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NOTE: RIGHT OF WAY PLANS FOR THIS PROJECT WERE PREPARED AS PART OF PROJECT FRA-70-12.68 PID 77372 / 3084-E AND ARE NOT INCLUDED IN THIS PLAN SET.

NO.	DESCRIPTION	REV. BY	DATE
1	UPDATED SHEETS	CWL	11-5-2021
2	UPDATED SHEETS	CWL	11-12-2021

CITY OF COLUMBUS:

APPROVED Steven Woods  
DATE 5/26/2020 DESIGN SECTION ENGINEER, DIVISION OF DESIGN AND CONSTRUCTION

APPROVED [Signature]  
DATE 5/28/2020 ADMINISTRATOR, DIVISION OF POWER

APPROVED [Signature]  
DATE 5/28/2020 ADMINISTRATOR, DIVISION OF WATER

APPROVED [Signature]  
DATE 5/28/2020 FIRE PREVENTION BUREAU, DIVISION OF FIRE

APPROVED MDT RMV John Newson  
DATE 5/28/2020 ADMINISTRATOR, DIVISION OF SEWERAGE AND DRAINAGE

APPROVED Trace Davis by RML  
DATE 6/3/2020 DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES

APPROVED Don E. Evans for Paul Rakosky  
DATE 5/29/2020 DIRECTOR, DEPARTMENT OF RECREATION AND PARKS

APPROVED James Young  
DATE 8/24/2020 CITY ENGINEER/ADMINISTRATOR, DIVISION OF DESIGN AND CONSTRUCTION

APPROVED Jennifer Gallagher  
DATE 8/24/2020 DIRECTOR, DEPARTMENT OF PUBLIC SERVICE

APPROVED Erin Midkley  
DATE 5/28/2020 ENGINEERING SUPERVISOR, DEPARTMENT OF TECHNOLOGY

**CITY OF COLUMBUS APPROVALS**

CITY OF COLUMBUS SIGNATURES ON THIS PLAN SIGNIFY ONLY CONCURRENCE WITH THE GENERAL PURPOSES AND GENERAL LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE ENGINEER PREPARING THE PLANS.

ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:	ENGINEERS SEAL:
FOR SHEETS 70 - 210	FOR SHEETS 804 - 864, 889A - 891, 893 - 900, 905, 922 - 922C, 926 - 930, 938B - 941A	FOR SHEETS 1122 - 1162	FOR SHEETS 1163 - 1205A	FOR SHEETS 1206 - 1225, 1747 - 1815	FOR SHEETS 1228 - 1363, 1472 - 1563	FOR SHEETS 692 - 803, 865 - 889, 892, 901 - 902, 1364 - 1471C, 1564 - 1746R	FOR ENTIRE PLAN EXCEPT SHEETS OTHERWISE NOTED
SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>8/16/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>	SIGNED: <u>[Signature]</u> DATE: <u>9/6/19</u>





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SHEET NO.	SPECIAL	SPECIAL	SPECIAL		SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL				
	HANDHOLE	SUBMERSIBLE SEPARABLE CONNECTOR	(3) - 750KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-350KCMIL Cu, 600V NEUTRAL		2x1 CONCRETE DUCT BANK - 5" PVC (TDMIS-3000)	PADMOUNT SF6 SWITCHGEAR	2x2 CONCRETE DUCT BANK - 5" PVC (TDMIS-3000)	BORE SPACERS FOR 6" SCH 40 PVC CONDUIT	75KVA LOOP FEED SINGLE PHASE PADMOUNT TRANSFORMER (TDMIS-1201)	300KVA LOOP FEED THREE PHASE PADMOUNT TRANSFORMER, 14.4 KV, DELTA/208/120 (TDMIS-1202)	750KVA LOOP FEED THREE PHASE PADMOUNT TRANSFORMER, 14.4KV, DELTA/480/277 (TDMIS-1202)	FIBERGLASS FLAT PAD FOR SINGLE PHASE TRANSFORMERS (TDMIS-1009)	50/2 WOOD POLE	THREE PHASE DEADEND ATTACHMENTS (TDMIS-406)	WOOD CROSSARM (TDMIS-10)	PRIMARY DOWN GUY (TDMIS-100)	DISTRIBUTION POLE GROUND (TDMIS-7)	DISTRIBUTION RISER (TDMIS-1001)	11.25° SCH 40 PVC CONDUIT SWEEP	DOP MANHOLE (TDMIS-1015)	4'x 4' x 4' PULLBOX	BRIDGE MOUNTED CONDUIT HANGER	CABLE TRAY RISER	22.5° SCH 40 PVC CONDUIT SWEEP	FIBERGLASS TO PVC CONDUIT COUPLER			
	EACH	EACH	FT		FT	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH				
237			1970					110																				
238	1	1	238		262				1			1		1			1			12		4		1	65	1	6	6
239	3	6		1245	165	1	721		1	1	1	1										5						
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>			4	7	2208	1245	427	1	721	110	2	1	1	1	2	1	1	12	4	5	2	65	1	6	6			
SHEET NO.	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL				
	WOOD POLE, REMOVAL (TDMIS-1600)	OVERHEAD TRANSFORMER, REMOVAL (TDMIS-1600)	WIRE AND CABLE REMOVAL (TDMIS 1600)	6" FIBERGLASS CONDUIT EXPANSION FITTINGS	ADJUSTING EXISTING GRADE	5" FIBERGLASS 90° SWEEP	EXISTING MANHOLE REMOVAL	MEDIUM VOLTAGE CABLE ACCEPTANCE TESTING	5" SCH 40 PVC CONDUIT	6" SCH 40 PVC CONDUIT	30" DIRECTIONAL BORE AND PIPE, 748.06	5" XHW FIBERGLASS CONDUIT	6" XHW FIBERGLASS CONDUIT	4" SCH 40 PVC CONDUIT	(3)-350KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-4/0 Cu, 600V NEUTRAL	(3)-#1 AL, 15KV, XLP WITH(1)-#2 AL, 600V NEUTRAL	2x3 CONCRETE DUCT BANK - 6" PVC (TDMIS-3000)	3x3 CONCRETE DUCT BANK - 5" PVC (TDMIS-3000)	PADMOUNT TRANSFORMER RELOCATION	(1)-250KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-1/0 Cu, 600V NEUTRAL	(3)-500KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-350KCMIL Cu, 600V NEUTRAL	(3)-#1 Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-#1 Cu, 600V NEUTRAL	(2) - #2 AL, 15KV XLP, 133% INS JCN					
	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	FT	FT	FT	FT					
237				11						5254	551		6210															
238	5				3	12	1		84			777		347	1407	420	238	196		2	282							
239	7	11	7400				1														475		1245	1317	125			
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>			12	11	7400	11	4	12	84	5254	551	777	6210	347	1407	420	238	196	475	2	282	1245	1317	125				

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

**ELECTRICAL SUBSUMMARY**  
  
**FRA - 70 / 71 - 12.68 / 14.86**  
  
 225  
 1815

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REF. NO.	SHEET NO.	STATION		SIDE	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL		
		FROM	TO		2x3 CONCRETE DUCT BANK 6" PVC (TDMIS-3000)	ADJUSTING EXISTING GRADE	5" XHW FIBERGLASS CONDUIT	5" FIBERGLASS 90° SWEEP	4' x 4' x 4' PULLBOX	5" SCH 40 PVC CONDUIT	3x3 CONCRETE DUCT BANK 5" PVC (TDMIS-3000)	EXISTING MANHOLE REMOVAL	(3)-350KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-4/0 Cu, 600V NEUTRAL	(3)-750KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-350KCMIL Cu, 600V NEUTRAL	4" SCH 40 PVC CONDUIT	(3)-#1 AL, 15KV, XLP WITH (1)-#2 AL, 600V NEUTRAL	PADMOUNT TRANSFORMER RELOCATION	2x1 CONCRETE DUCT BANK - 5" PVC (TDMIS-3000)	75KVA LOOP FEED SINGLE PHASE PADMOUNT TRANSFORMER (TDMIS-1201)	FIBERGLASS FLAT PAD FOR SINGLE PHASE TRANSFORMERS (TDMIS-1009)	SUBMERSIBLE SEPARABLE CONNECTOR	HANDHOLE	(1)-250KCMIL Cu, 15KV, XLP Ins. 133% w/ Cu TAPE SHIELD WITH (1)-1/0 Cu, 600V NEUTRAL	WOOD POLE, REMOVAL (TDMIS-1600)
					FT	EACH	FT	EACH	EACH	FT	FT	EACH	FT	FT	EACH	FT	EACH	EACH	EACH	EACH	EACH	FT	EACH	
EL-15	937	EL-14	FURNACE SUB		238								238											
EL-100	931	148+26.67, 31.86' (FRONT ST.)		RT		1																		
EL-101	931	EL-100	EL-102				777	12					777											
EL-102	931	150+84.55, 37.99' (FRONT ST.)		RT				1	84				42											
EL-103	931	EL-102	EX MH 128							196			588											
EL-104	931	19+54.63, 4.14' (FULTON ST.)		LT		1																		
EL-105	931	EX MH 128	151+64.96 (FRONT ST.)	LT/RT												262	1	1	1	1		282		
EL-110	931	22+29.55, 39.49' (FULTON ST.)		LT		1																		
ER-1	371	150+78.51, 25.46' (FRONT ST.)		RT																				
ER-2	289	4177+21.47, 39.29' (I-70 EB)		RT						1													1	
ER-3	289	4178+75.99, 28.78' (I-70 EB)		RT																			1	
ER-4	289	4179+17.63, 26.83' (I-70 EB)		RT																			1	
ER-5	289	4180+10.28, 22.04' (I-70 EB)		RT																			1	
ER-6	289	4181+58.14, 13.49' (I-70 EB)		RT																			1	
EL-16	931A	267+97.85, 105.04' (I-71 NB)																		1				
EL-17	931A	268+02.15, 105.04' (I-71 NB)																		20	1			
EL-18	931A	EX PULLBOX	EL-16											153	303									
EL-19	931A	EL-17	PUMP STATION											194	97									
<b>TOTALS CARRIED TO SUBSUMMARY</b>					238	3	777	12	1	84	196	1	1407	238	347	420	2	262	1	1	1	1	282	5

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

CALCULATED  
 TAM  
 CHECKED  
 PCT  
**ELECTRICAL ESTIMATED QUANTITIES**  
**FRA - 70 / 71 - 12.68 / 14.86**  
 238  
 1815





ITEM SPECIAL - 50'/2 WOOD POLE

THIS ITEM SHALL BE A 50'/2 WOOD POLE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "50'/2 WOOD POLE" FOR EACH POLE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - THREE PHASE DEADEND ATTACHMENTS (TDMIS-406)

THIS ITEM SHALL BE THE THREE PHASE DEADEND ATTACHMENTS PER COLUMBUS DOP TDMIS-406.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "THREE PHASE DEADEND ATTACHMENTS (TDMIS-406)" FOR EACH ATTACHMENT SET WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - WOOD CROSSARM (TDMIS-10)

THIS ITEM SHALL BE A WOOD CROSSARM PER COLUMBUS DOP TDMIS-10.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "WOOD CROSSARM (TDMIS-10)" FOR EACH CROSSARM WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - PRIMARY DOWN GUY (TDMIS-100)

THIS ITEM SHALL BE A PRIMARY DOWN GUY PER COLUMBUS DOP TDMIS-100.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "PRIMARY DOWN GUY (TDMIS-100)" FOR EACH DOWN GUY WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - DISTRIBUTION POLE GROUND (TDMIS-7)

THIS ITEM SHALL BE A DISTRIBUTION POLE GROUND PER COLUMBUS DOP TDMIS-7.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "DISTRIBUTION POLE GROUND" FOR EACH POLE GROUND WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - DISTRIBUTION RISER (TDMIS-1001)

THIS ITEM SHALL BE A DISTRIBUTION RISER AND ALL NECESSARY APPURTENANCES PER COLUMBUS DOP TDMIS-1001.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "DISTRIBUTION RISER (TDMIS-1001)" FOR EACH RISER STRUCTURE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - 6" SCH 40 PVC CONDUIT

THIS ITEM SHALL BE 6" SCHEDULE 40 PVC CONDUIT AND ALL NECESSARY APPURTENANCES FOR CONNECTIONS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "6" SCH 40 PVC CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - DOP MANHOLE (TDMIS-1015)

THIS ITEM SHALL BE A DOP MANHOLE PER COLUMBUS DOP TDMIS-1015.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "DOP MANHOLE (TDMIS-1015)" FOR EACH MANHOLE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - 30" DIRECTIONAL BORE AND PIPE, 748.06

THIS ITEM SHALL BE 30" DIRECTIONAL BORING AND PIPE, 748.06.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "30" DIRECTIONAL BORE AND PIPE, 748.06" FOR EACH LINEAR FOOT OF DIRECTIONAL BORING AND BORE PIPE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - DIRECTIONAL BORE SPACERS FOR 6" SCH 40 PVC

THIS ITEM SHALL BE DIRECTIONAL BORE SPACERS FOR 6" SCH 40 PVC.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "DIRECTIONAL BORE SPACERS" FOR EACH SPACER WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 4' x 4' x 4' PULLBOX (TDMIS-1012)

THIS ITEM SHALL BE A 4' x 4' x 4' PULLBOX PER COLUMBUS DOP TDMIS-1012.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "4' x 4' x 4' PULLBOX (TDMIS-1012)" FOR EACH PULLBOX WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - BRIDGE MOUNTED CONDUIT HANGER

THIS ITEM SHALL BE A BRIDGE MOUNTED CONDUIT SPACER AS SHOWN ON SHEET 1418

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "BRIDGE MOUNTED CONDUIT SPACER" FOR EACH SPACER WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 6" XHW FIBERGLASS CONDUIT

THIS ITEM SHALL BE 6" XHW FIBERGLASS CONDUIT.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "6" XHW FIBERGLASS CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - (3)-750kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-350kCMIL Cu, 600V NEUTRAL

THIS ITEM SHALL BE (3)-750kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-350kCMIL Cu, 600V NEUTRAL.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "750kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD" FOR EACH CIRCUIT FOOT OF CONDUCTOR WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - CABLE TRAY RISER

THIS ITEM SHALL BE A CABLE TRAY RISER SYSTEM.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "CABLE TRAY RISER SYSTEM" FOR ALL MATERIAL SHOWN ON SHEETS 923-924 WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 22.5" SCH 40 PVC CONDUIT SWEEP

THIS ITEM SHALL BE A 22.5" SCH 40 PVC CONDUIT SWEEP.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "22.5" SCH 40 PVC CONDUIT SWEEP" FOR EACH SWEEP WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - FIBERGLASS TO PVC CONDUIT COUPLER

THIS ITEM SHALL BE A FIBERGLASS TO PVC CONDUIT COUPLER.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "FIBERGLASS TO PVC CONDUIT COUPLER" FOR EACH COUPLER WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - ADJUSTING EXISTING GRADE

THIS ITEM SHALL BE THE ADJUSTMENT OF THE EXISTING MANHOLE AND VAULT GRATE TO GRADE.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "ADJUSTING EXISTING GRADE" FOR EACH ADJUSTMENT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 5" XHW FIBERGLASS CONDUIT

THIS ITEM SHALL BE 5" XHW FIBERGLASS CONDUIT.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "5" XHW FIBERGLASS CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 5" SCH 40 PVC CONDUIT

THIS ITEM SHALL BE 5" SCHEDULE 40 PVC CONDUIT AND ALL NECESSARY APPURTENANCES FOR CONNECTIONS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "5" SCH 40 PVC CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 3 x 3 CONCRETE DUCT BANK (TDMIS-3000)

THIS ITEM SHALL BE A 3 x 3 CONCRETE DUCT BANK WITH 5" SCH 40 PVC CONDUIT PER COLUMBUS DOP TDMIS-3000.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "3x3 CONCRETE DUCT BANK (TDMIS-3000)" FOR EACH LINEAR FOOT OF CONCRETE DUCT BANK WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - 6" FIBERGLASS CONDUIT EXPANSION FITTINGS

THIS ITEM SHALL BE A 6" FIBERGLASS CONDUIT EXPANSION FITTING.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "6" FIBERGLASS CONDUIT EXPANSION FITTING" FOR EACH FITTING WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 2 x 3 DUCT BANK - 6" PVC (TDMIS-3000)

THIS ITEM SHALL BE A 2 x 3 DUCT BANK WITH 6" SCH 40 PVC CONDUIT PER COLUMBUS DOP TDMIS-3000.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "2x3 BANK - 6" PVC (TDMIS-3000)" FOR EACH LINEAR FOOT OF DUCT BANK WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER. SEE SHEETS 942-958 FOR DETAILS.

ITEM SPECIAL - (3)-350kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-4/0 Cu, 600V NEUTRAL

THIS ITEM SHALL BE (3)-350kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-4/0 Cu, 600V NEUTRAL.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "(3)-350kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-4/0 Cu, 600V NEUTRAL" FOR EACH CIRCUIT FOOT OF CONDUCTOR WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - EXISTING MANHOLE REMOVAL

THIS ITEM SHALL BE THE REMOVAL OF AN EXISTING MANHOLE.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "EXISTING MANHOLE REMOVAL" FOR EACH MANHOLE REMOVED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 5" FIBERGLASS 90° SWEEP

THIS ITEM SHALL BE A 5" FIBERGLASS 90° SWEEP.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "5" FIBERGLASS 90° SWEEP" FOR EACH SWEEP WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - (3)-#1 AL, 15kV XLP WITH (1)-#2 AL, 600V NEUTRAL

THIS ITEM SHALL BE (3)-#1 AL, 15kV XLP WITH (1)-#2 AL, 600V NEUTRAL.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "(3)-#1 AL, 15kV XLP WITH (1)-#2 AL, 600V NEUTRAL" FOR EACH CIRCUIT FOOT OF CONDUCTOR WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 4" SCH 40 PVC CONDUIT

THIS ITEM SHALL BE 4" SCHEDULE 40 PVC CONDUIT AND ALL NECESSARY APPURTENANCES FOR CONNECTIONS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "4" SCH 40 PVC CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - (1)-250kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-1/0 Cu, 600V NEUTRAL

THIS ITEM SHALL BE (1)-250kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-1/0 Cu, 600V NEUTRAL.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "(1)-250kCMIL Cu, 15kV XLP INS. 133% w/ Cu TAPE SHIELD WITH (1)-1/0 Cu, 600V NEUTRAL" FOR EACH CIRCUIT FOOT OF CONDUCTOR WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - 11.25" SCH 40 PVC CONDUIT SWEEP

THIS ITEM SHALL BE A 11.25" SCH 40 PVC CONDUIT SWEEP.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "11.25" SCH 40 PVC CONDUIT SWEEP" FOR EACH SWEEP WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM SPECIAL - PADMOUNT TRANSFORMER RELOCATION

THIS ITEM SHALL BE THE RELOCATION OF AN EXISTING PADMOUNT TRANSFORMER, INCLUDING THE NEW FIBERGLASS BOXPAD SIZED PER TRANSFORMER SIZE AND INSTALLED PER MANUFACTURER RECOMMENDATION, GROUNDING, RE-ESTABLISHING ALL SECONDARY CONNECTIONS AND ALL BUSHING AND LOADBREAK ELBOW ACCESSORIES.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "PADMOUNT TRANSFORMER RELOCATION" FOR EACH PADMOUNT TRANSFORMER RELOCATED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

CASTING ALLOWABLE TOLERANCE ON CITY OF COLUMBUS STREETS - AS PER PLAN

FOR ALL MANHOLES, WATERVALVES, TRAFFIC AND INTERCONNECT PULL BOXES, ELECTRIC AND COMMUNICATION VAULTS, AND ANY OTHER UTILITY STRUCTURE IN THE ROADWAY OF CITY OF COLUMBUS STREETS AND ALLEYS WITHIN THE PAVING LIMITS OF THE PROJECT, THE MAXIMUM ALLOWABLE TOLERANCE IS MINUS 1/4 INCH BELOW THE FINISHED PAVEMENT SURFACE. THERE IS NO ALLOWABLE TOLERANCE ABOVE THE FINISHED PAVEMENT SURFACE. ALL PRIVATE UTILITY CASTINGS WILL BE ADJUSTED TO GRADE BY THE PRIVATE UTILITY COMPANY.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL OR ADJUST CASTINGS TO BE WITHIN THIS TOLERANCE. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ODOT PROJECT ENGINEER OF ANY CASTINGS THAT NEED TO BE ADJUSTED TO GRADE THAT WERE NOT PART OF THE PLAN QUANTITIES FOR NEW CONSTRUCTION OR ADJUSTMENT TO GRADE.

MEASUREMENT WILL BE BY PLACING A 10 FOOT STRAIGHTEDGE CENTERED OVER THE CENTER OF THE CASTING IN THE DIRECTION OF TRAFFIC, MEASURED TO VARIOUS POINTS ON THE TOP OF THE CASTING FRAME OF THE STRUCTURE. IF ANY MEASUREMENT EXCEEDS 1/4 INCH, THE CASTING WILL BE DEEMED OUT OF TOLERANCE AND ADJUSTED TO GRADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

THE ODOT PROJECT ENGINEER, ALONG WITH ATTENDANCE BY A REPRESENTATIVE OF THE CITY OF COLUMBUS, WILL CONDUCT THE MEASUREMENTS AFTER THE FINAL SURFACE COURSE IS PLACED.

TWO METHODS OF ADJUSTING CASTINGS TO GRADE WILL BE ACCEPTED:

1) SAWCUT THE PAVEMENT AROUND THE CASTING STRUCTURE IN A SQUARE SHAPE. SAWCUT LINE MUST BE AT LEAST 1 FOOT OUTSIDE OF THE OUTER DIAMETER OF THE CASTING. REMOVE PAVEMENT FULL DEPTH AROUND THE CASTING IN ORDER TO COMPLETELY REMOVE THE CASTING STRUCTURE, HEAVY DUTY VALVE BOX, OR OTHER TYPE OF UTILITY STRUCTURE. REMOVE AND CLEAN THE EXISTING FRAME, ADJUST THE HEIGHT OF THE SUPPORTING WALLS, AND RESET THE EXISTING FRAME IN A BED OF CONCRETE MORTAR OR STRUCTURE CONCRETE TO THE NEW GRADE. PLACE CONCRETE PAVEMENT AROUND THE STRUCTURE, HOLDING THE CONCRETE 2 INCHES BELOW THE FINISHED PAVEMENT SURFACE. FOR PULLBOXES, MANHOLES AND CASTINGS GREATER THAN 30 INCHES, INCLUDE TWO #4 REBAR EVENLY SPACED ON ALL FOUR SIDES OF THE CASTING IN THE CONCRETE PAVEMENT. ONCE THE CONCRETE HAS PROPERLY CURED, PLACE TACK COAT AND SURFACE ASPHALT PAVEMENT NEATLY AROUND THE STRUCTURE AND SEAL THE JOINT WITH A HOT APPLIED JOINT SEALER PER CITY OF COLUMBUS CMSC ITEM 705.04.

2) SAWCUT THE PAVEMENT AROUND THE CASTING STRUCTURE WITH A LARGER CIRCULAR CUTTING SAW. SAWCUT LINE MUST BE AT LEAST 1 FOOT OUTSIDE OF THE OUTER DIAMETER OF THE CASTING. REMOVE PAVEMENT FULL DEPTH AROUND THE CASTING IN ORDER TO COMPLETELY REMOVE THE CASTING STRUCTURE, HEAVY DUTY VALVE BOX, OR OTHER TYPE OF UTILITY STRUCTURE. REMOVE AND CLEAN THE EXISTING FRAME, ADJUST THE HEIGHT OF THE SUPPORTING WALLS, AND RESET THE EXISTING FRAME IN A BED OF CONCRETE MORTAR OR STRUCTURE CONCRETE TO THE NEW GRADE. PLACE CONCRETE PAVEMENT AROUND THE STRUCTURE FULL DEPTH NEATLY AROUND THE STRUCTURE AND UP TO THE FINISHED GRADE. FOR PULLBOXES, MANHOLES AND CASTINGS GREATER THAN 30 INCHES, INCLUDE TWO CIRCULAR RINGS OF #4 REBAR EVENLY SPACED IN THE CONCRETE PAVEMENT. SEAL JOINT WITH A HOT APPLIED JOINT SEALER PER CITY OF COLUMBUS CMSC ITEM 705.04.

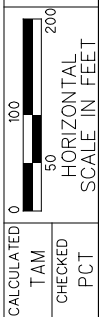
ALL CASTINGS BEING ADJUSTED TO GRADE WITH EITHER METHOD MUST BE PROPERLY COVERED WITH A STEEL PLATE DURING THE ADJUSTMENT WORK AND UNTIL THE CONCRETE MATERIAL USED IS PROPERLY CURED. FULL DEPTH IS DEFINED AS FROM THE TOP SURFACE OF THE SURFACE COURSE PAVEMENT TO THE BOTTOM OF THE PAVEMENT BASE MATERIAL. PRIVATE UTILITY COMPANY CASTINGS WILL BE ADJUSTED TO GRADE BY THE PRIVATE UTILITY, WITH NOTICE GIVEN BY THE ODOT PROJECT ENGINEER.

CITY DOP FURNACE STREET SUBSTATION SAFETY PROTOCOL AND REGULATIONS

FOR ALL WORK WITHIN THE CITY OF COLUMBUS DOP FURNACE STREET SUBSTATION, ALL NORMAL SAFETY PROTOCOL AND PRACTICES SHALL BE FOLLOWED FOR WORKING IN AN ENERGIZED SUBSTATION YARD. CITY DOP REQUIRES ALL CONTRACTORS TO TAKE A CITY CONTRACTOR SAFETY COURSE THAT IS ONLINE PRIOR TO PERFORMING ANY WORK.

ANY GROUND GRID THAT IS DISTURBED SHALL BE REPAIRED DURING CONSTRUCTION. FENCE SHALL BE IN PLACE THE ENTIRE DURATION OF CONSTRUCTION. ALL FENCE SHALL BE BONDED TO THE GRID. CONTRACTOR SHALL EXCAVATE WITH CARE AND CAUTION. SUBSTATION LIGHTING SHALL BE MAINTAINED. SUBSTATION ACCESS SHALL BE PROVIDED FOR CITY DOP FOR EMERGENCY CASES.

ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO MEET THESE REQUIREMENTS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS ELECTRICAL PAY ITEMS.



**ELECTRICAL RELOCATION  
PAYMENT NOTES**

**FRA - 70 / 71 - 12.89 / 14.93**

921  
1815

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021







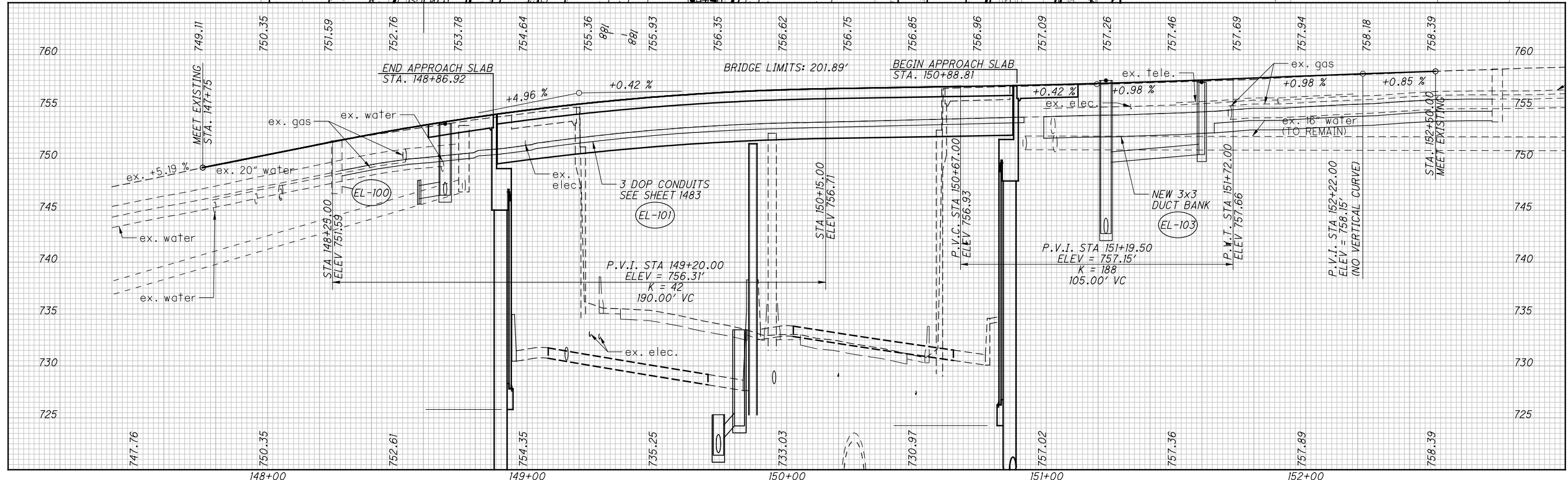
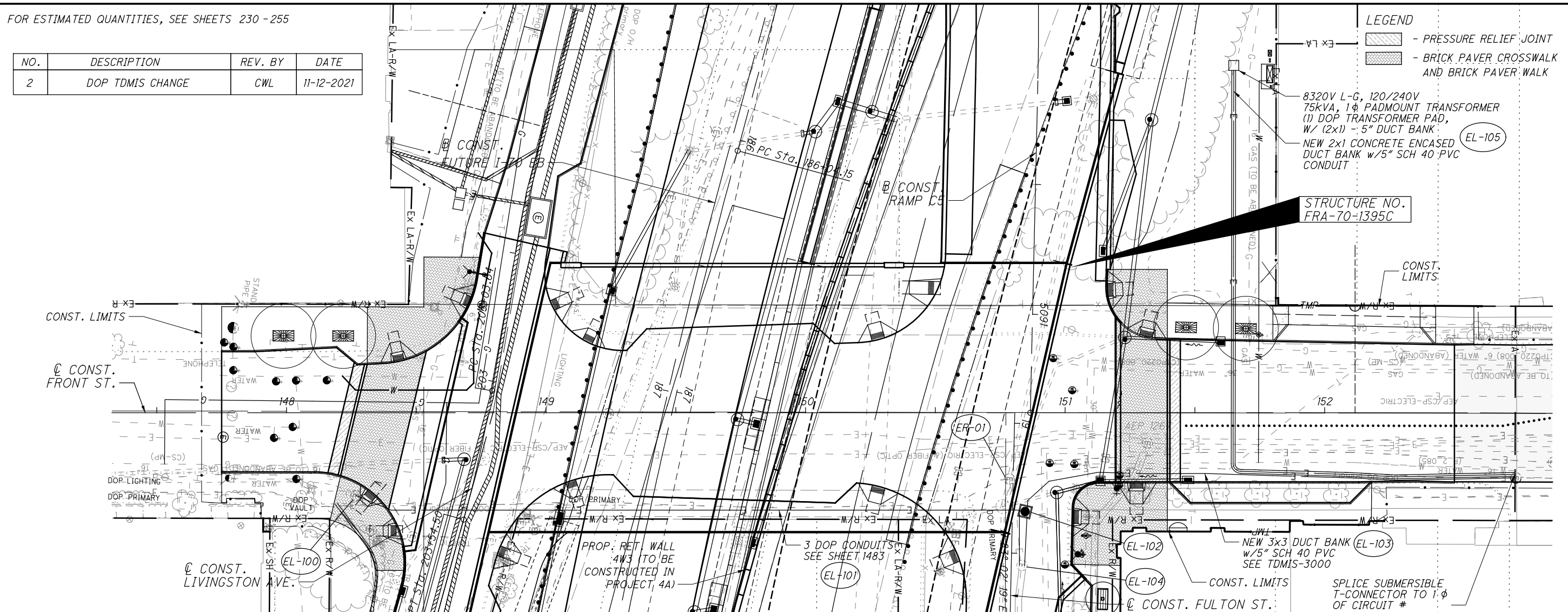
FOR ESTIMATED QUANTITIES, SEE SHEETS 230 - 255

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

**LEGEND**

- PRESSURE RELIEF JOINT
- BRICK PAVER CROSSWALK AND BRICK PAVER WALK

CALCULATED JGB   
 CHECKED SPK   
 HORIZONTAL SCALE IN FEET   
 0 10 20 40



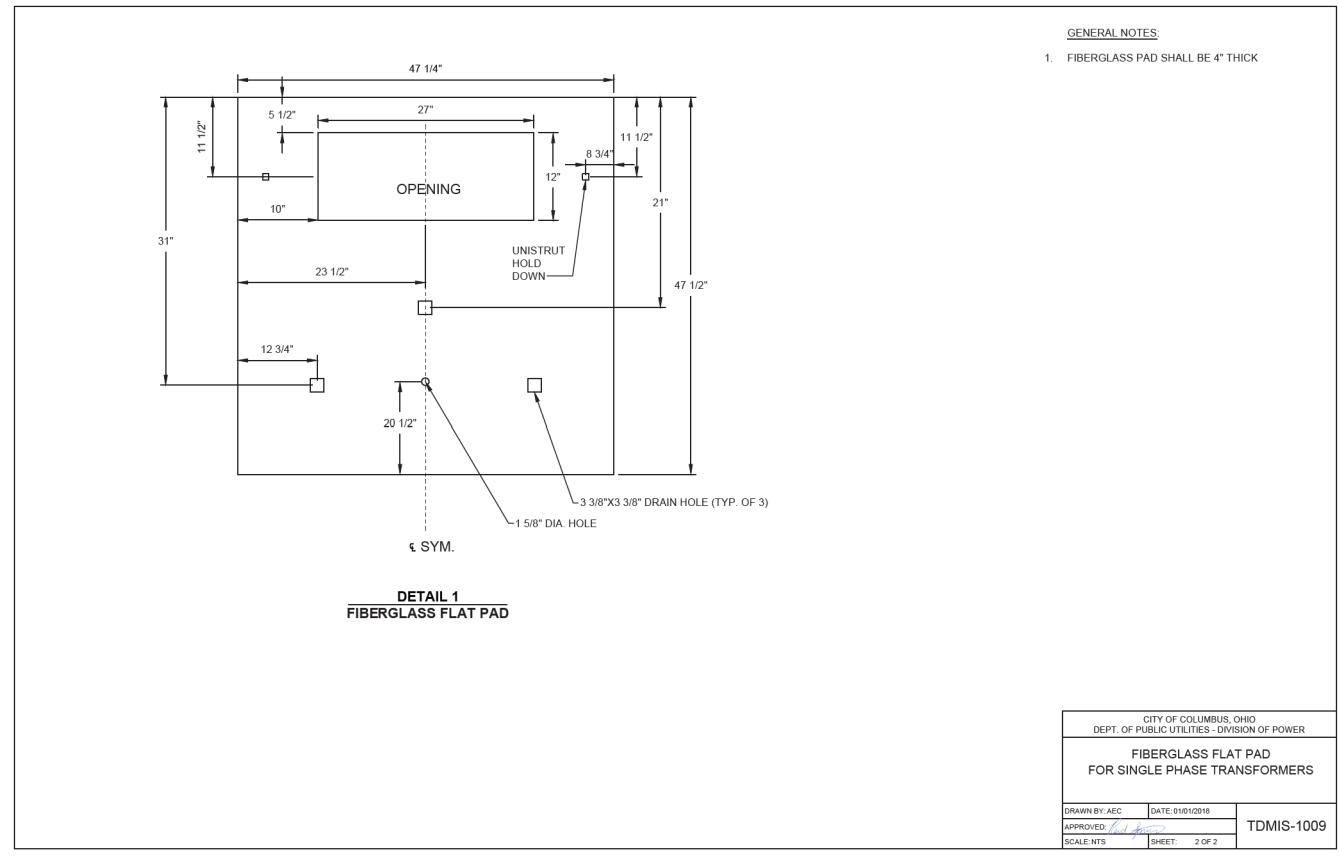
**ELECTRICAL PLAN AND PROFILE S. FRONT STREET**  
**STA. 147+00.00 TO STA. 152+20**

**FRA-70/71-12.68/14.86**  
 931  
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SECTION 3000 - CONDUIT  
\*\*\* THIS STANDARD REPLACES FORMER TDMIS-1013 \*\*\*

**3000. GENERAL**  
The following standard is to be followed when designing and installing direct buried (DB) conduit systems. This standard shall apply to primary and secondary systems installed by both DOP and/or customers.

**3001. APPLICATION**  
Schedule 40 PVC conduit is to be used where ducts are to be direct buried or encased in concrete. The amount of ducts should provide for present and future planned installations by DOP and need to include spare ducts (unoccupied and designated as a spare for emergency replacements). The minimum number of ducts shall be two.  
Routes through unstable materials such as mud, shifting soils, etc., or through highly corrosive soils, shall be avoided. If construction in these soils cannot be avoided, the conduit system shall be constructed in such a manner as to minimize movement and/or corrosion.

**3002. TYPE**  
Ducts are to be purchased in 10 foot lengths. They are to have a bell end or coupling on one end. See Table 3002-1.

Type	Size	TDMIS Item
Schedule 40 PVC	2"	UK6A2
	3"	UK6A3
	4"	UK6A4
	5"	UK6A5
	6"	UK6A6

Table 3002-1: TDMIS Items for Conduit

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3002

Approved by Reid L. Sprue, PE, Transmission and Distribution Engineering Manager, 11/01/2019

SECTION 3000 - CONDUIT

**3003. BENDING**  
**3003.1. Bends within a Duct Bank Section**  
PVC conduit has the ability to be bent without any heating of the material. Therefore hot bending will not be used for the installation of conduits. The degree of cold bending will be a function of temperature. Bends that exceed the cold bending availability will be made with 5 degree couplings. The minimum length of duct segments between single 5 degree couplings is 40 inches. This construction yields a 40 foot radius of curvature, which is the minimum requirement for any size conduit.

**3003.2. Sweeps at Equipment**  
Sweeps needed at equipment locations (e.g. pad-mount transformers) shall be made using manufactured sweeps. Acceptable sweeps are listed in Table 3005-1. The radius of the sweep shall be a minimum of 24 inches for 2 inch conduit, 36 inches for 3 to 5 inch conduit and 48 inches for 6 inch conduit. Ninety-degree conduit elbows shall not be used; the radius of these bends are not adequate and will cause damage to cable insulation.

**3004. SPACING**  
**3004.1. Ductbanks**  
Spacers must provide a 1 1/2 inch minimum separation between ducts (except 6 inch ducts which require 2 inches of separation) and 3 inches between the ducts and the surface of the ductbank. Spacers lock vertically and horizontally. Intermediate spacers shall be used as a cap on the top tier of a duct bank to prevent floating during encased burial installations. Spacers shall be placed at 5 - 8 foot intervals and shall be placed at each coupling. See Table 2 for duct bank dimensions and Table 3 for spacer information. See Figure 3004-4 for typical ductbank configurations.

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3002

SECTION 3000 - CONDUIT

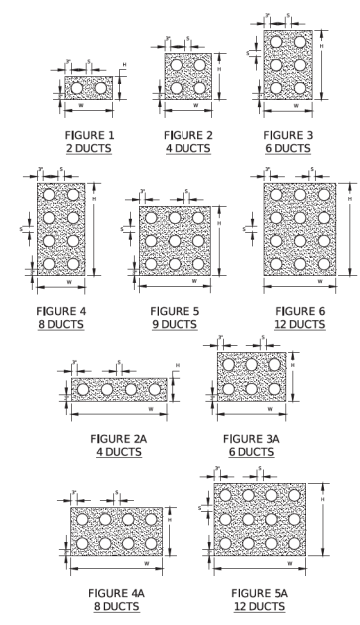


Figure 3004-1: Typical Duct Bank Configurations

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3004

SECTION 3000 - CONDUIT

Figure	Dimensions in Inches								
	4" Duct			5" Duct			6" Duct		
	W	H	S	W	H	S	W	H	S
1	16 1/2	10 1/2	1 1/2	18 3/4	11 3/4	1 1/2	21 1/4	12 3/4	2
2	16 1/2	16 1/2	1 1/2	18 3/4	18 3/4	1 1/2	21 1/4	21 1/4	2
2A	28 1/2	10 1/2	1 1/2	32 3/4	11 3/4	1 1/2	38 1/2	12 3/4	2
3	16 1/2	22 1/2	1 1/2	18 3/4	25 3/4	1 1/2	21 1/4	30	2
3A	22 1/2	16 1/2	1 1/2	25 3/4	18 3/4	1 1/2	30	21 1/4	2
4	16 1/2	28 1/2	1 1/2	18 3/4	32 3/4	1 1/2	21 1/4	38 1/2	2
4A	28 1/2	16 1/2	1 1/2	32 3/4	18 3/4	1 1/2	38 1/2	21 1/4	2
5	22 1/2	22 1/2	1 1/2	25 3/4	25 3/4	1 1/2	30	30	2
5A	28 1/2	22 1/2	1 1/2	32 3/4	25 3/4	1 1/2	38 1/2	30	2
6	22 1/2	28 1/2	1 1/2	25 3/4	32 3/4	1 1/2	30	38 1/2	2

Table 3004-1: Duct Bank Spacing

Size	Intermediate	Base
3"	UK5B	UK4B
4"	UK5C	UK4C
5"	UK5D	UK4D
6"	UK5E	UK4E

Table 3004-2: Conduit Spacer TDMIS Items



Figure 3004-2: Base Spacer

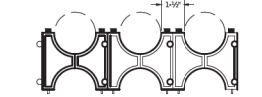
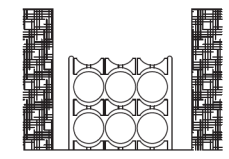


Figure 3004-3: Intermediate Spacer

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3004

SECTION 3000 - CONDUIT



6- Duct Banks (Example)

- 3- Bases
- 6- Intermediates

Figure 3004-4: 6-Way Duct Bank Example

**3004.2. Ductbank Face (in Manholes)**

The spacing is increased at the manhole face to allow the cables within the ducts to enter the manhole freely without being too close to the cables from the adjacent ducts and to allow for the use of bell end conduit.

Use the following table and Figure 3004-5 as a guideline for installing ducts at the manhole face.

Dimension	Conduit Size		
	4"	5"	6"
Spacing between conduits (S)	8"	9"	9"
Spacing between conduit and edge of ductbank (E)	6"	6"	6"

Table 3004-3: Conduit Spacer TDMIS Items

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3004

SECTION 3000 - CONDUIT

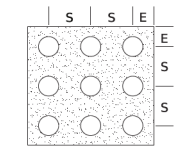


Figure 3004-5: Ductbank Face

**3005. FITTINGS**

Fittings and accessories will be joined with PVC cement (TDMIS Item UK6S).

Description	2"	4"	5"	6"
Adapter - Female (Threaded)	UK6F2	UK6F4	UK6F5	UK6F6
Adapter - Male (Threaded)	UK7M2	UK7M4	UK7M5	UK7M6
Bend - 90°	UK6B2B	UK6B4C	UK6B4C	--
Bend - 90°, 48" R	--	UK6B4D	UK6B5D	UK6B6D
Bell End	UK6E2	UK6E4	UK6E5	UK6E6
Coupling - Straight	UK6C2	UK6C4	UK6C5	UK6C6
Coupling - 5" Female x Male	UK6D2S	UK6D4S	UK6D5S	UK6D6S
Coupling - 5" Female x Female	UKD2	UKD4	UKD5	UKD6
Coupling - Repair Sleeve	UK7CC2	UK7CC4	UK7CC5	UK7CC6
Duct - Split	UK7S2	UK7S4	UK7S5	UK7S6
Plug	UK6G2	UK6G4	UK6G5	UK6G6
Reducer - Male x Male (Large End)	--	UK7E4	UK7E5	UK7E6
Split Duct Repair Kit	UK7T2	UK7T4	UK7T5	UK7T6

Table 3005-1: Conduit Fittings TDMIS Items

**3006. PITCH**

Ducts are to pitch toward manholes and have a minimum slope of no less than 3 inches per 100 feet.

<sup>1</sup> Minimum radius for 2 inch is 24 inches, for 3 inch, 4 inch and 5 inch is 36 inches, and for 6 inch is 48 inches.

TDMIS 3000 - CONDUIT			
THE CITY OF <b>COLUMBUS</b> DEPARTMENT OF PUBLIC UTILITIES	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	ISSUE	NUMBER
		11/19	3005

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

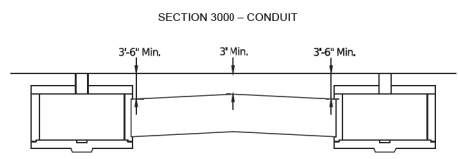


Figure 3006-1

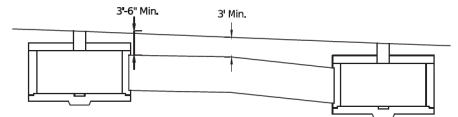


Figure 3006-2

**3007. BURIAL DEPTHS**

The minimum burial depth between the top of the completed conduit, conduit bank or direct buried cable and grade is 36 inches.  
If these minimum burial depths cannot be achieved due to ledge or solid rock conditions, supplemental protection is required to prevent potential damage, both in public ways and private property. The concrete envelope is to be a minimum of 3 inches thick in all directions around the conduit. Minimum cover over the concrete encasement shall not be less than 12 inches.

**3008. CLEARANCES**

In general, clearances between the conduit envelope and major subsurface pipes or structures shall be 12 inches. This applies to all other utilities including communications, natural gas, sewers, sanitary, storm, and water. However, this clearance may be reduced with approval from DOP Engineering. The standard clearance to communications lines may be substituted for 3 inches of concrete.

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3009	11/19	3008	

Clearances to services and laterals shall be a minimum of 2 inches. Electric conduit crossing above other utilities must have suitable support under the electric conduit, on each side of the other utility line, to maintain the minimum clearance if the other utility's facilities ever have to be dug out.

**3009. EXCAVATION**

Excavation for an entire run shall be completed prior to conduit installation to preclude encountering unexpected obstructions. The trench shall be excavated and trimmed in such a way that backfill is not required to establish the proper line of grade.  
The trench bottom shall be solid, undisturbed earth. Earth showing extensive signs of peat, cinders, rubble, frozen material, or any conditions not suitable for a stable foundation, shall be reported to DOP Engineering for recommendation. Small pockets (up to 1 cubic yard) of unsuitable soil shall be excavated and replaced with compacted gravel (maximum 2 inches of stone).  
Where the earth walls of the trench are firm enough to sustain themselves, and all OSHA requirements are met, they may be used as the forms for concrete encasement. The walls of these trenches shall be carefully trimmed to allow the proper thickness (minimum 3 inches) of concrete around the outside conduits, but shall not be so wide as to require an excessive amount of concrete to fill the trench. If shoring and/or sheeting are necessary, they shall be placed as required to maintain the excavation and shall be removed prior to concrete encasement and/or as the backfilling progresses so that all shoring is removed as the job is completed.  
Excess excavation material shall be removed from the job site as soon as possible.

**3010. INSPECTION**

DOP or City inspectors shall perform on-site inspection of the installation after the duct sections are complete and prior to pouring concrete or backfilling any portion of the installation.

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3009	11/19	3008	

**3011. CONNECTION OF CONDUIT FITTINGS**  
Conduit and conduit fittings shall be permanently connected using a medium-bodied clear PVC solvent cement (TDMIS ID UK65).

**3012. CONCRETE**

**3012.1. Materials**  
Cement shall be a standard brand of Portland Cement Type II conforming to ASTM C150.  
Sand shall be sharp and clean and shall conform to ASTM C33, latest revision.  
Coarse aggregate shall be of gravel, crushed gravel or crushed stone and conform to ASTM C33, latest revision.  
Water shall be from a potable water supply, assuring it is clean and free from injurious amounts of oil, acids, alkali, organic materials, or other harmful substances.  
**3012.2. Ready-Mix Concrete**  
Ready-mix concrete shall be proportioned at the plant. Mixing and delivery shall be in accordance with ASTM C94, latest revision.  
Concrete shall have a 3,000 psi 28-day strength minimum with a maximum of #8 aggregate. Slump shall be between 4 and 6 inches.  
An air-entraining agent shall be added to concrete mixes in which the surface will be exposed to the elements. Air-entrainment content shall be 5% plus or minus 1%.  
**3012.3. Delivery and Mixing**  
In the event that delivery of concrete is called for when the air temperature is below 40 degrees Fahrenheit, the following shall apply:

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3012	11/19	3012	

**3012.4. Forms**  
Formwork shall be designed and constructed in accordance with the American Concrete Institute's "Recommended Practice for Concrete Formwork", ACI 347, of latest date.  
Forms shall be built substantially; true to form, lines, dimensions, and grades shown. They shall be braced and tied to maintain position and shape, without yielding to pressure of fluid concrete or other forces, including those produced by vibratory compaction.  
Forms shall be constructed of 1/4 inch BB grade plywood supported with 2 x 4 studs on 16 inch centers. Forms shall not exceed a 10 foot pour height and form tie spacing shall not exceed 2 feet. Form ties and accessories shall be used. The forms shall be vertical and symmetrical and in the largest sizes practicable. Sheets showing torn grain, worn edges, hole patches, or other defects, which impairs the texture of the concrete surface, shall not be used.  
Forms shall be treated with approved form oil, before erection or reinforcing steel placement, to prevent adhesion of the concrete.  
Forms shall be mortar-tight. For surfaces which will be exposed, the form faces shall be smooth and mortar-tight.  
Forms shall be removed carefully to avoid damage to the concrete surfaces. The removal time is governed by the concrete's condition, curing temperature, curing time, and the forces the new concrete may be subjected. Under favorable curing conditions, forms may be removed no sooner after placement than 12 hours. If high-early strength concrete is used, this time period may be to six hours.

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3012	11/19	3012	

**3012.5. Placement**

Concrete shall not be placed until the forms, previously poured concrete surfaces, reinforced steel, and embedded parts have been cleaned of laitance, loose or defective concrete, soil on rock surface, and any other foreign materials.  
All concrete placed when the air temperature is above 45 degrees Fahrenheit shall be placed at the coolest temperature as practicable. Concrete placement is not permitted when hot weather conditions prevent proper placement and consolidation. Concrete will not be accepted if its temperature is in excess of 80 degrees Fahrenheit.  
When the mean daily temperature falls below 40 degrees Fahrenheit, the minimum concrete temperature shall be 55 degrees Fahrenheit and as close to this minimum as possible.  
When the air temperature is below 40 degrees Fahrenheit, provide suitable protection so the concrete can be maintained at a minimum of 50 degrees Fahrenheit throughout the curing period. The protection and heat source, shall maintain the required temperature and moisture conditions without injury due to concentration of heat. All materials which the concrete contacts such as reinforcing, forms, ground, etc., shall be free of frost prior to placement.  
Concrete temperature changes during and immediately following the curing period shall be as uniform as possible and shall not exceed 5 degrees Fahrenheit in any one hour, nor 40 degrees Fahrenheit in any 24 hour period. When heaters are used, prevent local surface heating and drying and provide adequate ventilation to prevent carbonation damage to exposed concrete surfaces. Thermostatic temperature controls shall be provided to control the heated enclosures to 50 degrees Fahrenheit. Temperatures exceeding 80 degrees Fahrenheit are to be avoided.  
Concrete shall not be allowed to fall from the end of a chute, tube, or bucket more than 5 feet to point of deposit and shall have a fall free from obstructions. Chutes shall be metal or metal-lined.  
Pumping equipment, pipelines, procedures, etc., shall be in accordance with ACI 304R, latest revision. Conveying equipment for pumped concrete shall be of suitable kind, without "Y" sections and with adequate pumping capacity. No aluminum pipe shall be used. Placement shall be controlled so there is no

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3012	11/19	3012	

**3012.6. Curing**

separation in the discharged concrete. The maximum loss of slump in pumping equipment shall be 1 1/2 inches.  
Concrete shall be deposited as near to its final position as possible to avoid long flows in the forms. Concrete shall not be moved more than 10 feet from point of deposit. Concrete shall be placed in successive horizontal layers, ranging in thickness from 6-15 inches, maximum.  
Concrete shall be placed within 1 1/2 hours after addition of cement to the aggregate. Where conditions make it difficult to place concrete uniformly and perform compaction at the bottom of forms, batches of mortar containing the same proportion of cement to sand as in the concrete mix shall be deposited first and spread over the cleaned surface to a depth of approximately 1 inch.  
Segregated, unworkable, and excessive slump concrete shall not be placed or, if placed, shall be removed and wasted as directed. High slump concrete resulting from addition of approved additives is acceptable for placement.  
Placement and compaction methods shall ensure homogeneous concrete with maximum consolidation without segregation. Consolidate concrete by internal vibration, spading, or rodding by working it thoroughly around reinforcement, embedded items, and into corners of forms to eliminate all air or stone pockets which cause honeycombing, pitting, or planes of weakness. Concrete contacting all formed surfaces shall be spaded manually to eliminate air bubbles.  
Place horizontal construction joints at uniform vertical spacing unless otherwise shown on the drawings. Concrete shall not be placed to a depth of more than 10 feet in any 24 hour period. All concrete placements shall be such as to keep cold joints from forming.  
Whenever work is suspended on any section for more than one hour, the horizontal edges of the concrete next to the forms shall be brought to a plane perpendicular to the form face, and treated so no irregular, rough, or feathered edge joints show in the finished work. Before placing the next lift, clean the joint surface and remove all laitance. Immediately before placing new concrete wet the joint surface and remove all standing water.  
Unless adequate weather protection is provided, do not place concrete during rain, sleet, or snow.

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
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**3012.6. Curing**

Protect freshly deposited concrete from premature drying and hot or cold temperatures.  
Maintain a constant temperature throughout the curing period without drying.  
All exposed concrete surfaces shall be kept continuously moist overnight by ponding, sprinkling, or by use of an approved membrane type curing compound, which conforms to ASTM C309, latest revision, and applied in conformance with the manufacturer's recommendations.  
Curing shall continue, using one of the above methods or waterproof paper, for a 7 day period (3 days for high-early strength concrete) maintaining the concrete at a minimum temperature of 50 degrees Fahrenheit as is practical. Protective covering with tarpaulins, hay, straw, etc. shall be provided to retard moisture evaporation during hot weather and to prevent rain damage before hardening. Protective covering shall be available for immediate use at all times.  
During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration.  
**3012.7. Loading of Concrete**  
Trenches containing concrete encased duct lines constructed on undisturbed original ground may be backfilled not less than two hours after placement. Compaction by light tamping equipment may proceed immediately. Loading of the backfill by heavy equipment or traffic is not permitted before 12 hours after placement.

**3013. BACKFILL**

Concrete will be cured for a minimum of 2 hours before backfilling over it. Before any backfill is installed, a DOP employee or City representative shall inspect and approve the duct construction and backfill material. Flowable fill is a viable backfill if available and when deemed necessary.  
Backfill within 6 inches of the top of the concrete shall be free of solid material greater than 4 inches maximum dimension, or, with sharp edges likely to cause damage. The

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3013	11/19	3013	

**3014. WARNING TAPE**

balance of backfill shall be free of solid material greater than 8 inches, maximum dimension. Backfill material shall be adequately compacted in 6 inch lifts. Peat, cinders, rubble and frozen material are not suitable backfill material.  
Warning tape (TDMIS Item UT1) shall be installed 12 to 18 inches below finished grade and directly above electric conduit. All buried warning tapes shall be printed on APWA approved colors to meet or exceed industry standards. 5-mil tape shall have a solid aluminum foil backing to make it easy to find underground using a non-ferrous locator. Text shall read: "Warning! Buried Electric Below" in bold capital letters, black on red background. Tape shall be 6" wide minimum. The imprinted warning message shall be "Buried, or Encased" to prevent ink rub-off, and shall be impervious to acids, alkalis and other destructive elements found in soil. The imprint shall allow for total reflectivity. A tape must be visibly seen before it can be read.

**3015. MANDREL**

An approved flexible mandrel, no less than 1/4 inch smaller in diameter than the duct nominal inside diameter, shall be pulled through all completed ducts. 2,500 pound rated pulling tape, often referred to by the trade name "Muletape", shall be left in all conduits.

**3016. DUCT SIZING FOR THREE SOLID DIELECTRIC PARALLEL CABLES WITH 600V NEUTRAL**

Cables are required to have 1/4 inch clearance through the conduit. Also multiple cables might have a possibility of jamming. Table 3016-1 will aid in the selection of the proper conduit size for three parallel conductors with one 600-volt neutral sized per TDMIS-1510. Table 3016-2 includes standard sized cables with concentric neutrals and is provided for reference only. "NO" means the conduit is not suitable for the conductors. "YES" means the conduit is suitable for the conductors.  
Acceptable conduit size was selected by determining jamming possibility and a 1/4 inch clearance. Jamming was calculated using the formula D/d. Where D = inside diameter of duct and d = single cable nominal OD. If D/d ratio is greater than 2.8 and less than 3.2 there is a possibility that the cables may jam.

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	ISSUE	NUMBER
3014	11/19	3014	

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

SECTION 3000 - CONDUIT

Conductor Size	Conduit Size			
	3"	4"	5"	6"
#2 AWG	Yes	Yes	Yes	Yes
2/0 AWG	No	Yes	Yes	Yes
350 MCM	No	No	Yes*	Yes
500 MCM	No	No	Yes	Yes
750 MCM	No	No	No	Yes
1000 MCM	No	No	No	Yes

Table 3016-1: Appropriate Conduit Size for Use with Standard Tape Shield Cables

Conductor Size	Conduit Size			
	3"	4"	5"	6"
#2 AWG	Yes*	Yes	Yes	Yes
4/0 AWG	No	Yes*	Yes	Yes
500 MCM Compact	No	Yes*	Yes	Yes
500 MCM	No	No	Yes*	Yes
750 MCM	No	No	No	Yes*
1000 MCM	No	No	No	Yes

Table 3016-2: Appropriate Conduit Size for Use with Concentric Neutral Cables

\*Cable may jam.

3017. MEASUREMENT AND PAYMENT

3017.1. Method of Measurement

The method of measurement shall be the linear foot length of completed and operational duct bank on center line from point to point. Duct banks that terminate with a transition to a riser, such as a riser pole shall be measured point to point including the transition, i.e., pole to pole, pole to vault or manhole, pole to pad etc. When conduits of different sizes are contained within the same duct bank, the measurement shall assume and be based on all conduits are the same size as the largest conduit.

SECTION 3000 - CONDUIT

3017.2. Basis of Payment

Items	Unit	Description
TDMIS-3000	linear feet	Operational and proof-tested _____ inch (number of ducts)-way concrete-encased duct bank

TDMIS 3000 - CONDUIT			
ISSUE	NUMBER	CITY OF COLUMBUS DEPARTMENT OF PUBLIC UTILITIES	
11/19	3017	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	

TDMIS 3000 - CONDUIT			
NUMBER	ISSUE	CITY OF COLUMBUS DEPARTMENT OF PUBLIC UTILITIES	
3017	11/19	DIVISION OF POWER TRANSMISSION AND DISTRIBUTION MATERIAL AND INSTALLATION SPECIFICATIONS	

**Transmission & Distribution Material & Installation Specification**

**Precast Manhole**

I. Quantity

The base bid shall include the indicated number of manholes with 50-inch frame and lid units furnished and installed as hereinafter specified.

II. Material

- A. Certification - National Precast Concrete Association 2011 or latest edition.
- B. Load Rating - AASHTO H-20.
- C. Design - 5000 PSI concrete mix. Air 6% +/- 2% per Ohio Department of Transportation standards.
- D. Inside dimensions - 14'-0" L x 7'-6" W x 8'-0" H.
- E. Two (2) interlocking wall sections - 10.35 ton (Top), 10.5 ton (Bottom).
- F. Sump Tile - 12" Dia. x 2'-0" L vitrified.
- G. Cast iron frame and covers - 50" manhole lid and frame. EJW 1985, Neenah R-1741-F, or approved equal.
- H. Pulling Iron - Pulling irons shall be model PI-1, as manufactured by Pennsylvania Insert Corp. or approved equal and shall be 7-strand, 1/2" stress relieved carbon steel cable designed for concrete applications. The ultimate strength of the cable shall be 270 kips. The exposed portion of the pulling iron shall have a molded Hytrel polyester elastomer encapsulating the cable. The ends of the pulling iron shall have plastic protective caps. Safe working load varies with application.
- I. Pockets - Pulling iron pockets and pocket lids shall be manufactured by Pennsylvania Insert Corp. or approved equal and shall be injected molded from high strength polystyrene. Pocket shall be designed to cast pulling irons recessed in

walls. Pocket shall feature grooves molded into its surface to facilitate mounting of part with wire. Pocket lid shall fit into pocket and shall be reusable. Opening in bottom of pocket shall be sized to prevent concrete leakage when used with Pennsylvania Insert Pulling Irons.

- J. Cable Racking - 1/2" Ackerman-Johnson insert or approved equal as shown on the drawings. Rack stanchions shall be non-metallic. Length as required but 3' minimum, as manufactured by Underground Devices Cat #CR36-B, or equal, and be butted together to achieve a minimum total length each of 72". Quantity of racks shall be provided for installation at each vertical row.
- K. Cable Hooks - Hooks shall be Non-Metallic, 11" minimum length as manufactured by Underground Devices Cat # RA11. .218" deflection @ 400#, or Engineer approved equal. Provide quantity of rack arms that equal 4 arms per stanchions provided.
- L. Lifting Insert - 1-1/2".
- M. Link seal - Link seal shown in detail 12&13 shall comply with the following:
  - 1. Pressure resistant to 20 psig (40ft of head)
  - 2. Oil resistant - Nitrile rubber (green)
  - 3. Hardware - S316 stainless steel
 Per ASTM F593-95 tensile strength = 85,000 psi, average.  
 Material properties of Link-Seal modular seal elements:  

Property	ASTM Method	Nitrile
Hardness (shore A)	D2240	50+/-5
Tensile	D-412	1300 psi
Elongation	D-412	300%
Compression set	S-395	45%, 22hrs. @ 212°F
Specific gravity	D297	1.15
- N. Precast Joint Sealant - Con Seal CS-102, or approved equal. The sealant shall meet or exceed the requirements of the Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91. The sealant is to provide permanently flexible watertight joints and low to high temperature workability of 30 deg. F to 120 deg. F. The hydrostatic strength shall be required by ASTM C-990 section 10.1.
- O. Manhole Dewatering System - Provide a complete and operational dewatering system as follows.

CITY OF COLUMBUS DEPT. OF PUBLIC UTILITIES - DIVISION OF POWER PRECAST MANHOLE			
DRAWN BY: AEC	DATE: 01/02/18	TDMIS-1015	
APPROVED: [Signature]			
		SHEET 1 of 10	

- 1. Fusible disconnect switch shall be 30A, 600V, 2 pole, solid neutral with bonding screw, NEMA 4X stainless steel with fuses (plus 2 spares) as required for transformer and pump load.
- 2. Transformer shall be single phase, 3KVA minimum, 480V primary and 120V secondary. Core and coils shall be epoxy encapsulated "potted" and enclosed within a 302 stainless steel enclosure. Mixture of silica, sand and resin forming a solid mass completely enclosing and protecting the core and coil, and should also significantly reduces audible noise.
  - Windings, utilize class 220°C Insulating rated for 150°C Rise, but designed to operate at 115°C maximum.
  - The transformer's core shall be solidly grounded.
  - Enclosure constructed from heavy gauge steel, coated with ASA#61 grey powder paint
  - Suitable for NEMA/CSA Type 4X enclosure applications for both indoor and outdoor
  - Wiring compartment (bottom or front access may depend on size)
    - o Standard Primary Taps
    - o CSA Certified
    - o UL Listed
    - o ISO9001 Quality Certification
 Entire assembly shall be rated NEMA 4X.
- 3. Submersible Pump shall have the following characteristics:
  - Cast Iron Construction
  - 1/2 HP, 60 Hz, 1 1/2" NPT Discharge
  - Integrated with a float operated mechanical switch, no external control required.
  - Non-clogging engineered thermoplastic vortex impeller design.
  - Completed UL/CSA Certified.
  - Basis of design: Zoeller "Flow-Mate" Model 98

IV. Method of measurement

Shall be per each based on a complete and operational manhole including all miscellaneous precast items, frames, covers, sumps, inserts, grounding system, excavation and backfill, surface restoration, as shown and/or as required.

V. Basis of payment

Items	Unit	Description
TDMIS-1015	Each	Manhole with 50 inch frame and lid module

III. Installation

- A. The installation shall be as shown on drawing TDMIS-1015, sheets 3 thru 10.
- B. To install sealant, clean surface, apply sealant to fill the cavity.

CITY OF COLUMBUS DEPT. OF PUBLIC UTILITIES - DIVISION OF POWER PRECAST MANHOLE			
DRAWN BY: AEC	DATE: 01/02/18	TDMIS-1015	
APPROVED: [Signature]			
		SHEET 2 of 10	

NO.	DESCRIPTION	REV. BY	DATE
2	DOP TDMIS CHANGE	CWL	11-12-2021

CALCULATED  
TAM  
CHECKED  
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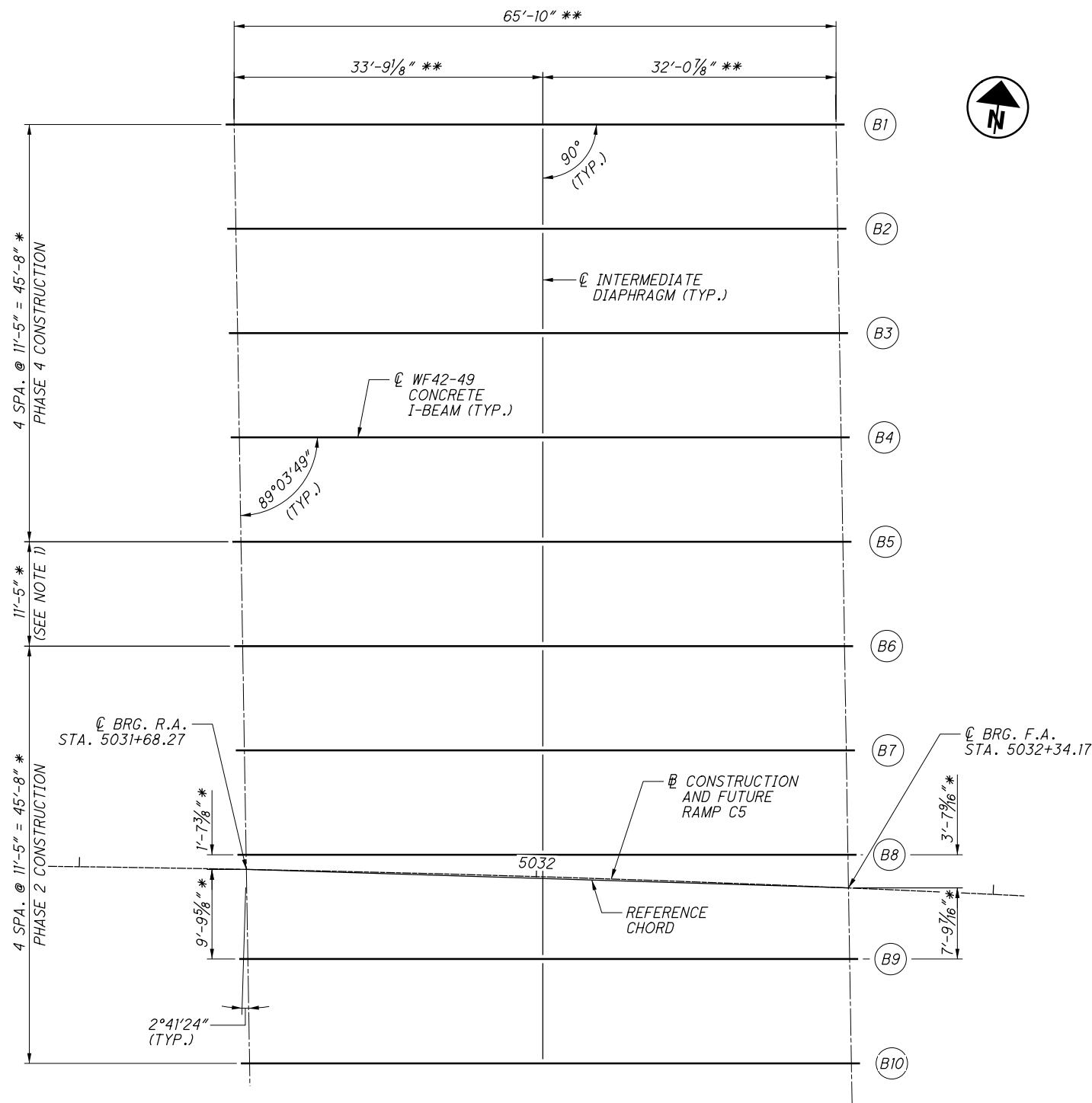
ELECTRICAL TDMIS DETAILS

FRA - 70 / 71 - 12.68 / 14.86

945  
1815



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**LEGEND:**

- (B#) = BEAM DESIGNATION
- BRG. = BEARING
- F.A. = FORWARD ABUTMENT
- R.A. = REAR ABUTMENT
- \* = MEASURED PERPENDICULAR TO  $\bar{C}$  BEAMS
- \*\* = MEASURED ALONG  $\bar{C}$  BEAM

**NOTES:**

1. THE INTERMEDIATE DIAPHRAGM BETWEEN BEAMS 5 AND 6 SHALL BE PLACED AFTER THE PHASE 4 CONSTRUCTION AND BEFORE THE CLOSURE POUR.
2. SEE STANDARD DRAWING PSID-1-13 AND SHEET 25 / 41 FOR INTERMEDIATE DIAPHRAGM DETAILS.
3. TEMPORARY BRACING BETWEEN CONCRETE I-BEAMS AND SUPERSTRUCTURE PER CMS 515.19 SHALL REMAIN IN PLACE UNTIL DECK HAS BEEN PLACED AND CURED.
4. GIRDER ERECTION OVER CITY STREETS: A MINIMUM OF TWO OR MORE GIRDERS SHALL BE ERECTED AND BRACED TOGETHER WITH INTERMEDIATE DIAPHRAGMS PRIOR TO SUSPENDING ERECTION OPERATIONS. ALL GIRDERS SHALL BE TEMPORARILY SUPPORTED, ANCHORED AND/OR BRACED PRIOR TO INSTALLING INTERMEDIATE DIAPHRAGMS AND CASTING END DIAPHRAGMS.
5. TEMPORARY BRACING AT THE LOCATIONS OF INTERMEDIATE DIAPHRAGMS IS PERMITTED TO MEET THE NOTE 5 NOT REQUIREMENTS ON SHEET 71 OF 1815. PERMANENT INTERMEDIATE DIAPHRAGMS SHALL BE AS SHOWN ON STANDARD DRAWING PSID-1-13.

**FRAMING PLAN**

NUMBER	DESCRIPTION	REVISED BY	DATE
2	ADDED NOTE 5	CAS	11-8-2021

DESIGNED	CHECKED	DRAWN	REVIEWED	DATE
JDH	TTK	JDH	CAS	10/17/18
				STRUCTURE FILE NUMBER 2504669

**ESTIMATED QUANTITIES**

CALCULATED: RFV DATE: 5-29-19  
CHECKED: TJW DATE: 5-30-19

ITEM	EXT.	TOTAL 03/IMS/B R	UNITS	DESCRIPTION	ABUTMENT	PIER	SUPER.	GENERAL	A.P.P. REFERENCE SHEET NO.
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING					
503	21100	767	CY	UNCLASSIFIED EXCAVATION	767				
505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION					
507	00100	1,890	FT	STEEL PILES HPI0X42, FURNISHED	1,890				
507	00150	1,755	FT	STEEL PILES HPI0X42, DRIVEN	1,755				
507	93300	27	EACH	STEEL POINTS OR SHOES	27				
509	10001	895,729	LB	EPOXY COATED REINFORCING STEEL, AS PER PLAN	23,664	216,790	655,275		8
511	34447	2,274	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN			2,274		8
511	34450	326	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)			326		
511	43512	289	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	289				
511	45602	1,236	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA		1236			
512	10100	4,775	SY	SEALING CONCRETE SURFACES (EPOXY-URETHANE)	222	2309	2244		
513	10300	2,355,836	LB	STRUCTURAL STEEL MEMBERS, LEVEL 5			2,355,836		
513	10401	1,495,251	LB	STRUCTURAL STEEL MEMBERS, HYBRID GIRDER, LEVEL SIX (6) FABRICATION, AS PER PLAN			1,495,251		8
513	20000	27,788	EACH	WELDED STUD SHEAR CONNECTORS			27,788		
513	95030	6	EACH	STRUCTURAL STEEL, MISC.: PARAPET SLIDING PLATE JOINT			6		8
514	00060	3,476	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			3,476		
514	00066	3,476	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			3,476		
514	10000	3	EACH	FINAL INSPECTION REPAIR			3		
516	12400	163	FT	SPECIAL - MODULAR EXPANSION JOINT			163		8
516	44101	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (1'-5" DIA.) (PTFE)			10		10
516	44101	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (1'-6 1/2" DIA.) (PTFE)			6		10
518	12301	8	EACH	SCUPPER, INCLUDING SUPPORTS, AS PER PLAN			8		64
518	21200	81	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	81				
518	40000	100	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	100				
518	40010	30	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	30				
518	51201	60	FT	PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN (DIAMETER = 10")		60			65
518	60031	15	FT	PIPE HORIZONTAL CONDUCTOR, AS PER PLAN			15		66
524	94919	107	FT	DRILLED SHAFTS, 60" DIAMETER, INTO BEDROCK, AS PER PLAN		107			11
524	94931	814	FT	DRILLED SHAFTS, 66" DIAMETER, ABOVE BEDROCK, AS PER PLAN		814			11
524	94931	235	FT	DRILLED SHAFTS, 66" DIAMETER, ABOVE BEDROCK, AS PER PLAN, PIER 4		235			11
524	94935	36	FT	DRILLED SHAFTS, 66" DIAMETER, INTO BEDROCK, AS PER PLAN		36			11
524	94947	182	FT	DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN		182			11
526	30010	187	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17")				187	
526	90010	85	FT	TYPE A INSTALLATION				85	
601	21000	870	SY	CONCRETE SLOPE PROTECTION				870	
601	32104	1,190	CY	ROCK CHANNEL PROTECTION, TYPE B WITH GEOTEXTILE FABRIC				1190	
869	00101	28	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS, AS PER PLAN			28		11
SPECIAL	69098100	181	FT	COVERED WALKWAY SYSTEM				181	7

NO.	DESCRIPTION	REV. BY	DATE
2	REVISED QUANTITY	MOJ	11-12-2021



DESIGNED BY: TJW  
CHECKED BY: RHC  
DRAWN BY: MSL  
REVISED BY:  
REVIEWED BY: DGN  
DATE: 9-6-19  
STRUCTURE FILE NUMBER: 2510015

ESTIMATED QUANTITIES  
BRIDGE NO. FRA-70-1321A  
RAMP A5/B5/C5 OVER THE SCIOTO RIVER

FRA-70/71-12.68/14.86  
PID No. 105523

12/99

1375  
1815

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**ITEM 530 - SPECIAL - STRUCTURES: PRECAST FACADE PANELS**

THIS BID ITEM CONSISTS OF PRECAST PANELS MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH THIS SPECIFICATION AND DESIGNED IN ACCORDANCE WITH THE AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 2014, INCLUDING THE 2015 & 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

**DESIGN STRESSES:**

CONCRETE - COMPRESSIVE STRENGTH 4,000 PSI  
REINFORCING STEEL - GRADE 60

**MATERIALS - CONCRETE:**

THE CONCRETE FOR THE WALL SECTIONS SHALL BE COMPOSED OF PORTLAND CEMENT, FINE & COARSE AGGREGATES, ADMIXTURES, AND WATER. PORTLAND CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION C150, TYPE I, II, OR III. THE AIR ENTRAINING ADMIXTURE SHALL CONFORM TO AASHTO M154. THE CONCRETE SHALL CONTAIN 6% ±2% ENTRAINED AIR, AND SLUMP SHALL BE MAINTAINED WITHIN THE RANGE OF 1" TO 4". THE SLUMP MAY BE INCREASED TO 7" PROVIDED THE INCREASE IS ACHIEVED BY THE ADDITION OF A CHEMICAL WATER-REDUCING ADMIXTURE APPROVED BY THE ENGINEER.

**MATERIALS - REINFORCING AND HARDWARE:**

REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM A185 OR A497, OR DEFORMED BILLET-STEEL BARS CONFORMING TO ASTM A615, A616, OR A617, GRADE 60. ALL ANGLES AND PLATES SHALL BE ASTM A36 STEEL.

**SHOP DRAWING REQUIREMENTS:**

THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:  
- ALL STRUCTURAL DESIGN AND LOADING INFORMATION.  
- A PLAN VIEW.  
- ALL ELEVATION VIEWS.  
- ALL DIMENSIONS.

MANUFACTURING SHALL NOT BEGIN UNTIL WRITTEN APPROVAL OF THE SUBMITTED SHOP DRAWINGS HAS BEEN RECEIVED.

**TESTING AND INSPECTION:**

ACCEPTABILITY OF THE CONCRETE FOR THE PRECAST PANELS WILL BE DETERMINED ON THE BASIS OF COMPRESSION TESTS, CERTIFICATIONS AND VISUAL INSPECTION. THE CONCRETE STRENGTH REQUIREMENTS FOR THE PRECAST PANELS SHALL BE CONSIDERED ATTAINED REGARDLESS OF CURING AGE WHEN COMPRESSION TEST RESULTS INDICATE STRENGTH WILL CONFORM TO 28-DAY SPECIFICATIONS AS STATED BELOW. THE MANUFACTURER SHALL FURNISH FACILITIES AND PERFORM ALL NECESSARY SAMPLING AND TESTING IN AN EXPEDITIOUS AND SATISFACTORY MANNER. PANELS UTILIZING TYPE I OR II CEMENT SHALL BE CONSIDERED ACCEPTABLE FOR PLACEMENT IN THE WALL WHEN 7-DAY INITIAL STRENGTHS EXCEED 85% OF 28-DAY REQUIREMENTS. PANELS UTILIZING TYPE III CEMENT SHALL BE CONSIDERED ACCEPTABLE FOR PLACEMENT IN THE WALL PRIOR TO 28 DAYS ONLY WHEN COMPRESSION STRENGTH TEST RESULTS INDICATE THAT THE STRENGTH EXCEEDS THE 28-DAY SPECIFICATION.

**MANUFACTURE:**

THE AGGREGATES, CEMENT, AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS CONCRETE MEETING THE STRENGTH REQUIREMENTS OF THESE NOTES. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 564 POUNDS PER CUBIC YARD OF CONCRETE.

THE WALL SECTIONS SHALL BE CURED FOR A SUFFICIENT LENGTH OF TIME SO THAT THE CONCRETE WILL DEVELOP THE SPECIFIED COMPRESSIVE STRENGTH IN 28 DAYS OR LESS. ANY ONE OF THE METHODS OF CURING OR COMBINATION THEREOF SHALL BE USED:

STEAM CURING - THE SECTIONS MAY BE LOW PRESSURE, STEAM CURED BY A SYSTEM THAT WILL MAINTAIN A MOIST ATMOSPHERE.

WATER CURING - THE SECTIONS MAY BE WATER CURED BY ANY METHOD THAT WILL KEEP THE SECTIONS MOIST.

THE FORMS USED IN MANUFACTURE SHALL BE SUFFICIENTLY RIGID AND ACCURATE TO MAINTAIN THE SECTION DIMENSIONS WITHIN THE PERMISSIBLE VARIATIONS GIVEN IN THESE NOTES. ALL CASTING SURFACES SHALL BE OF SMOOTH MATERIAL.

THE WALL SECTIONS SHALL BE STORED IN SUCH A MANNER TO PREVENT CRACKING OR DAMAGES.

**MANUFACTURE (CONTINUED):**

THE FRONT FACE OF THE REINFORCED CONCRETE PANELS SHALL HAVE A SMOOTH CONCRETE FINISH AND INCORPORATE THE PATTERNS SHOWN IN THE STRUCTURE AESTHETIC DETAIL PLANS. CAULKING BETWEEN PRECAST PANELS SHALL BE IN ACCORDANCE WITH THE PLAN DETAILS. THE BACK SIDE OF THE REINFORCED CONCRETE PANELS SHALL HAVE AN UNFORMED SURFACE FINISH AND SHALL BE ROUGH SCREEDED TO ELIMINATE OPEN POCKETS OF AGGREGATE AND SURFACE DISTORTIONS IN EXCESS OF 1/4".

ALL PANELS SHALL BE MANUFACTURED WITH ALL PANEL DIMENSIONS WITHIN 1/4"

**COMPRESSIVE STRENGTH:**

ACCEPTANCE OF THE CONCRETE PANELS WITH RESPECT TO COMPRESSIVE STRENGTH WILL BE DETERMINED ON THE BASIS OF PRODUCTION LOTS. A PRODUCTION LOT IS DEFINED AS A GROUP OF PANELS THAT WILL BE REPRESENTED BY A SINGLE COMPRESSIVE STRENGTH SAMPLE AND WILL CONSIST OF EITHER 6 PANELS OR A SINGLE DAY'S PRODUCTION, WHICHEVER IS LESS.

DURING THE PRODUCTION OF THE CONCRETE PANELS, THE MANUFACTURER WILL RANDOMLY SAMPLE THE CONCRETE IN ACCORDANCE WITH ASTM C172. A SINGLE COMPRESSIVE STRENGTH SAMPLE, CONSISTING OF A MINIMUM OF FOUR CYLINDERS, WILL BE RANDOMLY SELECTED FOR EVERY PRODUCTION LOT.

CYLINDERS FOR COMPRESSIVE STRENGTH TESTS SHALL BE 6" DIA. X 1'-0" SPECIMENS PREPARED IN ACCORDANCE WITH ASTM C31. FOR EVERY COMPRESSIVE STRENGTH SAMPLE, A MINIMUM OF 2 CYLINDERS WILL BE CURED IN THE SAME MANNER AS THE PANELS AND TESTED AT APPROXIMATELY 7 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF THESE CYLINDERS, WHEN TESTED IN ACCORDANCE WITH ASTM C39, WILL PROVIDE A TEST RESULT WHICH WILL DETERMINE THE INITIAL STRENGTH OF THE CONCRETE. IN ADDITION, 2 CYLINDERS SHALL BE CURED IN ACCORDANCE WITH ASTM C31 AND TESTED AT 28 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF THESE TWO CYLINDERS, WHEN TESTED IN ACCORDANCE WITH ASTM C39, WILL PROVIDE A COMPRESSIVE STRENGTH TEST RESULT WHICH WILL DETERMINE THE COMPRESSIVE STRENGTH OF THE PRODUCTION LOT.

IF THE INITIAL STRENGTH TEST RESULTS INDICATE A COMPRESSIVE STRENGTH IN EXCESS OF 4,000 PSI, THEN THESE TEST RESULTS WILL BE UTILIZED AS THE COMPRESSIVE STRENGTH TEST RESULT FOR THE PRODUCTION LOT AND THE REQUIREMENT FOR TESTING AT 28 DAYS WILL BE WAIVED FOR THAT PARTICULAR PRODUCTION LOT.

ACCEPTANCE OF A PRODUCTION LOT WILL BE MADE IF THE COMPRESSIVE STRENGTH TEST RESULT IS GREATER THAN OR EQUAL TO 4,000 PSI. IF THE RESULT IS LESS THAN 4,000 PSI, THE ACCEPTANCE OF THE PRODUCTION LOT WILL BE BASED ON ITS MEETING THE FOLLOWING THREE ACCEPTANCE CRITERIA: - 90% OF THE COMPRESSIVE STRENGTH TEST RESULTS FOR THE OVERALL PRODUCTION SHALL EXCEED 4,000 PSI. - THE AVERAGE OF ANY SIX CONSECUTIVE COMPRESSIVE STRENGTH TEST RESULTS SHALL EXCEED 4,000 PSI. - NO INDIVIDUAL COMPRESSIVE STRENGTH TEST RESULT SHALL FALL BELOW 3,600 PSI.

IN THE EVENT THAT A PRODUCTION LOT FAILS TO MEET THE SPECIFIED COMPRESSIVE STRENGTH REQUIREMENTS, THE PRODUCTION LOT SHALL BE REJECTED. SUCH REJECTION SHALL PREVAIL UNLESS THE MANUFACTURER, AT HIS OWN EXPENSE, OBTAINS AND SUBMITS EVIDENCE ACCEPTABLE TO THE ENGINEER THAT THE STRENGTH AND QUALITY OF THE CONCRETE PLACED WITHIN THE PANELS OF THE PRODUCTION LOT IS ACCEPTABLE. IF SUCH EVIDENCE CONSISTS OF TESTS MADE ON CORES TAKEN FROM THE PANELS WITHIN THE PRODUCTION LOT, THE CORES SHALL BE OBTAINED AND TESTED IN ACCORDANCE WITH THE SPECIFICATIONS OF ASTM C42.

**REJECTION:**

- PANELS SHALL BE SUBJECT TO REJECTION BECAUSE OF FAILURE TO MEET ANY OF THE REQUIREMENTS SPECIFIED ABOVE. IN ADDITION, ANY OR ALL OF THE FOLLOWING DEFECTS MAY BE SUFFICIENT CAUSE FOR REJECTION:
- DEFECTS THAT INDICATE IMPERFECT MOLDING.
  - DEFECTS INDICATING HONEYCOMBED OR OPEN TEXTURED CONCRETE.
  - DEFECTS IN THE PHYSICAL CHARACTERISTICS OF THE CONCRETE, SUCH AS BROKEN OR CHIPPED CONCRETE.
  - STAINED FORM FACE, DUE TO EXCESS FORM OIL OR OTHER CONTAMINATIONS.
  - SIGNS OF AGGREGATE SEGREGATION.
  - BROKEN OR CRACKED CORNERS.
  - LIFTING INSERTS NOT USABLE.
  - EXPOSED REINFORCING STEEL.
  - INSUFFICIENT CONCRETE COMPRESSIVE STRENGTH.

THE ENGINEER WILL DECIDE IF AN ATTEMPT MAY BE MADE TO REPAIR A DEFECTIVE PANEL. THE CONTRACTOR OR MANUFACTURER SHALL MAKE THE REPAIRS. IF THE REPAIRS ARE MADE TO THE ENGINEER'S SATISFACTION, THE PANEL WILL BE ACCEPTABLE.

**MARKING:**

THE DATE OF MANUFACTURE, THE PRODUCTION LOT NUMBER, AND THE PIECE MARK SHALL BE CLEARLY SCRIBED ON THE BACK SURFACE OF EACH PANEL.

**WALL ERECTION:**

PANELS ARE HANDLED BY MEANS OF A LIFTING DEVICE CONNECTED TO THE LIFTING INSERT WHICH IS CAST INTO THE UPPER EDGE OR BACK SIDE OF THE PANELS. ALL PANELS SHALL BE BRACED TO RESIST THE TEMPORARY CONSTRUCTION LOADS INCLUDING WIND LOADS, PRIOR TO FOOTING CONSTRUCTION.

**PAYMENT:**

PAYMENT FOR ITEM SPECIAL - STRUCTURES: PRECAST FACADE PANELS COVERS ALL LABOR, MATERIAL, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK DESCRIBED ABOVE AND SHALL ALSO INCLUDE ALL LABOR, MATERIAL, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL THE ELASTOMERIC BEARING PADS, STEEL CONNECTION ANGLES/PLATES, NEOPRENE FILLER, POLYURETHANE SEALANT, AND 1" P.E.J.F. ABOVE THE TOP OF THE PANELS AS SHOWN IN THE PLANS.

**ITEM SPECIAL - STRUCTURES: PERMANENT UTILITY SUPPORTS**

WORK TO BE PERFORMED UNDER THIS ITEM SHALL INCLUDE FURNISHING AND INSTALLING THE PERMANENT UTILITY SUPPORTS ON THE STRUCTURE, AND NEW SPLIT CASING CONDUIT TO SUPPORT THE UTILITIES AS DETAILED IN THE PLANS. THE SPLIT CASING PIPE SHALL BE GALVANIZED STEEL AS MANUFACTURED BY:

PITTSBURGH PIPE & SUPPLY CORP.  
170 HUMBOLDT AVENUE  
SAINT LOUIS, MO 63147  
1 (314) 383-5300

OR APPROVED EQUAL.

ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CMS 511. ALL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH CMS 513. ALL STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH CMS 514.

PAYMENT: THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE PERMANENT SUPPORTS. ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE LUMP SUM CONTRACT BID PRICE FOR ITEM SPECIAL - STRUCTURES: PERMANENT UTILITY SUPPORTS.

**ITEM SPECIAL - 5" XHW FIBERGLASS CONDUIT**

THIS ITEM SHALL BE 5" XHW FIBERGLASS CONDUIT.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER ITEM SPECIAL, "5" XHW FIBERGLASS CONDUIT" FOR EACH LINEAR FOOT OF CONDUIT WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY WORKMANLIKE MANNER.

**ITEM 511 - CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN:**

AFTER CONDUITS ARE PLACED THROUGH THE UTILITY BLOCKOUTS IN THE ABUTMENT BACKWALLS, FILL THE VOIDS USING NON-SHRINK MORTAR CONFORMING TO CMS 705.22

**ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT:**

ALL NEW STRUCTURAL STEEL SHALL BE PAINTED USING THE IZEU COATING SYSTEM. THE URETHANE TOP COAT SHALL BE TINTED TO MEET FEDERAL COLOR #17038 (BLACK).

**ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:**

ALL WORK SHALL BE DONE IN ACCORDANCE WITH CMS 202 INCLUDING THE ASBESTOS SURVEY UNDERNEATH THE BRIDGE DECK AREA. SEE THE ASBESTOS NOTIFICATION NOTE FOR MORE INFORMATION.

**ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN:**

**ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK, AS PER PLAN:**

SEE THE STRUCTURE AESTHETIC DETAIL GENERAL NOTES ON SHEET 1746A FOR INFORMATION.



**ASBESTOS NOTIFICATION:**

AN LIMITED ASBESTOS SURVEY OF BRIDGE NO. FRA-70-1395 SCHEDULED FOR REPLACEMENT WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. DUE TO SAFETY REASONS, THE SURVEY WAS LIMITED TO ABOVE DECK BRIDGE AREAS. UNDERNEATH BRIDGE DECK AREAS WERE EXCLUDED, INCLUDING UTILITY CONDUITS, INSULATION, GASKETS AND PIPE SLEEVES. THE SURVEY DETERMINED THAT ASBESTOS IS PRESENT ON THE BRIDGE. THE ASBESTOS CONTAINING MATERIALS SHALL BE PROPERLY REMOVED AND DISPOSED OF BY A STATE OF OHIO LICENSCE ABATEMENT CONTRACTOR. REFERENCE IS MADE TO THE ASBESTOS SURVEY REPORTS CONDUCTED FOR THE BRIDGE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF THE DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

OHIO EPA / DIVISION OF AIR POLLUTION CONTROL  
CENTRAL DISTRICT OFFICE  
P.O. BOX 1049  
COLUMBUS, OHIO 43216-1049  
KELLY TOTH  
PHONE: (614) 728-3778  
FAX: (614) 728-3898

AT LEAST TEN (10) WORKING DAYS PRIOR TO START OF THE BRIDGE DEMOLITION WORK, THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

INFORMATION REQUIRED ON THE FORM WILL INCLUDE: THE CONTRACTOR'S NAME AND ADDRESS, THE SCHEDULED DATES FOR RENOVATION AND A DESCRIPTION OF THE PLANNED DEMOLITION OR RENOVATION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 6 OFFICE, 400 EAST WILLIAM STREET, DELAWARE, OHIO 43015

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

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DESIGNED	DGN	CHECKED	DJC
DRAWN	RPR	REVISED	
REVIEWED	TJW	DATE	9-6-19
DATE	9-6-19	STRUCTURE FILE NUMBER	2510023

GENERAL NOTES  
 BRIDGE NO. FRA-70-1395C  
 S. FRONT STREET OVER I-70/71  
 PID No. 105523  
 FRA-70/71-12.68 / 14.86  
 5 / 65  
 1686  
 1815

NO.	DESCRIPTION	REV. BY	DATE
2	NOTE ADDED FOR ADDED PAY ITEM	DJC	11-12-2021

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**ESTIMATED QUANTITIES**

CALCULATED: RFV    DATE: 9-3-19  
 CHECKED: DJC        DATE: 9-6-19

ITEM	EXT.	TOTAL		PARTICIPATION		UNITS	DESCRIPTION	ABUT		PIER		SUPER		GENERAL		A.P.P. REFERENCE SHT. NO.
		BRIDGE	EAST CAP	06/IMS/BR	12/IMS/OT/AEP			BRIDGE	EAST CAP	BRIDGE	EAST CAP	BRIDGE	EAST CAP	BRIDGE	EAST CAP	
202	11003	LS	LS	LS			STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN									5
202	22900	336		336		SY	APPROACH SLAB REMOVED							336		
202	23500	1271		1271		SY	WEARING COURSE REMOVED							1271		
503	11101	LS	LS	LS			COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN									8
503	21100	7806		7806		CY	UNCLASSIFIED EXCAVATION	6781		1025						
509	10000	584,714		584,714		LB	EPOXY COATED REINFORCING STEEL	48,657		110,481		312,908		112,668		
511	34446	644	217	861		CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK					644	217			
511	34451	39	41	80		CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN					39	41			1746A
511	41012	393		393		CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS			393						
511	44113	315	131	446		CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	315	131							5
511	46513	290	18	308		CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING, AS PER PLAN	43	18	247						4
511	51513	130	134	264		CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK, AS PER PLAN					130	134			1746A
512	10050	714	547	1261		SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)					714	547			1746A
512	10100	1031	307	1338		SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	737	307	294						1746A
512	33000	7		7		SY	TYPE 2 WATERPROOFING	7								
513	10280	591,983	274,536	866,519		LB	STRUCTURAL STEEL MEMBERS, LEVEL 4					591,983	274,536			
513	20000	7920	4865	12785		EACH	WELDED STUD SHEAR CONNECTORS					7920	4865			
514	00060	30594	13784	44378		SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT					30594	13784			
514	00066	30594	13784	44378		SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT					30594	13784			
514	10000	22	10	32		EACH	FINAL INSPECTION REPAIR					22	10			
516	10011	178	53	231		FT	ARMORLESS PREFORMED JOINT SEAL, AS PER PLAN							178	53	58 - 59
516	11211	218	333	551		FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN (4")					218	333			44A
516	13600	397		397		SF	1" PREFORMED EXPANSION JOINT FILLER	397								
516	13900	84		84		SF	2" PREFORMED EXPANSION JOINT FILLER			84						
516	44101	20	10	30		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 10 1/2" x 1'-4" x 2.45" PAD WITH 11 1/2" x 1'-10" BEVELED PLATE, AS PER PAN					20	10			25
516	44201	10	5	15		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 1'-6" x 2'-0" x 3.40" PAD WITH 1'-7" x 2'-9" BEVELED PLATE, AS PER PLAN					10	5			25
518	12500	2		2		EA	SCUPPER, MISC.: NEENAH R-4014-TL SCUPPER & TYPE V GATE					2				33
518	21200	177	69	246		CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	177	69							
518	40000	445	175	620		FT	6" PERFORATED CORRUGATED PLASTIC PIPE	445	175							
518	40010	25	25	50		FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	25	25							
518	62100	110		110		FT	STRUCTURE DRAINAGE, MISC.: DOWNSPOUT/REDUCER/ELBOW CONDUIT DRAINAGE COLLECTION SYSTEM					110				33
524	95472	3299	1015	4314		FT	DRILLED SHAFTS, 60" DIAMETER, ABOVE BEDROCK WITH QC/QA, AS PER PLAN	3299	1015							4
526	25011	700	258	958		SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN							700	258	58 - 60
526	90031	178	53	231		FT	TYPE C INSTALLATION, AS PER PLAN							178	53	58 - 59
SPECIAL	53000200	LS		LS			STRUCTURES: PERMANENT UTILITY SUPPORTS (TRAFFIC, ITS, DOT, CITY OF COLUMBUS DOP)									5
SPECIAL	53000200	LS		LS			STRUCTURES: PERMANENT UTILITY SUPPORTS (AEP DUCTS)									5
SPECIAL	53000600	4258	1774	6032		SF	STRUCTURES: PRECAST FACADE PANELS	4258	1774							5
607	98000	20		20		FT	FENCE, MISC.: WALL MOUNTED TYPE A (W/ VANDAL MESH)					15.5				1746A
625	10620	6	2	8		EACH	LIGHT POLE ANCHOR BOLTS, MISC.: COMBINATION SIGNAL POLE AND PEDESTRIAN POLE ANCHOR BOLT ASSEMBLIES EMBEDDED IN CONCRETE BRIDGE DECK					6	2			4
SPECIAL	69098100	1650		1650		FT	5" XHW FIBERGLASS CONDUIT					1650				5

NO.	DESCRIPTION	REV. BY	DATE
2	ADDED/CORRECTED ITEMS/QUANTITIES	DJC	11-12-2021

**ESTIMATED QUANTITIES - EASTBOUND**

BRIDGE NO. FRA-70-1395C  
S. FRONT STREET OVER I-70/71

FRA-70/71-12.68 / 14.86  
PID No. 105523

6 / 65

1687  
1815

DESIGN AGENCY: **GPD GROUP**  
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DATE: 9-6-19  
 REVIEWED: DGN  
 DRAWN: RFV  
 DESIGNED: RFV  
 CHECKED: DJC  
 STRUCTURE FILE NUMBER: 2510023

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**MISC.: DETAILS - CITY OF COLUMBUS STANDARD DRAWINGS**

ANY MISCELLANEOUS DETAILS LOCATED WITHIN THIS CONSTRUCTION DOCUMENT THAT REFER TO THE CITY OF COLUMBUS STANDARD DRAWINGS, SHALL BE USED IN CONJUNCTION WITH THE 2018 CITY OF COLUMBUS CONSTRUCTION & MATERIAL SPECIFICATIONS INCLUDING ALL REVISIONS, CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL.

**ITEM 690 SPECIAL - SIZE" CONDUIT, TYPE 2**

ALL PROPOSED STORM SEWER CONDUITS AS SHOWN IN THIS CONSTRUCTION DOCUMENT THAT ARE WITHIN THE CITY STREET'S RIGHT OF WAY SHALL BE FURNISHED AND INSTALLED PER ITEM 603 AND ITEM 901 FROM THE 2018 CITY OF COLUMBUS CONSTRUCTION & MATERIAL SPECIFICATIONS INCLUDING ALL REVISIONS AND CHANGES. CONDUIT EVALUATION WILL BE PERFORMED POST CONSTRUCTION PER CITY OF COLUMBUS SPECIFICATIONS. ITEM 911 COMPACTED BACKFILL SHALL BE PERFORMED PER CITY'S STANDARD CONSTRUCTION DRAWING 2179, AND INCLUDED IN THE COST OF INSTALLING THE PROPOSED STORM SEWER.

THE CONDUIT MATERIAL TYPES CALLED OUT IN THE QUANTITY DESCRIPTION WILL CROSS REFERENCE OVER TO THE CITY'S ITEM 603 AND 901 SPECIFICATIONS.

**ITEM 690 SPECIAL - STORM STRUCTURE TYPE**

ALL PROPOSED STORM SEWER STRUCTURES AS SHOWN IN THIS CONSTRUCTION DOCUMENT THAT ARE WITHIN THE CITY STREET'S RIGHT OF WAY SHALL BE FURNISHED AND INSTALLED PER ITEM 604 FROM THE 2018 CITY OF COLUMBUS SPECIFICATION FOR CONSTRUCTION INCLUDING ALL REVISIONS AND CHANGES. STRUCTURE EVALUATION WILL BE PERFORMED POST CONSTRUCTION PER CITY OF COLUMBUS SPECIFICATIONS.

THE CITY STANDARD STRUCTURE DRAWINGS ARE REFERENCE/SHOWN IN THIS CONSTRUCTION DOCUMENT. THE NAME OF THE STRUCTURES IN THE CONSTRUCTION DOCUMENT WILL REFLECT THE NAMES IN THE CITY'S STANDARD CONSTRUCTION DRAWINGS.

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES IN CITY STREETS ROW**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE FOLLOWING 690 ITEM:

- ITEM 690 SPECIAL - SIZE" CONDUIT, TYPE 2
- ITEM 690 SPECIAL - STORM STRUCTURE TYPE

**REVIEW OF DRAINAGE FACILITIES (ODOT) FREEWAY SYSTEM**

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

**PROPOSED MANHOLES IN THE FREEWAY AND RAMP PAVEMENT**

ANY PROPOSED MANHOLES LOCATED IN THE FREEWAY AND RAMPS PROPOSED PAVEMENT SHALL BE CONSTRUCTED 2.0' BELOW THE PAVEMENTS SUBGRADE TO THE TOP OF COVER WITH FRAME SETTING ON A SOLID FLAT SLAB TOP. THE COVER SHALL NOT HAVE VENT HOLES. THE FRAME SHALL BE BOLTED DOWN ONTO THE FLAT SLAB TOP.

ALL MATERIALS AND LABOR, INCLUDING EXCAVATION AND BACKFILL ARE PAID FOR AT THE CONTRACT PRICE FOR ITEM 611 - MANHOLE, NO. 3, AS PER PLAN.

**ITEM 611 - MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN**

ANY EXISTING MANHOLE THAT IS TO REMAIN AND IS LOCATED IN THE PROPOSED PAVEMENT LIMITS, AND IS CALLED OUT AS MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN, SHALL BE RECONSTRUCTED 2.0' BELOW THE PAVEMENT'S SUBGRADE. THE EXISTING MANHOLE SHALL BE RECONSTRUCTED 2.0' BELOW THE PAVEMENT'S SUBGRADE TO THE TOP OF A COVER WITH FRAME SETTING ON A SOLID FLAT SLAB TOP. THE COVER SHALL NOT HAVE VENT HOLES. THE FRAME SHALL BE BOLTED DOWN ONTO THE FLAT SLAB TOP. THE EXISTING MANHOLE SHALL BE RECONSTRUCTED DOWN TO THE OUTLET PIPES SPRING LINE OR THE TOP OF THE EXISTING VAULT IF THERE IS ONE, UNLESS OTHERWISE STATED IN THE STORM SEWER PROFILES.

ALL MATERIALS AND LABOR, INCLUDING EXCAVATION AND BACKFILL ARE PAID FOR AT THE CONTRACT PRICE OF ITEM 611 - MANHOLE RECONSTRUCT TO GRADE, AS PER PLAN.

**DRAINAGE DISCHARGE CONTINUANCE**

FURNISH A DRAINAGE DISCHARGE CONTINUANCE FOR ANY DRAINAGE DISCHARGE DISTURBED BY THE WORK AND NOT SHOWN IN THE PLANS. THE LOCATION, TYPE (CONDUIT OR SWALE), SIZE AND GRADE OF THE DRAINAGE DISCHARGE CONTINUANCE WILL BE AGREED TO BY THE ENGINEER

FURNISH AN INSPECTION WELL AT THE RIGHT OF WAY LINE IN ACCORDANCE WITH SCD DM-3.1 FOR EACH DRAINAGE DISCHARGE THAT OUTLETS THROUGH A CURB OPENING, OR INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST IS INCLUDED IN ITEM 611, INSPECTION WELL.

FURNISH A WELL GRADED TRANSITION BETWEEN THE DITCH AND THE SWALE WHEN OUTLETTING A SWALE TO A DITCH. THE COST FOR THE GRADED TRANSITION IS INCLUDED IN ITEM 203, EMBANKMENT AS PER PLAN

FURNISH AN EROSION CONTROL PAD AS SHOWN IN SCD DM-1.1 WHEN OUTLETTING A CONDUIT TO A DITCH. THE COST FOR THE EROSION CONTROL PAD IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE - FOR DRAINAGE DISCHARGE CONTINUANCE.

FURNISH A DRILLED HOLE OR A CURB SECTION WITH A HOLE WHEN OUTLETTING A CONDUIT THROUGH A CURB OPENING. THE COST OF DRILLING, OR FURNISHING THE CURB SECTION WITH HOLE IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE - FOR DRAINAGE DISCHARGE CONTINUANCE. FOR A CONDUIT THROUGH A CURB ON A CITY STREET, REFER TO THE MISC. DETAIL SHEET 597 FOR THE (COC SCD 2320) PIPE ROOF DRAIN.

FURNISH A DRILLED CORE HOLE WHEN OUTLETTING INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST OF THE DRILLED CORE HOLE IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE - FOR DRAINAGE DISCHARGE CONTINUANCE.

**DOCUMENTATION**

THE CONTRACTOR SHALL FURNISH WRITTEN DOCUMENTATION TO THE ENGINEER AND TO THE DISTRICT R/W PERMIT OFFICE. THE DOCUMENTATION INCLUDES THE CONSTRUCTION PROJECT NUMBER, PID, COUNTY, ROUTE, SECTION, LATITUDE AND LONGITUDE OF THE DRAINAGE DISCHARGE AT THE R/W, THE NAME OF PROPERTY OWNER WITH ADDRESS, THE DATE THE DRAINAGE DISCHARGE WAS LOCATED, THE DATE THE DRAINAGE DISCHARGE CONTINUANCE WAS FURNISHED, A DETAILED DESCRIPTION OF THE WORK AND PICTURES OF THE DRAINAGE DISCHARGE CONTINUANCE (IN PDF OR JPEG FORMAT). THE DOCUMENTATION IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE - FOR DRAINAGE DISCHARGE CONTINUANCE OR ITEM 203, EMBANKMENT AS PER PLAN

DRAINAGE DISCHARGE CONTINUANCE REMOVAL  
THE ENGINEER MAY REQUIRE THE NEWLY INSTALLED DRAINAGE DISCHARGE CONTINUANCE TO BE REMOVED.

REMOVE THE NEWLY INSTALLED CONDUIT AND ANY EXISTING CONDUIT TO THE RIGHT OF WAY LINE. FOR CONDUIT THAT OUTLETS THROUGH THE CURB RESTORE THE CURB BY FILLING THE HOLE WITH CLASS QC 1 CONCRETE OR REPLACE THE CURB SECTION. FOR CONDUIT THAT OUTLETS TO A STORM SEWER OR DRAINAGE STRUCTURE LEAVE 6 INCHES PROTRUDING OUTSIDE OF THE CONDUIT . PLUG THE PROTRUDING CONDUIT WITH EITHER A MANUFACTURED CAP OR CLASS QC 1 CONCRETE. FOR CONDUIT THAT OUTLETS TO THE DITCH REMOVE THE EROSION CONTROL PAD. RESTORE ALL AREAS AS REQUIRED. PLUG THE EXISTING CONDUIT REGARDLESS OF SIZE AT THE RIGHT OF WAY LINE WITH CLASS QC 1 CONCRETE AND RESTORE ALL AREAS AS REQUIRED. ALL COSTS ARE INCLUDED IN ITEM 202, REMOVAL MISC. CONDUIT. DAM THE SWALE THAT OUTLETS TO THE DITCH AT THE R/W AS DIRECTED BY THE ENGINEER. ALL COSTS ARE INCLUDED IN ITEM 203, EMBANKMENT AS PER PLAN  
REMOVE THE INSPECTION WELL AND RESTORE ALL AREAS AS REQUIRED. THE COST IS INCLUDED IN ITEM 202, REMOVAL MISC. INSPECTION WELL.

**DRAINAGE DISCHARGE CONTINUANCE CONTINUED**

CONDUIT MATERIAL TYPES  
THE FOLLOWING CONDUIT MATERIAL TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, AND 707.52 SDR35.

**PAY ITEMS**

EACH OF THE PAY ITEMS LISTED BELOW FOR CONDUIT MISCELLANEOUS TYPES B, C, E AND F FOR DRAINAGE DISCHARGE CONTINUANCE INCLUDE CONDUIT SIZES 2 INCH TO 10 INCH. THERE IS NO COST DIFFERENTIATION FOR SIZE IN THESE PAY ITEMS. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN MAKING THE ABOVE DRAINAGE DISCHARGE CONTINUANCE:

- ITEM 611, 20 EACH INSPECTION WELL
- ITEM 611, 100 FT. 8" CONDUIT, MISC TYPE B FOR DRAINAGE DISCHARGE CONTINUANCE
- ITEM 611, 100 FT. 8" CONDUIT, MISC TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE
- ITEM 611, 100 FT. 4" CONDUIT, MISC TYPE E FOR DRAINAGE DISCHARGE CONTINUANCE
- ITEM 611, 100 FT. 4" CONDUIT, MISC TYPE F FOR DRAINAGE DISCHARGE CONTINUANCE
- ITEM 202, 100 FT. REMOVAL MISC CONDUIT
- ITEM 202, 2 EACH REMOVAL MISC INSPECTION WELL
- ITEM 203, 50 CUBIC YARD EMBANKMENT AS PER PLAN

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES IN ODOT'S ROW**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

NO.	DESCRIPTION	REV. BY	DATE
2	NOTE REMOVED	TAZ	11-12-2021

CALCULATED  
CHECKED

GENERAL NOTES

FRA-71-14.36

48  
1228

PHASE 3 SUMMARY

CONSTRUCTION CRITICAL TO NEXT PHASE

BRIDGE DEMOLITION

- I-71 SB RAMP BRIDGE OVER S.R. 315 NB/SB & I-71 WB RAMP TO I-70 WB

ROADWAY REMOVAL

- EXISTING I-71 SB RAMP (WEST OF EX. BRIDGE OVER S.R. 315 NB/SB)
- TEMPORARY ROAD 1
- TEMPORARY ROAD 2

PERMANENT BRIDGE CONSTRUCTION

- I-71 SOUTHBOUND BRIDGE (FRA-70-1503L) FORWARD ABUTMENT AND FINAL SPAN

PERMANENT ROADWAY CONSTRUCTION

- W. MOUND STREET TO I-71 SB (RAMP D6)
- I-70 EB TO I-71 SB (RAMP C3)
- I-71 SB (WEST TWO LANES)
- TRANSITIONAL I-71 SB

PERMANENT WALL CONSTRUCTION

- WALL W2 ALONG I-71 SB
- WALL W3 ALONG I-71 SB
- WALL W4 ALONG RAMP C3
- WALL W5 ALONG S.R. 315 SB
- WALL E2 ALONG I-70 WB
- WALL E3 ALONG I-70 WB
- WALL E4 ALONG RAMP D7
- WALL E5 ALONG RAMP D7
- WALL E6 ALONG I-70 WB
- WALL E7 ALONG RAMP D7
- WALL E10 ALONG I-71 SB
- WALL E9 ALONG I-70 WB/SHORT STREET

DISINCENTIVE AMOUNTS FOR PHASE 3 ROAD CLOSURES AND LANE RESTRICTIONS				
ACTIVITY	AFFECTED ROADWAY(S)	RESTRICTION TYPE	RESTRICTION TIME	DISINCENTIVE
W. MOUND ST. TO I-70 EB RAMP CLOSURE	W. MOUND ST. TO I-70 EB RAMP	ROAD CLOSURE	14 CONSECUTIVE CALENDAR DAYS	\$15,000 PER DAY
I-70 EB TO I-71 SB RAMP CLOSURE*	I-70 EB TO I-71 SB RAMP	ROAD CLOSURE	14 CONSECUTIVE CALENDAR DAYS	\$16,000 PER DAY
2ND STREET RAMP TO I-71 SB RAMP CONSTRUCTION	2ND STREET RAMP	ROAD CLOSURE	90 CONSECUTIVE CALENDAR DAYS	\$3,000 PER DAY

\* SEE SHEET 65 FOR ADDITIONAL DETAILS

NOTE: SEE SHEET 70 FOR DISINCENTIVE AMOUNTS ASSOCIATED WITH ANY MAINLINE ROADWAY OR SYSTEM RAMP OVERNIGHT CLOSURE REQUIRED IN THIS PHASE.

PROPOSED ROADWAY DESCRIPTIONS	
ROAD NAME	DESCRIPTION (DIRECTION OF STATIONING)
RAMP C3	I-70 EB TO I-71 SB
RAMP D6	2ND STREET TO I-71 SB
RAMP D7	W. MOUND STREET TO I-70 WB

TEMPORARY ROADWAY DESCRIPTIONS	
PLAN VIEW LABEL	DESCRIPTION
TR-1	TEMP. I-70 EB TO I-71 SB
TR-2	TEMP. I-71 SB CONNECTION TO TR-1

NO.	DESCRIPTION	REV. BY	DATE
2	ADDED WALLS E7 & E10	KWR	11-08-2021

CALCULATED  
 CHECKED

PHASE 3 - SUMMARY & DISINCENTIVE CHART

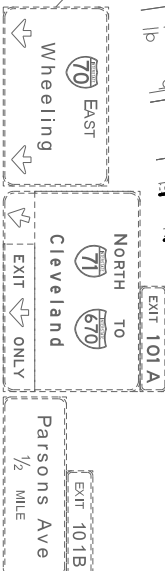
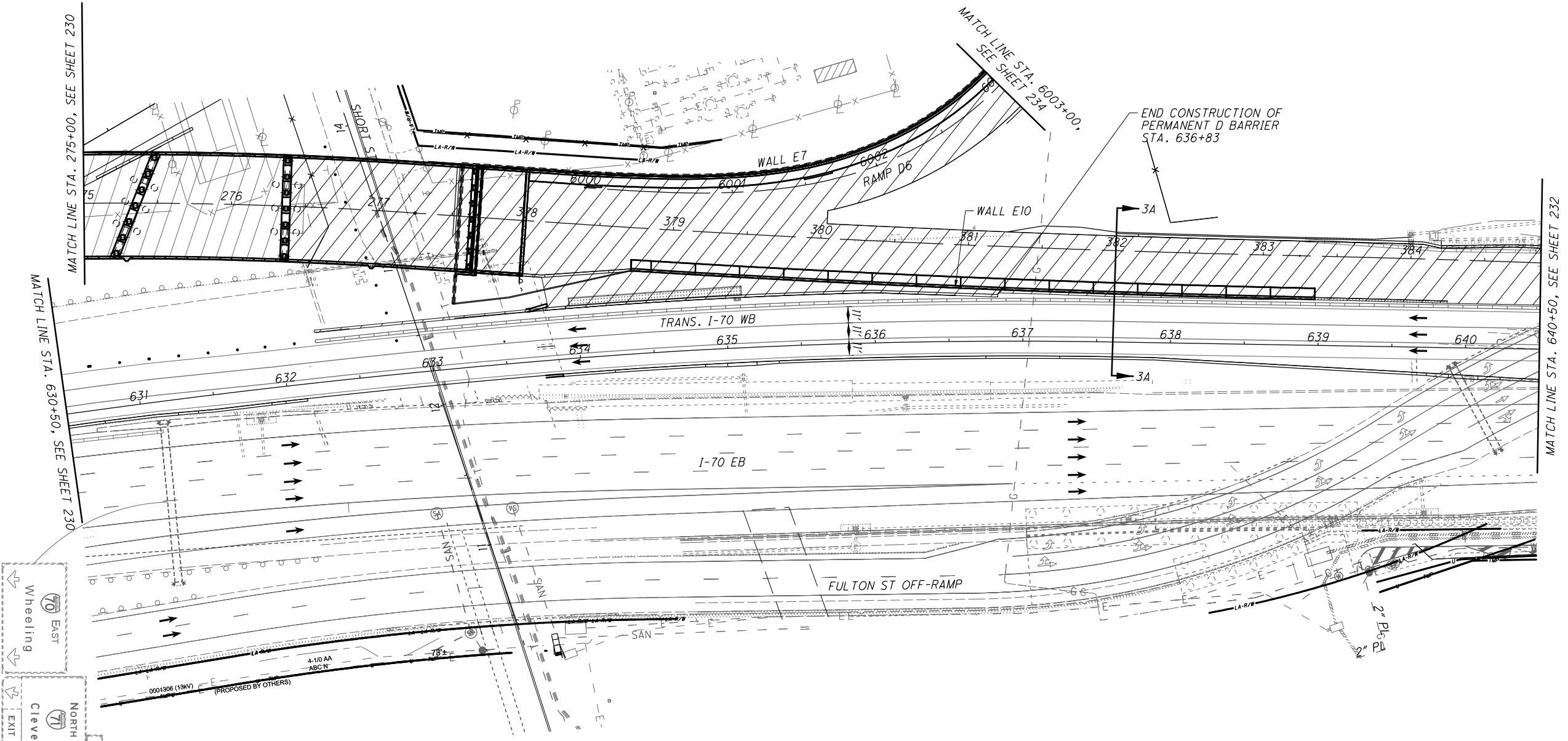
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229  
 1228

**SHEET LEGEND**

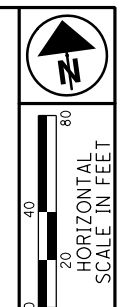
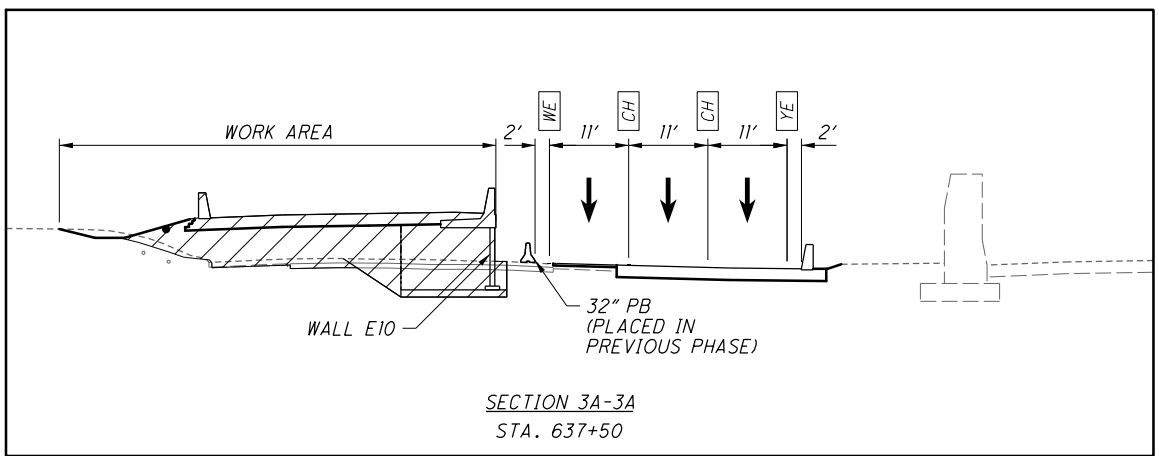
- WORK AREA
- TEMPORARY PAVEMENT PLACED DURING THIS PHASE
- TEMPORARY PAVEMENT PLACED PRIOR TO THIS PHASE

FOR COMPLETE LEGEND AND DRUM SPACING CHART, SEE SHEET 78



**NOTES:**  
1. ALL PAVEMENT MARKINGS ARE EXISTING TO REMAIN OR PLACED IN A PREVIOUS PHASE UNLESS OTHERWISE NOTED.

NO.	DESCRIPTION	REV. BY	DATE
2	ADDED LABEL FOR WALL E10	KWR	11-08-2021



CALCULATED  
CHECKED

**MAINTENANCE OF TRAFFIC - PHASE 3A**  
**TRANS. I-70 WB - STA. 630+50 TO STA. 640+50**

**FRA-71-14.36**

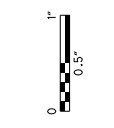
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By: tzongmeister

34" x 22"

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SHEET NUM.											PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
48	51	281A	282	283	287	288+	290	291	292	653	13/IMS/PV	14/NHS/PV	20/NHS/PV/CoIs						
		1	1			1					2	1		602	20000	3	CY	CONCRETE MASONRY	
							4,968	2,209			3,589	3,588		605	05110	7,177	FT	4" SHALLOW PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC	
							5,990	443			3,217	3,216		605	06020	6,433	FT	4" BASE PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC	
	200										100	100		605	13300	200	FT	6" UNCLASSIFIED PIPE UNDERDRAINS	
	200									11			11	605	98300	11	EACH	UNDERDRAINS, MISC.: 6" CLEANOUT	653
											100	100		611	00406	200	FT	4" CONDUIT, TYPE F	
							512	497	3		505	504	3	611	00410	1,012	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
										187			187	611	01500	187	FT	6" CONDUIT, TYPE F	
			269								135	134		611	03300	269	FT	10" CONDUIT, TYPE C	
			118								59	59		611	03700	118	FT	10" CONDUIT, TYPE F	
						113					57	56		611	04400	113	FT	12" CONDUIT, TYPE B	
		6									3	3		611	04600	6	FT	12" CONDUIT, TYPE C, 706.02	
		365	284	300							475	474		611	05900	949	FT	15" CONDUIT, TYPE B	
		18									9	9		611	05900	18	FT	15" CONDUIT, TYPE B, 706.02	
		542	363	290							598	597		611	05900	1,195	FT	15" CONDUIT, TYPE B, 706.02, JOINTS PER 706.11	
		98	1,435	38							786	785		611	06100	1,571	FT	15" CONDUIT, TYPE C	
			70								35	35		611	06100	70	FT	15" CONDUIT, TYPE C, 706.02, JOINTS PER 706.11	
			55								28	27		611	06700	55	FT	15" CONDUIT, TYPE F, 707.05, TYPE C	
											53	52		611	07400	105	FT	18" CONDUIT, TYPE B	
											62	61		611	07400	123	FT	18" CONDUIT, TYPE B, 706.02, JOINTS PER 706.11	
											113	113		611	07600	226	FT	18" CONDUIT, TYPE C	
											167	167		611	09100	334	FT	21" CONDUIT, TYPE C	
											15	15		611	16600	30	FT	36" CONDUIT, TYPE C	
											109	108		611	96601	217	FT	CONDUIT, BORED OR JACKED, AS PER PLAN, 36" CASING PIPE W/ 18" CARRIER PIPE	46
											68	68		611	97400	136	FT	CONDUIT, MISC.: CONDUIT INSTALLED BY THE TRENCHLESS METHOD, 24"	47
100											50	50		611	97400	100	FT	CONDUIT, MISC.: 4" TYPE F FOR DRAINAGE DISCHARGE CONTINUANCE	48
100											50	50		611	97400	100	FT	CONDUIT, MISC.: 8" TYPE B FOR DRAINAGE DISCHARGE CONTINUANCE	48
100											50	50		611	97400	100	FT	CONDUIT, MISC.: 8" TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE	48
100											50	50		611	97400	100	FT	CONDUIT, MISC.: 4" TYPE E FOR DRAINAGE DISCHARGE CONTINUANCE	48
		1									1			611	98300	1	EACH	CATCH BASIN, NO. 5	
			1								1			611	98370	1	EACH	CATCH BASIN, NO. 6	
		3	4	1							4	4		611	98410	8	EACH	CATCH BASIN, NO. 8	
		1									1			611	98434	1	EACH	CATCH BASIN, NO. 8A	
						2					2	2		611	98470	4	EACH	CATCH BASIN, NO. 2-2B	
											1			611	98630	1	EACH	CATCH BASIN ADJUSTED TO GRADE	
		9	2	5							8	8		611	98821	16	EACH	INLET, NO. 3D, AS PER PLAN	49
			1	2							2	1		611	99094	3	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE B	
		4									2	2		611	99104	4	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	
											1			611	99105	1	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C, AS PER PLAN	614
			5	4							5	4		611	99114	9	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE D	
		4	18	2							12	12		611	99574	24	EACH	MANHOLE, NO. 3	
		7									4	3		611	99575	7	EACH	MANHOLE, NO. 3, AS PER PLAN	48
											3	2		611	99661	5	EACH	MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN	48
	4						3	2			5	4		611	99710	9	EACH	PRECAST REINFORCED CONCRETE OUTLET	
20											10	10		611	99720	20	EACH	INSPECTION WELL	48
			1								1			611	99900	1	EACH	DRAINAGE STRUCTURE, MISC.: ORIFICE PLATE	597A
						2					3	3		SPECIAL	69098000	6	EACH	DOUBLE CURB AND GUTTER INLET FOR GRANITE CURBING	45, 611
											3	3		SPECIAL	69098000	6	EACH	MANHOLE ADJUSTED TO GRADE	45
											11	11		SPECIAL	69098000	22	EACH	MANHOLE, TYPE C (48")	45, 602
											2	1		SPECIAL	69098000	3	EACH	MANHOLE, TYPE C (60")	45, 602
											1	1		SPECIAL	69098000	2	EACH	MISC.: MANHOLE REHABILITATION	45, 55-57
											1	1		SPECIAL	69098000	2	EACH	STANDARD CATCH BASIN 21" DIAMETER & SMALLER PIPE	45, 608
											6	5		SPECIAL	69098000	11	EACH	STANDARD CURB AND GUTTER INLET FOR GRANITE CURBING	45, 612
											5		5	SPECIAL	69098000	5	EACH	BIORETENTION CELLS	652
						1					1			SPECIAL	69098000	1	EACH	DOUBLE CURB AND GUTTER INLET	45, 611

NO.	DESCRIPTION	REV. BY	DATE
2	REVISE/ADD MH-3 OTYS	TAZ	11-12-2021

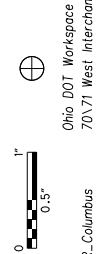
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CALCULATED  
HRB  
CHECKED  
TAZ

GENERAL SUMMARY

FRA - 71 - 14.36

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34" x 22"

SHEET NUM.								PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
287	295	297	298					13/MMS/PV	14/NHS/PV	18/NHS/O T						
<b>WATER WORK</b>																
			48							48	511	71100	48	CY	CONCRETE, MISC.: CONCRETE BLOCKING, CLASS C, INCREASE OR DECREASE (COL. 801)	641
6								3	3		638	10801	6	EACH	VALVE BOX ADJUSTED TO GRADE, AS PER PLAN	45
		1								1	638	98000	1	EACH	WATER WORK, MISC.: 3/4" WATER SERVICE TAP, TRANSFERRED (COL. 805)	641
		1								1	638	98000	1	EACH	WATER WORK, MISC.: 8"X6" TAPPING SLEEVE AND VALVE (COL. 803)	45, 641
		131								131	638	98600	131	FT	WATER WORK, MISC.: 12" DUCTILE IRON WATER PIPE AND FITTINGS (COL. 801)	641
		1,354								1,354	638	98600	1,354	FT	WATER WORK, MISC.: 36" WATER PIPE AND FITTINGS (COL. 801)	641
		379								379	638	98600	379	FT	WATER WORK, MISC.: 6" DUCTILE IRON WATER PIPE AND FITTINGS (COL. 801)	641
		1								1	SPECIAL	69098000	1	EACH	1 1/2" CURB STOP, RELOCATED (COL 805)	641
		2								2	SPECIAL	69098000	2	EACH	36" BUTTERFLY VALVE AND APPURTENANCES (COL 802)	45, 641
		5								5	SPECIAL	69098000	5	EACH	6" GATE VALVE AND APPURTENANCES (COL 802)	45, 641
			1							1	SPECIAL	69098000	1	EACH	12" GATE VALVE AND APPURTENANCES (COL 802)	45, 641
			2							2	SPECIAL	69098000	2	EACH	FIRE HYDRANT, ABANDONED (COL 809)	641
			4							4	SPECIAL	69098000	4	EACH	FIRE HYDRANT, RELOCATED (COL 809)	45, 641
			1							1	SPECIAL	69098000	1	EACH	FIRE HYDRANT, TYPE A (COL 809)	45, 641
			1							1	SPECIAL	69098000	1	EACH	FIRE HYDRANT, TYPE A MODIFIED (COL 809)	641
			3							3	SPECIAL	69098000	3	EACH	8" WATER MAIN ABANDONED	641
			128							128	SPECIAL	69098100	128	FT	54" CASING PIPE, 3/4" THICKNESS (COL 806)	641
			885							885	SPECIAL	69098100	885	FT	PIPE REMOVED (COL 202)	643
		LUMP								LUMP	SPECIAL	69098400	LS		ALLOWANCE FOR ADDITIONAL TEST STATIONS AND FLANGE ISOLATION KITS FOR STEEL OR CONCRETE	641
		LUMP								LUMP	SPECIAL	69098400	LS		ALLOWANCE FOR PASSIVE CATHODIC PROTECTION SYSTEM DESIGN AND ISOLATION	641
			LUMP							LUMP	SPECIAL	69098400	LS		CONTINUITY TESTING	641
			LUMP							LUMP	SPECIAL	69098400	LS		CORROSION PROTECTION	641
			LUMP							LUMP	SPECIAL	69098400	LS		FLANGE ISOLATION KITS FOR DUCTILE IRON PIPES	641
			LUMP							LUMP	SPECIAL	69098400	LS		SURVEY COORDINATES	641
			3,200							3,200	SPECIAL	69099400	3,200	LB	FITTINGS, INCREASE OR DECREASE (COL. 801)	641
<b>SANITARY SEWER</b>																
		1								1	SPECIAL	69098000	1	EACH	AIR RELEASE MANHOLE AND APPURTENANCES, COMPLETE	640
		1								1	SPECIAL	69098000	1	EACH	MANHOLE RECONSTRUCTED TO GRADE	640
		3								3	SPECIAL	69098000	3	EACH	MANHOLE TYPE C, W/ OUTSIDE DROP (COL 901)	640
		5								5	SPECIAL	69098000	5	EACH	SEWER ABANDONED(COL 202)	45, 640
		1								1	SPECIAL	69098000	1	EACH	STRUCTURE REMOVED - AIR RELEASE MANHOLE VAULT (COL 202)	45, 640
		1								1	SPECIAL	69098000	1	EACH	STRUCTURE REMOVED - SANITARY VAULT (COL 202)	640
		1								1	SPECIAL	69098000	1	EACH	STRUCTURE AT STATION 0+47, COMPLETE (COL 904)	640
		495								495	SPECIAL	69098100	495	FT	16" PVC C900 PIPE, WITH TYPE 1 BEDDING WITH 912 COMPACTED GRANULAR BACKFILL (COL 901)	640
		38								38	SPECIAL	69098100	38	FT	42" PIPE, WITH TYPE 1 BEDDING WITH 912 COMPACTED GRANULAR BACKFILL (COL 901)	640
		174								174	SPECIAL	69098100	174	FT	10" DIP FORCEMAIN W/ BEDDING AND BACKFILL PER COL 801	640
		120								120	SPECIAL	69098100	120	FT	18" DIP FORCEMAIN W/ BEDDING AND BACKFILL PER COL 801	640
		169								169	SPECIAL	69098100	169	FT	36" DIP OR PCCP FORCEMAIN W/ BEDDING AND BACKFILL PER COL 801	640
		40								40	SPECIAL	69098100	40	FT	24" CASING PIPE (COL 806)	640
		40								40	SPECIAL	69098100	40	FT	30" CASING PIPE (COL 806)	640
		40								40	SPECIAL	69098100	40	FT	54" CASING PIPE (COL 806)	640
		LUMP								LUMP	SPECIAL	69098400	LS		BYPASS PUMPING, COS	640
		18								18	SPECIAL	69098700	18	CY	INCREASED OR DECREASED EARTH EXCAVATION	640

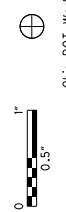
CALCULATED HRB CHECKED TAZ  
**GENERAL SUMMARY**  
**FRA - 71 - 14.36**  
271  
1228

NO.	DESCRIPTION	REV. BY	DATE
2	ADD QTY. FOR PIPE (TBR)	TAZ	11-12-2021

Ohio DOT Workspace  
70171 West Interchange 6R  
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By: tzongmeister  
Printed: 11/10/2021 8:57:37 PM  
File: \\msconsultants.com\files\Production\03\60\06634\_6R\roadway\sheet\0558860018.dgn



34" x 22"

SHEET NUM.										PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
912	944							15/IMS/B R	16/NHS/B R	22/IMS/B R								
<b>STRUCTURE REPAIR (FRA-70-1373L)</b>																		
LUMP										LUMP	202	11203	LS			PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	911	
157										157	202	22900	157	SY	APPROACH SLAB REMOVED			
705										705	202	23501	705	SY	WEARING COURSE REMOVED, AS PER PLAN	911		
3										3	202	98100	3	EACH	REMOVAL MISC.: PILE REMOVED, EXISTING STRUCTURE	917		
8										8	407	20000	8	GAL	NON-TRACKING TACK COAT			
5										5	441	10000	5	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22			
LUMP										LUMP	503	11100	LS		COFFERDAMS AND EXCAVATION BRACING			
11,409										11,409	509	25000	11,409	LB	UNCOATED REINFORCING STEEL			
372										372	510	10000	372	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT			
48										48	511	21521	48	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN	911		
117										117	512	33010	117	SY	TYPE 3 WATERPROOFING			
494										494	513	10200	494	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF			
1,005										1,005	513	10240	1,005	LB	STRUCTURAL STEEL MEMBERS, LEVEL 2			
4										4	518	12200	4	EACH	SCUPPERS, INCLUDING SUPPORTS			
32										32	SPECIAL	51912510	32	SY	PATCHING CONCRETE BRIDGE DECK	911		
4										4	846	00110	4	CF	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM			
<b>STRUCTURE (FRA-71-1503L)</b>																		
LUMP								LUMP	LUMP		202	11003	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	941		
LUMP								LUMP	LUMP		202	11201	LS		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	941		
159								80	79		202	22900	159	SY	APPROACH SLAB REMOVED			
2,034								1,017	1,017		202	23500	2,034	SY	WEARING COURSE REMOVED			
21								11	10		202	98100	21	EACH	REMOVAL MISC.: PILE REMOVED, EXISTING STRUCTURE	946		
LUMP								LUMP	LUMP		503	11101	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	942		
6,586								3,293	3,293		503	21101	6,586	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	942		
LUMP								LUMP	LUMP		505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION			
980								490	490		507	00100	980	FT	STEEL PILES HP10X42, FURNISHED			
935								468	467		507	00150	935	FT	STEEL PILES HP10X42, DRIVEN			
1,760								880	880		507	00200	1,760	FT	STEEL PILES HP12X53, FURNISHED			
1,680								840	840		507	00250	1,680	FT	STEEL PILES HP12X53, DRIVEN			
27								14	13		507	93300	27	EACH	STEEL POINTS OR SHOES			
5,913,978								2,956,989	2,956,989		509	10000	5,913,978	LB	EPOXY COATED REINFORCING STEEL			
8,950								4,475	4,475		511	34447	8,950	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN	942		
1,506								753	753		511	34451	1,506	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN	942, 1143		
278								139	139		511	43512	278	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING			
11,516								5,758	5,758		511	45602	11,516	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA			
1,642								821	821		512	10001	1,642	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION)	942, 1143		
22,021								11,011	11,010		512	10100	22,021	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)			
19								10	9		512	33000	19	SY	TYPE 2 WATERPROOFING			
13,156,600								6,578,300	6,578,300		513	10401	13,156,600	LB	STRUCTURAL STEEL MEMBERS, HYBRID GIRDER, LEVEL SIX (6) FABRICATION, AS PER PLAN	942, 1035		
84,927								42,464	42,463		513	20000	84,927	EACH	WELDED STUD SHEAR CONNECTORS			
154,349								77,175	77,174		514	00060	154,349	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			
154,349								77,175	77,174		514	00066	154,349	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			
118								59	59		516	10010	118	FT	ARMORLESS PREFORMED JOINT SEAL			
263								132	131		SPECIAL	51612400	263	FT	MODULAR EXPANSION JOINT	943		
26								13	13		516	13600	26	SF	1" PREFORMED EXPANSION JOINT FILLER			
10								5	5		518	12200	10	EACH	SCUPPERS, INCLUDING SUPPORTS			
83								42	41		518	21200	83	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC			
46								23	23		518	40000	46	FT	6" PERFORATED CORRUGATED PLASTIC PIPE			
38								19	19		518	40010	38	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS			
229								115	114		518	51200	229	FT	PIPE DOWNSPOUT, INCLUDING SPECIALS, 10"			
130								65	65		524	94804	130	FT	DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK			
1,340								670	670		524	94902	1,340	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK			
725								363	362		524	94904	725	FT	DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK			
2,854								1,427	1,427		524	94906	2,854	FT	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK			
290								145	145		524	94994	290	FT	DRILLED SHAFTS, 90" DIAMETER, INTO BEDROCK			
633								317	316		524	94996	633	FT	DRILLED SHAFTS, 96" DIAMETER, ABOVE BEDROCK			

GENERAL SUMMARY

FRA - 71 - 14.36

CALCULATED HRB CHECKED TAZ

NO.	DESCRIPTION	REV. BY	DATE
2	DOWEL PAY ITEM INCLUDED	TAZ	11-10-2021

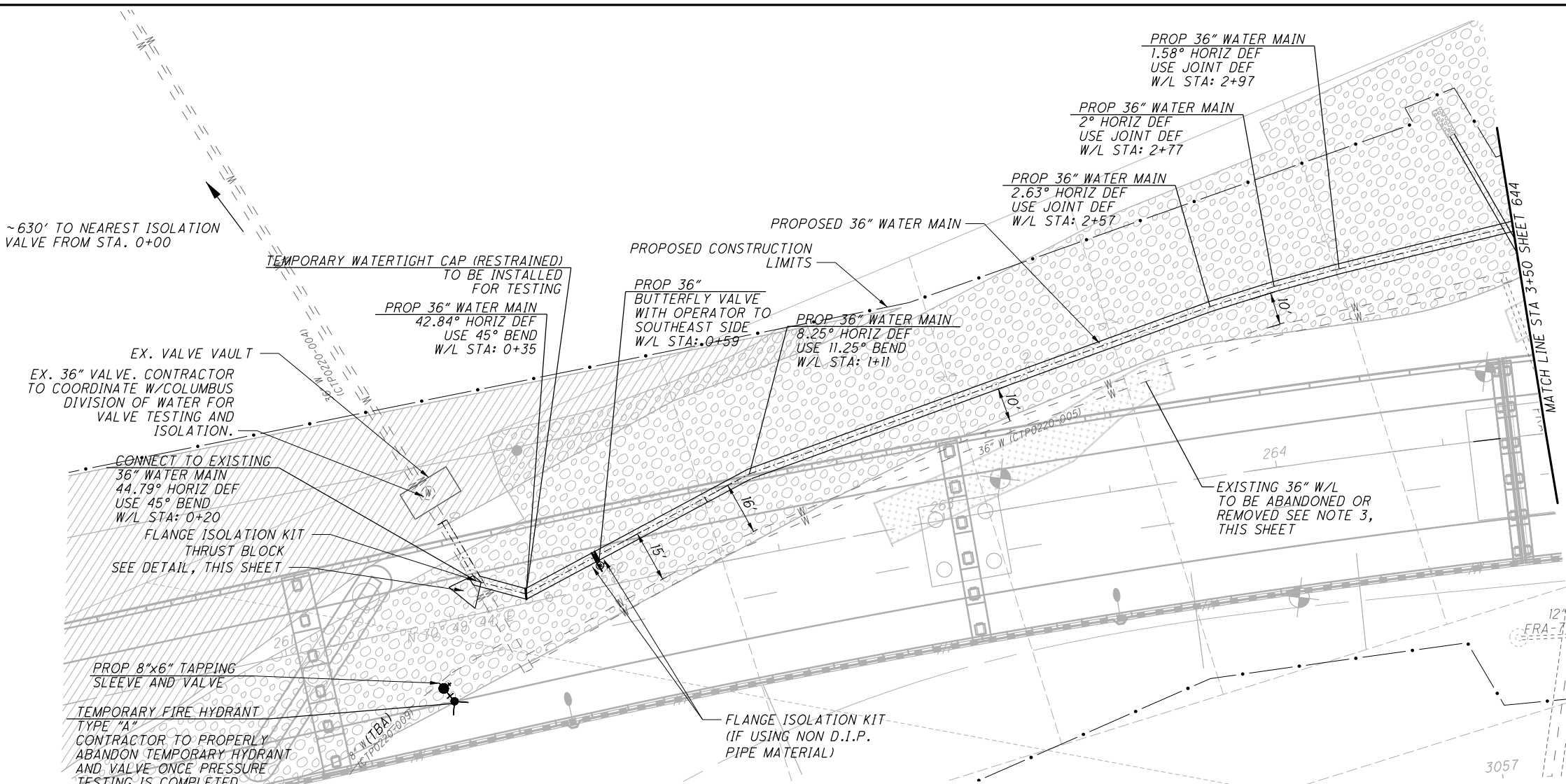
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1228



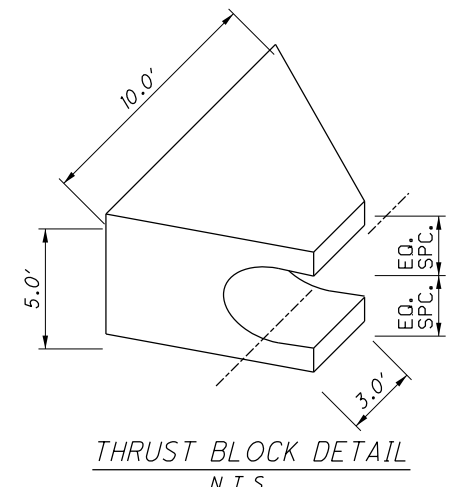
REF NO.	SHEET NO.	638	638	638	638	SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL		SPECIAL	SPECIAL	SPECIAL	638		SPECIAL	SPECIAL	SPECIAL	SPECIAL	SPECIAL	253	252						
		WATER WORK, MISC.: 6" DUCTILE IRON WATER PIPE AND FITTINGS (COL. 801) FT	WATER WORK, MISC.: 12" DUCTILE IRON WATER PIPE AND FITTINGS (COL. 801) FT	WATER WORK, MISC.: 36" WATER PIPE AND FITTINGS (COL. 801) FT	WATER WORK, MISC.: 3/4" WATER SERVICE TAP, TRANSFERRED (COL. 805) EACH	FIRE HYDRANT, TYPE A (COL. 809) EACH	FIRE HYDRANT, TYPE A MODIFIED (COL. 809) EACH	FIRE HYDRANT, ABANDONED (COL. 809) EACH	FIRE HYDRANT, RELOCATED (COL. 809) EACH	1 1/2" CURB STOP, RELOCATED (COL. 805) EACH		6" GATE VALVE AND APPURTENANCES (COL. 802) EACH	12" GATE VALVE AND APPURTENANCES (COL. 802) EACH	36" BUTTERFLY VALVE AND APPURTENANCES (COL. 802) EACH	WATER WORK: 8"X6" TAPPING SLEEVE AND VALVE (COL. 803) EACH		54" CASING PIPE, 3/4" THICKNESS (COL. 806) FT	8-INCH WATER MAIN ABANDONED (COL. 808) EACH	ALLOWANCE FOR PASSIVE CATHODIC PROTECTION SYSTEM DESIGN AND INSTALLATION LS	ALLOWANCE FOR ADDITIONAL TEST STATIONS AND FLANGE ISOLATION KITS FOR STEEL OR CONCRETE PIPE LS	PIPE REMOVED (COL. 202) FT	PAVEMENT REPAIR SY	FULL DEPTH PAVEMENT SAWING FT						
643				350		1						1		1							342								
644				450												128					460								
645			131	94																	83								
646		15		460	1		1	2			1	1	1									35	160						
647		314																											
648		50							4	1				3															
642																			1	1									
<b>TOTAL</b>		379	131	1354	1	1	1	2	4	1		5	1	2		128	3	1	1	885	35	160							

NO.	DESCRIPTION	REV. BY	DATE
2	ITEM & QUANTITY ADDED	ADB	11-12-21

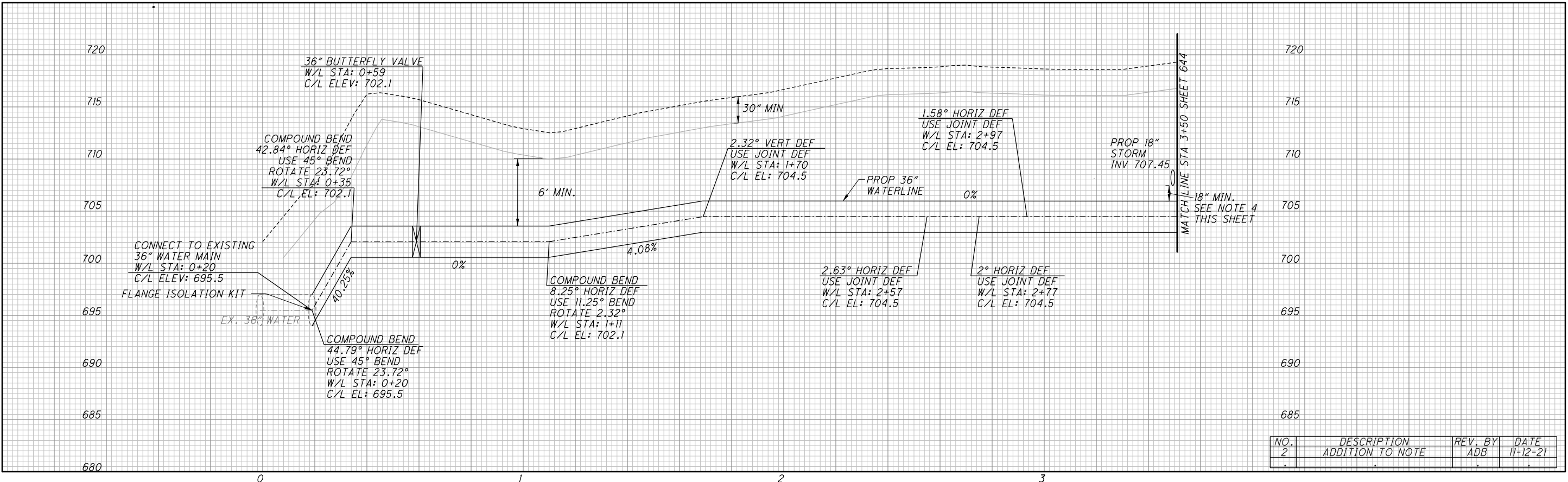




- NOTES:
1. WATERLINE TO BE PRESSURE TESTED AND CHLORINATED PRIOR TO CONNECTIONS TO THE EXISTING WATERLINE.
  2. SEE GENERAL NOTES, SHEET 641-642, FOR INFORMATION ON DEPRESSURIZATION, TESTING AND OUTAGES.
  3. CONTRACTOR TO PROPERLY ABANDON EXISTING 36-INCH WATERLINE PER COC CMS 202 USING FILL-IN-PLACE OR REMOVE AND PROPERLY DISPOSE OF EXISTING 36-INCH WATERLINE AND PROVIDE COMPACTED NATIVE BACKFILL MATERIAL PER COC CMS 911. LIMITS OF PIPE REMOVAL OR FILL-IN-PLACE ARE FROM PROPOSED WATERLINE STA. 0+20 TO 8+90, RESULTING IN 885 FT OF PIPE REMOVAL OR FILL-IN-PLACE. PIPE REMOVAL IS NOTED IN SUBSUMMARY.
  4. CONTRACTOR TO CONFIRM PROP 36" WATERMAIN TO MAINTAIN 18" CLEARANCE CROSSING PROP 18" STORM.
  5. CONTRACTOR SHALL NOT DISTURB TRENCH OF EXISTING 36" WATER MAIN DURING INSTALLATION OF PROPOSED 36" WATER MAIN, EXCEPT DURING CONNECTION.



NOTE:  
RESTRAINED JOINT LENGTHS ON SHEET 642  
APPLY ONLY TO PROPOSED 36-INCH WATERLINE.



NO.	DESCRIPTION	REV. BY	DATE
2	ADDITION TO NOTE	ADB	11-12-21



CALCULATED  
CHECKED

PLAN AND PROFILE 36" (EAST)  
STA. 0+00 TO STA. 3+50

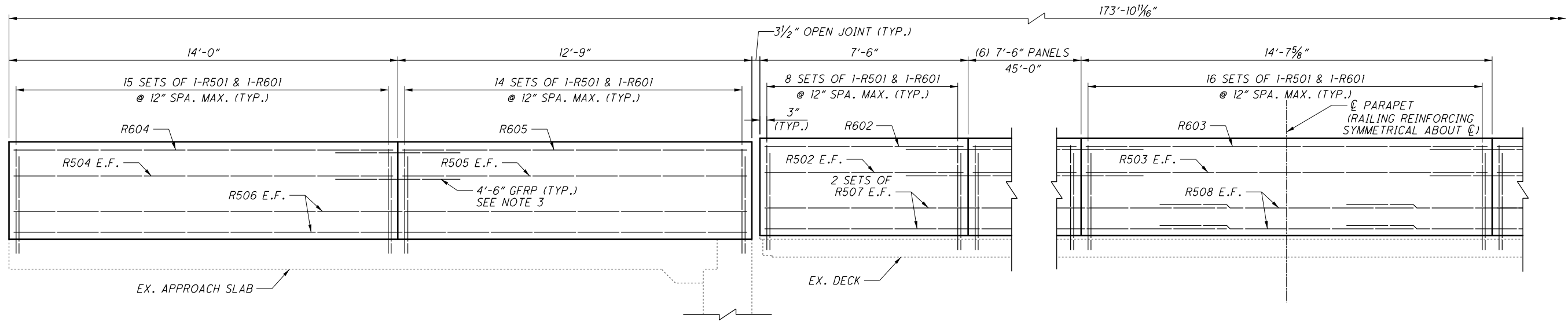
FRA-71-14.34

643  
1228



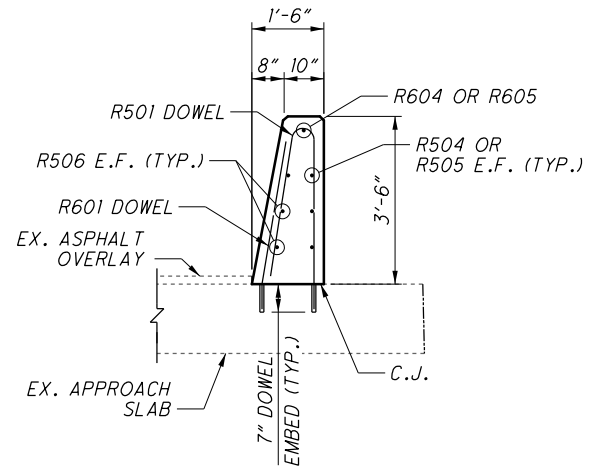
PARTICIPATION		ESTIMATED QUANTITIES					
22/IMS/BR	ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SHEET REF.	
	202	11203		LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	2/12	
705	202	23501	705	SY	WEARING COURSE REMOVED, AS PER PLAN	2/12	
157	202	22900	157	SY	APPROACH SLAB REMOVED		
3	202	98100	3	EACH	REMOVAL MISC.: PILE REMOVED, EXISTING STRUCTURE		
8	407	20000	8	GAL	NON-TRACKING TACK COAT		
5	441	10000	5	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22		
	503	11100		LUMP	COFFERDAMS AND EXCAVATION BRACING		
11,409	509	25000	11,409	LB	REINFORCING STEEL		
372	510	10000	372	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		
48	511	21521	48	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN	2/12	
117	512	33010	117	SY	TYPE 3 WATERPROOFING	2/12	
494	513	10200	494	LB	STRUCTURAL STEEL MEMBERS, LEVEL 5F		
1,005	513	10240	1,005	LB	STRUCTURAL STEEL MEMBERS, LEVEL 2		
4	518	12200	4	EACH	SCUPPERS, INCLUDING SUPPORTS		
32	519	12510	32	SY	SPECIAL - PATCHING CONCRETE BRIDGE DECK - TYPE A		
4	846	00110	4	CF	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM	10/12	

NO.	DESCRIPTION	REV. BY	DATE
2	DOWEL PAY ITEM INCLUDED	DEA	11-09-2021

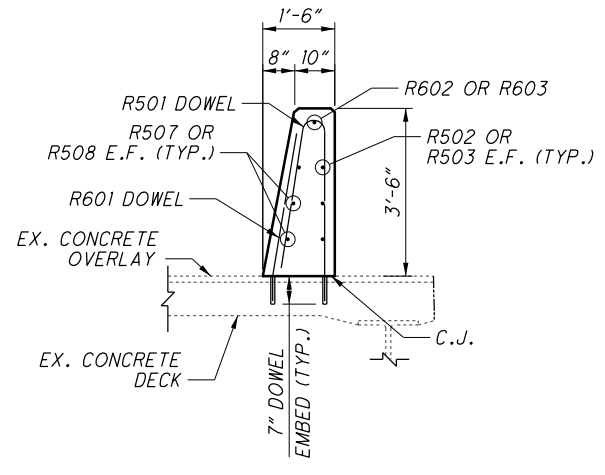


**PARAPET ELEVATION**

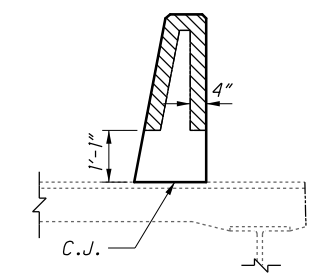
DIMENSIONS ALONG INSIDE FACE OF PARAPET  
EXPANSION JOINT ANGLES NOT SHOWN



**SECTION C-C**



**SECTION D-D**



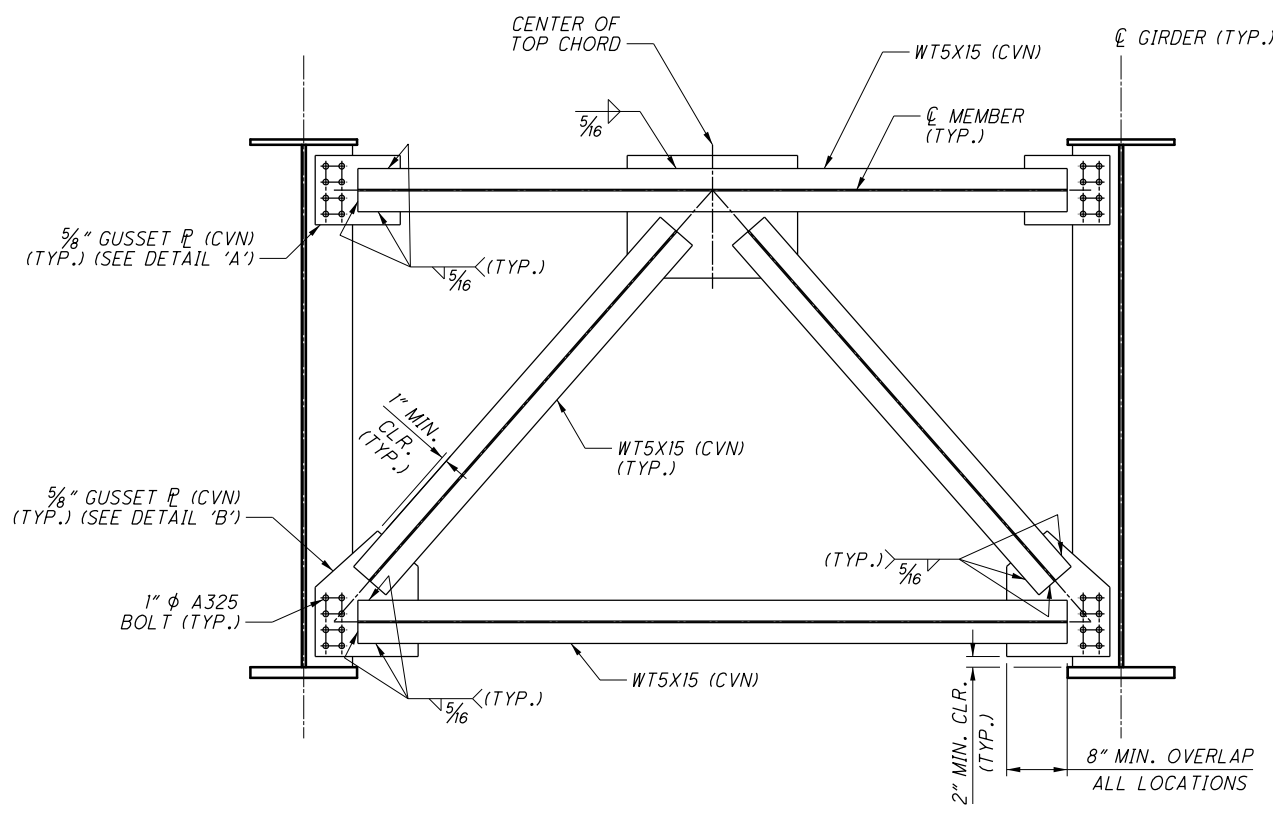
**DEFLECTION JOINT (D.J. DETAIL)**

**NOTES:**

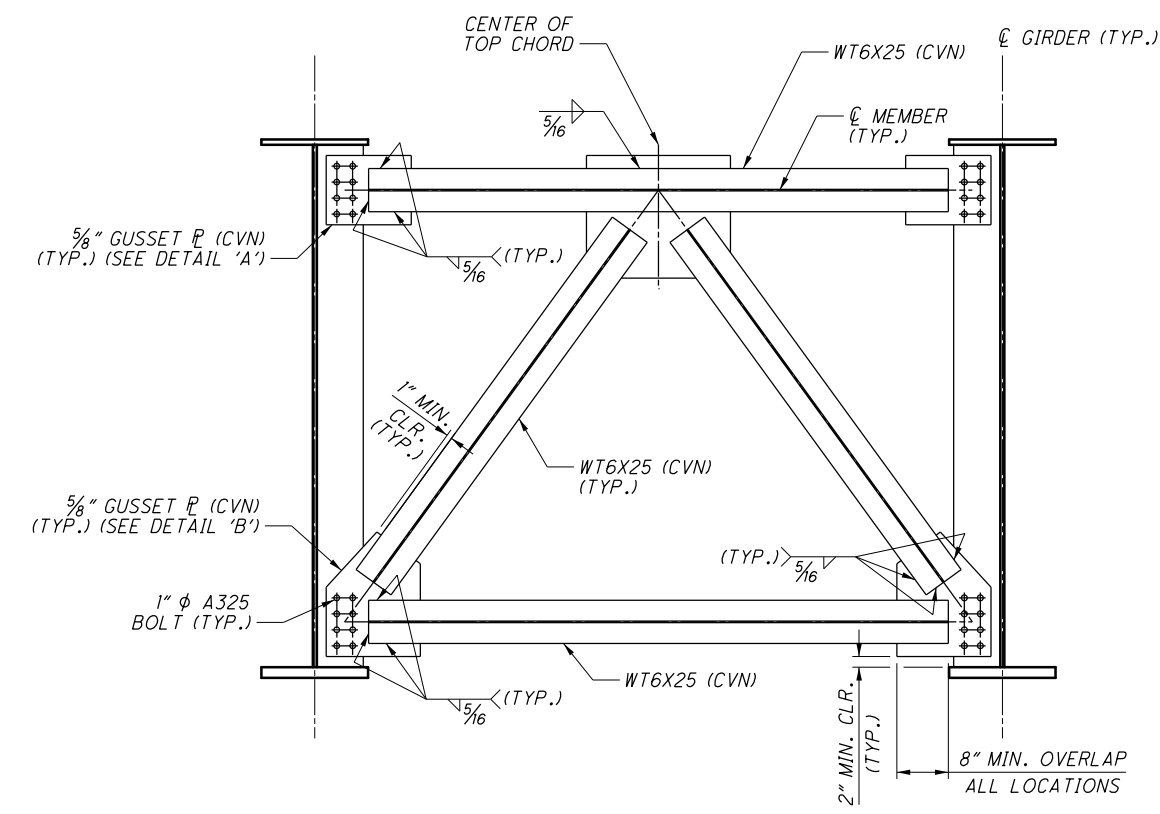
- FOR ADDITIONAL PARAPET DETAILS SEE ODOT STD. DWG. SBR-1-13
- FOR DECK PLAN AND TRANSVERSE SECTION INCLUDING PANEL LOCATIONS AND PARAPET CRACK CONTROL JOINT SPACING SEE SHEET [9/12].
- A TOTAL OF 48 GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCING BARS, 1/2" DIA. x 4'-6" LONG, ARE REQUIRED.
- MINIMUM LAP LENGTHS: #5 = 2'-5"

NO.	DESCRIPTION	REV. BY	DATE
2	DOWEL PAY ITEM INCLUDED	DEA	11-09-2021

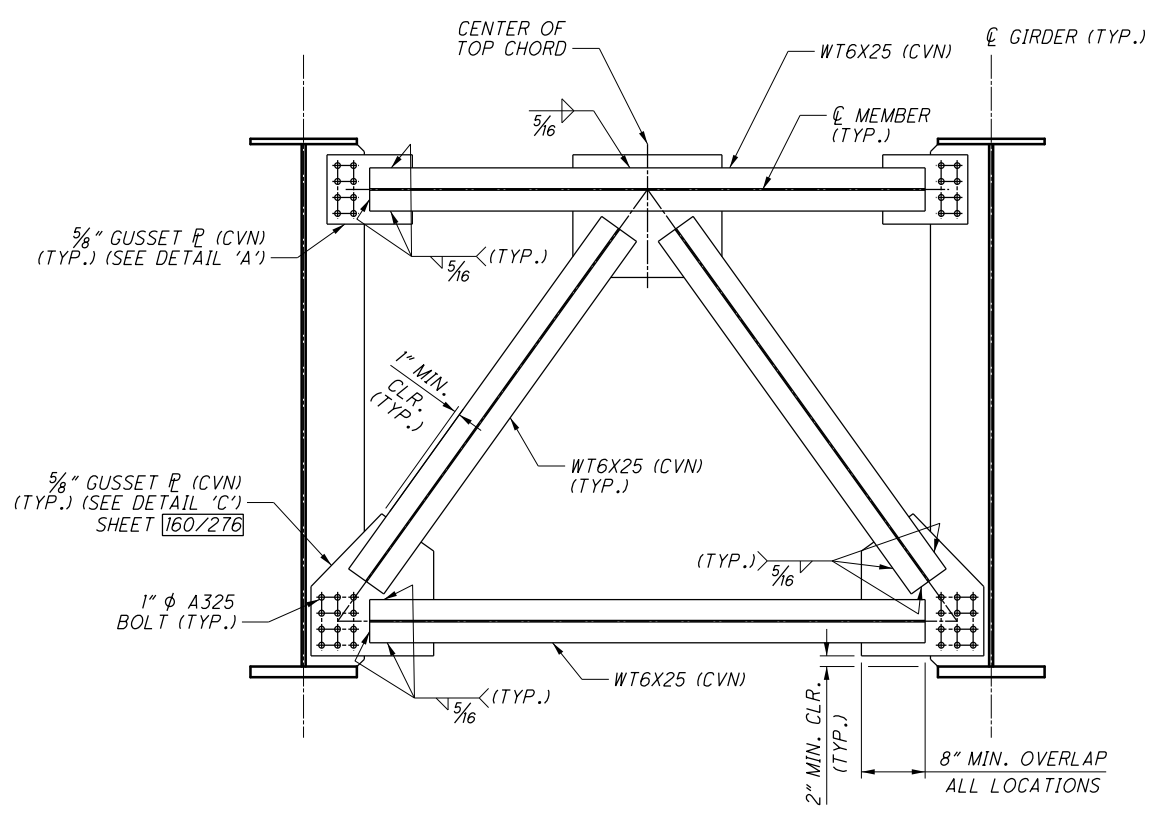
PLOT.CEL  
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 msconsultants.com  
 Ohio DOT Workspace  
 70171 West Interchange 6R  
 www.msconsultants.com  
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 By: darnold  
 9:16:41 AM  
 11/12/2021  
 Model Sheet  
 34" x 22"



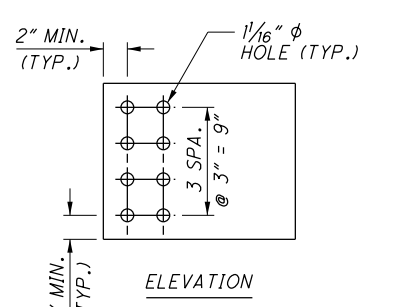
**UNIT 1 - TYPICAL INTERMEDIATE AND PIER CROSSFRAME**



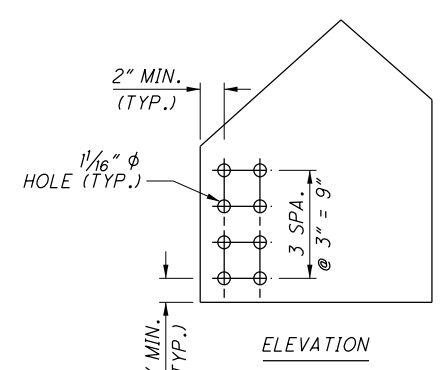
**UNIT 2 & 3 - TYPE 1 INTERMEDIATE AND PIER CROSSFRAME**



**UNIT 2 & 3 - TYPE 2 INTERMEDIATE AND PIER CROSSFRAME**



**DETAIL A**  
 TOP CHORD BOLTED CONNECTION P  
 (TOTAL 2 PIECES PER CROSSFRAME)



**DETAIL B**  
 BOTTOM CHORD BOLTED CONNECTION P  
 (TOTAL 2 PIECES PER CROSSFRAME)

**NOTES:**

- FOR STRUCTURAL STEEL NOTES, SEE SHEET [114/276].
- FOR FRAMING PLANS, SEE SHEETS [115/276] THRU [117/276], [128/276] THRU [129/276], AND [143/276] THRU [144/276].
- FOR CROSSFRAME CONNECTION PLATE DETAILS, SEE SHEETS [156/276] THRU [158/276].
- FOR DECK REINFORCING PLANS, SEE SHEETS [176/276] THRU [182/276], [188/276] THRU [193/276], AND [202/276] THRU [206/276].
- FOR BEARING STIFFENER DETAILS, SEE SHEETS [225/276] THRU [232/276].
- HIGH STRENGTH BOLTS SHALL BE 1" ASTM A325, UNLESS OTHERWISE NOTED.
- SHEAR STUDS SHALL BE PAID FOR UNDER ITEM 513 - WELDED STUD SHEAR CONNECTORS.
- ALL WELDS SHALL BE 5/16" FILLET WELDS, UNLESS NOTED OTHERWISE.
- CROSSFRAMES AND ASSOCIATED HARDWARE SHALL BE PAID FOR UNDER ITEM 513 - STRUCTURAL STEEL MEMBERS, HYBRID GIRDER, LEVEL SIX (6) FABRICATION, AS PER PLAN.

NO.	DESCRIPTION	REV. BY	DATE
2	NOTE REVISION	DEA	11-12-2021

DESIGN AGENCY  
**ms consultants, inc.**  
 2221 Schrock Road  
 Columbus, Ohio 43229  
 DATE  
 20-APR  
 STRUCTURE FILE NUMBER  
 2510025  
 REVIEWED  
 GLG  
 DRAWN  
 PES  
 DESIGNED  
 PEG  
 CHECKED  
 TGH  
**SUPERSTRUCTURE DETAILS (4 OF 11)**  
 BRIDGE NO. FRA-71-1503L  
 I-71 SB OVER SCIOTO RIVER  
**FRA-71-14.36**  
**PID No. 105588**  
 159/276  
 1080  
 1228  
 ms consultants, inc.