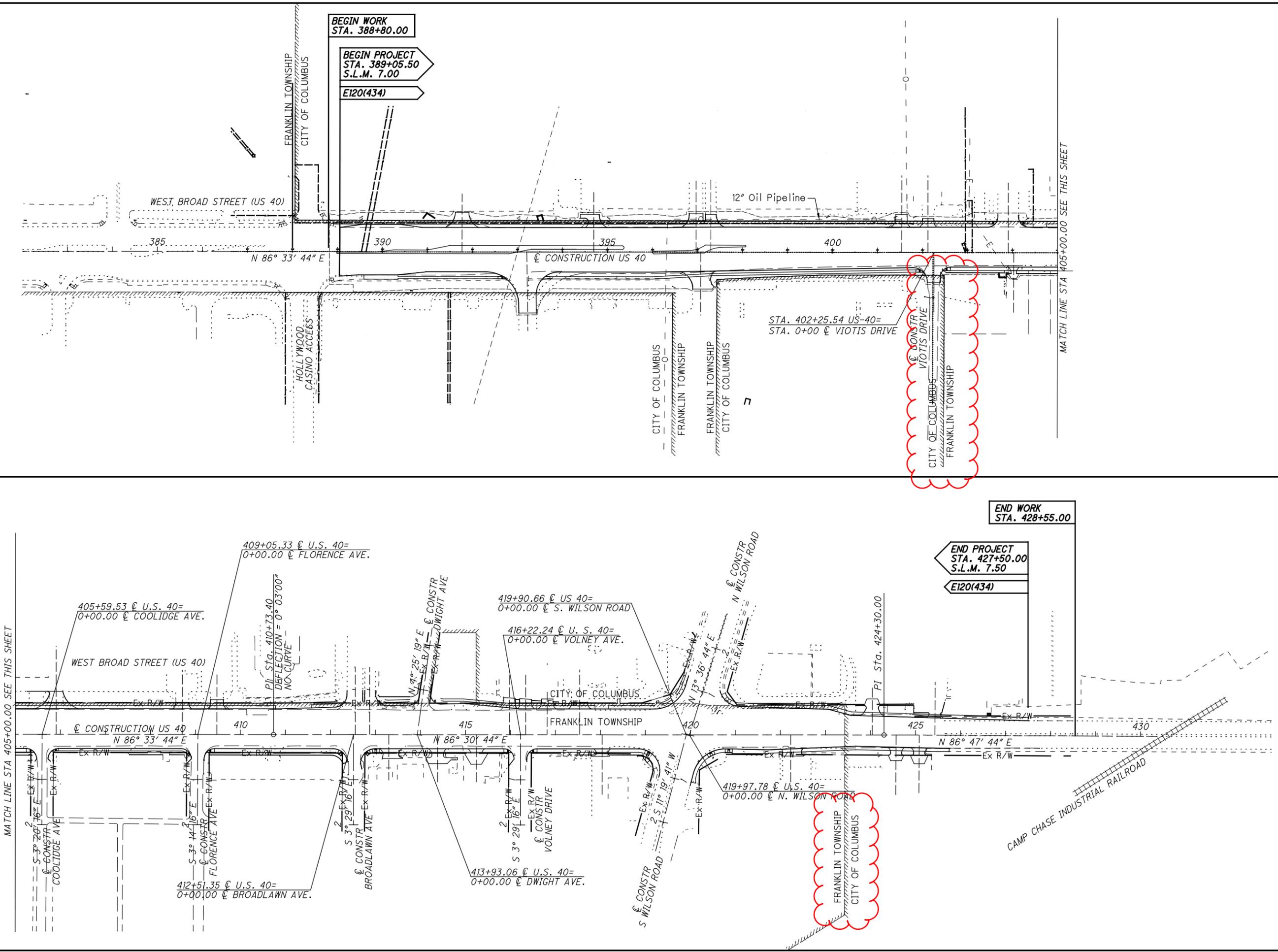


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BEGIN WORK
STA. 388+80.00

BEGIN PROJECT
STA. 389+05.50
S.L.M. 7.00

E120(434)

END WORK
STA. 428+55.00

END PROJECT
STA. 427+50.00
S.L.M. 7.50

E120(434)

CALCULATED
DJB
CHECKED
DJH

0 50 100 200
HORIZONTAL
SCALE IN FEET

↑
N

MATCH LINE STA 405+00.00 SEE THIS SHEET

MATCH LINE STA 405+00.00 SEE THIS SHEET

SCHEMATIC PLAN

FRA-40-7.00

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REF. NO.	SHEET NO.	STATION		SIDE	611					611					605		611					
		FROM	TO		8" CONDUIT, TYPE C	12" CONDUIT, TYPE B	12" CONDUIT, TYPE C	18" CONDUIT, TYPE B	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	24" CONDUIT, TYPE C	30" CONDUIT, TYPE B	30" CONDUIT, TYPE C	36" CONDUIT, TYPE B	36" CONDUIT, TYPE C	MANHOLE, NO. 3 (12" DIA), AS PER PLAN	CATCH BASIN, NO. 6	INLET, NO. 2-6	MANHOLE, NO. 3	6" BASE PIPE UNDERDRAINS, 707.41	6" UNCLASSIFIED PIPE UNDERDRAIN, 707.41	6" CONDUIT, TYPE B
		DRAINAGE																				
D-81	78	390+20.00	391+30.00	LT																		
D-82	78	391+30.00	392+55.00	LT																		
D-83	79	392+55.00	393+55.00	LT																		
D-84	79	393+55.00	394+05.28	LT																		
D-85	79	394+05.28	395+10.00	LT																		
D-86	79	395+10.00	396+48.33	LT																		
D-87	79	396+48.33	398+20.00	LT																		
D-88	80	398+20.00	399+21.50	LT																		
D-89	80	399+21.50	399+75.00	LT	30																	
D-90	80	399+75.00	400+80.00	LT																		
D-91	80	400+80.00	401+82.00	LT																		
D-92	80	401+82.00	402+80.00	LT																		
D-93	80	402+80.00	403+51.82	LT																		
D-94	81	403+51.82	404+50.00	LT																		
D-95	81	404+50.00	405+30.00	LT																		
D-96	81	405+30.00	406+75.00	LT																		
D-97	81	406+75.00	407+02.09	LT																		
D-98	81	407+02.09	408+35.00	LT																		
D-99	81/82	408+35.00	409+85.00	LT																		
D-100	82	409+85.00	410+32.55	LT																		
D-101	82	410+32.55	410+95.00	LT																		
D-102	82	410+95.00	412+12.00	LT																		
D-103	82	412+12.00	412+75.00	LT																		
D-104	82	412+75.00	413+55.67	LT																		
D-105	82	413+55.67	414+80.00	LT																		
D-106	83	414+80.00	416+00.00	LT																		
D-107	83	416+00.00	417+12.00	LT																		
D-108	83	417+12.00	418+05.00	LT																		
D-109	83	418+05.00	419+15.00	LT																		
D-110	83	419+15.00	419+76.27	LT																		
D-111	83/84	419+76.27	420+25.75	LT																		
D-112		NOT USED																				
D-113		NOT USED																				
D-114		NOT USED																				
D-115		NOT USED																				
D-116	78/79	389+25.00	395+25.00	LT & RT																		
D-117	79	396+79.00	397+54.00	LT & RT																		
D-118		NOT USED																				
D-119		NOT USED																				
D-120		NOT USED																				
D-121		NOT USED																				
D-122		NOT USED																				
D-123		NOT USED																				
D-124		NOT USED																				
D-125		NOT USED																				
D-126		NOT USED																				
D-127		NOT USED																				
D-128		NOT USED																				
D-129	78	389+71.00	390+15.00	LT																		
D-130	78	390+15.00	390+20.00	LT																		
TOTALS CARRIED TO GENERAL SUMMARY					30	78	58	6	6	810	549	145	240	734	457	1	1	1	29	1684	60	89

36" CONDUIT, TYPE C
 MANHOLE, NO. 3 (12" DIA), AS PER PLAN
 CATCH BASIN, NO. 6

1

1

29

CALCULATED LZS CHECKED GKB	DRAINAGE SUBSUMMARY	FRA - 40 - 7.00
		68 242

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REF. NO.	SHEET NO.	STATION		SIDE	611										611			605				
		FROM	TO		8" CONDUIT, TYPE C	12" CONDUIT, TYPE B	12" CONDUIT, TYPE C	15" CONDUIT, TYPE C	MANHOLE, NO. 3 (72" DIA), AS PER PLAN	36" CONDUIT, TYPE B	36" CONDUIT, TYPE C	42" CONDUIT, TYPE B	42" CONDUIT, TYPE C	48" CONDUIT, TYPE B	48" CONDUIT, TYPE C	54" CONDUIT, TYPE B	54" CONDUIT, TYPE C	CATCH BASIN, NO. 3A, AS PER PLAN	CATCH BASIN, NO. 2-2B	CATCH BASIN, NO. 2-4	MANHOLE, NO. 3	6" BASE PIPE UNDERDRAINS, 707.41
					FT	FT	FT	FT	EACH	FT	EACH	EACH	EACH	EACH	FT							
D-181	78	389+48.92	392+40.00	RT				6														
D-182	78/79	392+40.00	393+55.00	RT						115												
D-183	79	393+55.00	395+26.87	RT							172											
D-184	79	395+26.87	396+43.00	RT									116									
D-185	79	396+43.00	398+57.50	RT								216										
D-186	80	398+57.50	399+97.50	RT																		
D-187	80	399+97.50	401+20.00	RT																		
D-188	80	401+20.00	402+10.00	RT																		
D-189	80	402+10.00	403+45.00	RT								90										
D-190	80/81	403+45.00	403+79.00	RT																		70
D-191	81	403+79.00	404+47.50	RT																		
D-192	81	404+47.50	405+73.00	RT																		
D-193	81	405+73.00	407+08.50	RT																		
D-194	81	407+08.50	407+57.50	RT																		
D-195	81	407+57.50	408+68.00	RT																		
D-196	81/82	408+68.00	409+57.50	RT																		
D-197	82	409+57.50	410+70.50	RT																		
D-198	82	410+70.50	411+57.50	RT																		
D-199	82	411+57.50	412+04.50	RT																		
D-200	82	412+04.50	412+71.00	RT	6																	
D-201	82	412+71.00	413+62.50	RT																		
D-202	82/83	413+62.50	414+82.50	RT																		
D-203	83	414+82.50	415+82.50	RT																		
D-204	83	415+82.50	416+33.00	RT																		
D-205	83	416+33.00	417+05.50	RT																		
D-206	83	417+05.50	417+82.50	RT																		
D-207	83	417+82.50	418+57.50	RT																		
D-208	83	418+57.50	419+27.00	RT																		
D-209	83	419+27.00	420+00.75	RT																		
D-210		NOT	USED																			
D-211		NOT USED																				
D-212		NOT USED																				
D-213		NOT USED																				
D-214		NOT USED																				
D-215		NOT USED																				
D-216		NOT USED																				
D-217		NOT USED																				
D-218		NOT USED																				
D-219		NOT USED																				
D-220		NOT USED																				
D-221		NOT USED																				
D-222		NOT USED																				
D-223		NOT USED																				
D-224		NOT USED																				
D-225		NOT USED																				
D-226	82	413+82.50	413+55.67	LT																		
D-227	78	390+00.00	391+00.00	RT																		
D-228	78	391+00.00	391+14.19	RT																		
D-229	78	392+27.00	392+40.00	RT																		
D-230	79	392+78.74	393+51.08	RT																		
TOTALS CARRIED TO GENERAL SUMMARY					6	172	92	6	1	115	463	772	413	593	407	219	77	4	1	4	22	373

CALCULATED	LZS	CHECKED	GKB
DRAINAGE SUBSUMMARY			
FRA - 40 - 7.00			
			70
			242

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REF. NO.	SHEET NO.	STATION		SIDE	611																		605	839	895
		FROM	TO		8" CONDUIT, TYPE C	12" CONDUIT, TYPE B	12" CONDUIT, TYPE C	15" CONDUIT, TYPE B	18" CONDUIT, TYPE B	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	24" CONDUIT, TYPE C	CATCH BASIN, NO. 3, AS PER PLAN	CATCH BASIN, NO. 3A, AS PER PLAN	CATCH BASIN, NO. 6	CATCH BASIN, NO. 2-2B	MANHOLE, NO. 3	MANHOLE, NO. 3 WITH 108" BASE I.D. AND 12" WEIR	MANHOLE ADJUSTED TO GRADE	6" BASE PIPE UNDERDRAINS, 707.41	TRENCH DRAIN WITH STANDARD GRATE	MANUFACTURED WATER QUALITY STRUCTURE, TYPE 4			
					FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	FT	FT	EACH				
D-231		NOT	USED																						
D-232	79	393+51.08	393+55.00	RT			7					1								130					
D-233	79	395+25.00	395+26.87	RT			26						1							118					
D-234	79/80	397+01.22	396+48.00	RT		53								1						143					
D-235	79	396+48.00	396+43.00	RT			23						1							48					
D-236	80	398+50.00	398+57.50	RT			9							1						135					
D-237	80	399+90.00	399+97.50	RT			9							1						118					
D-238	80	401+12.50	401+20.00	RT			9							1						95					
D-239	80	402+07.06	402+10.00	RT		12						1													
D-240	80/81	403+37.50	403+45.00	RT			10						1												
D-241	81	403+79.00	403+79.00	RT			7									1									
D-242	81	404+40.00	404+47.50	RT			10						1							113					
D-243	81	405+47.26	405+72.60	RT		25						1													
D-244	81	405+72.60	405+73.00	RT		16		13				1								50					
D-245	81	406+50.00	407+01.00	RT		51							1							46					
D-246	81	407+01.00	407+08.50	RT			9							1						44					
D-247	81	407+50.00	407+57.50	RT			9							1						105					
D-248	81	408+60.00	408+68.00	RT			9							1											
D-249	81/82	408+88.98	409+23.00	RT			6	35				1													
D-250	82	409+23.00	409+57.50	RT			6		38							1									
D-251	82	413+50.00	409+57.50	RT			9					1								108					
D-252	82	410+63.00	410+70.50	RT			9						1							85					
D-253	82	411+50.00	411+57.50	RT			9						1							85					
D-254	82	412+34.11	412+70.80	RT		37						1													
D-255	82	412+70.80	412+71.00	RT	16		20		12				1							50					
D-256	82	413+69.00	413+62.50	RT			9							1						115					
D-257	83	414+75.00	414+82.50	RT			9							1						44					
D-258	83	415+24.00	415+75.00	RT		51								1						46					
D-259	83	415+75.00	415+82.50	RT			9							1											
D-260	83	416+06.52	416+33.00	RT		28						1													
D-261	83	416+33.00	416+33.00	RT				13									1								
D-262	83	416+98.00	417+05.50	RT			9							1						72					
D-263	83	417+75.00	417+82.50	RT			9							1						70					
D-264	83	418+20.00	418+57.50	RT			40									1									
D-265	83	418+50.00	418+57.50	RT			9							1						73					
D-266	83	419+30.81	419+22.17	RT			41					1													
D-267	83	419+22.17	419+27.00	RT		14						1													
D-268		NOT	USED																						
D-269	84	423+75.86	425+33.17	RT		158										1									
D-270	84	420+00.21	420+23.37	RT		76																			
D-271	84	420+23.37	420+00.75	RT		29						1		1						81					
D-272	83/84	420+00.75		RT													1								
D-273	84	420+00.75	421+63.00	RT		162														107					
D-274	84	421+63.00	422+75.00	RT		112								1						253					
D-275	84	423+11.67	423+56.00	LT		48						1								255					
D-276	84	426+56.00	425+66.25	LT		210										1									
D-277	85	425+66.25		LT		5										1									
D-278	84/85	425+29.96	425+66.25	LT		27															26				
D-279	85	425+70.00	425+66.25	LT		6								1											
D-280	84/85	425+33.17	425+37.88	RT		8								1											
D-2431	81	405+34.50	405+47.26	RT		13										1									
WQ-1	80	398+50.00		LT						44	72					1					1				
TOTALS CARRIED TO GENERAL SUMMARY					16	1141	331	48	25	38	44	72	12	25	2	4	4	1	1	2589	26	1			

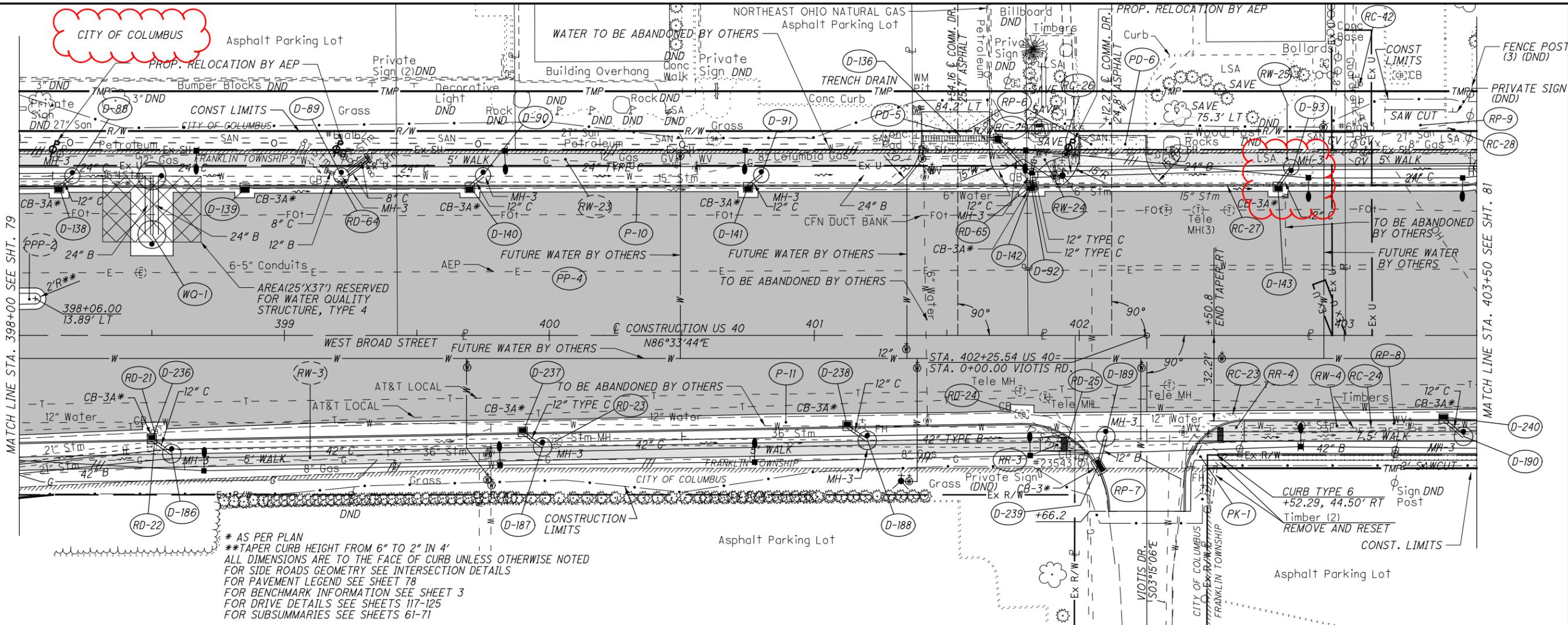
DRAINAGE SUBSUMMARY

FRA-40-7.00

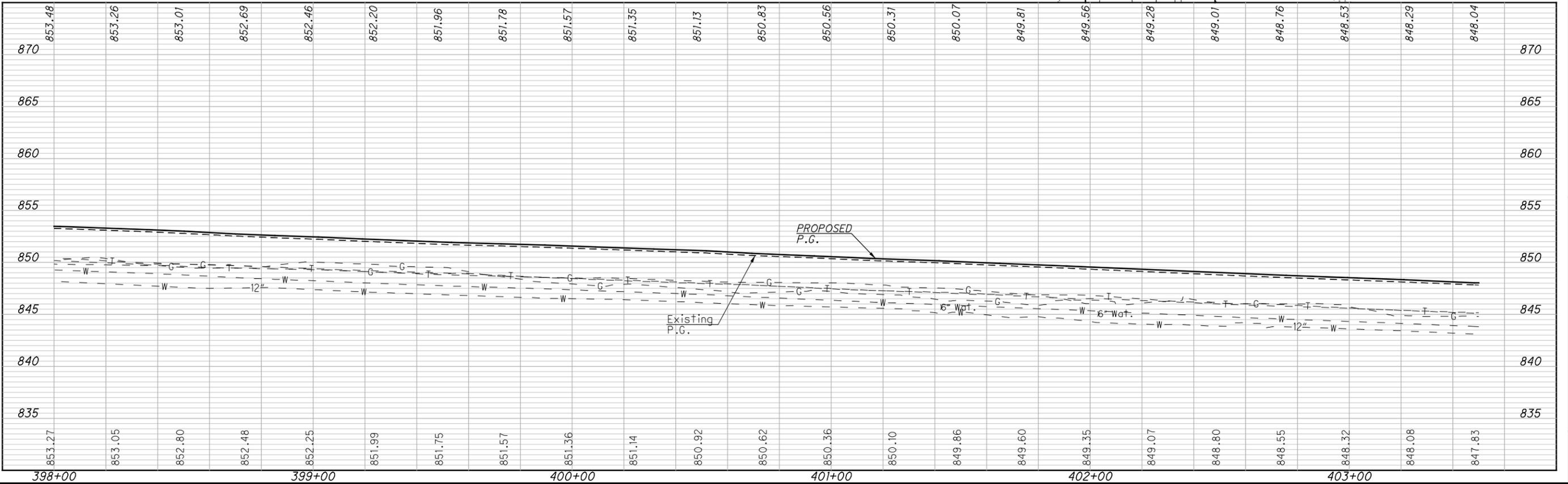
CALCULATED
LZS
CHECKED
GKB

71
242

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* AS PER PLAN
 **TAPER CURB HEIGHT FROM 6" TO 2" IN 4'
 ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED
 FOR SIDE ROADS GEOMETRY SEE INTERSECTION DETAILS
 FOR PAVEMENT LEGEND SEE SHEET 78
 FOR BENCHMARK INFORMATION SEE SHEET 3
 FOR DRIVE DETAILS SEE SHEETS 117-125
 FOR SUBSUMMARIES SEE SHEETS 61-71



0 20 40

HORIZONTAL SCALE IN FEET

CALCULATED

DJB

CHECKED

DJH

PLAN AND PROFILE - US 40

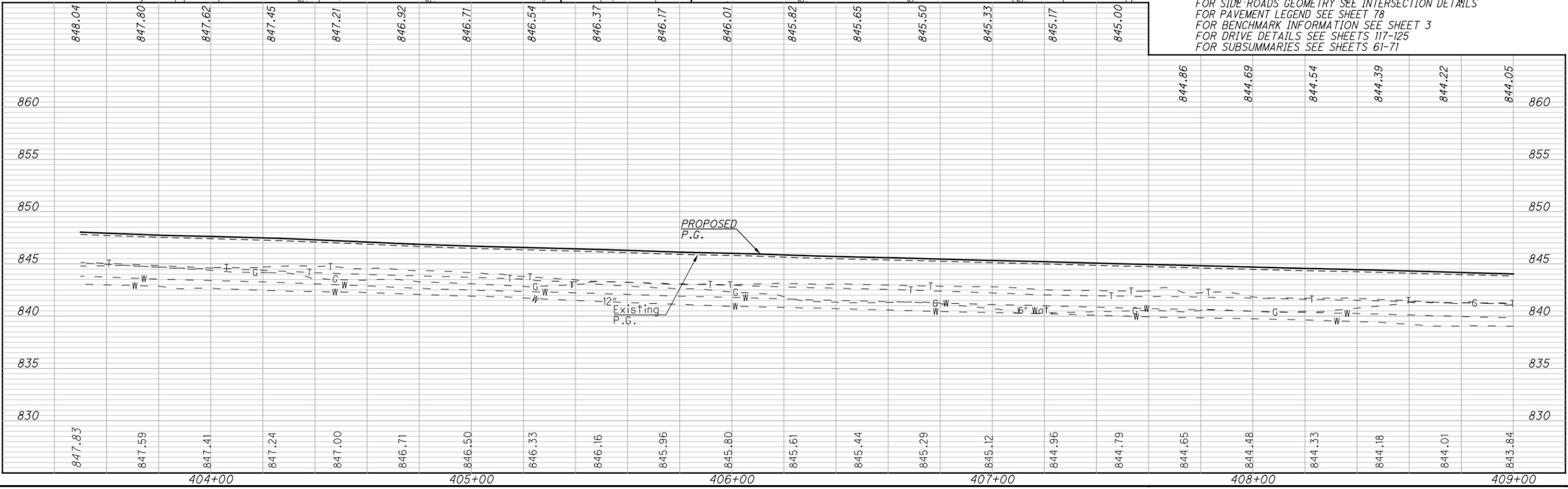
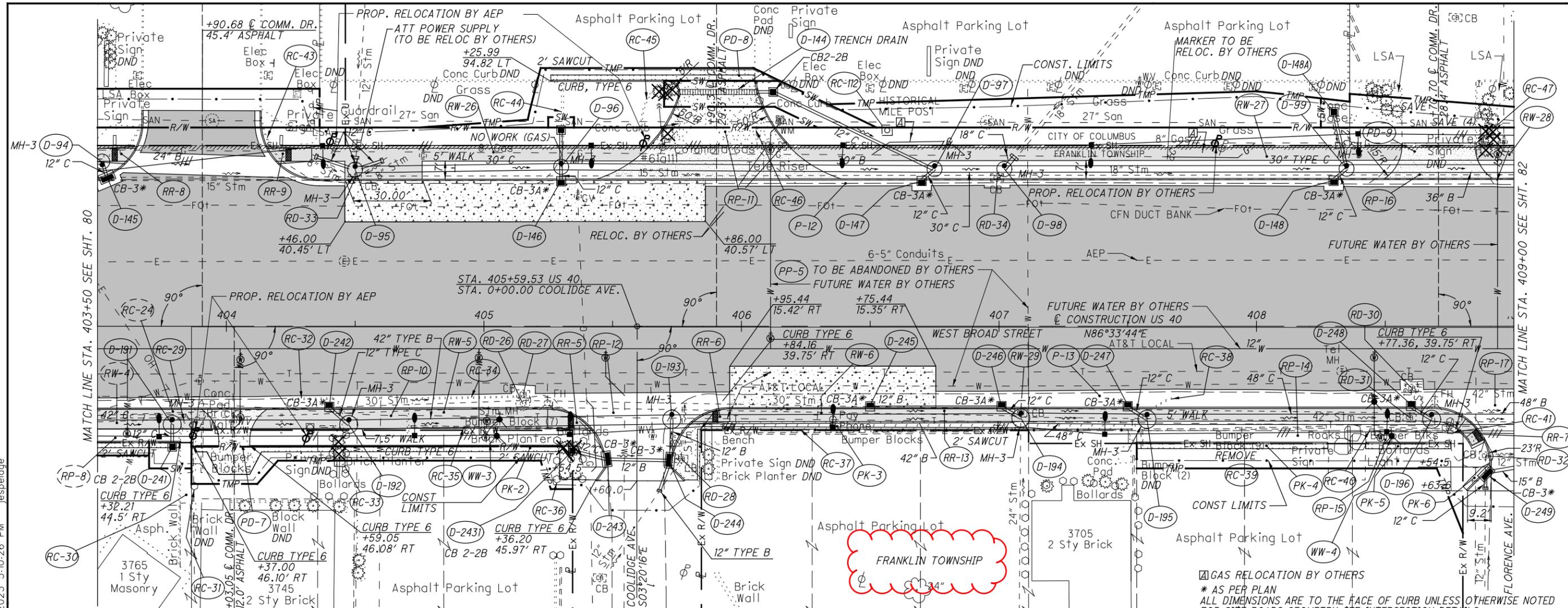
STA. 398+00 TO STA. 403+50

FRA-40-7.00

80

242

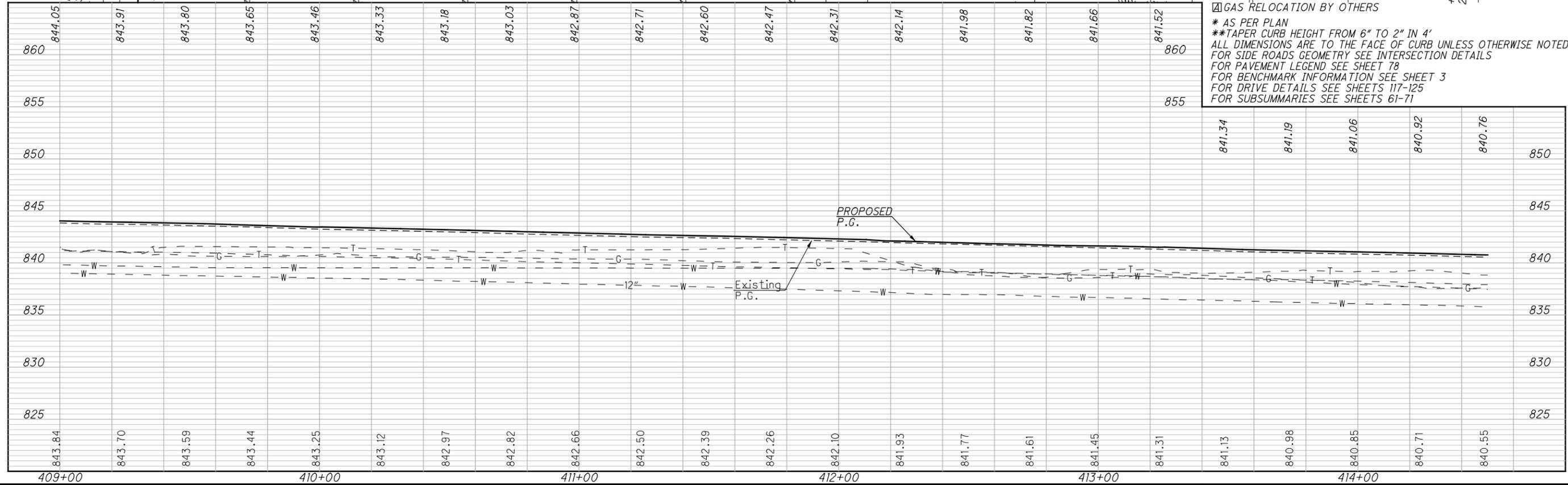
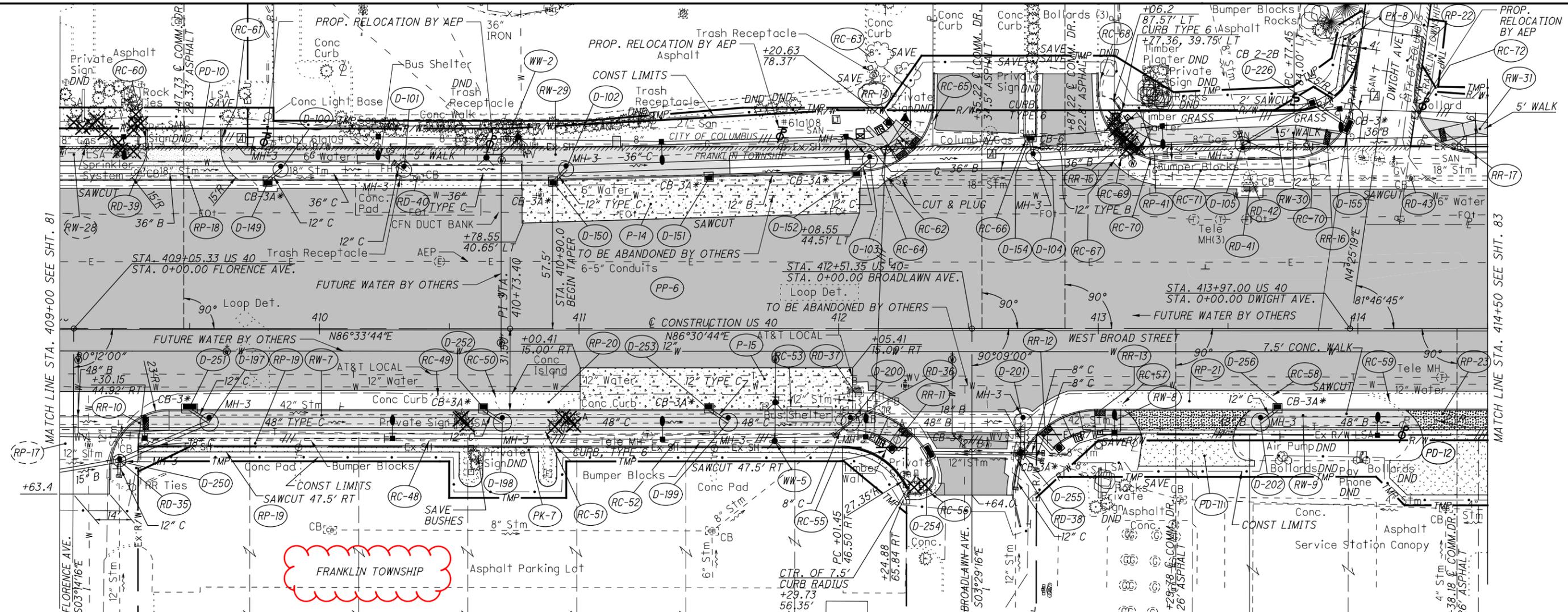
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PLAN AND PROFILE - US 40
STA. 403+50 TO STA. 409+00

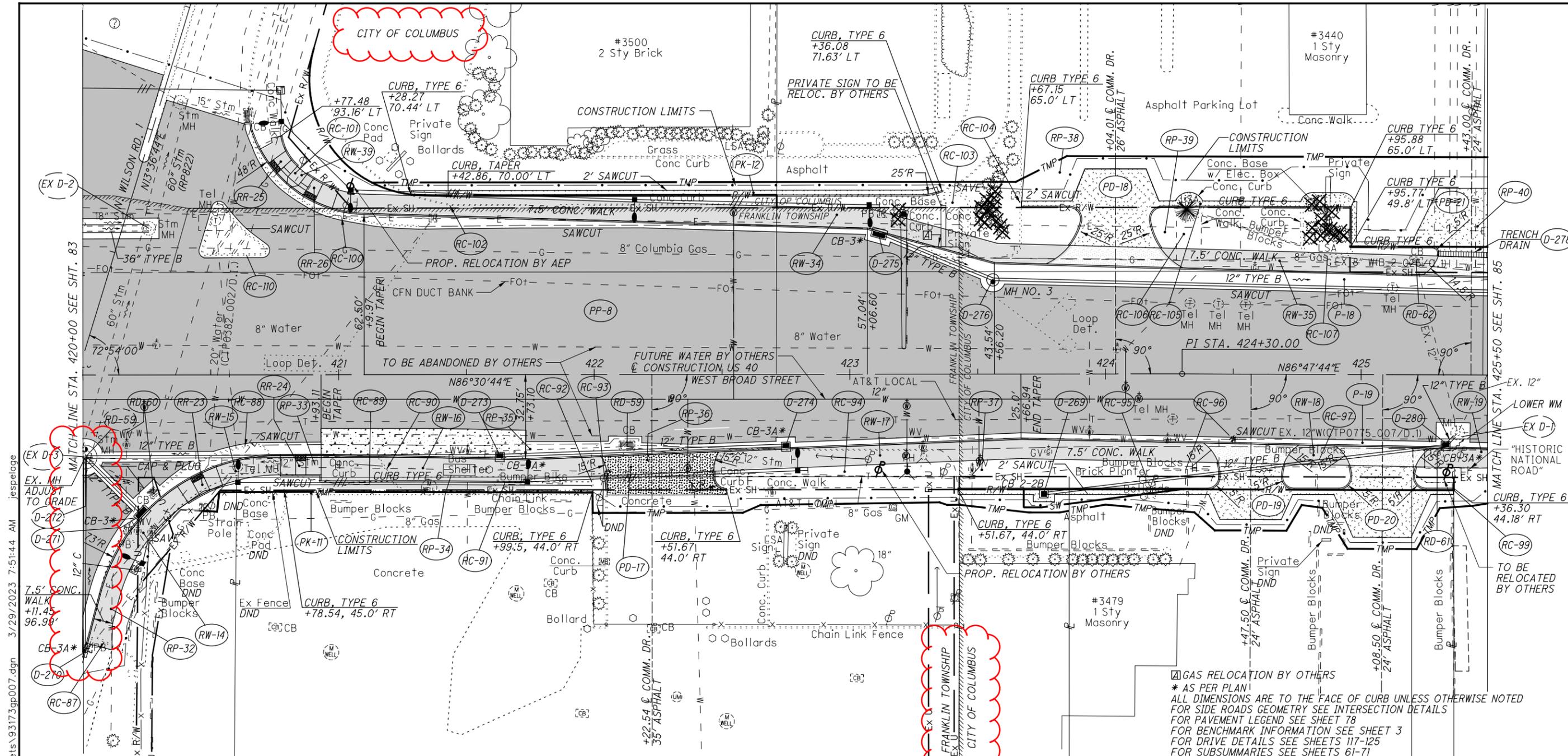
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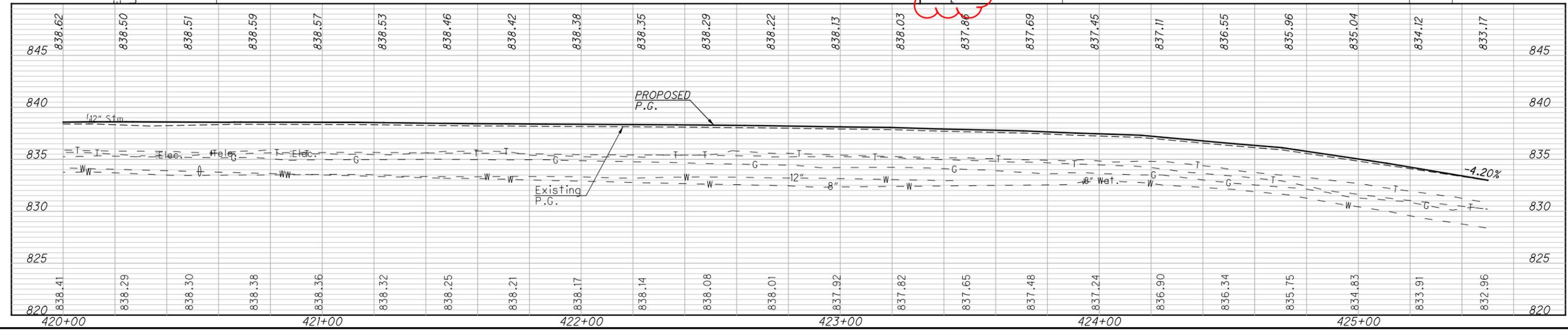


□ GAS RELOCATION BY OTHERS
 * AS PER PLAN
 ** TAPER CURB HEIGHT FROM 6" TO 2" IN 4'
 ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED
 FOR SIDE ROADS GEOMETRY SEE INTERSECTION DETAILS
 FOR PAVEMENT LEGEND SEE SHEET 78
 FOR BENCHMARK INFORMATION SEE SHEET 3
 FOR DRIVE DETAILS SEE SHEETS 117-125
 FOR SUBSUMMARIES SEE SHEETS 61-71

PLAN AND PROFILE - US 40
 STA. 409+00 TO STA. 414+50
 FRA-40-7.00
 82
 242



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HORIZONTAL SCALE IN FEET

CALCULATED: DJB
 CHECKED: DJH

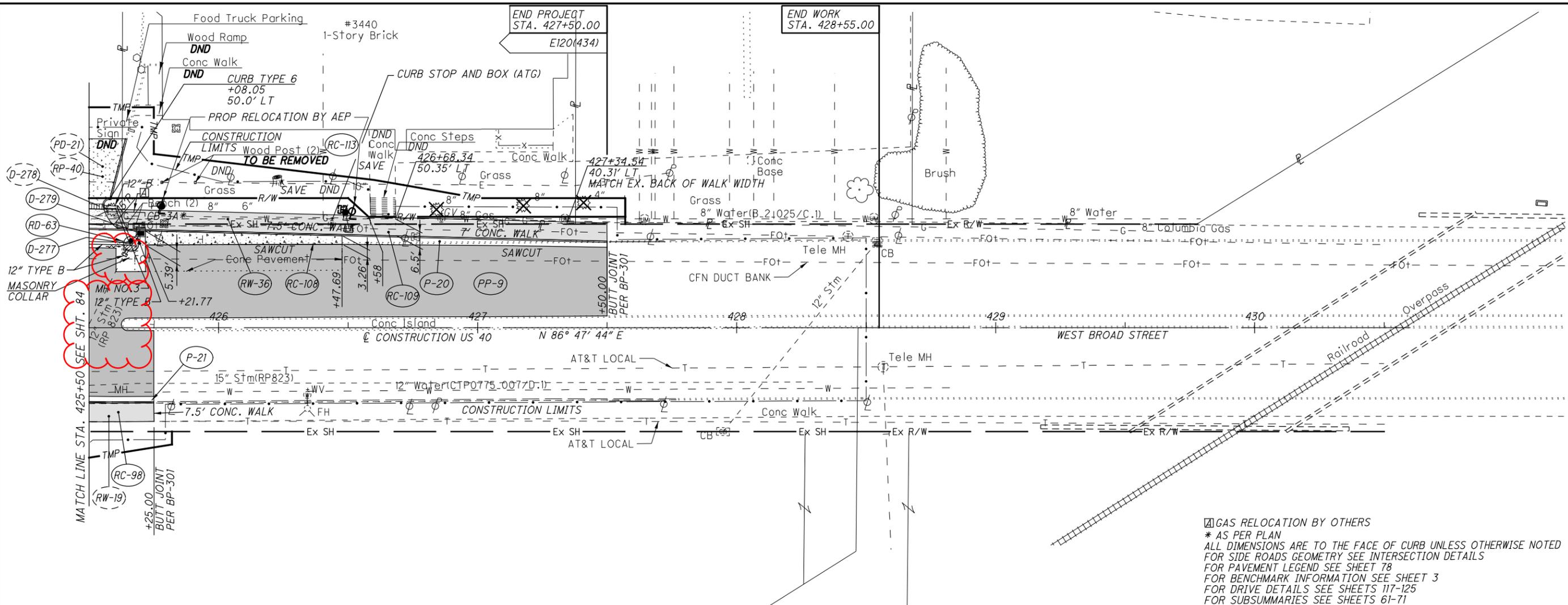
PLAN AND PROFILE - US 40
STA. 420+00 TO STA. 425+50

FRA-40-7.00

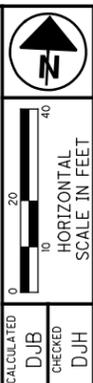
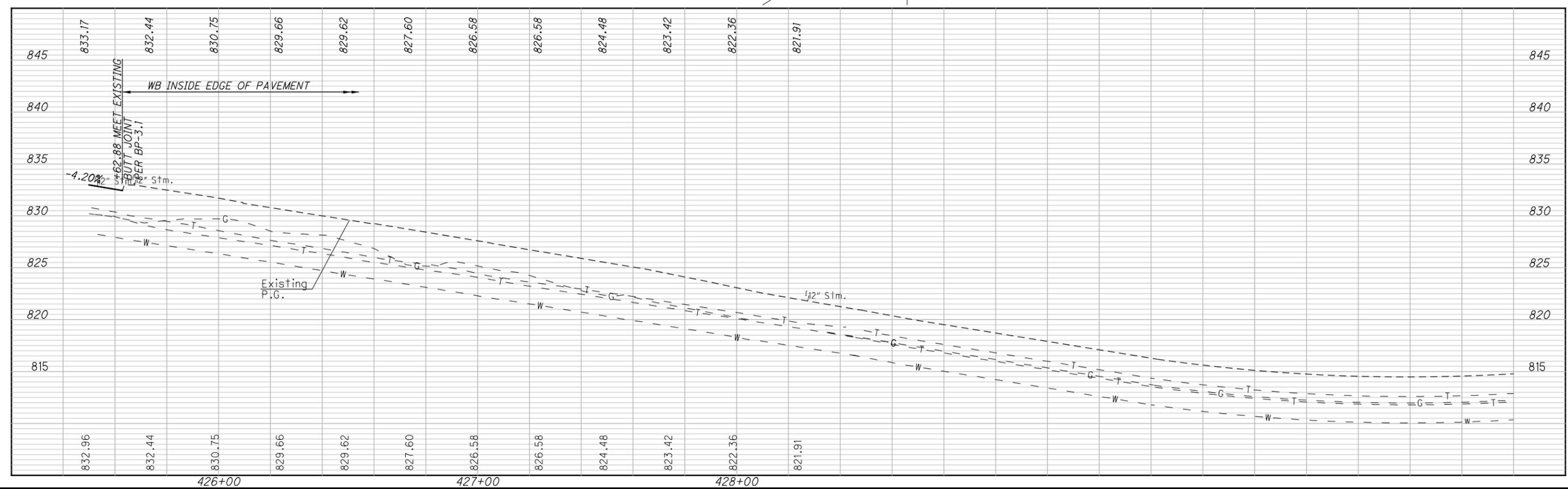
84

242

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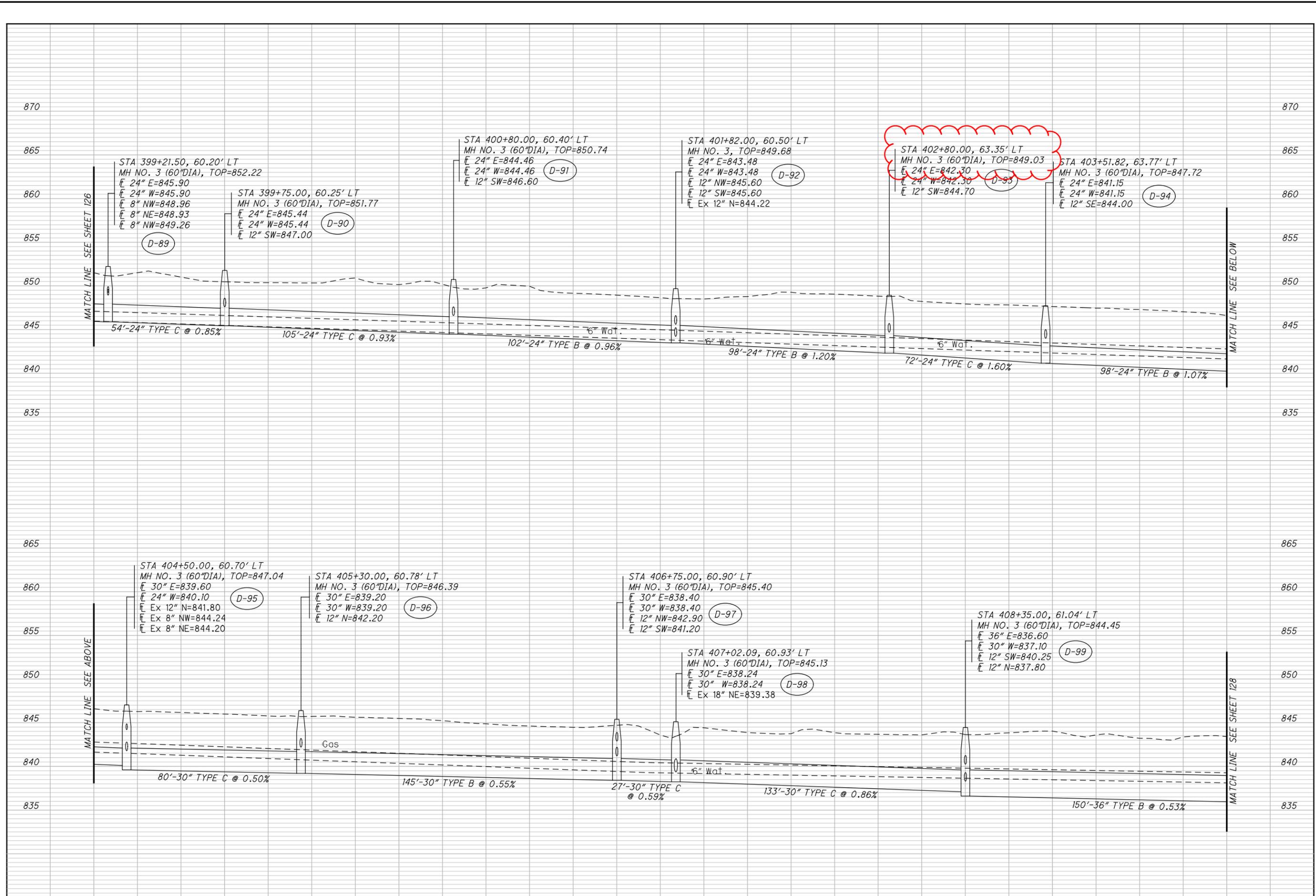
☒ GAS RELOCATION BY OTHERS
 * AS PER PLAN
 ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED
 FOR SIDE ROADS GEOMETRY SEE INTERSECTION DETAILS
 FOR PAVEMENT LEGEND SEE SHEET 78
 FOR BENCHMARK INFORMATION SEE SHEET 3
 FOR DRIVE DETAILS SEE SHEETS 117-125
 FOR SUBSUMMARIES SEE SHEETS 61-71



CALCULATED
 DJB
 CHECKED
 DJH

PLAN AND PROFILE - US 40
STA. 425+50 TO STA. 430+00

FRA-40-7.00

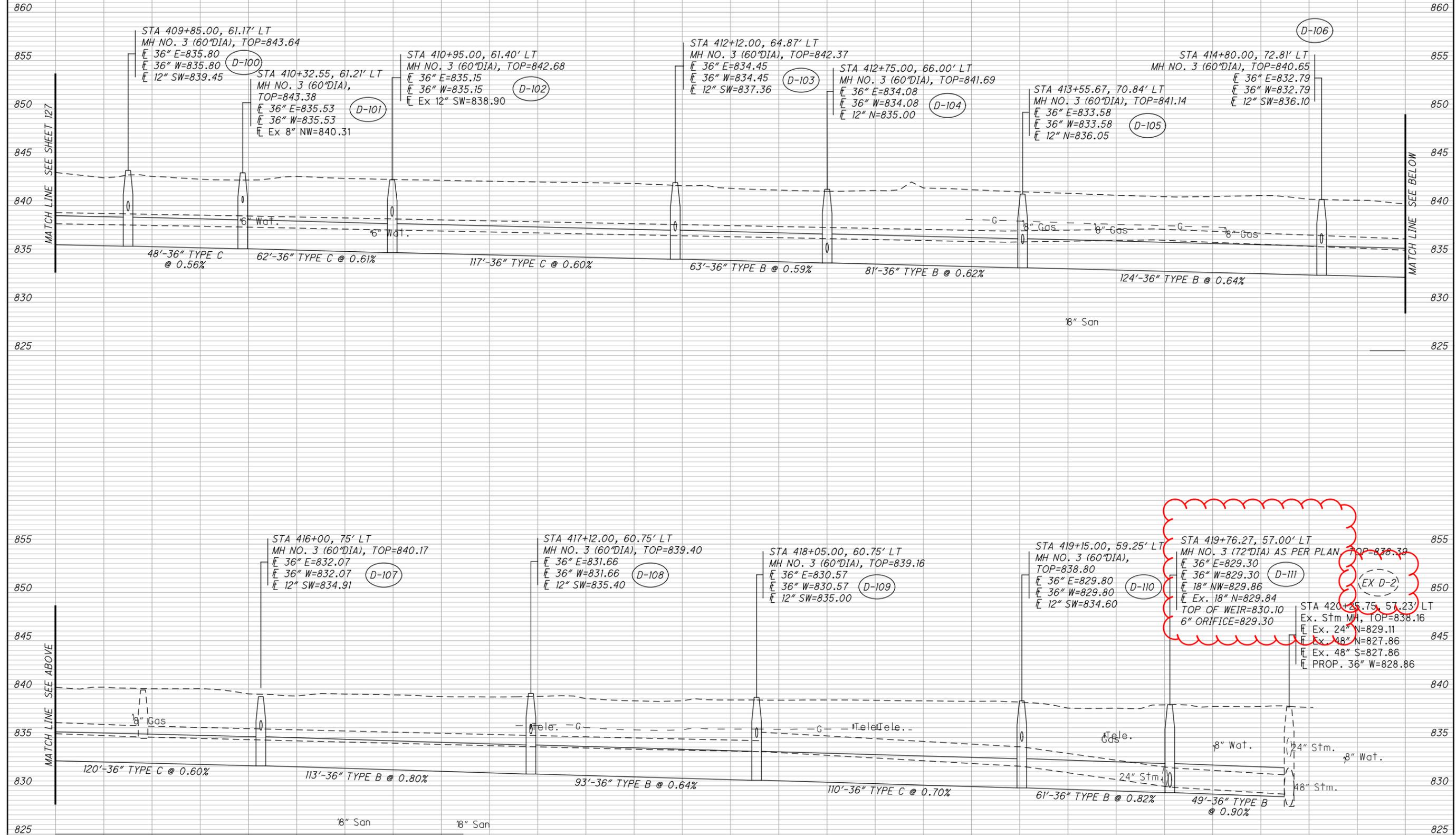


CALCULATED
DUB
CHECKED
GKB

STORM SEWER PROFILES

FRA - 40 - 7.00

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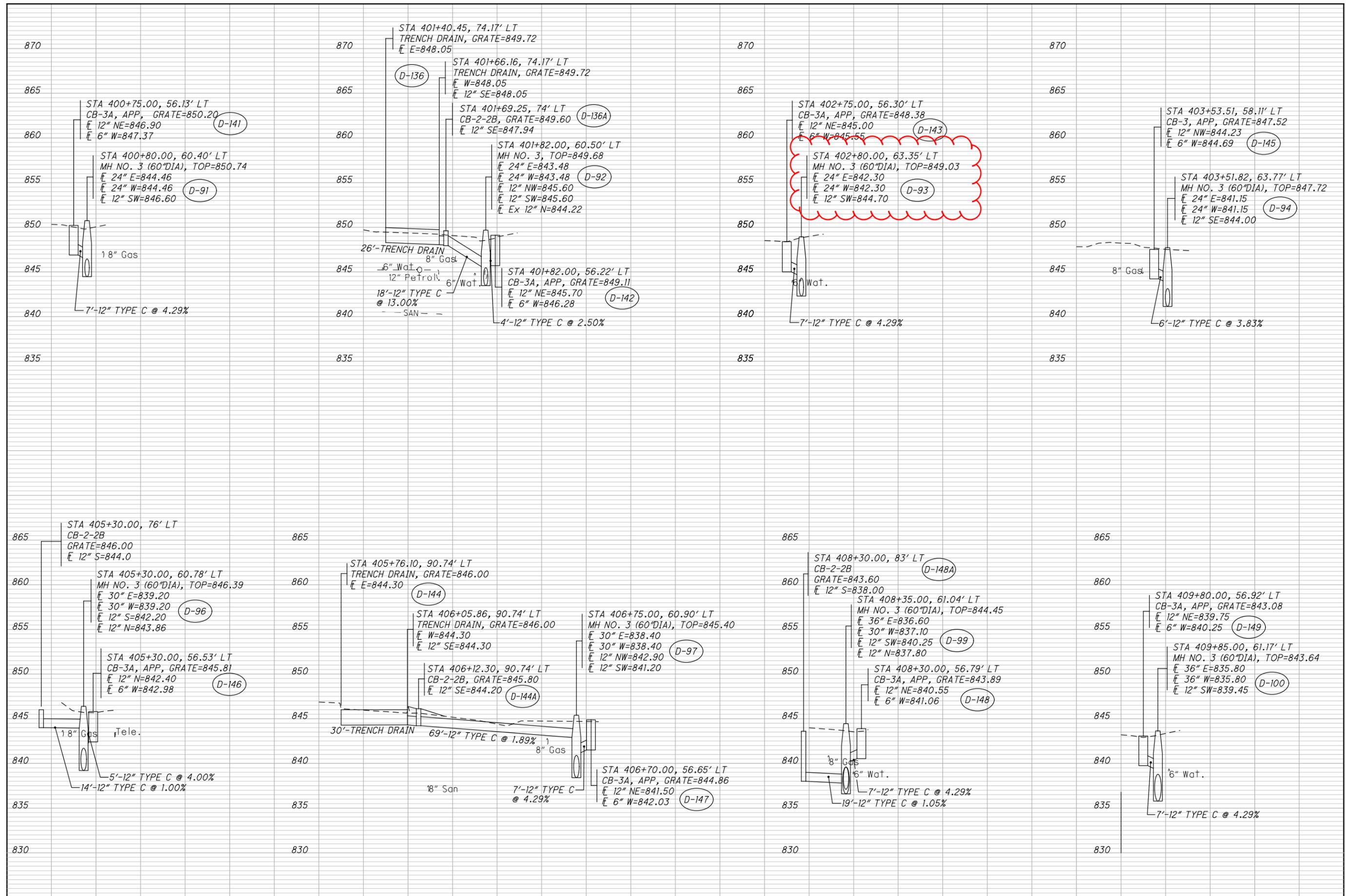


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STORM SEWER PROFILES

FRA-40-7.00

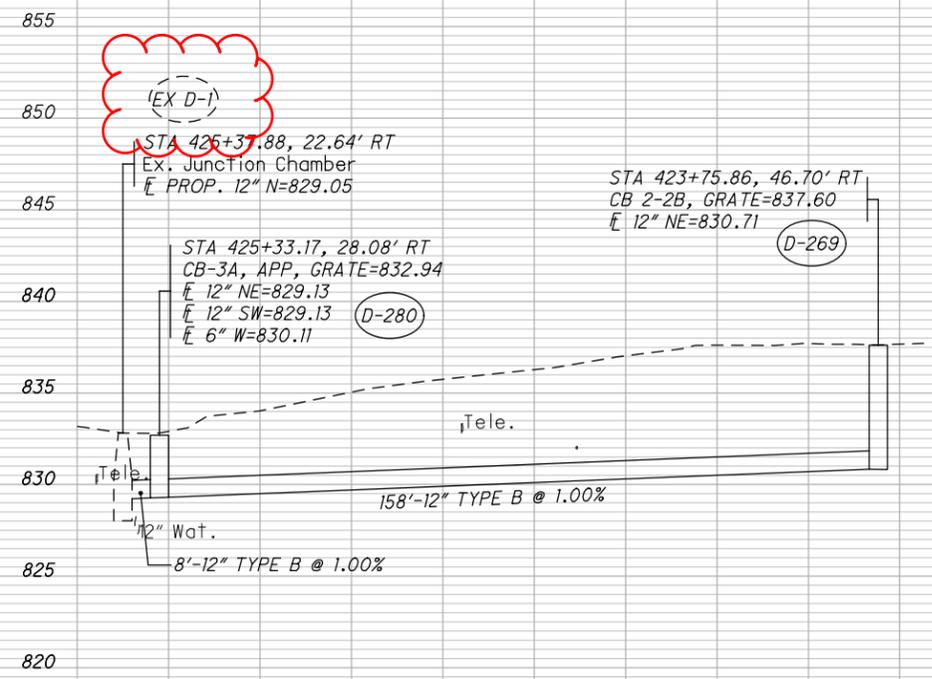
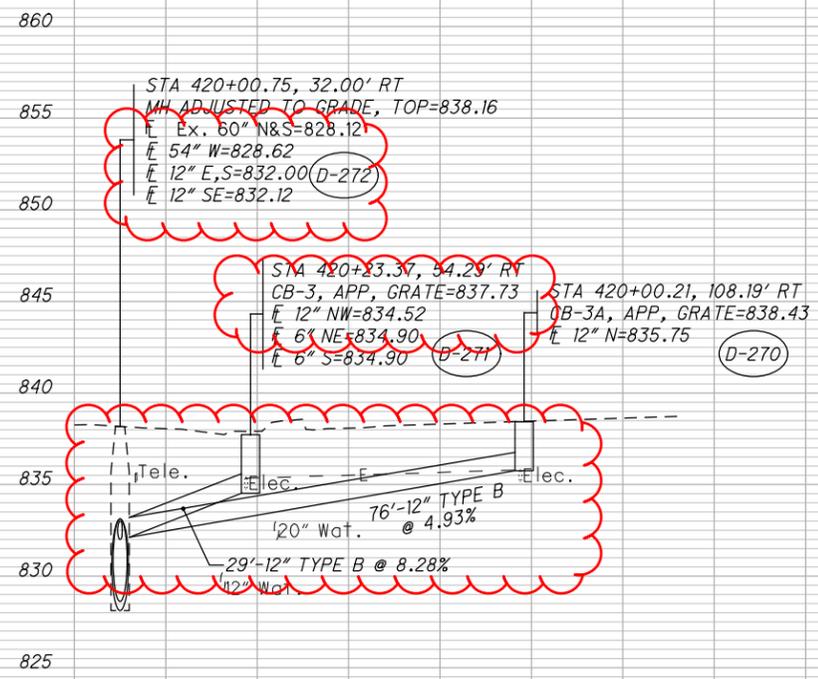
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CALCULATED
DJB
CHECKED
GKB

STORM SEWER PROFILES

FRA-40-7.00



STORM SEWER PROFILES

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 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.

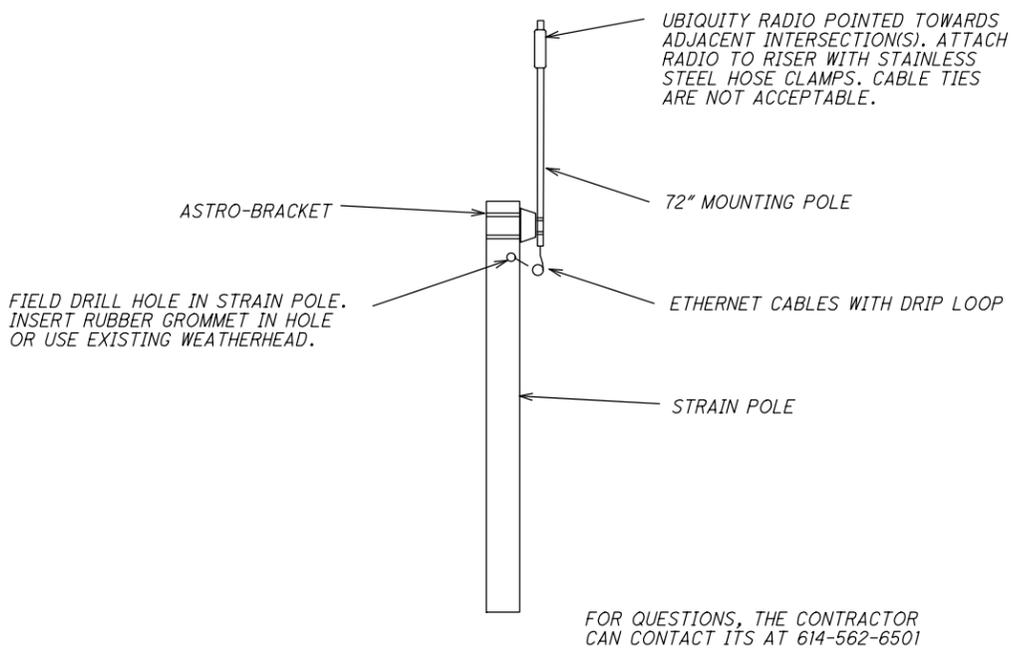
IN ADDITION TO THE REQUIREMENTS OF 632.22, THE CONTRACTOR SHALL FURNISH AND INSTALL MESSENGER WIRE AS SHOWN IN THE PLANS TO SUPPORT THE FIBER OPTIC CABLE SYSTEM. MESSENGER WIRE SHALL BE RATED AS EXTRA-HIGH STRENGTH AND MEET THE REQUIREMENTS OF 732.18. ACCESSORIES USED WITH MESSENGER WIRE SHALL INCLUDE 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.

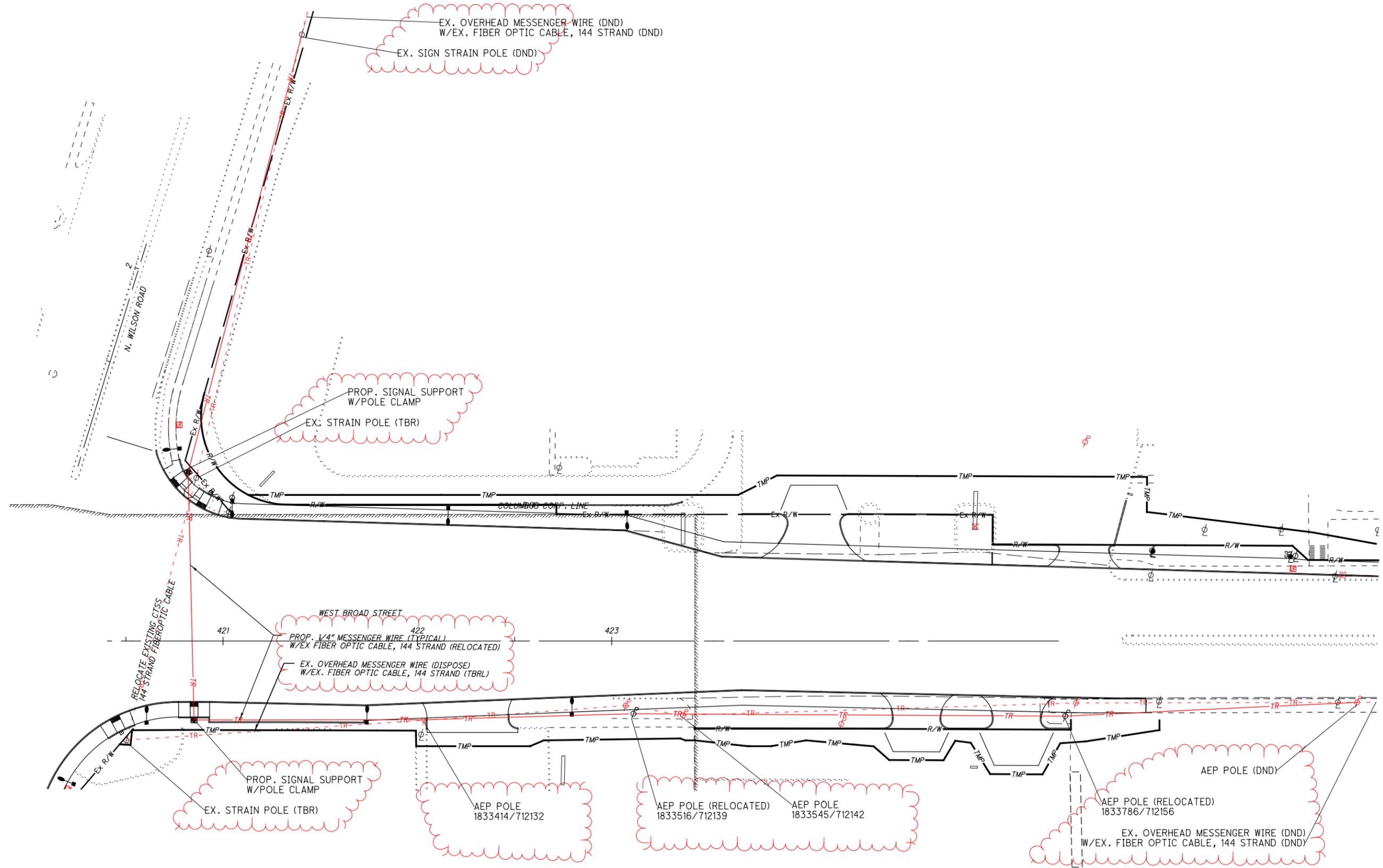


FOR QUESTIONS, THE CONTRACTOR CAN CONTACT ITS AT 614-562-6501

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

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**FIBER OPTIC INTERCONNECT
CABLE RELOCATION PLAN**

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PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYPED IN ACCORDANCE WITH CMS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

625, POWER SERVICE, AS PER PLAN

IN ADDITION TO SECTION 632.24, ELECTRIC POWER SHALL BE OBTAINED FROM THE AMERICAN ELECTRIC POWER COMPANY (AEP). POWER SHALL BE SUPPLIED AT 480 VOLTS. DISCONNECT SWITCH AND METER BASE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER. AN ODOT KEYPED PADLOCK OR DEVICE APPROVED BY THE MAINTAINING AGENCY'S MAINTENANCE FORCES IS TO BE PROVIDED FOR THE DISCONNECT SWITCH ENCLOSURE. THE CONTRACTOR SHALL COORDINATE WITH AEP FOR FINAL POWER SERVICE SOURCE LOCATION.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS: AMERICAN ELECTRIC POWER (AEP) (DISTRIBUTION), 850 TECH CENTER DRIVE, GAHANNA, OHIO 43230-6605 ATTN: PAUL PAXTON 614-883-6831

THE ADDRESS IS: 3610 WEST BROAD STREET, COLUMBUS, OHIO.

ANY POWER COMPANY "MAKE READY" CHARGES WILL BE REIMBURSED "AT COST" WITH NO MARK-UP. AEP SHALL MAKE ALL TRANSFERS OF POWER SERVICE AND UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR ATTEMPT TO DO THIS ITEM OF WORK. A DISCONNECT SWITCH AND METER BASE SHALL BE INSTALLED AND MOUNTED ON THE POLE.

ELECTRIC SERVICE IS TO BE AERIAL. UNFUSED SERVICE CABLE SHALL BE RUN IN A CONDUIT SEPARATE FROM SIGNAL AND DISTRIBUTION CABLE. THE PROPOSED POWER SERVICE SHALL BE SINGLE PHASE, 3-WIRE AND 480 VOLTS CAPABLE OF PROVIDING SERVICE TO THE PROPOSED 480 VOLT LIGHTING CIRCUITS FOR THIS PROJECT AS LISTED IN THE CONTROL CENTER DATA TABLE.

WHERE APPLICABLE, ELECTRICAL ENERGY FROM EXISTING POWER SERVICES SHALL CONTINUE TO BE CHARGED TO THE MAINTAINING AGENCY. A NEW POWER SERVICE ACCOUNT SHALL BE ESTABLISHED IN THE NAME OF THE FOLLOWING MAINTAINING AGENCIES AS LISTED IN THE CONTROL CENTER DATA TABLE:

STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, DISTRICT SIX, 400 EAST WILLIAM STREET, DELAWARE, OHIO 43015

CALCULATE AND PROVIDE A LIST OF LOADS AS REQUIRED BY THE UTILITY COMPANY TO OBTAIN SERVICE.

PROVIDE A GROUND ROD AS PART OF THIS ITEM AT THE LOCATION IDENTIFIED ON THE PLANS.

PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625 POWER SERVICE, AS PER PLAN WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR MAKING A COMPLETE POWER SERVICE CONNECTION IN A SATISFACTORY AND WORKMANLIKE MANNER.

625, LIGHT POLE, CONVENTIONAL, <TYPE>, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LIGHT POLES SHALL INCLUDE THE FOLLOWING:

AFTER GALVANIZING, POWDER COAT THE POLE AND ACCESSORIES BRONZE FEDERAL STANDARD NUMBER 595B #20040.

PROVIDE 24 INCH WIDE, 1" DIAMETER BANNER ARMS AT THE LOCATIONS SHOWN ON THE PLANS. PROVIDE ONE ARM FOR SINGLE LUMINAIRE LIGHT POLES AND TWO ARMS FOR DOUBLE LUMINAIRE LIGHT POLES. TOP ARMS ARE TO BE CLAMP-ON STYLE. BOTTOM ARMS ARE TO BE FIXED VIA A WELDED CONNECTION.

TRANSFORMER BASE, BRACKET ARMS, AND ACCESSORIES ARE TO BE SAME COLOR AS POLE.

PROVIDE THE STANDARD TRUSS ARM HIGH RISE STYLE SHOWN ON HL-10.11.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "LIGHT POLE, CONVENTIONAL, <TYPE>, AS PER PLAN" FOR EACH LIGHT POLE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED.

625, LIGHT POLE FOUNDATION, 24" X 6', AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 625.10, LIGHT POLE FOUNDATIONS SHALL BE AS FOLLOWS:

PROVIDE AT LEAST TWO CONDUIT ELLS (CAP UNUSED ELLS), SIZE ELLS AS PER THE PLANS.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM "625, LIGHT POLE FOUNDATION, AS PER PLAN" FOR EACH LIGHT POLE FOUNDATION WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED.

625, LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-III, LED, 14400-21500 LUMENS, 480 VOLT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATION 813 AND 913 LUMINAIRES FOR CONVENTIONAL LIGHTING SHALL BE AS FOLLOWS:

LUMINAIRES SHALL BE AMERICAN ELECTRIC LIGHTING (AEL) AUTOBAHN ATBM SERIES, 135W, (ATBM-P70-480-R3-3K-BZ-NL-XXX), COOPER EATON "VERDEON" SERIES 123W, (VERD-G-C02H-D-8-T3-7030-10K-EP66-4B-BZ), OR EQUAL APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-III, LED, 14400-21500 LUMENS, 480 VOLT, AS PER PLAN" FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE HL AND TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.
 - a. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
 - b. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
 - c. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
 - d. METAL PULL BOX LIDS SHALL BE BONDED BY ATTACHMENT OF THE EQUIPMENT GROUNDING CONDUCTOR TO THE FRAME DIAGONAL AS PROVIDED ON HL-30.11.
 - e. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
 - f. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
 - g. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.
 - a. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
 - b. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DE-BURRED AT ALL TERMINATION POINTS.
 - c. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
 - d. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.
 - a. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

- i. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
- ii. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

- iii. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

- iv. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
 - b. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM

CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.
 - a. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
 - b. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.
 - a. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
 - b. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
 - i. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
 - ii. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. STRUCTURE GROUNDING: HL-50.21 SHOWS A 1/0 AWG STRANDED COPPER CABLE USED FOR STRUCTURE GROUNDING. ADDITIONALLY, THIS SAME CABLE SHALL BE INSULATED AND ANY CONNECTIONS AND BARE COPPER STRANDS EXPOSED TO CONCRETE SHALL BE COVERED WITH MASTIC TO PREVENT CONTACT WITH THE CONCRETE.

8. PAYMENT.
 - a. ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.
 - b. WORK ON BRIDGES MAY BE INCLUDED IN THE BID ITEM FOR "ITEM 625, STRUCTURE GROUNDING."
 - c. IN A 3-WIRE HIGHWAY LIGHTING SYSTEM, THE THIRD CONDUCTOR OF THE DUCT CABLE OR DISTRIBUTION CABLE WILL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR AND MAY AS SUCH BE PART OF THE CABLE BID ITEM.

625, ARC FLASH CALCULATIONS AND LABEL

THE CONTRACTOR SHALL SATISFY THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 825 FOR EACH OF THE NEW LIGHTING CONTROL CENTERS INDICATED IN THE PLANS.

THE CONTRACTOR MAY BE ABLE TO OBTAIN LABELS FOR ODOT MAINTAINED INSTALLATIONS FROM THE ODOT SIGN SHOP, 1606 WEST BROAD STREET, COLUMBUS, OH 43223. FOR NON-ODOT MAINTAINED INSTALLATIONS, THE IS RESPONSIBLE FOR OBTAINING THE LABEL. MADE FROM "ENGINEER GRADE" SIGN SHEETING OR AN EQUIVALENT COMMERCIAL LABEL MATERIAL.

THE ODOT OFFICE OF ROADWAY ENGINEERING HAS AN EXCEL SPREADSHEET AVAILABLE UPON REQUEST, TO ASSIST WITH MAKING AND DOCUMENTING THE REQUIRED CALCULATIONS. METHOD OF MEASUREMENT SHALL BE PER 825.06.

METHOD OF MEASUREMENT SHALL BE PER 825.06.

- 625, NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE, AS PER PLAN
- 625, TRENCH, 24" DEEP, AS PER PLAN
- 625, CONDUIT, 2" 725.04, AS PER PLAN
- 625, PULL BOX, MISC.: COLUMBUS SIZE 13" X 24"
- 625, DISCONNECT CIRCUIT, AS PER PLAN
- 625, LIGHT POLE REMOVED, AS PER PLAN
- 625, LIGHT POLE FOUNDATION REMOVED, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 625, CONFORM TO THE REQUIREMENTS OF THE CITY OF COLUMBUS PUBLIC UTILITIES STREET LIGHTING SPECIFICATIONS AVAILABLE FROM WWW.COLUMBUS.GOV/UTILITIES/STANDARDS/2018-STREET-LIGHTING-MIS/

SEE SHEET 189 FOR ADDITIONAL NOTES PERTAINING TO COLUMBUS SPECIFICATIONS.

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LIGHTING NOTES

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SHEET NUMBER										PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	CALCULATED EMH	CHECKED LAS	
						178	179	180	181		01/ SAF/ PV									
						94	50		3		147	625	00450	147	EACH	CONNECTION, FUSED PULL APART				
								3	3		6	625	00480	6	EACH	CONNECTION, UNFUSED PERMANENT				
						45	23				68	625	10491	68	EACH	LIGHT POLE, CONVENTIONAL, AT15B32.5, AS PER PLAN			176	
						2					2	625	10491	2	EACH	LIGHT POLE, CONVENTIONAL, AT6B24.5, AS PER PLAN			176	
						47	25				71	625	14001	71	EACH	LIGHT POLE FOUNDATION, 24" X 6' DEEP, AS PER PLAN			176	
									210		210	625	22910	210	FT	NO. 2/0 AWG 2400 VOLT DISTRIBUTION CABLE				
								13548	8874		22422	625	23200	22422	FT	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE				
									666		666	625	23201	666	FT	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE, AS PER PLAN			176	
						5452	2668				8120	625	23400	8120	FT	NO. 10 POLE AND BRACKET CABLE				
								3682	1907		5589	625	25400	5589	FT	CONDUIT, 2" 725.04				
									177		177	625	25401	177	FT	CONDUIT, 2" 725.04, AS PER PLAN			176	
								184	576		760	625	25500	760	FT	CONDUIT, 3" 725.04				
								233	211		444	625	25902	444	FT	CONDUIT, JACKED OR DRILLED, 725.04, 3"				
						47	23				70	625	26251	70	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-III, LED, 14400-21500 LUMENS, 480 VOLT, AS PER PLAN			176	
								3866	2372		6238	625	29002	6238	FT	TRENCH, 24" DEEP				
									177		177	625	29003	177	FT	TRENCH, 24" DEEP, AS PER PLAN			176	
								1	6		7	625	30700	7	EACH	PULL BOX, 725-08, 18"				
									1		1	625	31600	1	EACH	PULL BOX, MISC.: COLUMBUS SIZE 13" X 24"			176	
									1		1	625	31510	1	EACH	PULL BOX REMOVED				
						47	26				72	625	32000	73	EACH	GROUND ROD				
								1			1	625	34001	1	EACH	POWER SERVICE, AS PER PLAN			176	
								3			3	625	35010	3	EACH	REMOVE AND REERECT EXISTING LIGHT POLE				
								4			4	625	75400	4	EACH	LIGHT POLE REMOVED			176	
								2			2	625	75401	2	EACH	LIGHT POLE REMOVED, AS PER PLAN			176	
								5			5	625	75500	5	EACH	LIGHT POLE FOUNDATION REMOVED			176	
								2			2	625	75501	2	EACH	LIGHT POLE FOUNDATION REMOVED, AS PER PLAN			176	
								162			162	625	75551	162	FT	DISTRIBUTION CABLE REMOVED, AS PER PLAN			180	
								5			5	625	75800	5	EACH	DISCONNECT CIRCUIT				
								2			2	625	75801	2	EACH	DISCONNECT CIRCUIT, AS PER PLAN			176	

LIGHTING GENERAL SUMMARY

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REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION		625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	
						CONNECTION, FUSED PULL APART	DISCONNECT CIRCUIT, AS PER PLAN	LIGHT POLE CONVENTIONAL, AT15B32.5, AS PER PLAN	LIGHT POLE REMOVED, AS PER PLAN	LIGHT POLE FOUNDATION REMOVED, AS PER PLAN	DISTRIBUTION CABLE REMOVED, AS PER PLAN	NO. 10 POLE AND BRACKET CABLE	LIGHT POLE REMOVED	REMOVE AND REERECT EXISTING LIGHT POLE	LIGHT POLE FOUNDATION REMOVED	DISCONNECT CIRCUIT	LIGHT POLE FOUNDATION, 24" X 6' DEEP, AS PER PLAN	GROUND ROD	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-II, LED, 14400-21500 LUMENS, 480 VOLT, AS PER PLAN		
						EACH	EACH	EACH	EACH	EACH	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
E17	187	LT	BROAD	413+93		2		1				116					1	1	1		
E16	187	LT	BROAD	414+97		2		1				116					1	1	1		
E15	187	LT	BROAD	416+16		2		1				116					1	1	1		
E14	187	LT	BROAD	417+01		2		1				116					1	1	1		
E13	187	LT	BROAD	417+83		2		1				116					1	1	1		
E10	188	LT	BROAD	418+93		2		1				116					1	1	1		
E9	188	LT	BROAD	419+57		2		1				116					1	1	1		
E4	188	LT	BROAD	420+78		2		1				116					1	1	1		
E3	188	LT	BROAD	421+05		2		1				116					1	1	1		
E2	188	LT	BROAD	422+16		2		1				116					1	1	1		
E1	189	LT	BROAD	423+08		2		1				116					1	1	1		
E24	187	RT	BROAD	413+06		2		1				116					1	1	1		
E23	187	RT	BROAD	414+08		2		1				116					1	1	1		
E22	187	RT	BROAD	415+02		2		1				116					1	1	1		
E21	187	RT	BROAD	415+78		2		1				116					1	1	1		
E20	187	RT	BROAD	416+84		2		1				116					1	1	1		
E19	187	RT	BROAD	417+87		2		1				116					1	1	1		
E12	188	RT	BROAD	418+85		2		1				116					1	1	1		
E11	188	RT	BROAD	419+20		2		1				116					1	1	1		
E8	188	RT	BROAD	420+23		2		1				116					1	1	1		
E7	188	RT	BROAD	420+61		2		1				116					1	1	1		
E6	188	RT	BROAD	421+74		2		1				116					1	1	1		
E5	188	RT	BROAD	422+80		2		1				116					1	1	1		
EX1	189	LT	BROAD	425+77		2								1	1		1	1			
EX2	189	LT	BROAD	426+72		2								1	1		1	1			
EX3	189	LT	BROAD	427+65												1					
EX4	188	LT	WILSON	1+09																	
EX5	188	RT	WILSON	2+15																	
EX6	188	LT	BROAD	421+00				1	1												
EX7	188	LT	BROAD	419+10				1	1												
EX8	188	LT	BROAD	389+22		2				162				1	1	1	1				
EX9	188	LT	BROAD	408+75									1								
EX10	188	LT	BROAD	409+92									1								
EX11	186	RT	BROAD	411+52									1								
EX12	188	RT	BROAD	419+00									1								
TOTALS CARRIED TO GENERAL SUMMARY						52	2	23	2	2	162	2668	4	3	5	5	26	26	23		

LIGHTING SUBSUMMARY	FRA - 40 - 7.00
CALCULATED EMH CHECKED LAS	179 242

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REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION		625	625	625	625	625	625	625	625	625	625	625	625	625	625	
						NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE FT	NO. 2/0 AWG 5000 VOLT DISTRIBUTION CABLE FT	CONDUIT, 3", 725.04 FT	CONDUIT, 2" 725.04 FT	CONDUIT, JACKED OR DRILLED, 725.04, 3" FT	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE, AS PER PLAN FT	TRENCH, 24" DEEP FT	TRENCH, 24" DEEP AS PER PLAN FT	CONDUIT, 2" 725.04, AS PER PLAN FT	PULL BOX, 725.08, 18" EACH	CONNECTION, UNFUSED PERMANENT EACH	CONNECTION, FUSED, PULL APART EACH	PULL BOX, MISC.: COLUMBUS SIZE 13" X 24" EACH	PULL BOX REMOVED EACH	
E39-E40	186	RT	BROAD	409+33	410+28	315			95											
E40-E41	186	RT	BROAD	410+28	411+32	342			104											
E41-E42	186	RT	BROAD	411+32	412+10	264			78											
E42-PB2	186	RT	BROAD	412+10	412+14	42			4											
PB2	186	RT	BROAD	412+14									1	3						
PB2-PB1	186	RT/LT	BROAD	412+14	412+18	363				III										
PB2-E24	186-187	RT	BROAD	412+14	413+06	324		98				98								
E24-E23	187	RT	BROAD	413+06	414+08	336			102			102								
E23-E22	187	RT	BROAD	414+08	415+02	312			94			94								
E22-E21	187	RT	BROAD	415+02	415+78	258			76			76								
E21-E20	187	RT	BROAD	415+78	416+84	348		106				106								
E20-E19	187	RT	BROAD	416+84	417+87	339			103			103								
E19-E12	187-188	RT	BROAD	417+87	418+85	321			97			97								
E12-E11	188	RT	BROAD	418+85	419+20	156			42			42								
E11-PB3	188	RT	BROAD	419+20	419+20	69			13			13								
PB3	188	RT	BROAD	419+20									1							
PB3-PB4	188	RT	BROAD	419+20	420+20	330			100											
PB4	188	RT	BROAD	420+20									1							
PB4-E8	188	RT	BROAD	420+20	420+22	45			5			5								
E8-E7	188	RT	BROAD	420+23	420+61	186			52			52								
E7-E6	188	RT	BROAD	420+61	421+74	369			113			113								
E6-E5	188	RT	BROAD	421+74	422+80	348			106			106								
PB1-E18	186-187	LT	BROAD	412+18	413+25	351		107				107								
E18-E17	187	LT	BROAD	413+25	413+93	234			68			68								
E17-E16	187	LT	BROAD	413+93	414+97	342		104				104								
E16-E15	187	LT	BROAD	414+97	416+16	387			119			119								
E15-E14	187	LT	BROAD	416+16	417+01	291			87			87								
E14-E13	187-188	LT	BROAD	417+01	418+08	351			107			107								
E13-E10	188	LT	BROAD	418+08	418+93	285			85			85								
E10-E9	188	LT	BROAD	418+93	419+57	231			65			65								
E9-PB5	188	LT	BROAD	419+57	419+84	147			39			39								
PB5	188	LT	BROAD	419+84									1							
PB5-PB6	188	LT	BROAD	419+84	420+77	309		III												
PB6	188	LT	BROAD	420+77									1							
PB6-E4	188	LT	BROAD	420+77	420+78	66			12			12								
E4-E3	188	LT	BROAD	420+78	421+05	144			38			38								
E3-E2	188	LT	BROAD	421+05	422+16	363			111			111								
E2-E1	188-189	LT	BROAD	422+16	423+08	306			92			92								
EX1-EX2	189	LT	BROAD	425+77	426+72					243		71	71							
EX2-PB7	189	LT	BROAD	426+49	426+50					48		6	6							
PB7	189	LT	BROAD	426+50														1		
PB7-EX3	189	LT	BROAD	426+50	427+65				375			100	100				3			
PB8	189	LT	BROAD	426+77															1	
PP-PB9	186	LT	BROAD	409+80	411+60			99	23			23								
PB9	186	LT	BROAD	411+60										1						
PB9-CC	186	LT	BROAD	411+60	412+26			III	27			27								
TOTALS CARRIED TO GENERAL SUMMARY						8874	210	576	1907	211	666	2372	177	177	6	3	3	1	1	

CALCULATED EMH CHECKED LAS	LIGHTING SUBSUMMARY	FRA-40-7.00	181 242
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DISCONNECT EX. CIRCUIT, EX4 CKT#213
DOP POLE #223351
EX POLE AND LUMINAIRE TO REMAIN
PROP. 18" PULLBOX, Pb5
STA. 419+84, 112' LT.

DISCONNECT EX. CIRCUIT EX5
CKT #213 #233348
DOP POLE AND LUMINAIRE TO REMAIN

PROP. 2" CONDUIT TRENCH,
39'

STA. 419+57, 84' LT., E9
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
65'

REMOVE EX. LIGHT POLE EX7
AND FOUNDATION
MIS-900 MIS-902 #223350 CKT#213

STA. 418+93, 70.5' LT., E10
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V
PROP. 2" CONDUIT TRENCH,
85'

STA. 418+08, 71' LT., E13
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 3" CONDUIT TRENCH,
93', JACKED OR DRILLED

PROP. 18" PULLBOX, Pb6
STA. 420+77, 111' LT.

PROP. 2" CONDUIT TRENCH,
12'

STA. 420+78, 99' LT., E4
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
38'

STA. 421+05, 72' LT., E3
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

REMOVE EX. LIGHT POLE EX6
AND FOUNDATION
#223349 CKT #213 MIS 900, MIS 902

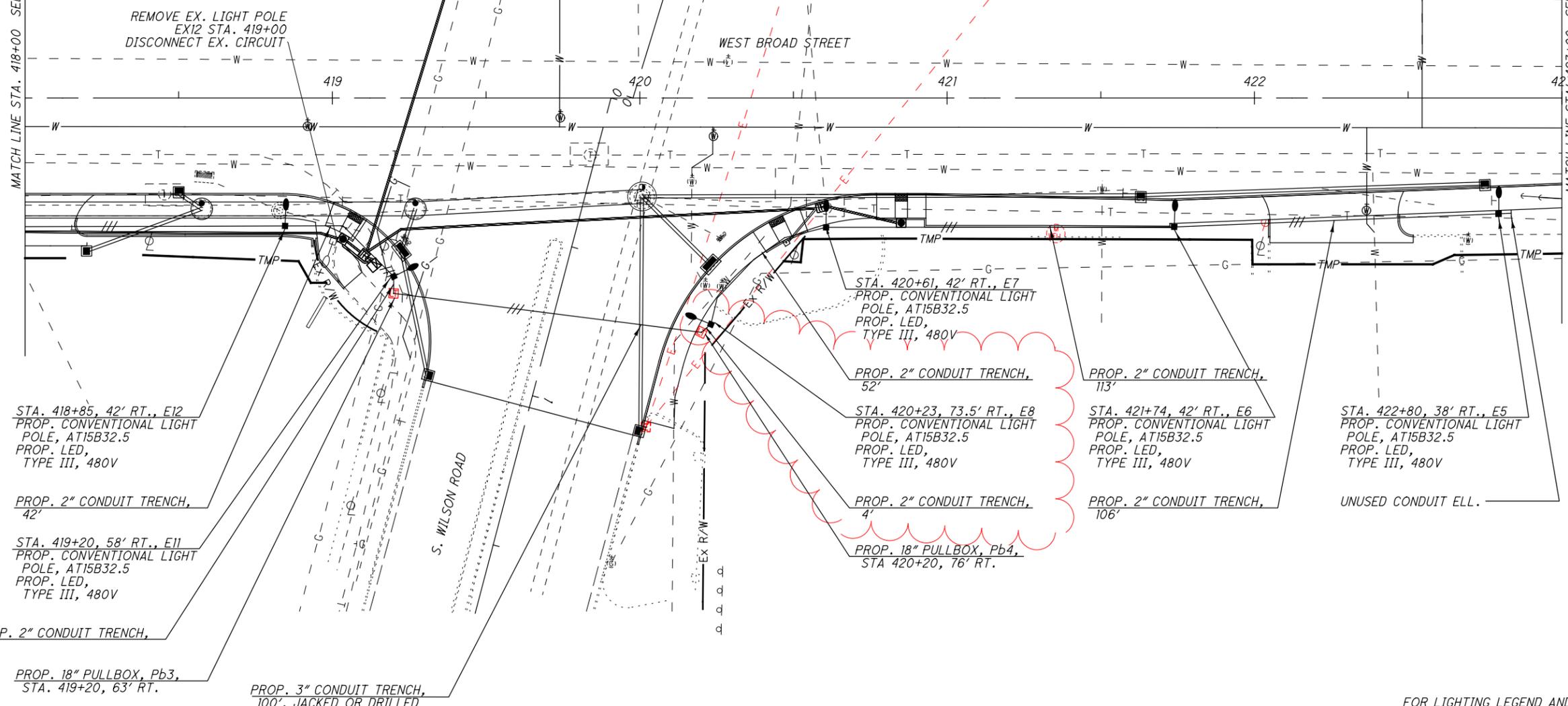
PROP. 2" CONDUIT TRENCH,
111'

STA. 422+16, 68' LT., E2
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
92'

MATCH LINE STA. 418+00 SEE SHEET 187

MATCH LINE STA. 423+00 SEE SHEET 189



STA. 418+85, 42' RT., E12
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
42'

STA. 419+20, 58' RT., E11
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
6'

PROP. 18" PULLBOX, Pb3,
STA. 419+20, 63' RT.

PROP. 3" CONDUIT TRENCH,
100', JACKED OR DRILLED

STA. 420+61, 42' RT., E7
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
52'

STA. 420+23, 73.5' RT., E8
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
4'

PROP. 18" PULLBOX, Pb4,
STA. 420+20, 76' RT.

PROP. 2" CONDUIT TRENCH,
113'

STA. 421+74, 42' RT., E6
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

PROP. 2" CONDUIT TRENCH,
106'

STA. 422+80, 38' RT., E5
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

UNUSED CONDUIT ELL.



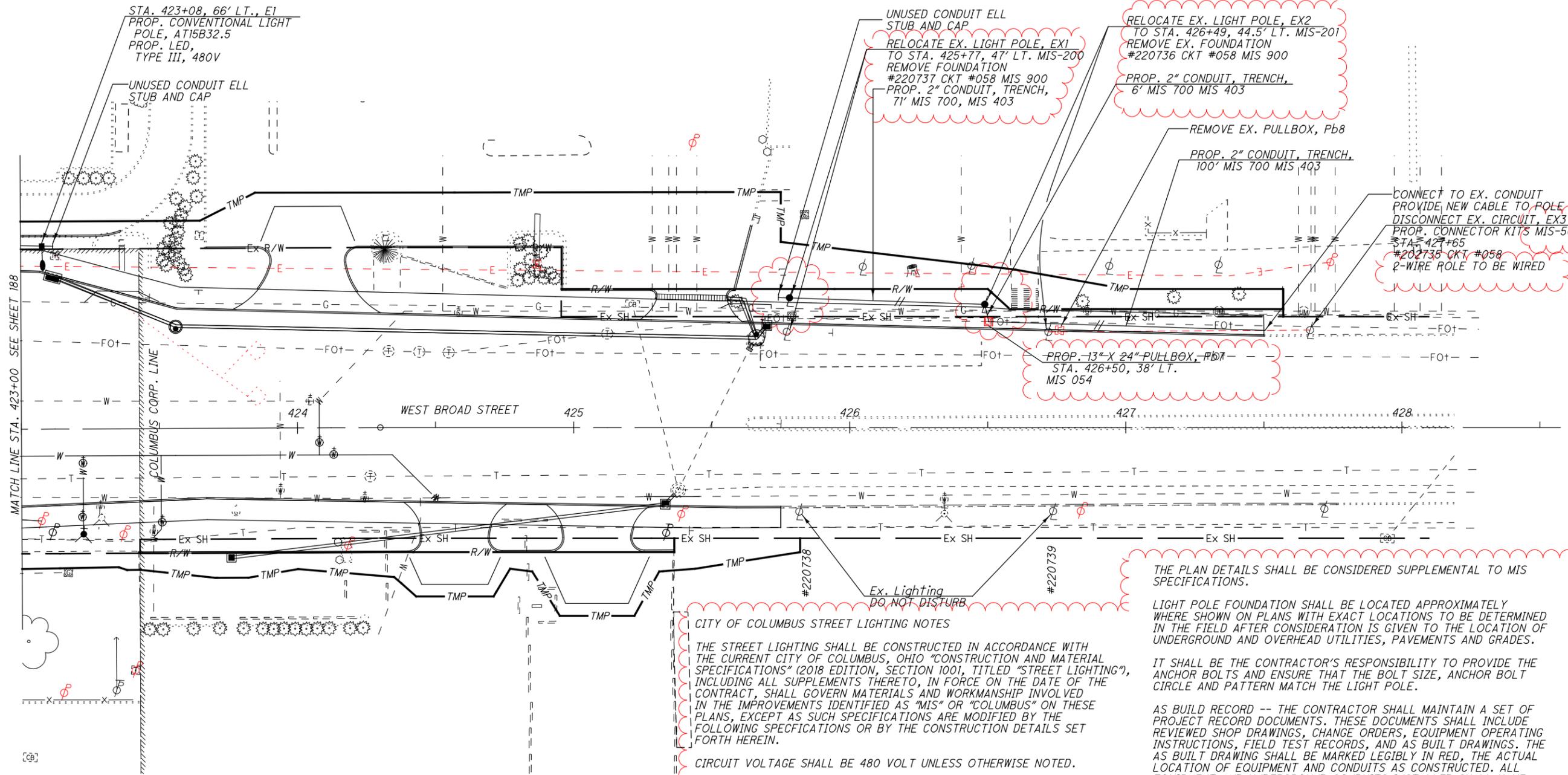
CALCULATED
EMH
CHECKED
LAS

LIGHTING PLAN
STA. 418+00 TO STA. 423+00

FRA-40-7.00

FOR LIGHTING LEGEND AND LIGHT POLE
DESIGN NUMBER REFERENCE SEE SHEET 182.

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MATCH LINE STA. 423+00 SEE SHEET 188

STA. 423+08, 66' LT., E1
PROP. CONVENTIONAL LIGHT
POLE, AT15B32.5
PROP. LED,
TYPE III, 480V

UNUSED CONDUIT ELL
STUB AND CAP

UNUSED CONDUIT ELL
STUB AND CAP
RELOCATE EX. LIGHT POLE, EX1
TO STA. 425+77, 47' LT. MIS-200
REMOVE FOUNDATION
#220737 CKT #058 MIS 900
PROP. 2" CONDUIT, TRENCH,
71' MIS 700, MIS 403

RELOCATE EX. LIGHT POLE, EX2
TO STA. 426+49, 44.5' LT. MIS-201
REMOVE EX. FOUNDATION
#220736 CKT #058 MIS 900
PROP. 2" CONDUIT, TRENCH,
6' MIS 700 MIS 403

REMOVE EX. PULLBOX, Pb8
PROP. 2" CONDUIT, TRENCH,
100' MIS 700 MIS 403

CONNECT TO EX. CONDUIT
PROVIDE NEW CABLE TO POLE EX3
DISCONNECT EX. CIRCUIT, EX3
PROP. CONNECTOR KITS MIS-500
STA. 427+65
#202735 CKT #058
2-WIRE POLE TO BE WIRED

PROP. 13" X 24" PULLBOX, Pb7
STA. 426+50, 38' LT.
MIS 054

WEST BROAD STREET

THE PLAN DETAILS SHALL BE CONSIDERED SUPPLEMENTAL TO MIS SPECIFICATIONS.

LIGHT POLE FOUNDATION SHALL BE LOCATED APPROXIMATELY WHERE SHOWN ON PLANS WITH EXACT LOCATIONS TO BE DETERMINED IN THE FIELD AFTER CONSIDERATION IS GIVEN TO THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES, PAVEMENTS AND GRADES.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE ANCHOR BOLTS AND ENSURE THAT THE BOLT SIZE, ANCHOR BOLT CIRCLE AND PATTERN MATCH THE LIGHT POLE.

AS BUILT RECORD -- THE CONTRACTOR SHALL MAINTAIN A SET OF PROJECT RECORD DOCUMENTS. THESE DOCUMENTS SHALL INCLUDE REVIEWED SHOP DRAWINGS, CHANGE ORDERS, EQUIPMENT OPERATING INSTRUCTIONS, FIELD TEST RECORDS, AND AS BUILT DRAWINGS. THE AS BUILT DRAWING SHALL BE MARKED LEGIBLY IN RED. THE ACTUAL LOCATION OF EQUIPMENT AND CONDUITS AS CONSTRUCTED. ALL EQUIPMENT AND UNDERGROUND CONDUITS INSTALLED SHALL HAVE LOCATIONS MARKED IN DISTANCES OFF A LANDMARK AT LEAST EVERY 25 FEET AND AS NECESSARY AT BENDS FOR LOCATION AT A LATER DATE.

ALL ITEMS OF WORK CALLED FOR ON THE PLANS, FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED, SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF THESE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS. THIS INCLUDES, BUT IS NOT LIMITED TO, SUCH INCIDENTAL ITEMS AS RELOCATION OF MAIL BOXES, SAW CUTTING AND REMOVAL AND/OR RELOCATION OF SIGNS, RAILROAD TIES, SPRINKLERS, RELOCATING ROOF OR SUMP DRAINS AROUND LIGHT POLE FOUNDATIONS, HAND DIGGING AROUND UNDERGROUND UTILITIES OR OTHER MISCELLANEOUS ITEMS.

PRIOR TO ANY PAINTING, THE CONTRACTOR SHALL SUBMIT PAINT SAMPLES AND SHOP DRAWINGS TO THE CITY OF COLUMBUS. PAINT SAMPLES SHALL BE REPRESENTATIVE OF THE COLOR, TYPE AND MANUFACTURE THAT WILL BE USED FOR LIGHT POLE.

CITY OF COLUMBUS STREET LIGHTING NOTES
THE STREET LIGHTING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS, OHIO "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (2018 EDITION, SECTION 1001, TITLED "STREET LIGHTING"), INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT, SHALL GOVERN MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS IDENTIFIED AS "MIS" OR "COLUMBUS" ON THESE PLANS, EXCEPT AS SUCH SPECIFICATIONS ARE MODIFIED BY THE FOLLOWING SPECIFICATIONS OR BY THE CONSTRUCTION DETAILS SET FORTH HEREIN.

CIRCUIT VOLTAGE SHALL BE 480 VOLT UNLESS OTHERWISE NOTED.

CENTERLINE OF LIGHT POLE FOUNDATION AND CONDUIT TRENCH TO BE PLACED IN ACCORDANCE WITH THE PLAN DETAILS.

ALL PROPOSED LUMINAIRES SHALL BE 3000K LED.

NO SPLICE SHALL BE MADE TO CIRCUIT CABLES EXCEPT AT NOTED LOCATIONS WHEN PERMITTED.

TRENCH LOCATION SHALL BE DEFLECTED AROUND OBSTACLES AS NOTED IN THIS PLAN.

WHERE THE TRENCH IS OFFSET FROM THE CENTERLINE OF THE FOUNDATIONS, THE CONDUIT SHALL BE DIRECTED TOWARD THE ELL OF THE FOUNDATION AT APPROXIMATELY 45 DEGREE ANGLE. THE FOUNDATION ELLS MAY BE AIMED OUT OF FOUNDATION AT APPROXIMATELY 45 DEGREE ANGLES TO FACILITATE CONNECTION TO CONDUIT WITH THE LEAST AMOUNT OF BENDS.

FOR LIGHTING LEGEND AND LIGHT POLE DESIGN NUMBER REFERENCE SEE SHEET 182.



CALCULATED
EMH
CHECKED
LAS

LIGHTING PLAN
STA. 423+00 TO STA. 428+00

FRA-40-7.00

189
242