	79	392+50.00	398+00.00	RT	2927.3 3247.3	361			100	325	37	14	18		640	
P-8	79	396+79.00	397+54.55	LT	140.8 179.8	20			70	250	2	1	1		78	
P-9	79	396+79.00	397+54.55	LT & RT	2245.6 855.8	250			89		11	4	5			
P-10	80	398+00.00	403+50.00	LT	1233.6 1508.6	168			46	137	15	6	8		550	
P-11	80	398+00.00	403+50.00	RT	3702.5 3986	443			123	411	47	17	23		567	
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>						2943	31865	2793	788	2367	4175	1516	2019	229	3624	863

**PAVEMENT CALCULATIONS**

**FRA - 40 - 7.00**

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REF. NO.	SHEET NO.	STATION		SIDE	CAD MEASURED AREA (SF)	204		301	304	305	407	442		452	609		
		FROM	TO			SUBGRADE COMPACTION						ASPHALT CONCRETE BASE, PG64-22, (449)	10" AGGREGATE BASE			6" CONCRETE CLASS QC 1P	NON-TRACKING TACK COAT
						SQ YD		CU YD	CU YD	SQ YD	GAL			SQ YD	FT		
FULL DEPTH PAVEMENT																	
P-12	81	403+50.00	409+00.00	LT	973.7 1544		172			108	12			5	6	249	539
P-13	81	403+50.00	409+00.00	RT	4238.7 5025.7		558			471	54			20	26	142	583
P-14	82	409+00.00	414+50.00	LT	3800.2 4711.7		524			422	49			18	23	234	638
P-15	82	409+00.00	414+50.00	RT	3762.9 4774.6		531			418	48			17	23	187	577
P-16	83	414+50.00	420+00.00	LT	2600.1 3327.5		370	5		289	34			12	16	231	585
P-17	83	414+50.00	420+00.00	RT	4268.7 4543.7		505			474	55			20	26		550
P-18	84	420+00.00	425+50.00	LT	2423.4 2674.9		297			269	31			11	15		503
P-19	84	419+55.26	425+50.00	RT	1606 2360.6		262			178	20			7	10	95	597
P-20	85	425+50.00	427+50.00	LT	412.2 937		104	8		46	5			2	3	53	200
P-21	85	425+50.00	425+75.00	RT	52 64.5		7			6	2			1	1		25
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>						<b>3330</b>		<b>13</b>	<b>951</b>	<b>2681</b>	<b>310</b>			<b>113</b>	<b>149</b>	<b>1191</b>	<b>4797</b>

CALCULATED LZS CHECKED GKB	PAVEMENT CALCULATIONS	FRA-40-7.00
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THE CONTROLLER SHALL BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

**ITEM 809, STOP-BAR RADAR DETECTION:**

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

- POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
- 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.
- 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.
- 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.
- 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.
- A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MIN. 7 FEET)
- 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.
- PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE ODOT DISTRICT 6 DISTRICT TRAFFIC ENGINEER AT 740-833-8198. A DISTRICT 6 TRAFFIC DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

PAYMENT FOR ITEM 809 STOP-BAR RADAR DETECTION 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 809, ADVANCE RADAR DETECTION:**

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:

- POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
- 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.
- 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.
- 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.
- 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.
- A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MIN. 7 FEET)
- 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.
- PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE ODOT DISTRICT 6 DISTRICT TRAFFIC ENGINEER AT 740-833-8198. A DISTRICT 6 TRAFFIC DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION 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.

**ITEM 804, FIBER OPTIC CABLE, MISC.: RELOCATE EXISTING CABLE**

THE CONTRACTOR SHALL RELOCATE THE EXISTING CTSS 144-STRAND FIBER OPTIC CABLE THAT IS LOCATED BETWEEN THE EAST END OF THE PROJECT TO WILSON ROAD ON EXISTING UTILITY POLES TO THE PROPOSED MAST ARM POLES AND RELOCATED UTILITY POLES AFTER THE PROPOSED UTILITY POLES ARE PLACED AS SHOWN IN THE PLAN SHEET.

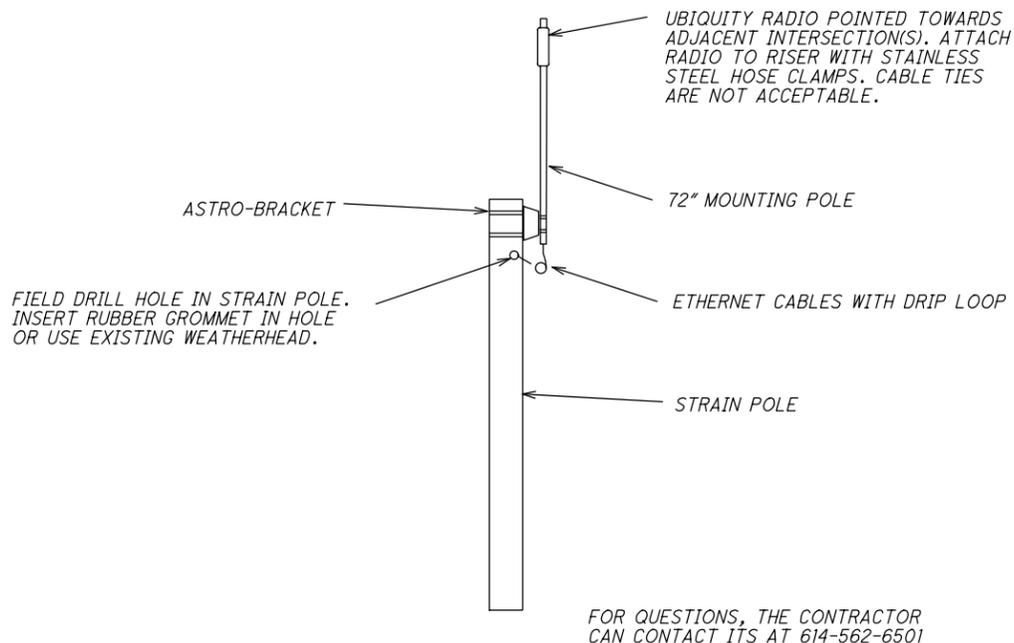
THE REINSTALLATION OF THE EXISTING CABLE VIA THE NEW AERIAL PATH AND NEW MOUNTING HARDWARE ARE INCIDENTAL TO THIS PAY ITEM. REMOVE AND DISPOSE OF THE EXISTING MESSENGER WIRE AND PROVIDE NEW 1 / 4 INCH MESSENGER WIRE AND RELASH RELOCATED CABLE TO NEW MESSENGER WIRE.

IN ADDITION TO THE REQUIREMENTS OF 632.22, THE CONTRACTOR SHALL FURNISH AND INSTALL MESSENGER WIRE AS SHOWN IN THE PLANS TO SUPPORT THE FIBER OPTIC CABLE SYSTEM. MESSENGER WIRE SHALL BE RATED AS EXTRA-HIGH STRENGTH AND MEET THE REQUIREMENTS OF 732.18. ACCESSORIES USED WITH MESSENGER WIRE SHALL INCLUDE THRU BOLTS, EYE BOLTS, SUSPENSION HANGERS, THIMBLES, PREFORMED GUY GRIPS, POLE CLAMPS, DEAD-ENDS, AND THREE BOLT CLAMPS AS SHOWN ON THE PLANS. THE MESSENGER WIRE SHALL BE DEAD-ENDED ON BOTH SIDES OF A STREET CROSSING. MESSENGER WIRE SHALL BE ATTACHED USING THIMBLES TO THE CLEAVISES OF STRAIN POLE SPAN WIRE CLAMPS AND TO EYE BOLTS. ALL ACCESSORIES SHALL HAVE A RATED LOADING STRENGTH EQUAL TO OR GREATER THAN THE MESSENGER WIRE MINIMUM BREAKING STRENGTH AND SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

FOR THE AERIAL INSTALLATION OF FIBER OPTIC CABLE, THE CABLE SHALL BE ATTACHED TO THE MESSENGER WIRE BY DOUBLE 0.045-INCH TYPE 316 STAINLESS STEEL LASHING WIRES, HAVING AN AVERAGE OF ONE WRAP PER LINEAR FOOT OF MESSENGER WIRE. LASHING WIRE SHALL MAINTAIN A CONSISTENT SPIRAL THROUGHOUT THE ENTIRE SPAN, WITHOUT EXCEPTION, AND MUST MAINTAIN A MINIMUM OF 40 LB. OF PULL DURING AND AFTER INSTALLATION. THERE SHALL BE NO VISIBLE SEPARATION OF MESSENGER WIRE AND CABLE IN MIDSPAN LASHING. THE LASHED CABLE REQUIRES SUPPORT WHEN IT EXTENDS BEYOND THE POINTS OF TERMINATION OF THE LASHING WIRE. THIS SUPPORT IS NECESSARY TO KEEP THE CABLE IN PLACE AND TO MAINTAIN CLEARANCES BETWEEN THE CABLE SHEATH AND VARIOUS ITEMS OF HARDWARE. A POLYPROPYLENE AERIAL SUPPORT TIE WITH AN INTEGRAL 0.50-IN. SPACER SHALL BE USED TO FASTEN THE CABLE TO THE SUPPORTING MESSENGER WIRE AND MAINTAIN SEPARATION BETWEEN THE CABLE AND MESSENGER WIRE.

WHEN ATTACHING CABLE TO THE MESSENGER WIRE FOR DISTANCES OF 100 FEET OR LESS, THE METHOD OF ATTACHMENT SHALL BE GALVANIZED STEEL HELICAL LASHING RODS OF 5 OR 6 FOOT LENGTHS OF A PROPER INTERNAL DIAMETER TO TIGHTLY SECURE THE CABLE TO THE MESSENGER WIRE. THIS METHOD MAY ALSO BE USED AT LOCATIONS AS REQUESTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

ITEM 804, FIBER OPTIC CABLE, MISC.: RELOCATE EXISTING CABLE WILL BE PAID BY LUMP SUM AND WILL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SPECIFIED.



ITEM 633 CONTROLLER ITEM, MISC.: ETHERNET RADIO (UBIQUITY) TYPICAL INSTALLATION

CALCULATED  
EMH  
CHECKED  
LAS

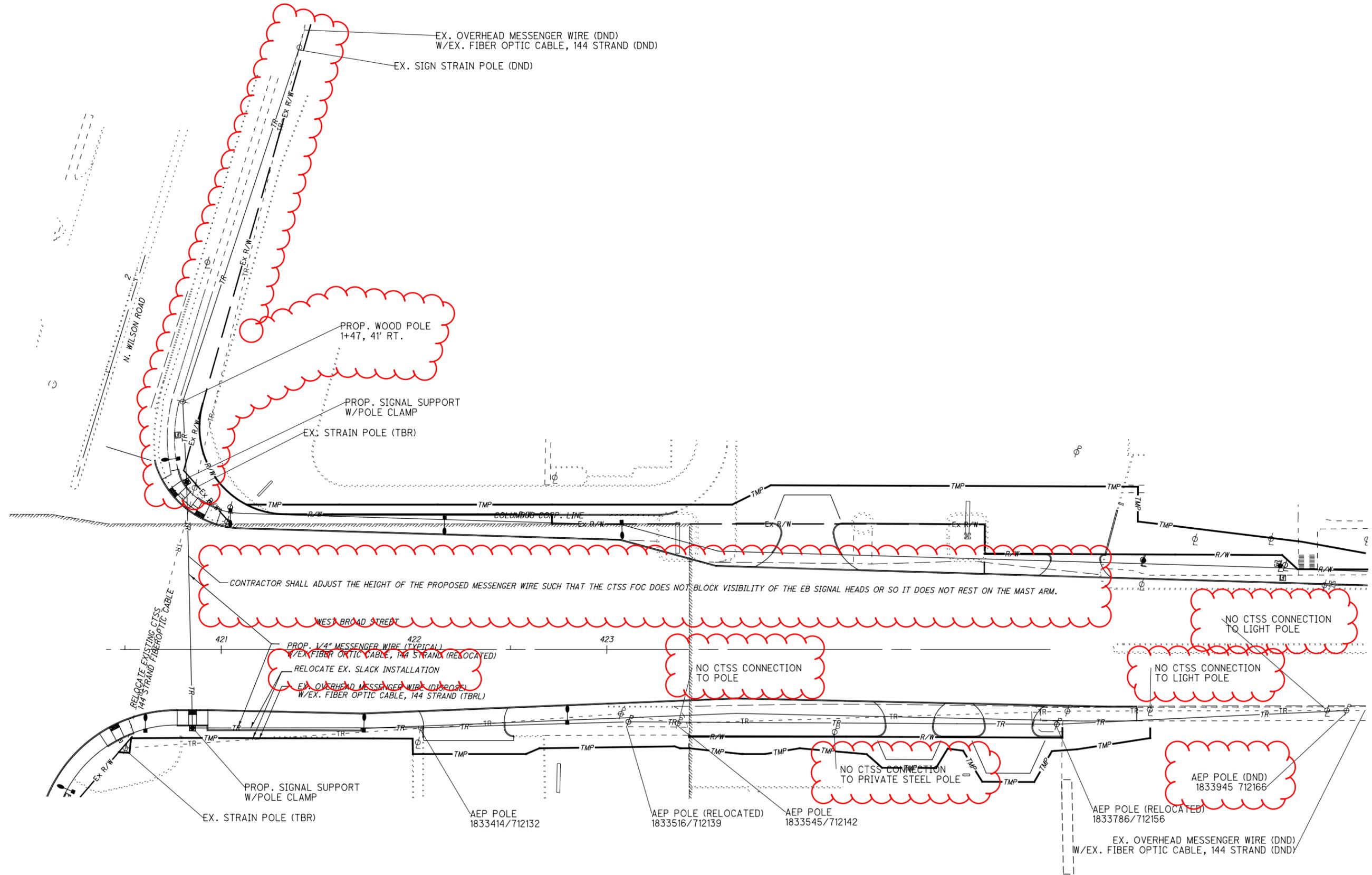
TRAFFIC SIGNAL GENERAL NOTES

FRA-40-7.00

163  
242

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CALCULATED  
EMH  
CHECKED  
LAS

0 25 50  
12.5  
HORIZONTAL  
SCALE IN FEET

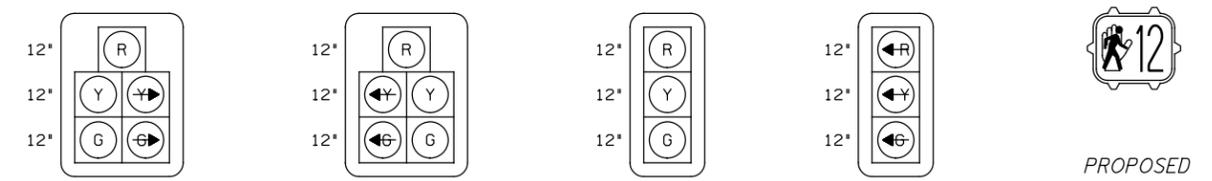
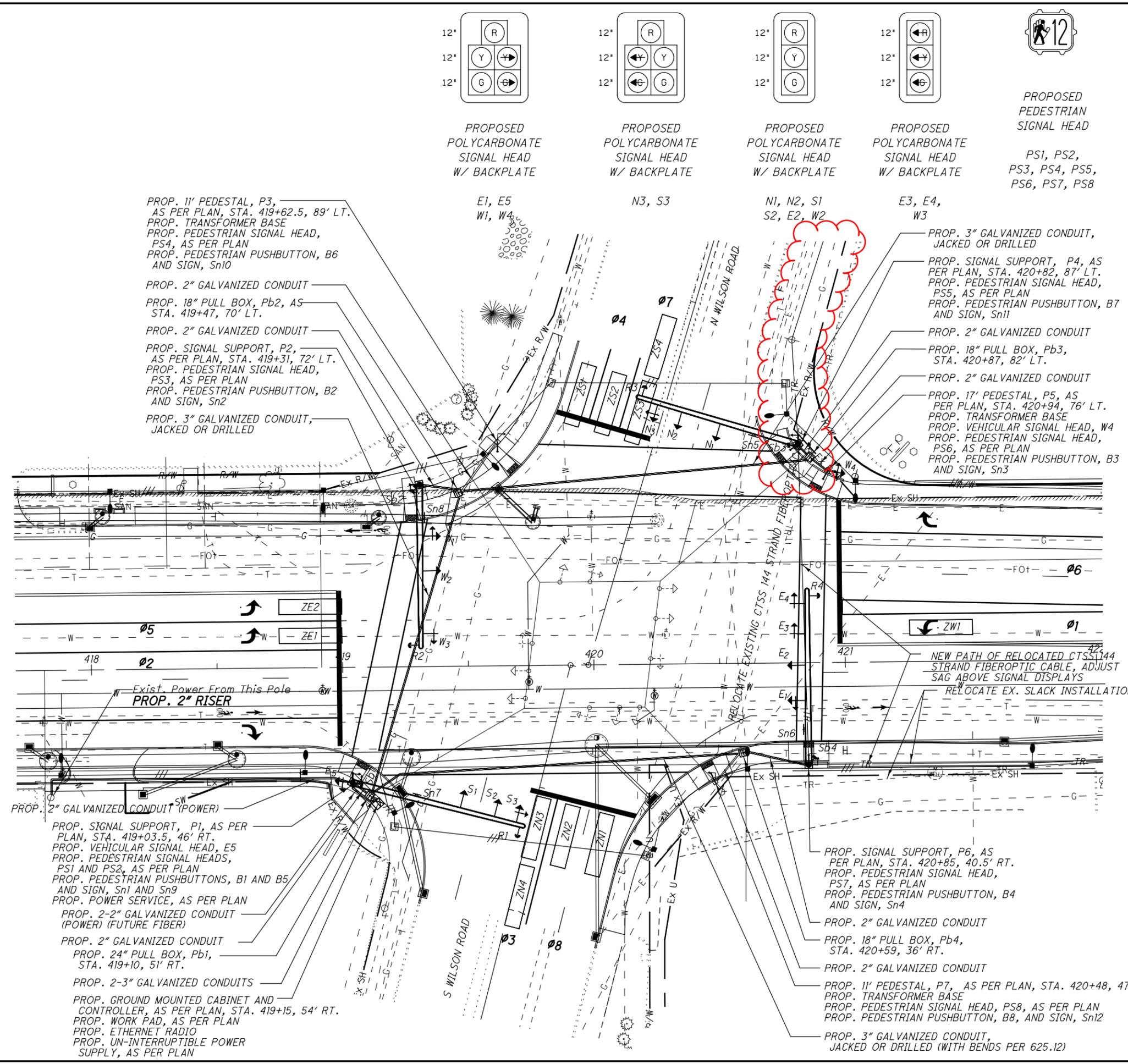
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**FIBER OPTIC INTERCONNECT  
CABLE RELOCATION PLAN**

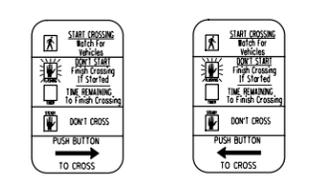
**FRA-40-7.00**



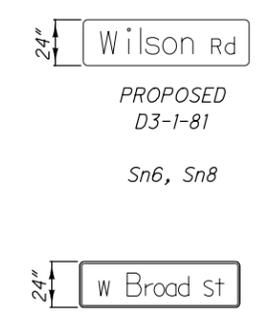
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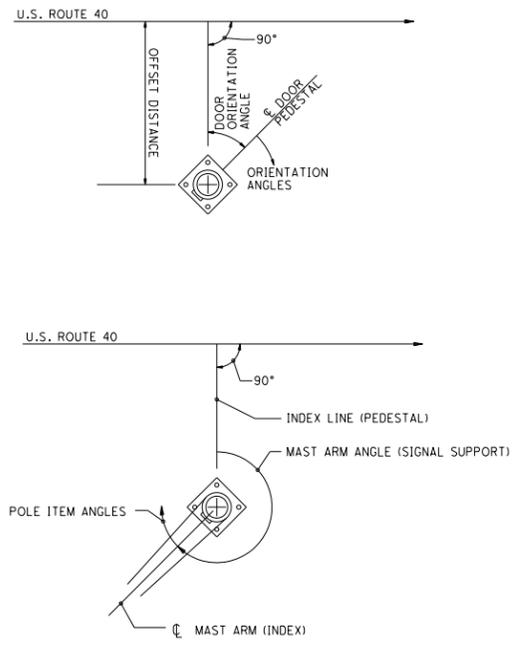
PROPOSED POLYCARBONATE SIGNAL HEAD W/ BACKPLATE  
 PROPOSED PEDESTRIAN SIGNAL HEAD  
 PS1, PS2, PS3, PS4, PS5, PS6, PS7, PS8



PROPOSED (WITH EACH PUSHBUTTON) R10-3e-9  
 PROPOSED (WITH EACH PUSHBUTTON) R10-3e-9  
 Sn1, Sn2, Sn3, Sn12  
 Sn9, Sn10, Sn11, Sn4



PROPOSED D3-1-81  
 Sn6, Sn8  
 PROPOSED D3-1-78  
 Sn5, Sn7



REMOVAL ITEMS

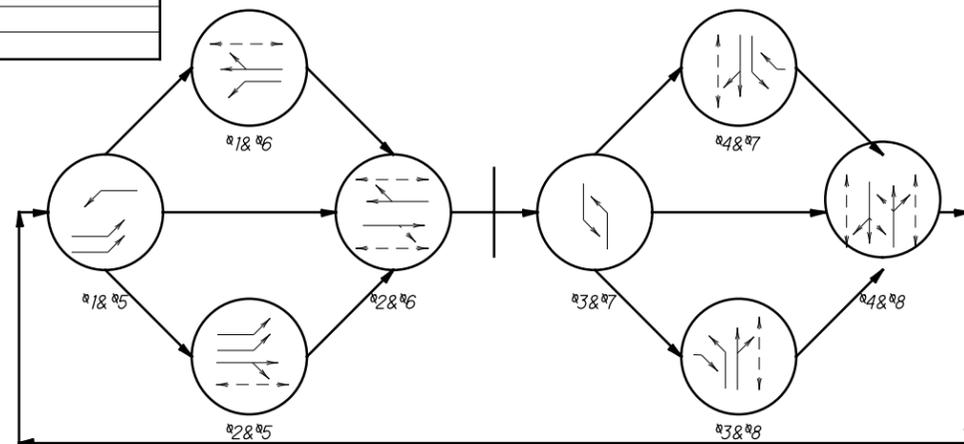
Strain Pole	4
Pullbox	5
Power Service	1
Vehicular Signal Head	11

REMOVAL ITEMS FOR STORAGE

Controller Cabinet	1
Cabinet	1
UPS	1
Ubiquity Radio	1
Radar Detection	6

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SUB-SUMMARY			
ITEM	QUAN.	UNIT	DESCRIPTION
625	230	FT	CONDUIT, 2", 725.04
625	10	FT	CONDUIT, 3", 725.04
625	425	FT	CONDUIT, JACKED OR DRILLED, 725.04, 3"
625	105	FT	TRENCH
625	3	EACH	PULL BOX, 725.08, 18"
625	1	EACH	PULL BOX, 725.08, 24"
625	8	EACH	GROUND ROD
630	4	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	53	SF	SIGN, FLAT SHEET
632	9	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE WITH BACKPLATE, AS PER PLAN
632	6	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE WITH BACKPLATE, AS PER PLAN
632	8	EACH	PEDESTRIAN SIGNAL HEAD LED, COUNTDOWN, TYPE D2, AS PER PLAN
632	13	EACH	COVERING OF VEHICULAR SIGNAL HEAD, AS PER PLAN
632	8	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD, AS PER PLAN
632	1411	FT	LOOP DETECTOR LEAD-IN CABLE
632	8	EACH	PEDESTRIAN PUSHBUTTON
632	4822	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	4	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EACH	PEDESTAL FOUNDATION, AS PER PLAN
632	50	FT	POWER CABLE, 1 CONDUCTOR, NO. 6 AWG
632	175	FT	SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG
632	1	EACH	POWER SERVICE, AS PER PLAN
632	4	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 14, AS PER PLAN
632	2	EACH	PEDESTAL, 11", TRANSFORMER BASE, AS PER PLAN
632	1	EACH	PEDESTAL, MISC.: 17", TRANSFORMER BASE, AS PER PLAN
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	4	EACH	SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 39" IN LENGTH), AS PER PLAN
632	1	EACH	WOOD POLE, 35' (COC)
632	1	EACH	CONDUIT RISER, 2" DIAMETER
633	1	EACH	CABINET FOUNDATION, AS PER PLAN
633	1	EACH	CONTROLLER WORK PAD, AS PER PLAN
633	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN
633	1	EACH	CABINET, TYPE TS-2, AS PER PLAN
633	1	EACH	CONTROLLER ITEM, MISC.: UNMANAGED ETHERNET SWITCH
633	1	EACH	CONTROLLER ITEM, MISC.: ETHERNET RADIO (UBIQUITY)
804	1	EACH	FIBER OPTIC CABLE, MISC.: RELOCATE EXISTING CABLE
809	4	EACH	ADVANCE RADAR DETECTION
809	4	EACH	STOP LINE RADAR DETECTION
809	1	EACH	ATC V6.24 CONTROLLER, AS PER PLAN



SIGNAL PHASING

93 SHALL NOT FOLLOW 94  
97 SHALL NOT FOLLOW 98

TRAFFIC SIGNAL CONTROLLER TIMING CHART									
INTERSECTION: <i>Wilson Rd. &amp; US Route 40</i>									
START UP					DUAL ENTRY: YES				
START IN: Y/R FLASH- <input type="checkbox"/> ALL RED- <input checked="" type="checkbox"/>					REST IN RED: RING 1- <input type="checkbox"/> RING 2- <input type="checkbox"/>				
TIME FOR FLASH OR ALL RED: 6 SEC					SIMULTANEOUS GAP YES				
FIRST PHASE(S): # - 2 & # - 6					OVERLAP A B C D				
COLOR DISPLAYED: GREEN- <input type="checkbox"/> YELLOW- <input checked="" type="checkbox"/>					PHASES				
INTERVAL OR FEATURE					CONTROLLER MOVEMENT No.				
					1 2 3 4 5 6 7 8				
INTERSECTION MOVEMENT					WBL EB NBL SB EBL WB SBL NB				
MINIMUM GREEN (INITIAL) (SEC.)					10 15 10 10 10 15 10 10				
* ADDED INITIAL (SEC./ACTUATION)									
MAXIMUM INITIAL (SEC.)									
PASSAGE TIME (PRESET GAP) (SEC.)					5.0 1.0 4.0 1.0 5.0 1.0 4.0 1.0				
* MINIMUM GAP (SEC.)									
TIME BEFORE REDUCTION (SEC.)									
* TIME TO REDUCE (SEC.)									
MAXIMUM GREEN I (SEC.)					40 55 40 30 40 55 30 40				
MAXIMUM GREEN II (SEC.)					40 55 40 40 40 55 40 40				
MAXIMUM GREEN III (SEC.)									
YELLOW CHANGE (SEC.)					4.0 5.0 3.5 3.5 4.0 5.0 3.5 4.5				
ALL RED CLEARANCE (SEC.)					3.5 1.5 3.5 2.5 3.5 1.5 3.5 1.5				
WALK (SEC.)					15.0 12.0 13.0 12.0				
PED CLEAR (SEC.)					36.0 25.0 27.0 26.0				
PED CLEAR THROUGH YELLOW (SEC.)									
ADJUST (SEC.)									
LIMIT (SEC.)									
SET (SEC.)									
CLEAR (SEC.)									
RECALL					MAX (NO/YES) NO NO NO NO NO NO NO NO				
					MIN (NO/YES) NO YES NO NO NO YES NO NO				
					PED (NO/YES) NO NO NO NO NO NO NO NO				
MEMORY (ON/OFF)									
CALL TO NON-ACTUATED					No. 1				
					No. 2				
NOTES: MAX II ENABLE FROM 06:00 TO 08:00 AND 16:00 TO 18:30									
COORDINATION TIMING									
USE EXISTING SYSTEM SETTINGS									

POLE ORIENTATION

POLE NUMBER	ODOT DESIGN NUMBER	POLE HEIGHT (FT)	FOUNDATION ELEVATION	INDEX LINE OR ARM A ANGLE (DEG)	ANGLES (DEG) FROM INDEX LINE OR ARM A				
					PEDESTRIAN SIGNALS	PEDESTRIAN PUSHBUTTONS	POWER SERVICE	CONDUIT ELL	VEHICLE SIGNAL HEAD
P1	14	23	839.3	105	0/270	0/270	90	20	170
P2	14	23	838.5	0	90	90	-	250	-
P3	PED	11	838.1	135	45	45	-	280	-
P4	14	23	838.9	105	75	255	-	220	-
P5	PED	17	838.2	225	45	225	-	270	45
P6	14	23	838.0	0	90	90	-	280	-
P7	PED	11	838.4	135	225	225	-	260	-

\*\*\*ELEVATIONS SHOWN ARE FOR COMPUTATIONAL PURPOSES ONLY. THE ACTUAL ELEVATION OF THE FOUNDATION SHALL BE IN ACCORDANCE WITH SCD TC-21.20.