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SHEET NUM.																PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE
42	54	237	238	239	240	241	242	243	244	245	687	743	748	749	751	01/IMS/PV	EXT	TOTAL			SHEET	
DRAINAGE (CONT.)																						
		3	2	3	3											26	602	20000	26	CY	CONCRETE MASONRY	
										6,026			2	12	1	6,026	605	06000	6,026	FT	4" BASE PIPE UNDERDRAINS	
						11,284	9,317	10,996	10,112							41,709	605	11100	41,709	FT	6" SHALLOW PIPE UNDERDRAINS	
20						609	907	35	33							1,604	605	13300	1,604	FT	6" UNCLASSIFIED PIPE UNDERDRAINS	
																29,442	605	14000	29,442	FT	6" BASE PIPE UNDERDRAINS	
20						9,507	5,199	6,884	7,852							20	605	31100	20	FT	AGGREGATE DRAINS	
																17	611	00410	17	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
						683	343	462	377							1,865	611	00510	1,865	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
20																20	611	01500	20	FT	6" CONDUIT, TYPE F	
																43	611	04200	43	FT	12" CONDUIT, TYPE A	
	68				1,003											1,071	611	04400	1,071	FT	12" CONDUIT, TYPE B	
				520												520	611	04600	520	FT	12" CONDUIT, TYPE C	
		569	1,859	274	149											2,851	611	05900	2,851	FT	15" CONDUIT, TYPE B	
			60													60	611	05900	60	FT	15" CONDUIT, TYPE B, 706.02 WITH PREMIUM JOINTS	
		57														57	611	06700	57	FT	15" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	
		715	684		567											1,966	611	07400	1,966	FT	18" CONDUIT, TYPE B	
			62													62	611	07400	62	FT	18" CONDUIT, TYPE B, 706.02 WITH PREMIUM JOINTS	
		13													48	61	611	07600	61	FT	18" CONDUIT, TYPE C	
		60														60	611	08200	60	FT	18" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	
		48	276		156											480	611	08900	480	FT	21" CONDUIT, TYPE B	
		89	106	83												278	611	10400	278	FT	24" CONDUIT, TYPE B	
			220													220	611	10401	220	FT	24" CONDUIT, TYPE B, AS PER PLAN, 706.02, WITH NONSHRINK, NONMETALLIC GROUT	
			446	36												482	611	10600	482	FT	24" CONDUIT, TYPE C	
		50														50	611	11200	50	FT	24" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	
		58	90													148	611	11900	148	FT	27" CONDUIT, TYPE B	
			14													14	611	12100	14	FT	27" CONDUIT, TYPE C	
			51													51	611	12100	51	FT	27" CONDUIT, TYPE C, 706.02 WITH PREMIUM JOINTS	
			561	281												842	611	13400	842	FT	30" CONDUIT, TYPE B	
				33												33	611	13600	33	FT	30" CONDUIT, TYPE C	
		958	568													1,526	611	16400	1,526	FT	36" CONDUIT, TYPE B	
		462														462	611	16600	462	FT	36" CONDUIT, TYPE C	
													148			148	611	19200	148	FT	42" CONDUIT, TYPE A, 706.02, 707.02 ALUMINIZED, 707.04, 707.33 WITH WELDED BELL	
														195		195	611	20700	195	FT	48" CONDUIT, TYPE A, 706.02, 707.01 ALUMINIZED, 707.04, 707.33 WITH WELDED BELL	
		5														5	611	21100	5	FT	48" CONDUIT, TYPE C	
		501	1,462													1,963	611	22600	1,963	FT	54" CONDUIT, TYPE C	
			30													30	611	24000	30	FT	60" CONDUIT, TYPE C	
					1,430											1,430	611	26200	1,430	FT	72" CONDUIT, TYPE B	
		162														162	611	26200	162	FT	72" CONDUIT, TYPE B, 706.02 WITH PREMIUM JOINTS, 706.11	
		10														10	611	28200	10	FT	84" CONDUIT, TYPE B	
		160														160	611	52904	160	FT	34" X 53" CONDUIT, TYPE C, 706.04	
									22							22	611	94938	22	FT	9' X 5' CONDUIT, TYPE A, 706.05	
					7											7	611	98151	7	EACH	CATCH BASIN, NO. 3, AS PER PLAN	
					28											28	611	98181	28	EACH	CATCH BASIN, NO. 3A, AS PER PLAN	
		2														2	611	98341	2	EACH	CATCH BASIN, NO. 5A	
		6	5	16												27	611	98410	27	EACH	CATCH BASIN, NO. 8	
		1	3													4	611	98434	4	EACH	CATCH BASIN, NO. 8A	
		4	13	4												21	611	99104	21	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	
		5	12													17	611	99114	17	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE D	
			1													1	611	99115	1	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE D, AS PER PLAN	
		14	16	3	21											54	611	99574	54	EACH	MANHOLE, NO. 3	
					1											1	611	99575	1	EACH	MANHOLE, NO. 3, AS PER PLAN	
		1														1	611	99600	1	EACH	MANHOLE, NO. 4	
4						11		5	5							25	611	99710	25	EACH	PRECAST REINFORCED CONCRETE OUTLET	
															1	1	611	99854	1	EACH	WATER QUALITY BASIN, DETENTION	

GENERAL SUMMARY

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SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		42	213	214	215	234	778	785	804	832	01/IMS/PV	02/IMS/BR							
PAVEMENT																			
						19,734					19,734		254	01000	19,734	SY	PAVEMENT PLANING, ASPHALT CONCRETE, VARIABLE DEPTH		
						19,597					19,597		255	20001	19,597	FT	FULL DEPTH PAVEMENT SAWING, AS PER PLAN	43	
						19,324					19,324		301	46000	19,324	CY	ASPHALT CONCRETE BASE, PG64-22		
						10,204					10,204		302	46000	10,204	CY	ASPHALT CONCRETE BASE, PG64-22.		
						24,583					24,583		304	20000	24,583	CY	AGGREGATE BASE		
						7,225					7,225		305	12010	7,225	SY	8" CONCRETE BASE, CLASS QC 1P		
						24,051					24,051		407	20000	24,051	GAL	NON-TRACKING TACK COAT		
						45					45		441	50400	45	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)		
						60					60		441	50600	60	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448), (DRIVEWAYS)		
						5,715					5,715		442	00100	5,715	CY	ANTI-SEGREGATION EQUIPMENT		
						2,127					2,127		442	10001	2,127	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M	43	
						5,624					5,624		442	10100	5,624	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446)		
						2,173					2,173		442	10301	2,173	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447), AS PER PLAN	43	
						407					407		442	20000	407	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448)		
						407					407		442	20200	407	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448)		
						99					99		452	12010	99	SY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P		
						10,247					10,247		452	13010	10,247	SY	9" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P		
		3.25									3.25		618	40600	3.25	MILE	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)		
						74					74		875	10000	74	LB	LONGITUDINAL JOINT ADHESIVE		
WATER WORK																			
								86			86		SPECIAL	63820040	86	FT	6" WATER MAIN DIP CLASS 52 MECHANICAL JOINTS AND FITTINGS (COL. 801)		
								17			17		SPECIAL	63820080	17	FT	8" WATER MAIN DIP CLASS 52 MECHANICAL JOINTS AND FITTINGS (COL. 801)		
								2,712			2,712		SPECIAL	63820168	2,712	FT	12" WATER MAIN DIP CLASS 52 MECHANICAL JOINTS AND FITTINGS (COL. 801)		
								398			398		SPECIAL	63820464	398	FT	24" STEEL PIPE ENCASEMENT, BORED OR JACKED (COL. 806)		
								10			10		638	98000	10	EACH	WATER WORK, MISC.+6" WATCH VALVE WITH VALVE BOX (COL. 802)	783	
								2			2		SPECIAL	63820554	2	EACH	8" GATE VALVE WITH VALVE BOX (COL. 802)		
								6			6		SPECIAL	63820586	6	EACH	12" GATE VALVE WITH VALVE BOX (COL. 802)		
								10			10		SPECIAL	63820750	10	EACH	6" FIRE HYDRANT (COL. 809)		
								1			1		SPECIAL	63821400	1	EACH	FIRE HYDRANT ADJUSTED TO GRADE (COL. 810)		
SANITARY SEWER																			
							498				498		611	03100	498	FT	10" CONDUIT, TYPE B		
							2				2		611	99574	2	EACH	MANHOLE, NO. 3 (SANITARY)		
							2				2		611	99654	2	EACH	MANHOLE ADJUSTED TO GRADE (SANITARY)		
							406				406		SPECIAL	63820464	406	FT	24" STEEL PIPE ENCASEMENT, BORED OR JACKED (COL. 806)		
LIGHTING																			
																		FOR LIGHTING ESTIMATED QUANTITIES, SEE SHEET 940	
TRAFFIC CONTROL																			
			55	15							70		626	00102	70	EACH	BARRIER REFLECTOR, TYPE 1, ONE-WAY		
			55	238	15						237	71	626	00102	308	EACH	BARRIER REFLECTOR, TYPE 1, BI-DIRECTIONAL		
			9								9		626	00110	9	EACH	BARRIER REFLECTOR, TYPE 2, ONE-WAY		
			29	101	16						146		626	00110	146	EACH	BARRIER REFLECTOR, TYPE 2, BI-DIRECTIONAL		
					1						1		626	00118	1	EACH	BARRIER REFLECTOR, TYPE 6, BI-DIRECTIONAL		
																		FOR SIGNING ESTIMATED QUANTITIES, SEE SHEET 850A	
																		FOR PAVEMENT MARKING ESTIMATED QUANTITIES, SEE SHEET 850A	
TRAFFIC SIGNALS																			
																		FOR TRAFFIC SIGNAL & ITS ESTIMATED QUANTITIES, SEE SHEET 927	
RETAINING WALLS																			
																		FOR RETAINING WALL I ESTIMATED QUANTITIES, SEE SHEET 755	
																		FOR RETAINING WALL J ESTIMATED QUANTITIES, SEE SHEET 764	
																		FOR RETAINING WALL K ESTIMATED QUANTITIES, SEE SHEET 769 & 775	
																		FOR RETAINING WALL B ESTIMATED QUANTITIES, SEE SHEET 1139	
																		FOR RETAINING WALL G-H ESTIMATED QUANTITIES, SEE SHEET 1140	
NOISE BARRIERS																			
									79,340	21,400	100,740		SPECIAL	60610210	100,740	SF	NOISE BARRIER (REFLECTIVE)	799 & 831	

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GENERAL SUMMARY

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SHEET NO.	REFERENCE NO.	STATION TO STATION		SIDE	602	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	611	
		FROM	TO		CONCRETE MASONRY	15" CONDUIT, TYPE B	15" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	18" CONDUIT, TYPE B	18" CONDUIT, TYPE C	18" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	21" CONDUIT, TYPE B	24" CONDUIT, TYPE B	24" CONDUIT, TYPE F, 707.05 TYPE C, 707.21	27" CONDUIT, TYPE B	36" CONDUIT, TYPE B	36" CONDUIT, TYPE C	48" CONDUIT, TYPE C	54" CONDUIT, TYPE C	72" CONDUIT, TYPE B, 706.02 W/ PREMIUM JOINTS, 706.11	84" CONDUIT, TYPE B	34"X33" CONDUIT, TYPE C, 706.04	CATCH BASIN, NO. 8	CATCH BASIN, NO. 8A	CATCH BASIN, NO. 5A	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE D	MANHOLE, NO. 3	MANHOLE, NO. 4	
					CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EA	EA	EA	EA	EA	EA	EA	EA	EA
		IR-70																											
705	D501	534+56.89	534+06.44	RT	0.66															55									1
705	D502	535+60.20	534+56.89	RT																105	1								1
705	D154	535+94.86	535+60.20	RT				118																					1
705	D503	536+82.61	535+60.20	RT												124					1								1
705	D507	536+82.61	536+83.52	RT											20														1
705	D950	537+60.00	537+59.97	RT																									
705	D155	537+59.97	535+94.86	RT				165													1								1
705	D504	538+37.11	536+82.61	RT																	1								
705	D505	539+97.03	538+37.11	RT												158					1								
705	D506	542+96.94	539+97.03	RT											300						1								
705	D105	544+15.98	544+15.98	RT	0.02														162										2
707	D104	545+96.38	542+96.94	RT	0.01	5										300													1
707	D103	548+77.89	545+96.38	RT												282													1
709	D85	561+96.03	561+96.03	RT																									1
709	D84	562+15.02	561+96.03	RT				19												10				1					1
709	D113	564+10.80	562+10.80	RT																									1
709	D83	565+50.00	565+50.00	RT																				1					1
		IR-270																											
716	D203	977+88.96	978+54.42	RT																									
716	D700	978+32.73	978+54.42	RT	0.43	41										76									1				
716	D202	978+54.42	979+38.83	RT																									1
716	D183	979+79.06	980+02.00	RT																									1
716	D184	980+02.00	980+50.00	RT												48													1
716	D181	980+50.00	980+50.02	RT																									1
716	D182	980+50.02	980+50.02	RT	0.43																								
716	D180	981+28.45	980+50.00	RT																									1
716	D178	982+14.23	981+28.45	RT																									1
717	D176	988+00.00	980+00.00	RT																									1
717	D177	988+00.00	980+00.00	RT	0.25																								
717	D175A	989+30.86	989+30.86	RT																									1
717	D175C	989+30.86	989+30.86	RT	0.31																								
721	D156	1047+93.66	1050+09.50	LT																									1
721	D149	1050+09.50	1052+03.72	LT																									1
721	D153	1047+02.21	1051+92.08	LT																									1
721	D150	1052+03.72	1052+06.52	LT	0.03											58													1
721	D151	1052+06.52	1051+92.08	LT																									1
722	D152	1057+00.00	1057+00.00	LT	0.06																								
TOTALS CARRIED TO GENERAL SUMMARY					2.2	569	57	715	13	60	48	89	50	58	958	462	5	501	162	10	160	6	1	2	4	5	14	1	

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DRAINAGE SUBSUMMARY

FRA-70-22.61

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SHEET NO.	REFERENCE NO.	STATION TO STATION		SIDE	602	611	611	611	611	611	611	611	611	611
		FROM	TO		CONCRETE MASONRY CY	12" CONDUIT, TYPE C FT	15" CONDUIT, TYPE B FT	24" CONDUIT, TYPE B FT	24" CONDUIT, TYPE C FT	30" CONDUIT, TYPE B FT	30" CONDUIT, TYPE C FT	CATCH BASIN, NO. 8 EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C EACH	MANHOLE, NO. 3 EACH
RAMP G1														
710	D215	8582+94.10	8583+52.00	LT			42							1
710	D216	8583+52.00	8581+91.00	LT			103							1
710	D214	8583+54.34	8584+39.06	LT			60							1
710	D236	8584+39.06	8584+39.06	RT	0.43									
710	D213	8584+55.06	8584+82.35	RT			5	83						1
710	D212	8584+82.35	8588+94.40	LT			64							1
710	D224	8588+94.40	8588+94.40	RT	0.56									
710	D223	8588+94.62	8591+70.76	RT					5	33				1
711	D222	8591+70.76	8588+94.62	RT					276					1
711	D221	8592+00.00	8591+70.76	RT				36			1			
NOISE WALL A1														
722	D400	11+39.00	11+39.00	RT			10						1	
722	D401	11+39.00	11+39.00	LT			67						1	
722	D405	11+39.00	11+39.00	LT	0.20									
721	D402	19+00.00	19+00.00	RT			10						1	
721	D403	19+00.00	19+00.00	LT			72						1	
721	D404	19+00.00	19+00.00	LT	0.20									
721	D406	22+15.77	22+15.77	RT			10						1	
721	D407	22+15.77	22+15.77	LT			42						1	
720	D408	26+91.50	26+97.50	RT			24						1	
720	D409	36+54.47	36+54.47	RT			55						1	
720	D418	36+54.47	36+54.47	LT	0.20									
715	D410	41+24.14	41+24.14	RT			32						1	
715	D411	47+50.00	47+50.00	RT			10						1	
715	D412	47+50.00	47+50.00	LT			33						1	
715	D419	47+50.00	47+50.00	LT	0.20									
703	D413	51+00.00	51+00.00	RT			36						1	
703	D420	51+00.00	51+00.00	LT	0.20									
703	D414	54+00.00	54+00.00	RT			55						1	
703	D421	54+00.00	54+00.00	LT	0.20									
703	D415	58+50.00	58+50.00	RT			10						1	
703	D416	58+50.00	58+50.00	LT			54							
703	D417	58+50.00	58+50.00	LT	0.20								1	
TOTALS CARRIED TO GENERAL SUMMARY					2.40	520	274	83	36	281	33	16	4	3

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DRAINAGE SUBSUMMARY

FRA -70-22.61

SPECIAL - 24" STEEL PIPE ENCASEMENT,

BORED OR JACKED (COL. 806)

THE CONTRACTOR SHALL FURNISH AND INSTALL CASING PIPE PER THE REQUIREMENTS OF CITY OF COLUMBUS (COC) CMS ITEM 806.

BASIS OF PAYMENT

THE CITY WILL PAY THE UNIT PRICE BID PER LINEAR FOOT AND WILL CONSIDER PAYMENT TO INCLUDE THE FURNISHING AND PLACING OF THE CASING PIPE, TOGETHER WITH ALL EXCAVATING, CASING SPACERS, END SEALS, ALL TYPES OF PUMPING, CONCRETE SUPPORTS, PITS AND OPENINGS, REMOVAL AND DISPOSAL OF WATER IN ACCORDANCE WITH COC CMS 901.16, FURNISHING OF ALL SIGNALERS AND INSPECTORS, TOGETHER WITH ALL LABOR, TOOLS, MATERIAL, EQUIPMENT AND APPURTENANCES REQUIRED TO COMPLETE THE ENCASEMENT IN GOOD AND ACCEPTABLE CONDITION. THE CITY WILL MAKE THIS PAYMENT IN ADDITION TO THE PRICE BID FOR THE LAYING OF THE WATER MAIN (CARRIER PIPE) IN ORDINARY EXCAVATION.

ESTIMATED QUANTITIES - SANITARY SEWER								
REF. NO.	SHEET NO.	STATION		SIDE	611	638	611	611
					10" CONDUIT, TYPE B	SPECIAL - 24" STEEL PIPE ENCASEMENT, BORED OR JACKED (COL. 806)	MANHOLE, ADJUSTED TO GRADE (SANITARY)	MANHOLE NO. 3 (SANITARY)
		FROM	TO		FT	FT	EACH	EACH
SA-1	779	300+35.92	300+67.08	€	31.16		1	
SA-2	779	300+67.08	305+12.15	€	445.07			1
SA-3	779	305+12.15	305+34.32	€	22.17			1
SA-4	779	305+34.32		€			1	
SA-5	779	301+04.00	305+09.62	€		406		
TOTALS CARRIED TO GENERAL SUMMARY					498	406	2	2

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SANITARY SEWER ESTIMATED QUANTITIES

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EXISTING UTILITIES

THE IDENTITY AND LOCATION OF THE EXISTING UTILITY FACILITIES KNOWN TO BE LOCATED IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE PLANS AS ACCURATELY AS PROVIDED BY THE OWNER OF THE UNDERGROUND UTILITY. THE CITY OF COLUMBUS AND/OR THE ENGINEER ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR THE DEPTHS OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, PRIOR TO CONSTRUCTION, TO DETERMINE IN THE FIELD THE ACTUAL LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE PLAN OR NOT.

FOR PROJECTS INCLUDING THE INSTALLATION OF 20-INCH OR LARGER DIAMETER WATER PIPE, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, DEPTH, AND MATERIAL TYPE OF ALL TIE-IN CONNECTIONS PRIOR TO ORDERING PIPE FROM THE SUPPLIER.

CONTRACTOR SHALL NOTIFY THE DIVISION OF WATER ENGINEER OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONSTRUCTION PLANS.

COST TO BE INCLUDED IN THE PRICE BID FOR THE VARIOUS WATER MAIN ITEMS.

THE CONTRACTOR SHALL CAUSE NOTICE TO BE GIVEN TO THE OHIO UTILITIES PROTECTION SERVICE (TELEPHONE 1800-362-2764 TOLL FREE). THE NOTICE SHALL BE GIVEN AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.

THE CONTRACTOR SHALL EXPOSE ALL EXISTING UNDERGROUND UTILITIES, SERVICES, AND STRUCTURES SUFFICIENTLY IN ADVANCE OF LAYING THE PROPOSED WATER MAIN IN ORDER TO VERIFY THE PROPOSED LOCATION, ELEVATION, SIZE, AND MATERIAL TYPE. COST TO BE INCLUDED IN THE PRICES BID FOR THE VARIOUS WATER MAIN ITEMS.

SPECIAL - 24" STEEL PIPE ENCASEMENT.

BORED OR JACKED (COL. 806)

THE CONTRACTOR SHALL FURNISH AND INSTALL CASING PIPE PER THE REQUIREMENTS OF CITY OF COLUMBUS (COC) CMSC ITEM 806. THE WATER MAIN SHALL BE PULLED, RATHER THAN PUSHED, THROUGH THE CASING PIPE.

BASIS OF PAYMENT

PAYMENT FOR CASING PIPE SHALL BE MADE AT THE UNIT PRICE BID FOR SPECIAL ITEM 638 - 24" STEEL PIPE ENCASEMENT, BORED OR JACKED (COL. 806) AND SHALL INCLUDE THE FURNISHING AND PLACING OF THE CASING PIPE, TOGETHER WITH ALL EXCAVATING, CASING SPACERS, END SEALS, ALL TYPES OF PUMPING, CONCRETE SUPPORTS, PITS AND OPENINGS, REMOVAL AND DISPOSAL OF WATER IN ACCORDANCE WITH COC CMS 901.16, FURNISHING OF ALL SIGNALERS AND INSPECTORS, TOGETHER WITH ALL LABOR, TOOLS, MATERIAL, EQUIPMENT AND APPURTENANCES REQUIRED TO COMPLETE THE ENCASEMENT IN GOOD AND ACCEPTABLE CONDITION.

GENERAL NOTES

1. THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, 2018 EDITION AND ALL REVISIONS, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN, UNLESS OTHERWISE NOTED.
2. ALL WATER MAIN MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT RULES AND REGULATIONS OF THE CITY OF COLUMBUS, DIVISION OF WATER. ALL CITY OF COLUMBUS, DIVISION OF WATER STANDARD DRAWINGS SHALL APPLY TO THE PROJECT, UNLESS OTHERWISE NOTED.
3. FOR ANY EMERGENCIES INVOLVING THE WATER DISTRIBUTION SYSTEM, PLEASE CONTACT THE DIVISION OF WATER DISTRIBUTION MAINTENANCE OFFICE AT 614-645-7788.
4. ALL BRASS FITTINGS ASSOCIATED WITH WATER WORK, INCLUDING REPAIRS TO THE EXISTING SYSTEM, SHALL CONFORM TO THE REVISED ALLOWABLE LEAD EXTRACTION LIMIT PER THE UPDATED NSF/ANSI 61 STANDARD. THE DIVISION OF WATER'S APPROVED MATERIALS LIST HAS BEEN UPDATED TO REFLECT THIS REQUIREMENT.
5. IT SHALL BE UNLAWFUL FOR ANY PERSON TO PERFORM ANY WORK ON CITY OF COLUMBUS WATER MAIN SYSTEMS WITHOUT FIRST SECURING LICENSE TO ENGAGE IN SUCH WORK, AS INDICATED IN COLUMBUS CITY CODE SECTION 1103.02 AND 1103.06. THIS WORK INCLUDES ANY ATTACHMENTS, ADDITIONS TO OR ALTERATIONS IN ANY CITY SERVICE PIPE OR APPURTENANCES (INCLUDING WATER SERVICE LINES AND TAPS). THIS REQUIREMENT MAY BE MET BY UTILIZATION OF A SUBCONTRACTOR WHO HOLDS A CITY OF COLUMBUS WATER CONTRACTOR LICENSE OR A COMBINED WATER/SEWER CONTRACTOR LICENSE TO PERFORM THIS WORK. UTILIZATION OF A SUBCONTRACTOR MUST MEET THE LICENSING REQUIREMENTS OF CITY OF COLUMBUS BUILDING CODE, IN PARTICULAR SECTION 4114.119 AND 4114.529.
6. THE CONTRACTOR SHALL OBTAIN THE PROPER HYDRANT PERMIT(S), AND PAY ANY APPLICABLE FEES, FOR ANY APPROVED HYDRANT USAGE DEEMED NECESSARY FOR WORK UNDER THIS IMPROVEMENT. PERMITS MAY BE OBTAINED THROUGH THE DIVISION OF WATER PERMIT OFFICE (645-7330). THE CONTRACTOR SHALL ADHERE TO ALL RULES & REGULATIONS GOVERNING SAID PERMIT AND MUST HAVE THE ORIGINAL PERMIT ON SITE ANYTIME IN WHICH THE HYDRANT IS IN USE. PERMITS MAY BE OBTAINED BY ACCESSING [HTTP://PORTAL.COLUMBUS.GOV/PERMITS/](http://portal.columbus.gov/permits/). COST TO BE INCLUDED IN THE VARIOUS BID ITEMS.
7. ALL WATER MAINS SHALL BE CLEANED AND FLUSHED, AND ANY WATER MAIN 12-INCH AND LARGER MUST BE PROPERLY PIGGED, IN ACCORDANCE WITH SECTION 801.13 OF THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS.
8. ALL WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH SECTION 801.14 OF THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE CITY MAY NOT APPROVE ANY TEST LASTING LESS THAN TWO HOURS, REGARDLESS OF THE AMOUNT OF LEAKAGE.
9. ALL WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 801.15 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS. SPECIAL ATTENTION IS DIRECTED TO APPLICABLE SECTIONS OF A.W.W.A. C-651. WHEN THE WATER MAINS ARE READY FOR DISINFECTION, THE INSPECTOR SHALL SUBMIT A WRITTEN REQUEST FOR CHLORINATION OF THE MAINS THAT NEED DISINFECTED, THREE (3) SETS OF "AS-BUILT" PLANS (FULL SIZE SHEETS ONLY), THE AS-BUILT SURVEY COORDINATES, WATER SERVICE REPORTS AND A PRESSURE TEST TO THE CITY OF COLUMBUS, DIVISION OF WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE DISINFECTION OF ALL WATER MAINS CONSTRUCTED UNDER THIS PLAN.

10. ANY SECTION OF WATER MAIN THAT IS LONGER THAN 20 FEET IN LENGTH SHALL BE CHLORINATED. HAND SWABBING METHODS WILL ONLY BE PERMITTED FOR SECTIONS LESS THAN OR EQUAL TO 20 FEET IN LENGTH. USE UNSCENTED HOUSEHOLD BLEACH FOR HAND SWABBING OF PIPE AND FITTINGS. PLEASE NOTE THAT CUT-IN-TEES, SLEEVES, AND ANY OTHER REQUIRED FITTINGS OR PIPING SHALL BE TAKEN INTO ACCOUNT AND ARE INCLUDED IN THE TOTAL LENGTH OF THE SECTION (CUT TO CUT).
11. ONLY ONE CONNECTION TO AN EXISTING WATER MAIN IS PERMITTED BEFORE DISINFECTION OF A NEW WATER MAIN HAS BEEN COMPLETED. ALL OTHER CONNECTIONS MUST BE MADE AFTER THE MAIN HAS BEEN DISINFECTED.
12. ALL WATER METERS ASSOCIATED WITH THIS PROJECT SHALL BE INSTALLED INSIDE THE PROPOSED STRUCTURE UNLESS A METER PIT IS APPROVED BY THE ADMINISTRATOR OF THE DIVISION OF WATER. ALL METER PITS MUST BE APPROVED PRIOR TO THE ISSUING OF ANY SERVICE PERMITS AND MUST CONFORM TO STANDARD DRAWING L-7103 FOR 5/8" THROUGH 1" METERS, OR L-6317 A, B, C, D, & E FOR 1-1/2" OR LARGER METERS.
13. NO WATER SERVICE CONNECTION PERMITS SHALL BE ISSUED OR CONNECTIONS MADE TO ANY WATER TAPS UNTIL WATER MAINS HAVE BEEN DISINFECTED BY THE CITY OF COLUMBUS, DIVISION OF WATER. WHEN A 3-INCH OR LARGER TAP IS TO OCCUR ON A 20-INCH OR LARGER WATER MAIN, THE CONTRACTOR SHALL NOTIFY THE DIVISION OF WATER OPERATIONS CONTROL CENTER AT (614)-645-7168 TWENTY-FOUR (24) HOURS IN ADVANCE OF PERFORMING THE TAP.
14. WHERE LONG WATER SERVICE LINE TRANSFERS ARE SPECIFIED, I.E., WATER SERVICE LINES ARE ON THE OPPOSITE SIDE OF THE STREET FROM THE PROPOSED WATER MAIN, THE TAPS SHALL BE INSTALLED BY TRENCHLESS METHODS UNLESS OTHERWISE APPROVED BY THE ENGINEER. WHEN WATER TAPS ARE INSTALLED BY TRENCHLESS METHODS AND CROSS AN EXISTING STORM AND/OR SANITARY SEWER, THE CONTRACTOR SHALL VERIFY THE CONDITION OF THE SEWER(S) BY VIDEO INSPECTION METHODS FOLLOWING THE TAP INSTALLATIONS. COSTS ASSOCIATED WITH THE VIDEO INSPECTION WORK SHALL BE INCLUDED IN THE COSTS OF THE BID ITEM FOR WATER SERVICE LINE TRANSFER OR WATER TAP INSTALLATION. FOR WATER SERVICE LINE TRANSFERS SPECIFIED AS SHORT, THE TAPS MAY BE INSTALLED BY OPEN-CUT METHODS. ALL WORK REQUIRED TO INSTALL THE WATER TAPS AND PERFORM THE WATER SERVICE LINE TRANSFERS SHALL REMAIN WITHIN THE RIGHT-OF-WAY. THE CONTRACTOR SHALL FLUSH EACH WATER TAP PRIOR TO MAKING THE SERVICE LINE TRANSFER.
15. WATER SERVICE BOXES SHALL BE PLACED 1' FROM THE EDGE OF THE PROPOSED OR EXISTING SIDEWALK BETWEEN THE SIDEWALK AND THE CURB, OR 2 FEET INSIDE THE RIGHT-OF-WAY OR EASEMENT LINE WHEN NO SIDEWALK IS PRESENT OR PROPOSED. REFER TO STANDARD DRAWING L-9901 FOR ADDITIONAL INFORMATION.
16. WHEN PERFORMING WATER SERVICE LINE TRANSFERS, THE CONTRACTOR SHALL FLUSH THE WATER TAP PRIOR TO CONNECTING TO THE EXISTING SERVICE LINE.
17. ALL FIRE HYDRANTS TO BE INSTALLED IN THE CITY OF COLUMBUS SHALL BE PAINTED WITH THE COLOR "SAFETY ORANGE". THE FIRE HYDRANTS SHALL BE PROVIDED WITH TWO COATS IN A GLOSS ENAMEL OF THE "SAFETY ORANGE" COLOR FOR THE ENTIRE HYDRANT. THE TOPS OF THE FIRE HYDRANTS ARE NO LONGER REQUIRED TO BE PAINTED BLACK. AFTER INSTALLATION OF FIRE HYDRANTS, THE CONTRACTOR IS RESPONSIBLE TO APPLY TOUCH UP PAINT TO ANY DAMAGE TO THE FACTORY APPLIED HYDRANT PAINT. HYDRANTS WILL NOT BE ACCEPTED UNTIL ANY PAINT DAMAGE FROM SHIPPING OR INSTALLATION HAS BEEN REPAIRED. USE HYDRANT TOUCH UP PAINT IN ACCORDANCE WITH THE APPROVED MATERIALS LIST.
18. ALL FIRE HYDRANTS, WHETHER NEW OR RELOCATED, SHALL BE INSPECTED AND APPROVED BY THE DIVISION OF FIRE PRIOR TO BEING PUT INTO SERVICE. THE CONTRACTOR SHALL CONTACT THE DIVISION OF FIRE AT 645-7642 EXT. 75658 TO SCHEDULE THE INSPECTION OF THE NEW OR RELOCATED FIRE HYDRANTS. THE CITY WILL PROVIDE THE CONTRACTOR "OUT OF SERVICE" RINGS THAT SHALL BE PLACED ON ALL NEW OR RELOCATED FIRE HYDRANTS TO CLEARLY IDENTIFY THEM AS INACTIVE. AFTER WRITTEN NOTIFICATION OF ACCEPTANCE HAS BEEN RECEIVED AND FINAL WATER MAIN CONNECTIONS HAVE OCCURRED, THE CONTRACTOR SHALL REMOVE THE "OUT OF SERVICE" RINGS FROM THE FIRE HYDRANTS. ALL "OUT OF SERVICE" RINGS SHALL BE RETURNED TO THE CITY. ALL COORDINATION AND WORK REQUIRED TO TEST AND ACCEPT THE FIRE HYDRANTS SHALL BE INCLUDED IN THE PRICE BID ITEM 809.

19. MAINTAIN EIGHTEEN (18) INCHES VERTICAL AND TEN (10) FEET HORIZONTAL SEPARATION BETWEEN ANY SANITARY OR STORM SEWER PIPING AND ALL PROPOSED WATER MAINS.
20. WHEN CROSSING THE EXISTING WATER MAIN, AND LOW STRENGTH MORTAR (ITEM 613) IS TO BE USED AS BACKFILL, THE CONTRACTOR SHALL PROVIDE SIZE NO. 57 CRUSHED CARBONATE STONE (CCS) 1 FOOT BELOW TO 1 FOOT ABOVE THE EXISTING WATER MAIN.
21. IF DURING EXCAVATION, THE POLYETHYLENE ENCASEMENT ON THE EXISTING WATER MAIN BECOMES DAMAGED, THE CONTRACTOR SHALL REPAIR THE POLYETHYLENE ENCASEMENT PER MANUFACTURER'S SPECIFICATIONS AND DOW STANDARD DRAWINGS L-1003 AND L-1004, AT THEIR OWN EXPENSE. ENSURE THAT THE ENTIRE EXPOSED AREA IS COVERED WITH NEW POLYETHYLENE ENCASEMENT AND SECURELY TAPED, PRIOR TO BACKFILLING.
22. CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS OF THE OHIO ADMINISTRATIVE CODE CHAPTER 3745-83-02 WATER DISRUPTION OF SERVICE RULE. EXCAVATE PITS SUFFICIENTLY BELOW THE AREA TO BE CONNECTED TO IN ORDER TO MAINTAIN WATER LEVELS BELOW THE WATER MAIN. IF WATER FROM THE PIT ENTERS THE EXISTING MAIN, CONTACT DIVISION OF WATER IMMEDIATELY. ENSURE THAT SUFFICIENTLY SIZED PUMPS ARE UTILIZED TO REMOVE WATER FROM THE TRENCH AND BACKUP PUMPS ARE KEPT ON SITE FOR REDUNDANCY.
23. "SURVEY COORDINATES" SHALL INCLUDE ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO OBTAIN HORIZONTAL AND VERTICAL (NORTHING, EASTING, AND CENTERLINE ELEVATION) SURVEY COORDINATES FOR THE WATER MAIN IMPROVEMENTS. THE SURVEY COORDINATES SHALL BE OBTAINED FOR THE COMPLETED WATER MAIN CONSTRUCTION AND SHALL INCLUDE ALL VALVES, TEES, CROSSES, BENDS, HORIZONTAL DEFLECTIONS, PLUGS, REDUCERS, TAPPING SLEEVES, FIRE HYDRANTS, AIR RELEASES, CURB STOPS, AND CASING PIPE TERMINI. ADDITIONAL SURVEY COORDINATES ARE REQUIRED ON THE WATER MAIN EVERY 200 FEET WHERE NO FITTING OR OTHER WATER MAIN STRUCTURE IS BEING INSTALLED WITHIN THAT LENGTH OF THE IMPROVEMENT.

ALL SURVEY COORDINATES SHALL BE REFERENCED TO THE APPLICABLE COUNTY ENGINEER'S MONUMENTS, AND SHALL BE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD 83) WITH THE 2011 ADJUSTMENT, WITH FURTHER REFERENCE MADE TO THE OHIO STATE PLANE SOUTH COORDINATE SYSTEM, SOUTH ZONE, WITH ELEVATIONS BASED ON NAVD 88 DATUM. ALL COORDINATES (NORTHING, EASTING, CENTERLINE ELEVATION) SHALL BE REFERENCED TO THE NEAREST HUNDRETH (N XXXXXX.XX, E XXXXXX.XX, C/L ELEV. XXX.XX). ALL SURVEY COORDINATES SHALL BE ACCURATE TO WITHIN 1.0 FOOT HORIZONTAL AND A TENTH OF A FOOT (0.10) OR LESS VERTICAL.

THE COORDINATES SHALL BE DOCUMENTED TO THE ENGINEER IN DIGITAL SPREADSHEET FORM AND SHALL INCLUDE THE APPLICABLE ITEM, STATION, NORTHING, EASTING, AND CENTERLINE ELEVATION. COORDINATES SHALL BE SUBMITTED TO THE ENGINEER ON A BI-WEEKLY BASIS. COORDINATES SHALL ALSO BE REQUIRED TO BE SUBMITTED TO THE DIVISION OF WATER AS PART OF THE REQUEST FOR CHLORINATION.

LUMP SUM PAYMENT IS FULL COMPENSATION FOR ALL WORK INVOLVED IN OBTAINING AND DOCUMENTING THE SURVEY COORDINATES AS DESCRIBED IN THIS SPECIFICATION.

ITEM 638 - WATER WORK. MISC.: 6" WATCH VALVE WITH VALVE BOX (COL. 802)

THE CONTRACTOR SHALL FURNISH AND INSTALL 6" WATCH VALVE WITH VALVE BOX PER THE REQUIREMENTS OF CITY OF COLUMBUS (COC) CMSC ITEM 802 AT ALL PROPOSED FIRE HYDRANTS AS SHOWN IN THE COC STANDARD DETAILS.

CALCULATED
A JE
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MBM

WATER WORK NOTES

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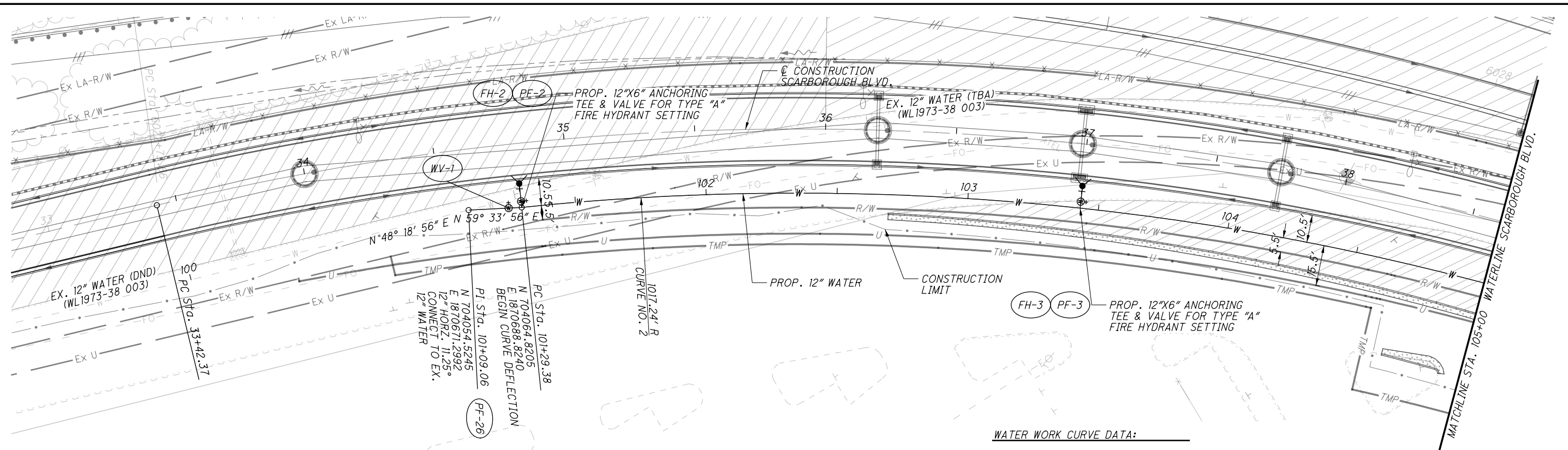
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HORIZONTAL
SCALE IN FEET

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PLAN AND PROFILE
SCARBOROUGH BLVD. WATERLINE

FRA-70-22.61

786
1199



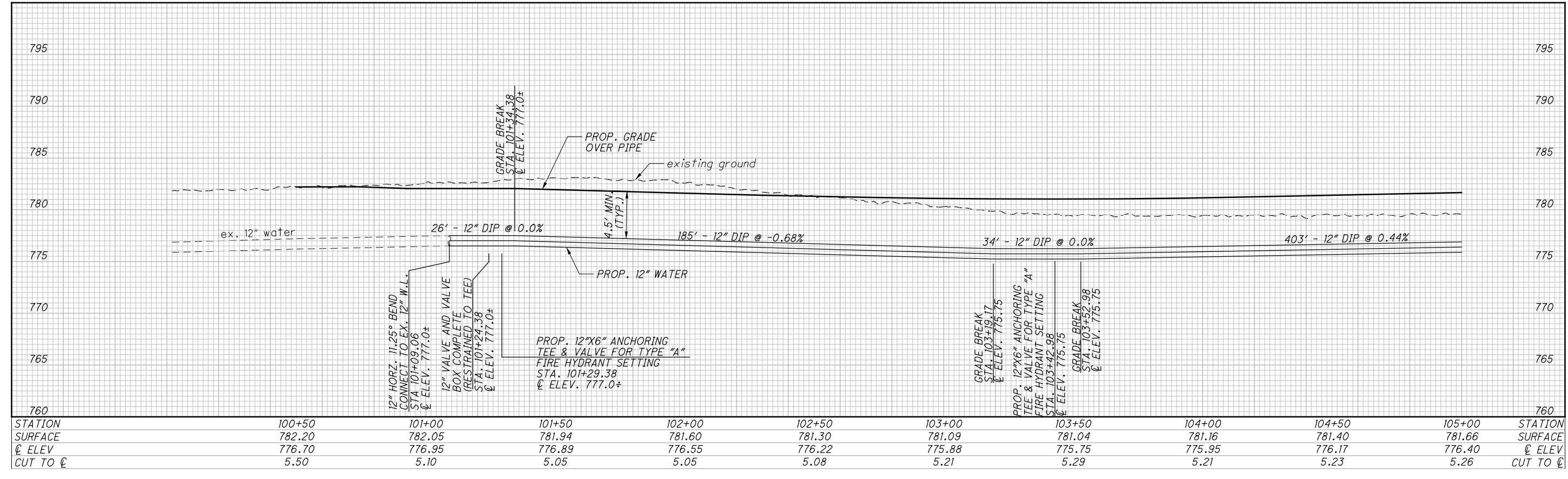
CROSS REFERENCES			
SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
3 7	REFERENCE & BENCHMARKS		
N/A	ESTIMATED QUANTITIES		
621 - 632	SCARBOROUGH BLVD PLAN & PROFILE		
633 - 658	SCARBOROUGH BLVD CROSS SECTIONS		
694 - 699	DRIVE DETAILS		
703 - 753	DRAINAGE		

NOTES:

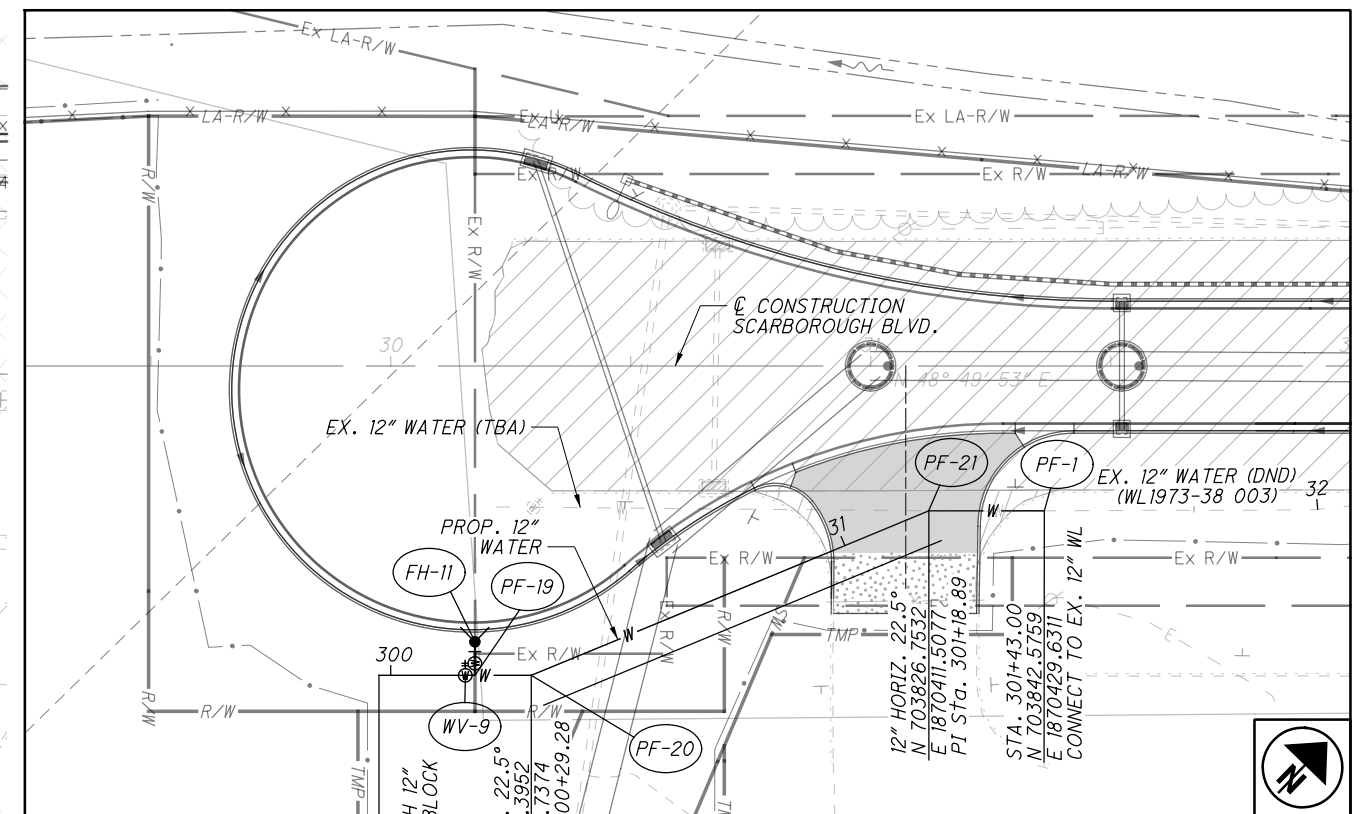
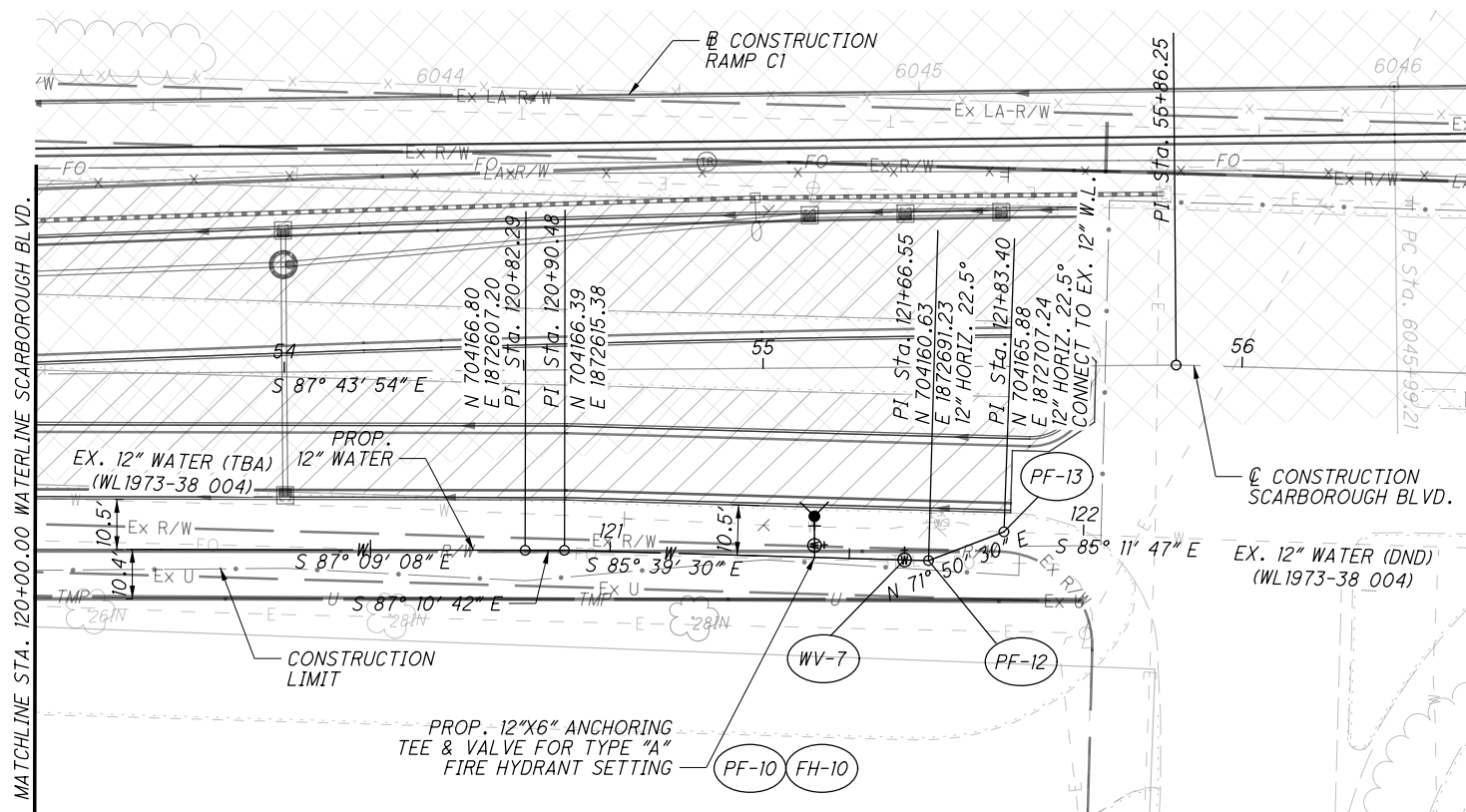
- CONTRACTOR SHALL DEFLECT PIPE JOINTS PER MANUFACTURER'S RECOMMENDATIONS TO MAINTAIN ALIGNMENT.

WATER WORK CURVE DATA:

CURVE NO. 1	CURVE NO. 2
P.I. Sta. 100+98.81	P.I. Sta. 103+47.70
$\Delta = 7^\circ 15' 45''$ (RT)	$\Delta = 25^\circ 55' 56''$ (RT)
$D_c = 2^\circ 30' 00''$	$D_c = 5^\circ 37' 57''$
$R = 230.00'$	$R = 1,017.24'$
$T = 14.60'$	$T = 234.22'$
$L = 290.50'$	$L = 460.41'$
$E = 0.46'$	$E = 26.62'$
$C = 29.13'$	$C = 456.49'$
C.B. = N 51° 56' 48" E	C.B. = N 68° 32' 27" E

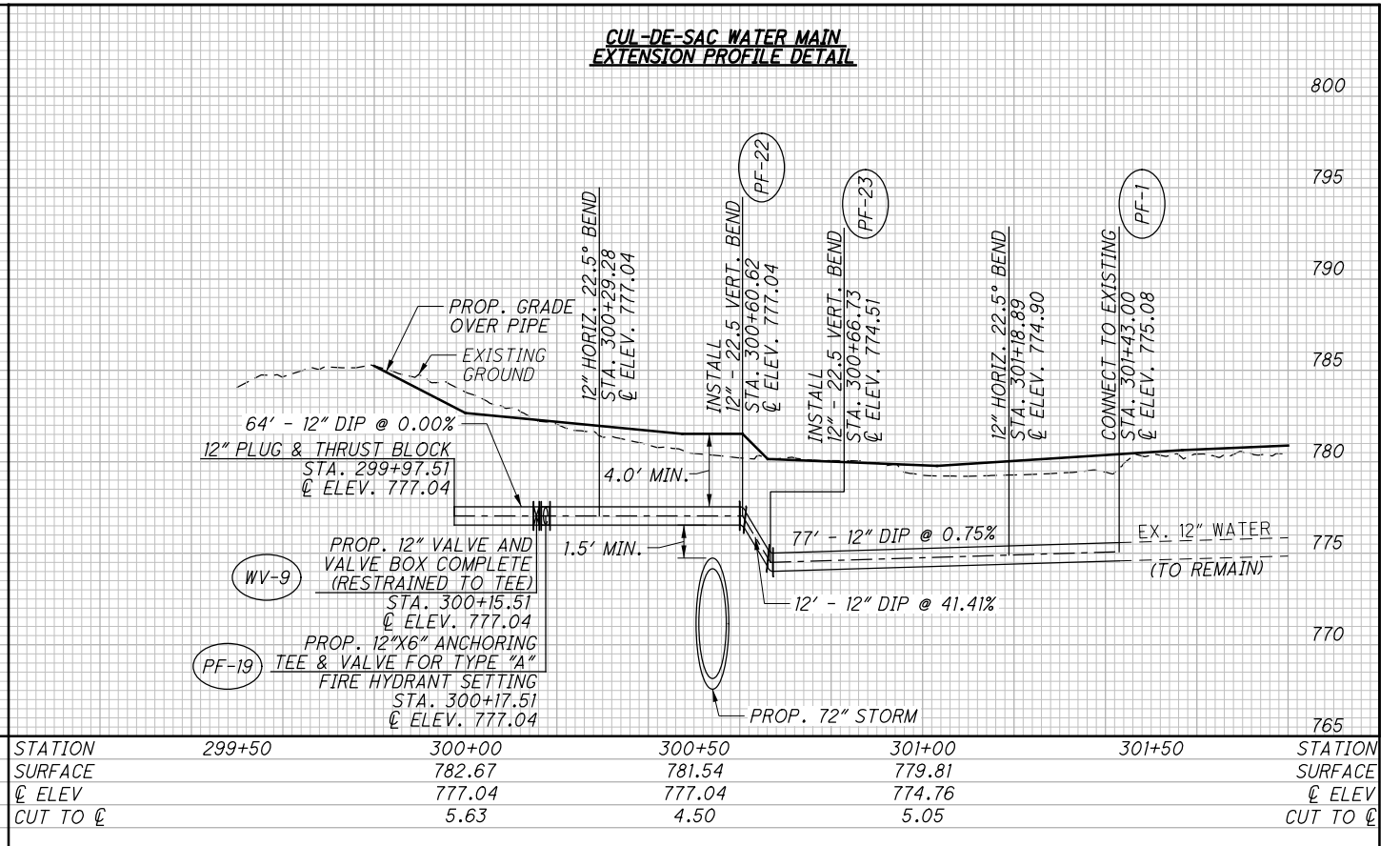
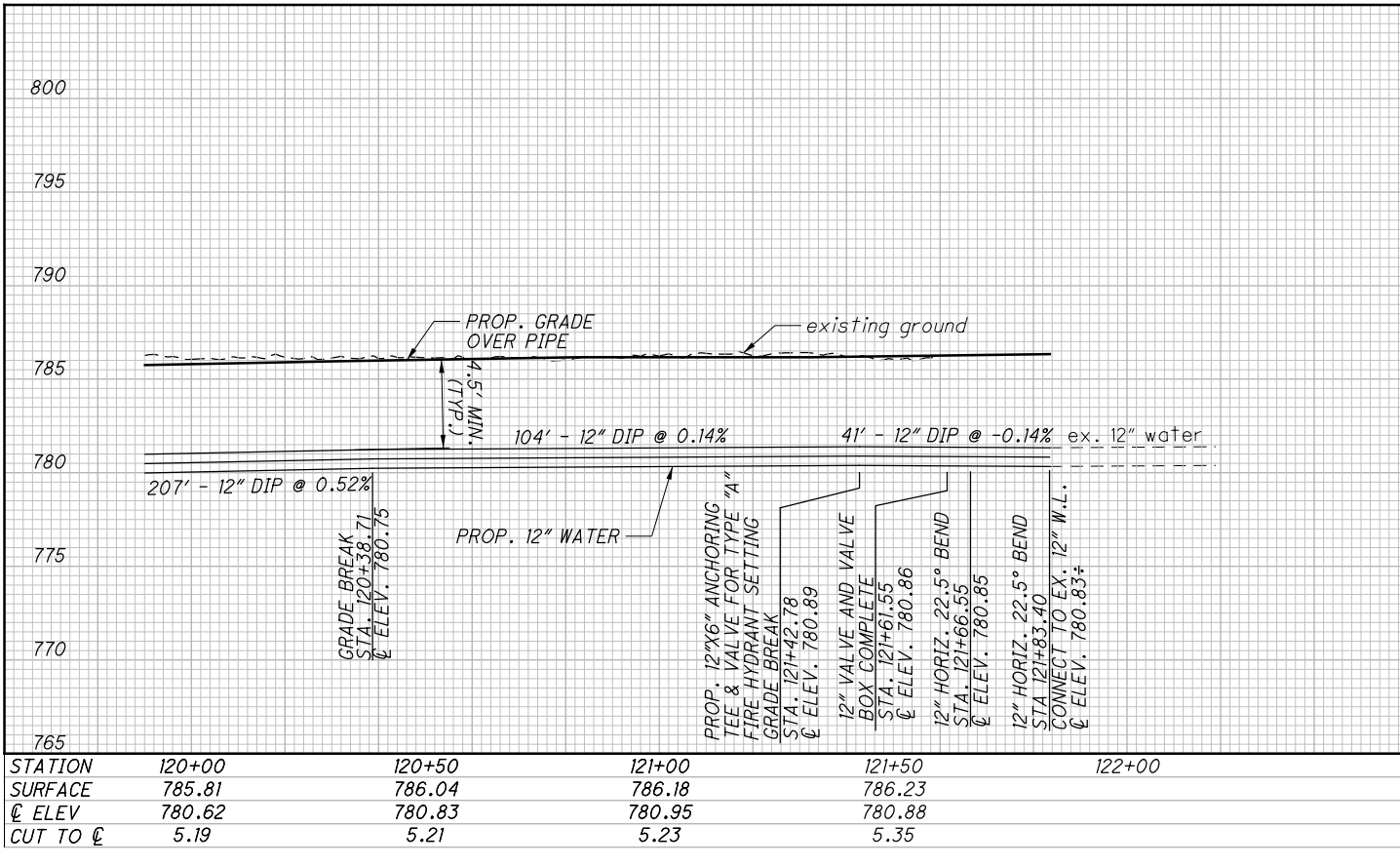


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CROSS REFERENCES			
SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
3 - 7	☉ REFERENCE & BENCHMARKS		
N/A	ESTIMATED QUANTITIES		
621 - 632	SCARBOROUGH BLVD PLAN & PROFILE		
633 - 658	SCARBOROUGH BLVD CROSS SECTIONS		
694 - 699	DRIVE DETAILS		
703 - 753	DRAINAGE		

- NOTES:**
- CONTRACTOR SHALL DEFLECT PIPE JOINTS PER MANUFACTURER'S RECOMMENDATIONS TO MAINTAIN ALIGNMENT.
 - STATION AND OFFSET INFORMATION FOR THE CUL-DE-SAC WATER MAIN EXTENSION ARE BASED ON SCARBOROUGH BLVD ROADWAY CENTERLINE.

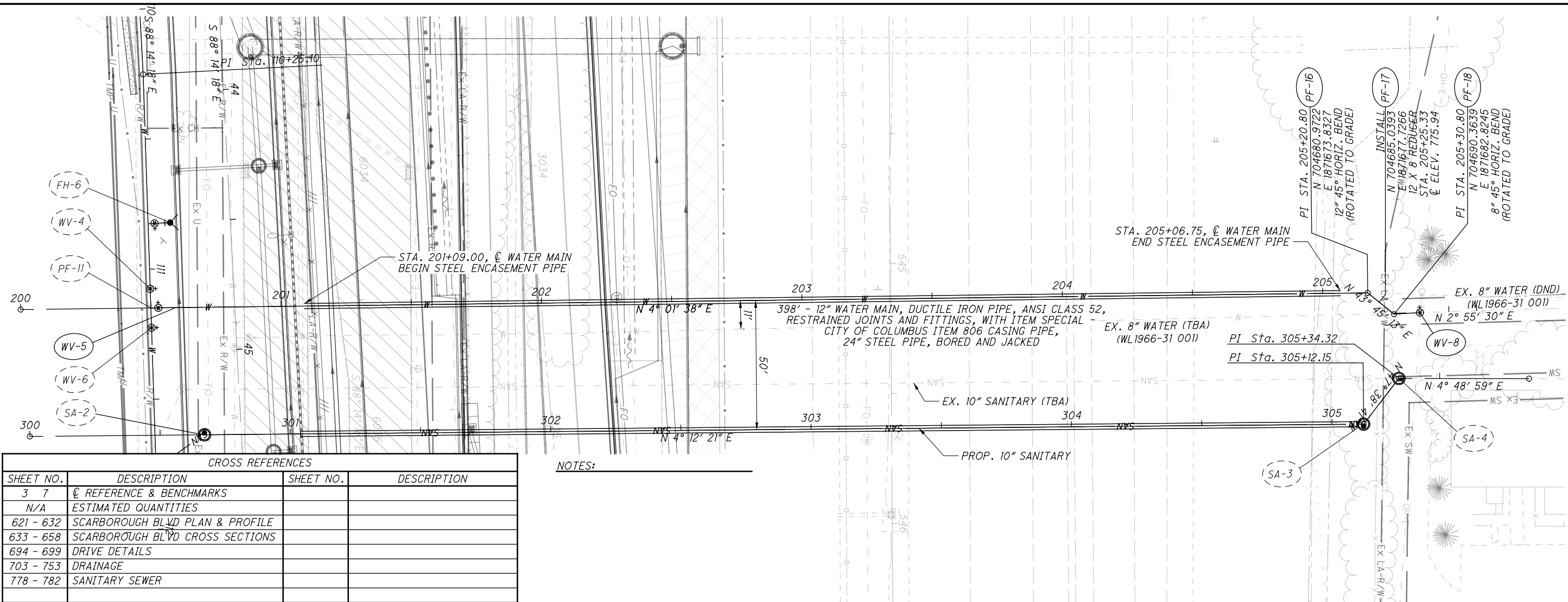


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CALCULATED BY: AJE
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PLAN AND PROFILE - WATERLINE ACROSS I.R. 70
BEGIN TO END

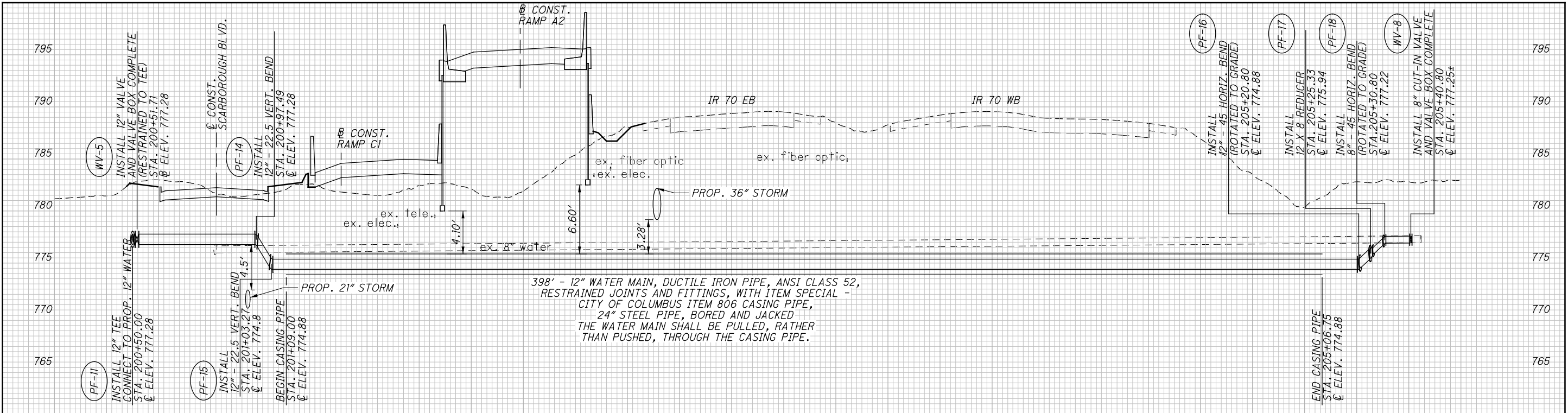
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 791
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CROSS REFERENCES

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
3 7	☉ REFERENCE & BENCHMARKS		
N/A	ESTIMATED QUANTITIES		
621 - 632	SCARBOROUGH BLVD PLAN & PROFILE		
633 - 658	SCARBOROUGH BLVD CROSS SECTIONS		
694 - 699	DRIVE DETAILS		
703 - 753	DRAINAGE		
778 - 782	SANITARY SEWER		

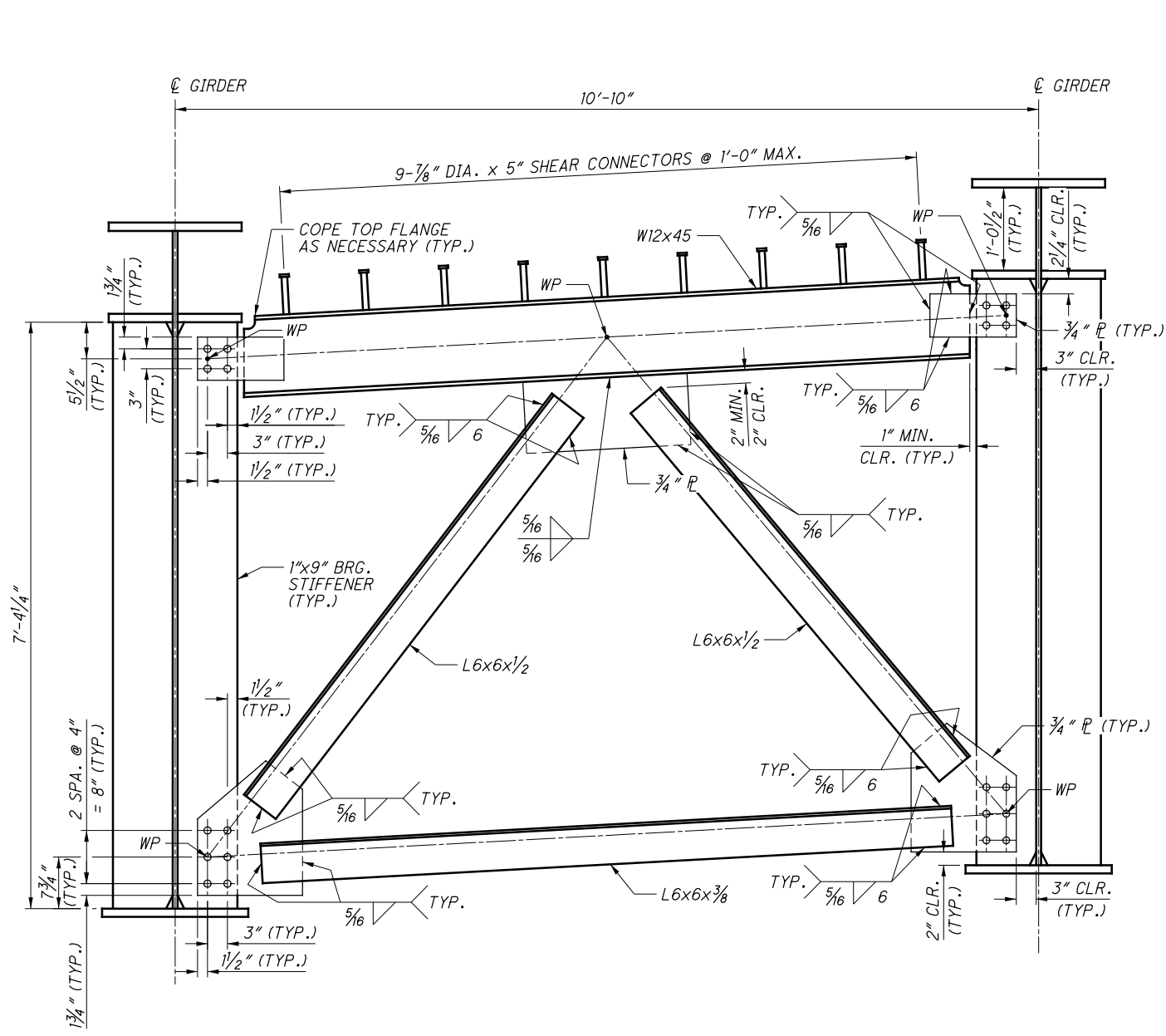
NOTES:



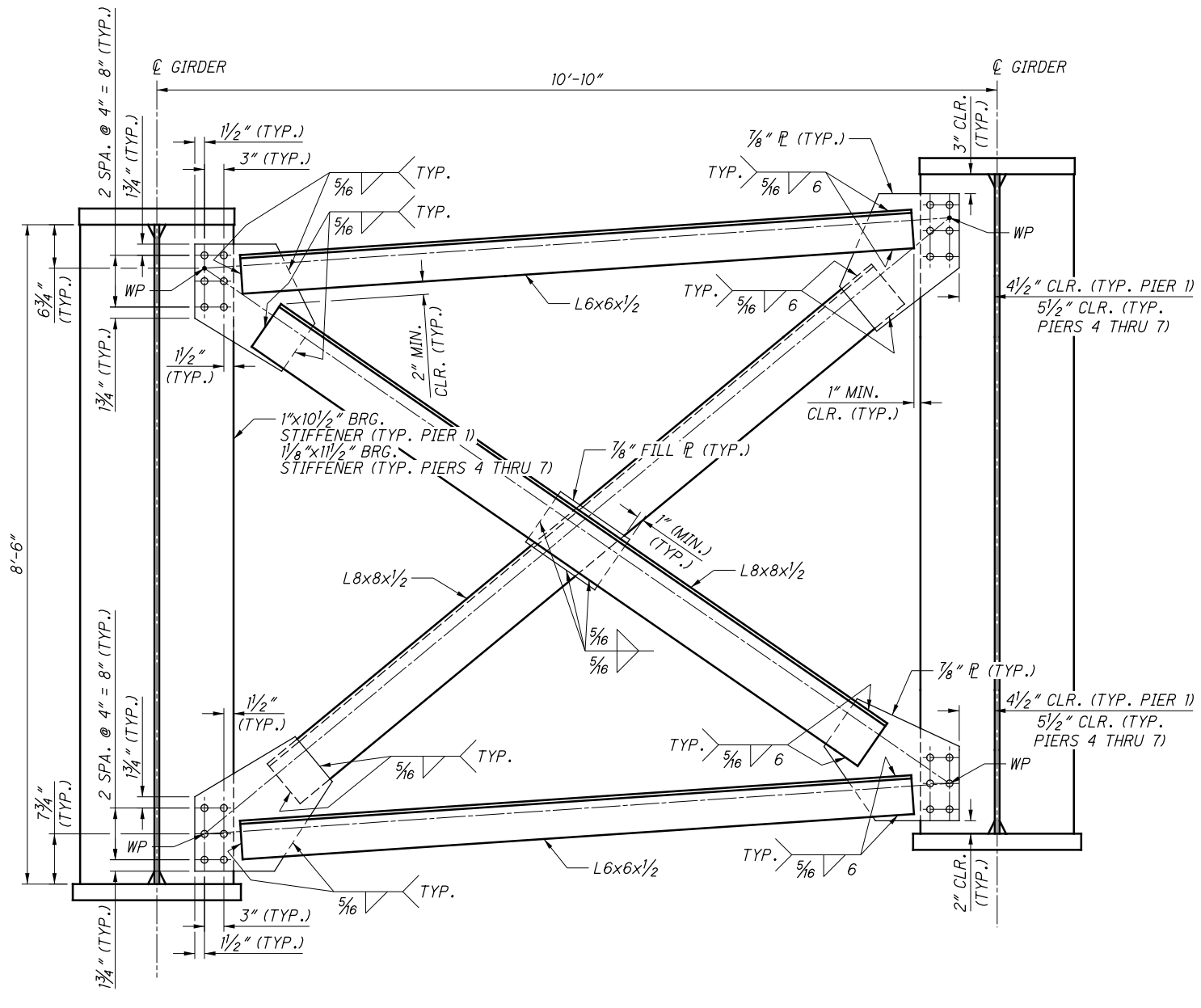
STATION	200+50	201+00	201+50	202+00	202+50	203+00	203+50	204+00	204+50	205+00	205+50	STATION
SURFACE	782.63	781.97	784.90	795.53	788.58	789.50	788.79	788.93	788.02	780.32	783.00	SURFACE
☉ ELEV	777.28	777.28	775.23	775.23	775.23	775.23	775.23	775.23	775.23	775.23	775.23	☉ ELEV
CUT TO ☉	5.35	4.69	9.67	20.3	13.35	14.27	13.56	13.70	12.79	5.09		CUT TO ☉

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CROSSFRAME CF1
ABUTMENT END DIAPHRAGM

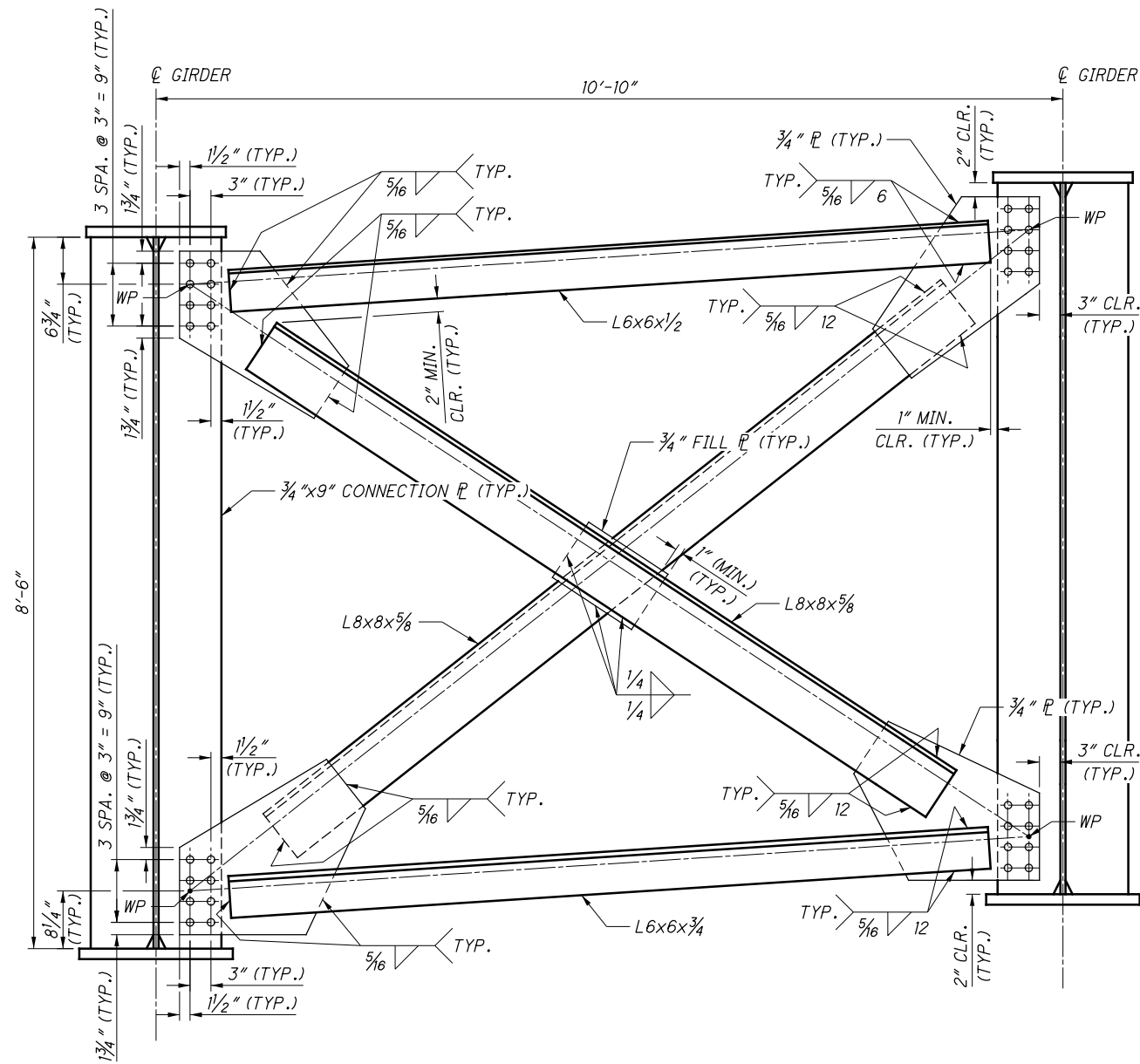


CROSSFRAME CF2
TYPICAL PIER CROSSFRAME

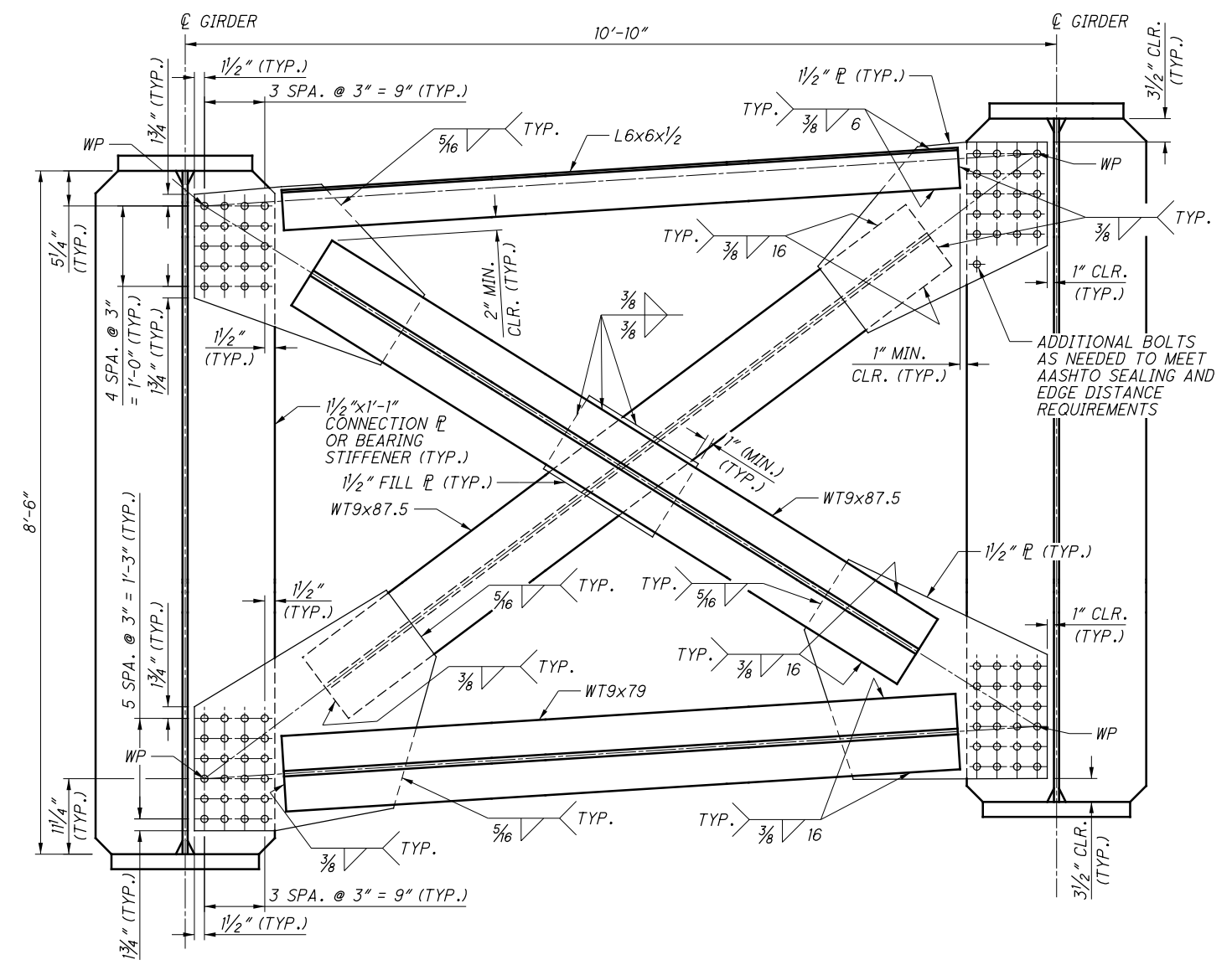
- NOTES:**
1. FOR STIFFENER DETAILS, SEE SHEET **58/113**.
 2. FOR CROSSFRAME LOCATIONS, SEE FRAMING PLAN ON SHEETS **48/113** THRU **52/113**.
 3. ALL CROSSFRAME MEMBERS AND GUSSET PLATES SHALL BE ASTM A709, GRADE 50W STEEL.
 4. HIGH STRENGTH BOLTS SHALL BE 7/8" DIA. ASTM F3125 GRADE A325, TYPE III IN STANDARD HOLES FOR CROSSFRAME CF1 AND CF2.
 5. ALL CROSSFRAME MEMBERS, INCLUDING CONNECTION PLATES, GUSSET PLATES, ANGLES, W-SHAPES, AND WT-SHAPES SHALL BE DESIGNATED (CVN). FOR ADDITIONAL NOTES, SEE SHEET **48/113**.
 6. PROVIDE CLASS B SURFACE CONDITION FOR THE CONTACT AREA OF BOLTED PARTS FOR THE CROSSFRAMES.
 7. LOCATE MEMBER NEUTRAL AXIS ALONG WORK LINE FROM WP TO WP.
 8. SHOP ASSEMBLY OF THE CROSSFRAMES AND ADJACENT CURVED MEMBER IS REQUIRED.

	DESIGN AGENCY	DATE	REVIEWED	DRAWN	DESIGNED
	H&R ENGINEERING, INC. 2800 CORPORATE EXCHANGE DR., SUITE 100 COLUMBUS, OHIO 43231 614-839-5770	8/13/20	BTA	TJE	TJE
	BRIDGE NO. FRA-270-4262	STRUCTURE FILE NUMBER	REVIS	REVISED	CHECKED
	RAMP A2 OVER IR 270, IR 70 AND RAMP D2	2511300		SRW	SRW
CROSSFRAMES - 1					
FRA-70-22.61					
PID No. 95639					
63/113					

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CROSSFRAME CF3
TYPICAL INTERMEDIATE CROSSFRAME



CROSSFRAME CF4
INTERMEDIATE CROSSFRAME AT PIERS 2 AND 3

NOTES:

1. FOR STIFFENER AND CONNECTION PLATE DETAILS, SEE SHEET 58/113.
2. FOR CROSSFRAME LOCATIONS, SEE FRAMING PLAN ON SHEETS 48/113 THRU 52/113.
3. ALL CROSSFRAME MEMBERS AND GUSSET PLATES SHALL BE ASTM A709, GRADE 50W STEEL.
4. HIGH STRENGTH BOLTS SHALL BE 7/8" DIA. ASTM F3125 GRADE A325, TYPE III IN STANDARD HOLES FOR CROSSFRAME CF3.
5. HIGH STRENGTH BOLTS SHALL BE 1" DIA. ASTM F3125 GRADE A325, TYPE III IN STANDARD HOLES FOR CROSSFRAME CF4.
6. ALL CROSSFRAME MEMBERS, INCLUDING CONNECTION PLATES, GUSSET PLATES, ANGLES, W-SHAPES, AND WT-SHAPES SHALL BE DESIGNATED (CVN). FOR ADDITIONAL NOTES, SEE SHEET 48/113.
7. PROVIDE CLASS B SURFACE CONDITION FOR THE CONTACT AREA OF BOLTED PARTS FOR THE CROSSFRAMES.
8. LOCATE MEMBER NEUTRAL AXIS ALONG WORK LINE FROM WP TO WP.
9. SHOP ASSEMBLY OF THE CROSSFRAMES AND ADJACENT CURVED MEMBER IS REQUIRED.

	DESIGN AGENCY H&R ENGINEERING, INC. 2800 CORPORATE EXCHANGE DR., SUITE 100 COLUMBUS, OHIO 43231 614-839-5770	DATE 8/13/20	DESIGNER TJE	CHECKED SRW
CROSSFRAMES - 2	BRIDGE NO. FRA-270-4262	REVIEWED BTA	DRAWN TJE	STRUCTURE FILE NUMBER 2511300
FRA-70-22.61	RAMP A2 OVER IR 270, IR 70 AND RAMP D2	DATE 8/13/20	CHECKED SRW	STRUCTURE FILE NUMBER 2511300
PID No. 95639	64/113	1056 1199		