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DESIGN AGENCY
Michael Baker INTERNATIONAL
DESIGNER
KJM
REVIEWER
KGJ 05/22/24
PROJECT ID
82382
SHEET TOTAL
2 2696

MAINTENANCE OF TRAFFIC GENERAL NOTES (CONTINUED)

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMTUCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMTUCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMTUCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:
ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY;
AND,
AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION;
AND,
AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

"WITHOUT POSITIVE PROTECTION" MEANS USE OF DRUMS, CONES, SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS "WITHOUT POSITIVE PROTECTION". FOR WORK ZONES USING A COMBINATION OF BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:
THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER;
OR
THE ACTIVE WORK AREA Laterally CLOSE TO THE OPEN TRAVELED LANE;
OR
OTHER LOCATION AS APPROVED BY THE ENGINEER.
THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONTINUED)

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 5000 HOUR

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

ITEM 614, MAINTAINING TRAFFIC, MISC.: PARTIAL TEMPORARY TRAFFIC SIGNAL

THE CONTRACTOR SHALL MODIFY THE EXISTING TRAFFIC SIGNALS AT THE INTERSECTIONS OF CARNEGIE AVENUE AND E. 14TH STREET AS DETAILED ON SHEET 293, CARNEGIE AVENUE AND E. 18TH STREET AS DETAILED ON SHEET 293, AND CARNEGIE AVENUE AND E. 21ST STREET AS DETAILED ON SHEET 345. THESE PARTIAL TEMPORARY TRAFFIC SIGNALS SHALL MAINTAIN THE CURRENT SIGNAL OPERATION UTILIZING THE EXISTING CONTROLLER CABINET, EXCEPT WHEN NOTED OTHERWISE IN THE TEMPORARY SIGNALS NOTES ON SHEET 345. NO CHANGES TO THE SIGNAL PHASING OR TIMINGS SHALL BE MADE WITHOUT THE APPROVAL OF THE PROJECT ENGINEER AND THE CITY OF CLEVELAND TRAFFIC ENGINEER.

ALL TEMPORARY SIGNAL POLE CALCULATIONS SHALL BE PERFORMED BY THE CONTRACTOR IN ORDER TO DETERMINE THE FINAL LOCATION, TYPE OF WOOD POLE TO BE USED, AND TO DETERMINE IF ADDITIONAL WOOD POLES AND SIGNAL SPANS ARE NECESSARY INSTEAD OF REUSING EXISTING SIGNAL SUPPORT POLES. THE NUMBER, LOCATION, VISIBILITY AND HEIGHT OF ALL TRAFFIC SIGNAL HEADS AND SIGNS SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD). THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN CROSSINGS THROUGHOUT CONSTRUCTION WHERE SHOWN IN THE MAINTENANCE OF TRAFFIC PLANS INCLUDING ANY TEMPORARY POLES OR PEDESTRIAN SIGNAL HEADS WHERE NEEDED.

ALL LABOR AND MATERIALS FOR THE TEMPORARY MAINTENANCE OF EXISTING TRAFFIC SIGNALS AND THE IMPLEMENTATION OF THE TEMPORARY SIGNAL PLAN AND NOTES, INCLUDING BUT NOT LIMITED TO THE TEMPORARY SUPPORT POLES, TEMPORARY VEHICULAR AND PEDESTRIAN SIGNAL HEADS, TEMPORARY WIRING, TEMPORARY MESSENGER WIRE, CABINET MODIFICATIONS, AND CONTROLLER PROGRAMMING ADJUSTMENTS, ETC. SHALL BE INCLUDED IN THE UNIT BID PRICE FOR EACH ITEM 614, MAINTAINING TRAFFIC, MISC.: PARTIAL TEMPORARY TRAFFIC SIGNAL. A QUANTITY OF 3 EACH HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS ITEM OF WORK AT THE INTERSECTIONS NOTED ABOVE.

ITEM SPECIAL - SURCHARGE FOR CLASS MS CONCRETE
AT VARIOUS LOCATIONS ALONG THE CORRIDOR AND TIMES DURING CONSTRUCTION CIRCUMSTANCES MAY REQUIRE THE USE OF CLASS MS CONCRETE. THE USE OF MS CONCRETE SHALL BE AT THE DISCRETION AND DIRECTION OF THE ENGINEER AND THE SPECIFICATIONS OUTLINED IN THESE NOTES. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:
ITEM SPECIAL - SURCHARGE FOR CLASS MS CONCRETE 280 CY

RESURFACING OF WORK ZONES

THE CONTRACTOR SHALL RESURFACE THE ROADWAY PAVEMENT LISTED IN THE TABLE BELOW. THIS WORK SHALL OCCUR PRIOR TO IMPLEMENTING A WORK ZONE AND ONCE EACH LOCATION IS NO LONGER PART OF A WORK ZONE AND BEFORE FINAL PAVEMENT MARKINGS ARE PLACED ON THE ROADWAY. ADDITIONAL CONTINGENCY QUANTITIES FOR RESURFACING HAVE BEEN INCLUDED BELOW, TO BE USED AS DIRECTED BY THE ENGINEER.

SINGLE LANE CLOSURES SHALL BE IMPLEMENTED DURING OFF PEAK HOURS (SEE NOTE FOR DETAILS) AND HOLIDAY/SPECIAL EVENT RESTRICTIONS APPLY TO THE CLOSURES. ALL LANE CLOSURES SHOULD BE DONE IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION STANDARDS AS DESCRIBED IN BOTH THE CMS AND STANDARD CONSTRUCTION DRAWINGS. AT THE END OF WORKDAY, TRAFFIC GRADE STEEL PLATES SHALL BE PLACED OVER ANY PORTION OF THE TRENCH NOT RESTORED BACK TO GRADE OR NOT RESTORED BACK TO A MANNER SUITABLE FOR TRAFFIC AND ALL LANES SHALL BE OPENED.

ROADWAY	ALIGNMENT	BEGIN STATION	END STATION	AREA (SF)	BUILD-UP	APP A	APP B	APP C
I.R. 77 NB	@ EX. I.R. 77	55+30	73+65	92,630	ODOT	515	515	
I.R. 77 SB	@ EX. I.R. 77	73+00	73+65	3,470	ODOT	19	19	
I.R. 90	@ EX. I.R. 90	98+48	110+50	152,170	ODOT	845	845	
RAMP E-17	@ EX. RAMP E-17	50+64	68+23	48,490	ODOT	269	269	
RAMP IJ3	@ RAMP IJ3	91+41	101+89	27,350	ODOT	152	152	
CARNEGIE AVE.	@ CONST. CARNEGIE AVE.	35+50	48+00	93,990	CITY			1043
CARNEGIE AVE.	@ CONST. CARNEGIE AVE.	69+25	70+00	4,185	CITY			47
E. 14TH ST. NB	@ E. 14TH ST.	15+33	18+27	6,930	CITY			77
E. 14TH ST. SB	@ E. 14TH ST.	15+33	21+29	16,180	CITY			180
E. 14TH ST.	@ EX. R/W E. 14TH ST.	16+92	18+35	8,575	CITY			95
E. 18TH ST.	@ EX. R/W E. 18TH ST.	4+00	5+00	5,160	CITY			57
E. 19TH ST.	@ EX. R/W E. 19TH ST.	3+87	4+95	4,620	CITY			51
E. 21ST ST.	@ CONST. E. 21ST ST.	100+90	102+68	5,880	CITY			65
E. 22ND ST.	@ CONST. E. 22ND ST.	22+25	29+47	49,390	CITY			548
E. 22ND ST.	@ EX. R/W E. 22ND ST.	28+50	29+56	4,150	CITY			46
COMMUNITY COLLEGE AVE.	@ COMMUNITY COLLEGE AVE.	60+39	62+09	10,710	CITY			119
CENTRAL AVE.	@ EX. R/W CENTRAL AVE.	26+07	26+83	3,030	CITY			34
CEDAR AVE.	@ EX. R/W CEDAR AVE.	23+98	27+50	14,050	CITY			156
CONTINGENCY RESURFACING	AS DIRECTED BY ENGINEER			180,000	ODOT	1,000	1,000	
				120,000	CITY			1,332
TOTAL				504,110	ODOT	APP A	APP B	APP C
				346,850	CITY	2,800	2,800	3,850

RESURFACING BUILD-UP - ODOT

ITEM 442 - 1-1/2" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M
ITEM 407 - NON-TRACKING TACK COAT
ITEM 442 - 1-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446)
ITEM 407 - NON-TRACKING TACK COAT
ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (442) (5")
ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (3.25")
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN A
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN B

RESURFACING BUILD-UP - CITY

ITEM 441 - 1-1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN, PG70-22M
ITEM 407 - NON-TRACKING TACK COAT
ITEM 441 - 1-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
ITEM 407 - NON-TRACKING TACK COAT
ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (442), AS PER PLAN (5")
ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (3")
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN C

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO RESURFACE AND REPAIR PAVEMENT THAT HAS BEEN USED FOR MAINTENANCE OF TRAFFIC:

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (442)	300 CY
ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (442), AS PER PLAN	400 CY
ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (3")	38,540 SY
ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (3.25")	56,010 SY
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN A	2,800 SY
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN B	2,800 SY
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1, AS PER PLAN C	3,850 SY
ITEM 407 - NON-TRACKING TACK COAT	14,180 GAL
ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN, PG70-22M	1,340 CY
ITEM 441 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	1,870 CY
ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M	2,330 CY
ITEM 442 - ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446)	2,720 CY

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC
ASPHALT CONCRETE MAY BE REQUIRED AT RESURFACING OR PHASE LIMITS TO MAINTAIN TRAFFIC. THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO CONSTRUCT PAVEMENT WEDGES TO TRANSITION VARIABLE HEIGHT PAVEMENTS AT RESURFACING OR PHASE LIMITS TO MAINTAIN TRAFFIC:
ODOT MAINTAINED ROADWAYS
ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 13 CY
CITY OF CLEVELAND MAINTAINED ROADWAYS
ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 13 CY

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, TYPE 1, CLASS QC1 (SY)

SHEET NUMBER										PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET	
1688	1689	1782								01/IMS /04	02/IMS /10	03/IMS /08								
LIGHTING (CONT.)																				
										23				625	27503	23	EACH	LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN (480V)	1685	
										1				625	27503	1	EACH	LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN (480V, CROSS FRAME MOUNTED)	1685	
		17								17				625	27503	17	EACH	LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN (CPP LED WALLPACK)	1686	
		51								51				625	27551	51	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (15' POLES)	1686	
		33								33				625	27551	33	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (30' POLES)	1686	
										20				625	27600	20	EACH	LUMINAIRE, MISC.: FAA TYPE L-810 OBSTRUCTION LIGHTING, LED (120V)	1685	
	5990	4691								10681				625	29000	10681	FT	TRENCH		
		8								8				625	29900	8	EACH	JUNCTION BOX		
	4									4				625	29930	4	EACH	MEDIAN JUNCTION BOX		
	26									26				625	30700	26	EACH	PULL BOX, 725.08, 18"		
	8	4								12				625	30706	12	EACH	PULL BOX, 725.08, 24"		
	4									4				625	30731	4	EACH	PULL BOX, 725.08, 48", TYPE 1, AS PER PLAN	1685	
		10								10				625	31510	10	EACH	PULL BOX REMOVED		
	17									17				625	31511	17	EACH	PULL BOX REMOVED, AS PER PLAN	1685	
		13								13				625	31600	13	EACH	PULL BOX, MISC.: 6" X 6" PULL BOX	1687	
		87								87				625	31600	87	EACH	PULL BOX, MISC.: 13" X 24" PULL BOX	1687	
	46	110	8							156				625	31600	156	EACH	PULL BOX, MISC.: 18" PULL BOX ADJUSTED TO GRADE	1685	
	6									6				625	32000	6	EACH	GROUND ROD		
	2	3								5				625	33000	5	EACH	STRUCTURE GROUNDING SYSTEM		
										5				625	34001	5	EACH	POWER SERVICE, AS PER PLAN	1684	
	2									2				625	34450	2	EACH	CONTROL CENTER CABINET, COMPLETE		
		1								1				625	34451	1	EACH	CONTROL CENTER CABINET, COMPLETE, AS PER PLAN	1687	
	5990	4691								10681				625	36010	10681	FT	UNDERGROUND WARNING/MARKING TAPE		
	11	7								18				625	37101	18	EACH	SERVICE TO UNDERPASS LIGHTING, AS PER PLAN	1684	
	LS									LS				SPECIAL	625E40000	LS		MAINTAIN EXISTING LIGHTING	1684	
	20									20				SPECIAL	625E40010	20	EACH	REPLACEMENT OF EXISTING LIGHTING UNIT	1684	
	21									21				625	75350	21	EACH	LIGHT TOWER REMOVED		
		96								96				625	75400	96	EACH	LIGHT POLE REMOVED		
		20								20				625	75500	20	EACH	LIGHT POLE FOUNDATION REMOVED		
		10								10				625	75506	10	EACH	LUMINAIRE REMOVED		
	2									2				625	75510	2	EACH	POWER SERVICE REMOVED		
	21									21				625	75540	21	EACH	LIGHT TOWER FOUNDATION REMOVED		
		10								10				625	75801	10	EACH	DISCONNECT CIRCUIT, AS PER PLAN	1687	
	1	4								1				625	98000	1	EACH	LIGHTING, MISC.: RELOCATE EX. CONTROL CENTER	1685	
	10	19								29				625	98000	29	EACH	LIGHTING, MISC.: TEST NEW CIRCUIT	1684	
	8	1503								1503				632	69300	1503	FT	POWER CABLE, 3 CONDUCTOR, NO. 4 AWG		
		45								45				632	89300	45	EACH	WOOD POLE (30' CLASS III)		
		5								5				632	89300	5	EACH	WOOD POLE (50' CLASS III)		
ELECTRICAL																				
		9	60499							9	60499			625	23308	9	60499	FT	DISTRIBUTION CABLE, MISC.: 500KCMIL 15KV CU WITH CONCENTRIC NEUTRAL	1778
			5311							5311				625	23308	5311	FT	DISTRIBUTION CABLE, MISC.: 556KCMIL 15KV SPACER CABLE WITH 0052 AWA MESSENGER	1778	
			3630							3630				625	23308	3630	FT	DISTRIBUTION CABLE, MISC.: 750KCMIL 15KV CU WITH CONCENTRIC NEUTRAL	1778	
			7030							7030				625	25721	7030	FT	CONDUIT, AS PER PLAN, 5", FRE	1777	
			272							272				625	25803	272	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (2-5" CONDUIT, EB-20 PVC)	1777	
			390							390				625	25803	390	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (3-5" CONDUIT, EB-20 PVC)	1777	
			368							368				625	25803	368	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (5-5" CONDUIT, EB-20 PVC)	1777	
			391							391				625	25803	391	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (7-5" CONDUIT, EB-20 PVC)	1777	
			1830							1830				625	25803	1830	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (9-5" CONDUIT, EB-20 PVC)	1777	
			1150							1150				625	25803	1150	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN (12-5" CONDUIT, EB-20 PVC)	1777	
			8325							8325				625	25911	8325	FT	CONDUIT CLEANED AND CABLES REMOVED, AS PER PLAN	1787	
			28							28				625	32001	28	EACH	GROUND ROD, AS PER PLAN	1779	
			180							180				625	98000	180	EACH	LIGHTING, MISC.: 15KV IN-LINE SPLICE	1777	
			12							12				625	98000	12	EACH	LIGHTING, MISC.: 24" SPACER CABLE TANGENT BRACKET	1779	
			4							4				625	98000	4	EACH	LIGHTING, MISC.: JOINT-USE CONDUIT RISER	1779	
			18							18				625	98000	18	EACH	LIGHTING, MISC.: JOINT-USE MESSENGER ASSEMBLY	1779	
			27							27				625	98000	27	EACH	LIGHTING, MISC.: PRIMARY CONDUIT RISER	1779	
			24							24				625	98000	24	EACH	LIGHTING, MISC.: SPACER CABLE DEADEND ASSEMBLY	1779	
			26							26				625	98000	26	EACH	LIGHTING, MISC.: SPACER CABLE TO SPACER CABLE DOUBLE DEADEND ASSEMBLY	1779	
			2							2				632	89300	2	EACH	WOOD POLE (50' CLASS II)		

DESIGN AGENCY
Michael Baker INTERNATIONAL

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 KGJ 05/22/24

PROJECT ID
 82382

SHEET TOTAL
 409 2696

SHEET NUMBER													PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
120	125	1455	1468	1485	1493							01/IMS /04	02/IMS /10	03/IMS /08								
				4								4			630	72340	4	EACH	TRAFFIC CONTROL (CONT.)			
				6								6			630	72410	6	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.31, DESIGN 12			
				6								6			630	72420	6	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-15.116, DESIGN 1			
				1								1			630	72430	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-15.116, DESIGN 2			
				1								1			630	72430	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-15.116, DESIGN 3			
				1								1			630	72550	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.22, DESIGN 13			
	26			61								87			630	75000	87	EACH	SIGN ATTACHMENT ASSEMBLY			
				2								2			630	79100	2	EACH	SIGN HANGER ASSEMBLY, MAST ARM			
				112								112			630	79500	112	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED			
				18								18			630	79604	18	EACH	SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED, TYPE 2			
				1								1			630	79610	1	EACH	SIGN SUPPORT ASSEMBLY, BARRIER MOUNTED			
	146.0			4044.7								4190.7			630	80100	4190.7	SF	SIGN, FLAT SHEET			
				899.5								899.5			630	80200	899.5	SF	SIGN, GROUND MOUNTED EXTRUSHEET			
	1026.0			7235.5								8261.5			630	80224	8261.5	SF	SIGN, OVERHEAD EXTRUSHEET			
	781.3											781.3			630	80300	781.3	SF	SIGN, TEMPORARY OVERLAY			
				6								6			630	80501	6	EACH	SIGN, DOUBLE FACED, STREET NAME, AS PER PLAN	1449		
				5								5			630	84010	5	EACH	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.50			
	2			28								30			630	84500	30	EACH	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION			
				27								27			630	84510	27	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION			
	1				229							230			630	84900	230	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL			
					5							5			630	85000	5	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE			
					2							2			630	85100	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION			
					14							14			630	85400	14	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL			
					198							198			630	86002	198	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL			
					2							2			630	86010	2	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION			
	2				28							30			630	86102	30	EACH	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL			
					1							1			630	86270	1	EACH	REMOVAL OF GROUND MOUNTED PIPE SUPPORT AND STORAGE			
	5											5			630	87000	5	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND STORAGE			
	5											5			630	87100	5	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION			
	20				69							89			630	87400	89	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL			
					248							248			630	87500	248	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL			
					1							1			630	87510	1	EACH	REMOVAL OF POLE MOUNTED SIGN AND STORAGE			
					3							3			630	87520	3	EACH	REMOVAL OF POLE MOUNTED SIGN AND REERECTION			
					18							18			630	89702	18	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL			
					1							1			630	89804	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-15.115			
	33											33			630	89894	33	EACH	REMOVAL OF TEMPORARY OVERLAY SIGN AND DISPOSAL			
	4											4			630	89898	4	EACH	REMOVAL OF TEMPORARY OVERLAY SIGN AND STORAGE			
95970												95970			642	30000	95970	FT	REMOVAL OF PAVEMENT MARKING			
70												70			642	30020	70	EACH	REMOVAL OF PAVEMENT MARKING			
1.96		7.62		1.33								1.33			644	00100	1.33	MILE	EDGE LINE, 4"			
												9.58			644	00104	9.58	MILE	EDGE LINE, 6"			
0.46				2.04								2.50			644	00200	2.50	MILE	LANE LINE, 4"			
2.20		3.69										5.89			644	00204	5.89	MILE	LANE LINE, 6"			
0.04		0.17		1.56								1.77			644	00300	1.77	MILE	CENTER LINE			
517				5365								5882			644	00400	5882	FT	CHANNELIZING LINE, 8"			
1153		9020										10173			644	00404	10173	FT	CHANNELIZING LINE, 12"			
				1161								1161			644	00500	1161	FT	STOP LINE			
		53		3092								3145			644	00620	3145	FT	CROSSWALK LINE, 12"			
				1219								1219			644	00621	1219	FT	CROSSWALK LINE, 12", AS PER PLAN			
				2687								4153			644	00700	4153	FT	TRANSVERSE/DIAGONAL LINE	1449		
	74			1026								1573			644	00720	1573	FT	CHEVRON MARKING			
				581								581			644	00900	581	SF	ISLAND MARKING			
				2960								2960			644	01200	2960	FT	PARKING LOT STALL MARKING			
				10								164			644	01300	164	EACH	LANE ARROW			
				2								2			644	01350	2	EACH	LANE REDUCTION ARROW			
				11								11			644	01360	11	EACH	WRONG WAY ARROW			
				2								2			644	01370	2	EACH	TWO WAY LEFT TURN ARROW			
257				3053								3310			644	01500	3310	FT	DOTTED LINE, 4"			
2449		2420										4869			644	01510	4869	FT	DOTTED LINE, 6"			
				1448								1448			644	01514	1448	FT	DOTTED LINE, 8"			

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SHEET NUMBER													PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
1455	1468	1642										01/IMS /04	02/IMS /10	03/IMS /08								
										TRAFFIC CONTROL (CONT.)												
1365												1365			644	01520	1365	FT	DOTTED LINE, 12"			
	6											6			644	01630	6	EACH	BIKE LANE SYMBOL MARKING			
	4											4			644	19000	4	EACH	SHARED LANE MARKING			
	38											38			644	50300	38	FT	PAVEMENT MARKING, MISC.: BIKE LANE CROSSWALK	1449		
	1034											1034			644	60000	1034	SF	GREEN COLORED PAVEMENT FOR BIKE LANES			
	0.14											0.14			646	10000	0.14	MILE	EDGE LINE, 4"			
1.90												1.90			646	10010	1.90	MILE	EDGE LINE, 6"			
	0.42											0.42			646	10100	0.42	MILE	LANE LINE, 4"			
1.48												1.48			646	10110	1.48	MILE	LANE LINE, 6"			
	0.35											0.35			646	10200	0.35	MILE	CENTER LINE			
	241											241			646	10300	241	FT	CHANNELIZING LINE, 8"			
3018												3018			646	10310	3018	FT	CHANNELIZING LINE, 12"			
	33											33			646	10400	33	FT	STOP LINE			
	1312											1312			646	10510	1312	FT	CROSSWALK LINE, 12"			
310	188											498			646	10600	498	FT	TRANSVERSE/DIAGONAL LINE			
222												222			646	10620	222	FT	CHEVRON MARKING			
	5											5			646	20300	5	EACH	LANE ARROW			
2687												2687			646	20504	2687	FT	DOTTED LINE, 6"			
	4											4			646	20600	4	EACH	BIKE LANE SYMBOL MARKING			
	2											2			646	20650	2	EACH	SHARED LANE MARKING			
	876											876			646	60100	876	SF	GREEN COLORED PAVEMENT FOR BIKE LANES			
										TRAFFIC SIGNALS												
	4											4			625	00480	4	EACH	CONNECTION, UNFUSED PERMANENT			
	775											775			625	25408	775	FT	CONDUIT, 2", 725.051			
	448											448			625	25504	448	FT	CONDUIT, 3", 725.051			
	152											152			625	25604	152	FT	CONDUIT, 4", 725.051			
	4133											4133			625	25802	4133	FT	CONDUIT, CONCRETE ENCASED, 4", 725.051			
	675											675			625	25910	675	FT	CONDUIT CLEANED AND CABLES REMOVED			
	2856											2856			625	29000	2856	FT	TRENCH			
	439											439			625	29400	439	FT	TRENCH IN PAVED AREA			
	13											13			625	30510	13	EACH	PULL BOX, 725.06, SIZE 4			
	28											28			625	30530	28	EACH	PULL BOX, 725.06, SIZE 18			
	65											65			625	32000	65	EACH	GROUND ROD			
	3295											3295			625	36011	3295	FT	UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN	1638		
	58											58			630	79101	58	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	1638		
	4											4			630	79500	4	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED			
	254.0											254.0			630	80100	254.0	SF	SIGN, FLAT SHEET			
	30											30			630	80511	30	EACH	SIGN, STREET NAME, AS PER PLAN	1638		
	4											4			632	04000	4	EACH	VEHICULAR SIGNAL HEAD, MISC.: (LED), 3-SECTION, 8" LENS, 1-WAY, POLYCARBONATE, YELLOW (BICYCLE)	1640		
	87											87			632	05006	87	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, YELLOW			
	12											12			632	05086	12	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, YELLOW			
	56											56			632	20731	56	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	1640		
	62											62			632	20750	62	EACH	ACCESSIBLE PEDESTRIAN PUSHBUTTON			
	103											103			632	25000	103	EACH	COVERING OF VEHICULAR SIGNAL HEAD			
	56											56			632	25010	56	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD			
	8775											8775			632	40300	8775	FT	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG			
	8775											8775			632	40500	8775	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG			
	10250											10250			632	40700	10250	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG			
	30											30			632	64010	30	EACH	SIGNAL SUPPORT FOUNDATION			
	28											28			632	64020	28	EACH	PEDESTAL FOUNDATION			
	8											8			632	64950	8	EACH	TEST HOLE PERFORMED			
	600											600			632	68200	600	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG			
	450											450			632	69200	450	FT	POWER CABLE, 2 CONDUCTOR, NO. 4 AWG			
	7											7			632	70001	7	EACH	POWER SERVICE, AS PER PLAN 2	1639		
	9											9			632	70200	9	EACH	CONDUIT RISER, 1" DIAMETER			
	10											10			632	72111	10	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	1640		
	8											8			632	72131	8	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN	1640		
	8											8			632	72141	8	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 13, AS PER PLAN	1640		

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DESIGNER	KJM
REVIEWER	KGJ 05/22/24
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SHEET TOTAL	412 2696

SHEET NUMBER													PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
429	1642	1806	1839							01/IMS /04	02/IMS /10	03/IMS /08										
TRAFFIC SIGNALS (CONT.)																						
	2									2				632	72151	2	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 14, AS PER PLAN	1640			
	2									2				632	86121	2	EACH	STRAIN POLE, TYPE TC-81.11, DESIGN 8, AS PER PLAN	1640			
	14									14				632	89901	14	EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN	1640			
	14									14				632	90010	14	EACH	PEDESTAL, MISC.: PEDESTAL 15', TRANSFORMER BASE	1640			
	8									8				632	90101	8	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	1638			
	7									7				633	65511	7	EACH	CABINET, TYPE TS-2, AS PER PLAN	1641			
	7									7				633	67100	7	EACH	CABINET FOUNDATION				
	6									6				633	67200	6	EACH	CONTROLLER WORK PAD				
	7									7				809	69123	7	EACH	ATC CONTROLLER, AS PER PLAN	1641			
TRAFFIC SIGNALS ALTERNATES 1																						
	7									7			X	633	45001	7	EACH	GPS (GLOBAL POSITIONING SYSTEM) CLOCK ASSEMBLY, AS PER PLAN (GENERIC) (ALTERNATE 1)	1641			
	7									7			X	633	45001	7	EACH	GPS (GLOBAL POSITIONING SYSTEM) CLOCK ASSEMBLY, AS PER PLAN (ELTEC) (ALTERNATE 2)	1641			
TRAFFIC SIGNALS ALTERNATES 2																						
	20									20			X	809	69101	20	EACH	STOP LINE RADAR DETECTION, AS PER PLAN (GENERIC) (ALTERNATE 1)	1638			
	20									20			X	809	69101	20	EACH	STOP LINE RADAR DETECTION, AS PER PLAN (ITERIS) (ALTERNATE 2)	1638			
LANDSCAPING																						
			26							26				511	53010	26	CY	CLASS QC1 CONCRETE, MISC.: GATEWAY MONUMENT SIGN, FOUNDATION	1827			
			52							52				511	71100	52	CY	CONCRETE, MISC.: CLASS QC SCC CONCRETE WITH QC/QA, GATEWAY MONUMENT SIGN, WALL	1827			
			LS							LS				607	98200	LS		FENCE, MISC.: BRIDGE 13 SCREEN WALL PANELS	1832-1835			
			LS							LS				607	98200	LS		FENCE, MISC.: GATEWAY MONUMENT SIGN SCREEN WALL PANELS	1832			
			923							923				608	98000	923	SF	WALKWAY, MISC.: PAVERS OVER CONCRETE (BRICK 1)	1825			
			10437							10437				608	98000	10437	SF	WALKWAY, MISC.: PAVERS OVER CONCRETE (BRICK 2)	1825			
			1527							1527				608	98000	1527	SF	WALKWAY, MISC.: PAVERS OVER CONCRETE (BRICK 3)	1825			
			743							743				608	98000	743	SF	WALKWAY, MISC.: PAVERS OVER CONCRETE (BRICK 4)	1825			
	243									243				661	00501	243	CY	MULCH, AS PER PLAN	1804			
	48400									48400				661	31000	48400	GAL	LANDSCAPE WATERING				
	9									9				661	40100	9	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, AMERICAN SYCAMORE (POC)				
	5									5				661	40100	5	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, BUR OAK (QMA)				
	7									7				661	40100	7	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, CHINESE ELM (ULM)				
	15									15				661	40100	15	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, CHINKAPIN OAK (QMU)				
	11									11				661	40100	11	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, GREEN VASE ZELKOVA (ZSE)				
	18									18				661	40100	18	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, KENTUCKY COFFEETREE (GDI)				
	1									1				661	40100	1	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, LITTLELEAF LINDEN (TCO)				
	19									19				661	40100	19	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, OHIO BUCKEYE (AGL)				
	18									18				661	40100	18	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, SCARLET OAK (QCO)				
	12									12				661	40100	12	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, SOMERSET RED MAPLE (ARS)				
	10									10				661	40100	10	EACH	DECIDUOUS TREE, 2-1/2" CALIPER, THORNLESS HONEYLOCUST (GTR)				
	6									6				661	50160	6	EACH	EVERGREEN TREE, 8' HEIGHT, AMERICAN HOLLY (IOK)				
	26									26				661	50160	26	EACH	EVERGREEN TREE, 8' HEIGHT, AMERICAN HOLLY (IOP)				
	72									72				661	50160	72	EACH	EVERGREEN TREE, 8' HEIGHT, EASTERN REDCEDAR (JVI)				
	58									58				661	50160	58	EACH	EVERGREEN TREE, 8' HEIGHT, PITCH PINE (PRI)				
	53									53				661	99900	53	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, CRABAPPLE SP. (MAL)	1824			
	128									128				661	99900	128	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, EASTERN REDBUD (CCN)	1824			
	43									43				661	99900	43	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, FLOWERING DOGWOOD (CFL)	1824			
	90									90				661	99900	90	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, GREEN HAWTHORN (CVI)	1824			
	33									33				661	99900	33	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, IVORY SILK JAPANESE TREE LILAC (SRE)	1824			
	36									36				661	99900	36	EACH	PLANTING, MISC.: FLOWERING TREE, 2-1/2" CALIPER, KWANZAN FLOWERING CHERRY (PSE)	1824			
	88									88				661	99900	88	EACH	PLANTING, MISC.: FLOWERING TREE, 6-8' HEIGHT, AUTUMN BRILLIANCE SERVICEBERRY (ACA)	1824			
	14									14				661	99900	14	EACH	PLANTING, MISC.: FLOWERING TREE, 6-8' HEIGHT, COMMON WITCH HAZEL (HVI)	1824			
	196									196				661	99900	196	EACH	PLANTING, MISC.: SHRUB, 3 GALLON, SHORE JUNIPER (JCB)	1824			
			9							9				SPECIAL	680E14550	9	EACH	TRASH RECEPTACLE	1826			
			1							1				SPECIAL	680E43100	1	EACH	COMPLETE IRRIGATION SYSTEM	1836			
	2									2				SPECIAL	690E98000	2	EACH	BRICK 1 PAVER MOCK UP	1826			
	2									2				SPECIAL	690E98000	2	EACH	BRICK 2 PAVER MOCK UP	1826			
	2									2				SPECIAL	690E98000	2	EACH	BRICK 3 PAVER MOCK UP	1826			
	2									2				SPECIAL	690E98000	2	EACH	BRICK 4 PAVER MOCK UP	1826			
	1									1				SPECIAL	690E98000	1	EACH	BRIDGE 13 PLANTER MOCK UP	1831			
	1									1				SPECIAL	690E98000	1	EACH	BRIDGE 13 SCREEN WALL MOCK UP	1833			

DESIGN AGENCY	
Michael Baker	
INTERNATIONAL	
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET TOTAL	413 2696

SHEET NUMBER													PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET		
120	427	429	435	489	1839								01/IMS /04	02/IMS /10	03/IMS /08									
	6																	LANDSCAPING (CONT.)						
		1			21								1					SPECIAL 690E98000 1 EACH	GATEWAY MONUMENT SIGN SCREEN WALL MOCK UP	1833				
													21					SPECIAL 690E98000 21 EACH	GATEWAY SIGN ALUMINUM LETTERS	1827				
		2			24								2					SPECIAL 690E98000 2 EACH	INTEGRALLY COLORED CONCRETE CROSSWALK MOCK UP	1825				
					159								24					SPECIAL 690E98000 24 EACH	PARK BENCH	1826				
													159					SPECIAL 690E98000 159 EACH	SCREEN WALL COVER PLATE	1826				
					70								70					SPECIAL 690E98000 70 EACH	SKATE GUARD	1826				
		9											9					SPECIAL 690E98000 9 EACH	TREE PROTECTION	1798				
		320											320					SPECIAL 690E98100 320 FT	AIR KNIFE EXCAVATION	1798				
	6				1118								1118					SPECIAL 690E98100 1118 FT	METAL EDGING	1826				
		LS											LS					SPECIAL 690E98400 LS	BRIDGE 13 ARCHITECTURAL CONCRETE MIX MOCK UP	1829				
	6												LS					SPECIAL 690E98400 LS	CLEVELAND PLANTING	1804				
		LS											LS					SPECIAL 690E98400 LS	GATEWAY MONUMENT SIGN ARCHITECTURAL CONCRETE MIX MOCK UP	1829				
					LS								LS					SPECIAL 690E98400 LS	PLANTER WATERPROOFING SYSTEM	1830				
					29								29					SPECIAL 690E98700 29 CY	PLANTING SOIL FOR BRIDGE 13 PARAPET PLANTERS	1799				
					174								174					SPECIAL 690E98700 174 CY	PLANTING SOIL FOR BRIDGE 13 TREE PLANTERS	1799				
																			RETAINING WALLS					
																			RETAINING WALL AC ESTIMATED QUANTITIES	1178				
																			RETAINING WALL AD ESTIMATED QUANTITIES	1195				
																			RETAINING WALL AE ESTIMATED QUANTITIES	1210				
																			RETAINING WALL AF ESTIMATED QUANTITIES	1221				
																			RETAINING WALL AG ESTIMATED QUANTITIES	1233				
																			RETAINING WALL AH ESTIMATED QUANTITIES	1244				
																			RETAINING WALL AI ESTIMATED QUANTITIES	1253				
																			RETAINING WALL AJ ESTIMATED QUANTITIES	1265				
																			RETAINING WALL N ESTIMATED QUANTITIES	1274				
																			RETAINING WALL S ESTIMATED QUANTITIES	1286				
																			RETAINING WALL T ESTIMATED QUANTITIES	1303				
																			RETAINING WALL Y ESTIMATED QUANTITIES	1313				
																			RETAINING WALL Z ESTIMATED QUANTITIES	1322				
																			RAMP A3 BARRIER MOMENT SLAB ESTIMATED QUANTITIES	1335				
																			MEDIAN BARRIER MOMENT SLAB ESTIMATED QUANTITIES	1342				
																			RAMP A2 OVERHEAD SIGN TRUSS ESTIMATED QUANTITIES	1356				
																			RAMP B6 OVERHEAD SIGN TRUSS ESTIMATED QUANTITIES	1362				
																			STRUCTURE REMOVED					
																			PORTIONS OF STRUCTURE REMOVED					
																				BUILDING DEMOLITION				
																			202 11000 LS	STRUCTURE REMOVED				
																			202 11200 LS	PORTIONS OF STRUCTURE REMOVED				
																			LS	202 56000 LS	BUILDING DEMOLISHED (103-13-019 / 320-WL)	74		
	6	LS																	LS	202 56001 LS	BUILDING DEMOLISHED, AS PER PLAN (103-26-003 / 303)	74		
																					STRUCTURES			
																				LS	503 21300 LS	UNCLASSIFIED EXCAVATION		
																						STRUCTURE OVER 20 FOOT SPAN		
																						STRUCTURE CUY-77-1587 (SFN-1806910 BRIDGE 9) ESTIMATED QUANTITIES	1884	
																						STRUCTURE CUY-90-1653L (SFN-1807901 BRIDGE 10) ESTIMATED QUANTITIES	2041	
																						STRUCTURE CUY-90-1653R (SFN-1807804 BRIDGE 11) ESTIMATED QUANTITIES	2090	
																						STRUCTURE CUY-90-1652S (SFN-1807806 BRIDGE 12) ESTIMATED QUANTITIES	2134	
																						STRUCTURE CUY-90-1678 (SFN-1807839 BRIDGE 13) ESTIMATED QUANTITIES	2188-2189	
																						STRUCTURE CUY-90-1696 (SFN-1807898 BRIDGE 14) ESTIMATED QUANTITIES	2291-2292	
																						STRUCTURE CUY-90-1640 (SFN-1807773 BRIDGE E5) ESTIMATED QUANTITIES	2371	
																						STRUCTURE CUY-77-1593L (SFN-1806939 BRIDGE E6) ESTIMATED QUANTITIES	2378	
																						STRUCTURE CUY-E14th-0002SN (SFN-1806912 BRIDGE E10) ESTIMATED QUANTITIES	2381	
																							MAINTENANCE OF TRAFFIC	
																						614 11110 5000 HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	87
	6	5000																				614 11630 10555 FT	INCREASED BARRIER DELINEATION	85
		10555																				614 12380 42 EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	84
	42																					614 12381 2 EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL), AS PER PLAN	76
																						614 12420 LS	DETOUR SIGNING	
																						614 12484 62 EACH	WORK ZONE INCREASED PENALTIES SIGN	83
																						614 12500 26 EACH	REPLACEMENT SIGN	83

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER
 KJM

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET TOTAL
 414 2696

SHEET NUMBER													PARTICIPATION			ALT (X)	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
120	428	429	435									01/IMS /04	02/IMS /10	03/IMS /08								
MAINTENANCE OF TRAFFIC (CONT.)																						
	6											6			614	12756	6	EACH	WORK ZONE CROSSOVER LIGHTING SYSTEM	85		
	3895											3895			614	12801	3895	EACH	WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN	84		
	26											26			614	13000	26	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC			
	1256											1256			614	13310	1256	EACH	BARRIER REFLECTOR, TYPE 1 (ONE WAY)	85		
	1113											1113			614	13350	1113	EACH	OBJECT MARKER, ONE WAY	85		
	42											42			614	13360	42	EACH	OBJECT MARKER, TWO WAY	85		
	3											3			614	18000	3	EACH	MAINTAINING TRAFFIC, MISC.: PARTIAL TEMPORARY TRAFFIC SIGNAL	87		
	1											1			614	18000	1	EACH	MAINTAINING TRAFFIC, MISC.: TEMPORARY TRAFFIC SIGNAL	85		
	200											200			614	18601	200	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	83		
1.04	0.50											1.54			614	20000	1.54	MILE	WORK ZONE LANE LINE, CLASS I, 4"			
8.75	2.50											11.25			614	20010	11.25	MILE	WORK ZONE LANE LINE, CLASS I, 6"			
2.32	0.50											2.82			614	21000	2.82	MILE	WORK ZONE CENTER LINE, CLASS I			
3.63	1.00											4.63			614	22000	4.63	MILE	WORK ZONE EDGE LINE, CLASS I, 4"			
18.26	4.50											22.76			614	22010	22.76	MILE	WORK ZONE EDGE LINE, CLASS I, 6"			
3024	650											3674			614	23000	3674	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8"			
34686	8750											43436			614	23010	43436	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 12"			
14781	3650											18431			614	24000	18431	FT	WORK ZONE DOTTED LINE, CLASS I			
1048	150											1198			614	25000	1198	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I			
718	175											893			614	26000	893	FT	WORK ZONE STOP LINE, CLASS I			
657	175											832			614	27010	832	FT	WORK ZONE CROSSWALK LINE, CLASS I, 12"			
92	25											117			614	30000	117	EACH	WORK ZONE ARROW, CLASS I			
2	1											3			614	31000	3	EACH	WORK ZONE WORD ON PAVEMENT, 72", CLASS I			
4	1											5			614	98200	5	EACH	WORK ZONE PAVEMENT MARKING, MISC.: SHARED LANE MARKING	84		
												LS			615	10000	LS		ROADS FOR MAINTAINING TRAFFIC			
30133												30133			615	20000	30133	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	84		
	2285											2285			616	10000	2285	MGAL	WATER			
	150											150			616	20000	150	TON	CALCIUM CHLORIDE			
58608												58608			622	41011	58608	FT	PORTABLE BARRIER, 50", AS PER PLAN	84		
3												3			622	41060	3	EACH	DUAL PORTABLE BARRIER TRANSITION/TERMINATION			
			1150									1150			622	41101	1150	FT	PORTABLE BARRIER, UNANCHORED, AS PER PLAN	76		
2054												2054			622	41111	2054	FT	PORTABLE BARRIER, ANCHORED, AS PER PLAN	84		
												190			622	41111	190	FT	PORTABLE BARRIER, ANCHORED, AS PER PLAN 2	76		
												64			829	00100	64	SNMT	WORK ZONE EGRESS WARNING SYSTEM	84		
												648			896	00010	648	SNMT	PORTABLE NON-INTRUSIVE TRAFFIC SENSOR, CLASS I			
												216			896	00020	216	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN			
INCIDENTALS																						
												LS			108	10000	LS		CPM PROGRESS SCHEDULE			
												21000			SPECIAL	111E10100	21000	EACH	DEPARTMENTS SHARE FACILITATED PARTNERING COSTS	PN 111		
												LS			614	11000	LS		MAINTAINING TRAFFIC	81		
												72			619	16021	72	MNTH	FIELD OFFICE, TYPE C, AS PER PLAN	80A		
												LS			623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING			
												LS			624	10000	LS		MOBILIZATION			

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER
KJM

REVIEWER
KGJ 05/22/24

PROJECT ID
82382

SHEET TOTAL
415 | 2696

SHEET NO.	201	202	202	202	202	204	204	204	251	251	254	254	254	255	255	255	255	407	441	441	442	442	442	452	605	605	608	608	609	611	611	611	611	611	611	611	614	614	614	614										
	LS	FT	FT	LS	FT	CY	CY	SY	CY	CY	SY	SY	SY	SY	SY	SY	SY	GAL	CY	CY	CY	CY	CY	SY	FT	FT	SF	SF	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	LB	HOUR	FT	EACH	EACH								
73	LS																																																	
74				LS	1000																																													
76						3100	3100	9300																																										
77																																																		
78																																																		
79			200																																															
80									180																																									
83		1510																																																
84										63255																																								
85										1531																																								
87									300	400		38540	56010	2800	2800	3850	14180	1340	1870	2330	2720																													
1371																																																		
1798																																																		
1804																																																		
1825																																																		
1826																																																		
1829																																																		
1831																																																		
1833																																																		
TOTALS CARRIED TO GENERAL SUMMARY	LS	1510	200	LS	1000	3100	3100	9300	480	400	64786	38540	56010	2800	2800	3850	14303	1340	1870	2330	2720	64	775	3700	5200	4500	475	750	400	2400	200	4	4	4	10000	5000	10555	62	26											

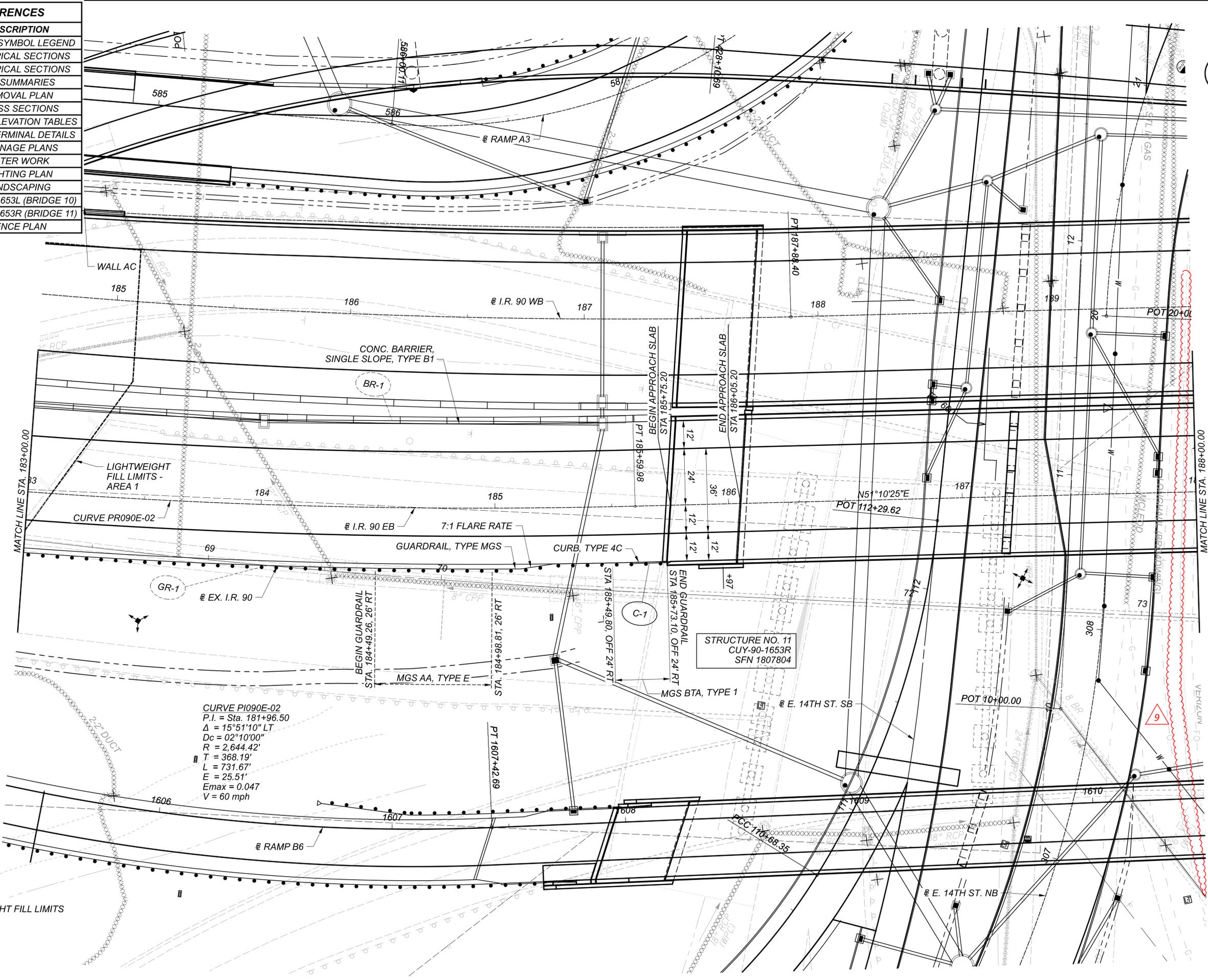
DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	427
TOTAL	2696

SHEET NO.	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	616	616	618	619	622	622	623	623	638	659	659	659	659	659	659	659						
	WORK ZONE CROSSOVER LIGHTING SYSTEM	WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	BARRIER REFLECTOR, TYPE 1 (ONE WAY)	OBJECT MARKER, ONE WAY	OBJECT MARKER, TWO WAY	MAINTAINING TRAFFIC, MISC.: PARTIAL TEMPORARY TRAFFIC SIGNAL	MAINTAINING TRAFFIC, MISC.: TEMPORARY TRAFFIC SIGNAL	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	WORK ZONE LANE LINE, CLASS I, 4"	WORK ZONE LANE LINE, CLASS I, 6"	WORK ZONE CENTER LINE, CLASS I	WORK ZONE EDGE LINE, CLASS I, 4"	WORK ZONE EDGE LINE, CLASS I, 6"	WORK ZONE CHANNELIZING LINE, CLASS I, 8"	WORK ZONE CHANNELIZING LINE, CLASS I, 12"	WORK ZONE DOTTED LINE, CLASS I	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I	WORK ZONE STOP LINE, CLASS I	WORK ZONE CROSSWALK LINE, CLASS I, 12"	WORK ZONE ARROW, CLASS I	WORK ZONE WORD ON PAVEMENT, 72", CLASS I	WORK ZONE PAVEMENT MARKING, MISC.: SHARED LANE MARKING	WATER	CALCIUM CHLORIDE	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)	FIELD OFFICE, TYPE C, AS PER PLAN	CONCRETE BARRIER, SINGLE SLOPE, TYPE B1	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	PRIMARY PROJECT CONTROL MONUMENT, TYPE B	MONUMENT, MISC.: CLEVELAND MONUMENT ASSEMBLY	WATER WORK, MISC.: CLEVELAND WATER DEPARTMENT CHARGES	SOIL ANALYSIS TEST	REPAIR SEEDING AND MULCHING	INTER-SEEDING	COMMERCIAL FERTILIZER	LIME	WATER	MOWING			
	EACH	EACH	CY	EACH	EACH	EACH	EACH	SNMT	MILE	MILE	MILE	MILE	MILE	MILE	FT	FT	FT	FT	FT	FT	FT	MGAL	TON	MILE	MNTH	FT	FT	EACH	EACH	EACH	EACH	EACH	SY	SY	TON	ACRE	MGAL	MSF				
73																																										
74																																										
76																																										
77																																										
78																																										
79																																										
80																																										
83								200																																		
84		3895																				2285	150		72	500	1010															
85	6			1256	1113	42		1	0.50	2.50	0.50	1.00	4.50	650	8750	3650	150	175	175	25	1	1																				
87			26				3																																			
1371																																										
1798																																										
1804																																										
1825																																										
1826																																										
1829																																										
1831																																										
1833																																										
TOTALS CARRIED TO GENERAL SUMMARY	6	3895	26	1256	1113	42	3	1	200	0.50	2.50	0.50	1.00	4.50	650	8750	3650	150	175	175	25	1	1	2285	150	1.28	72	500	1010	45	60	300000	10	6926	6926	19.32	28.62	767	312			

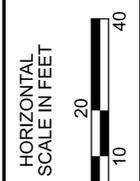
GENERAL NOTES SUBSUMMARY - 2

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	428
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
18 - 19	EX. TYPICAL SECTIONS
30 - 31	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
712 - 735	CROSS SECTIONS
1013	SUPERELEVATION TABLES
1030 - 1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1402	WATER WORK
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2036	CUY-90-1653L (BRIDGE 10)
2086	CUY-90-1653R (BRIDGE 11)
2383 - 2386	FENCE PLAN



LEGEND
 - - - - - LIGHTWEIGHT FILL LIMITS



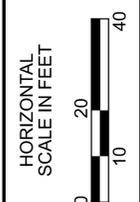
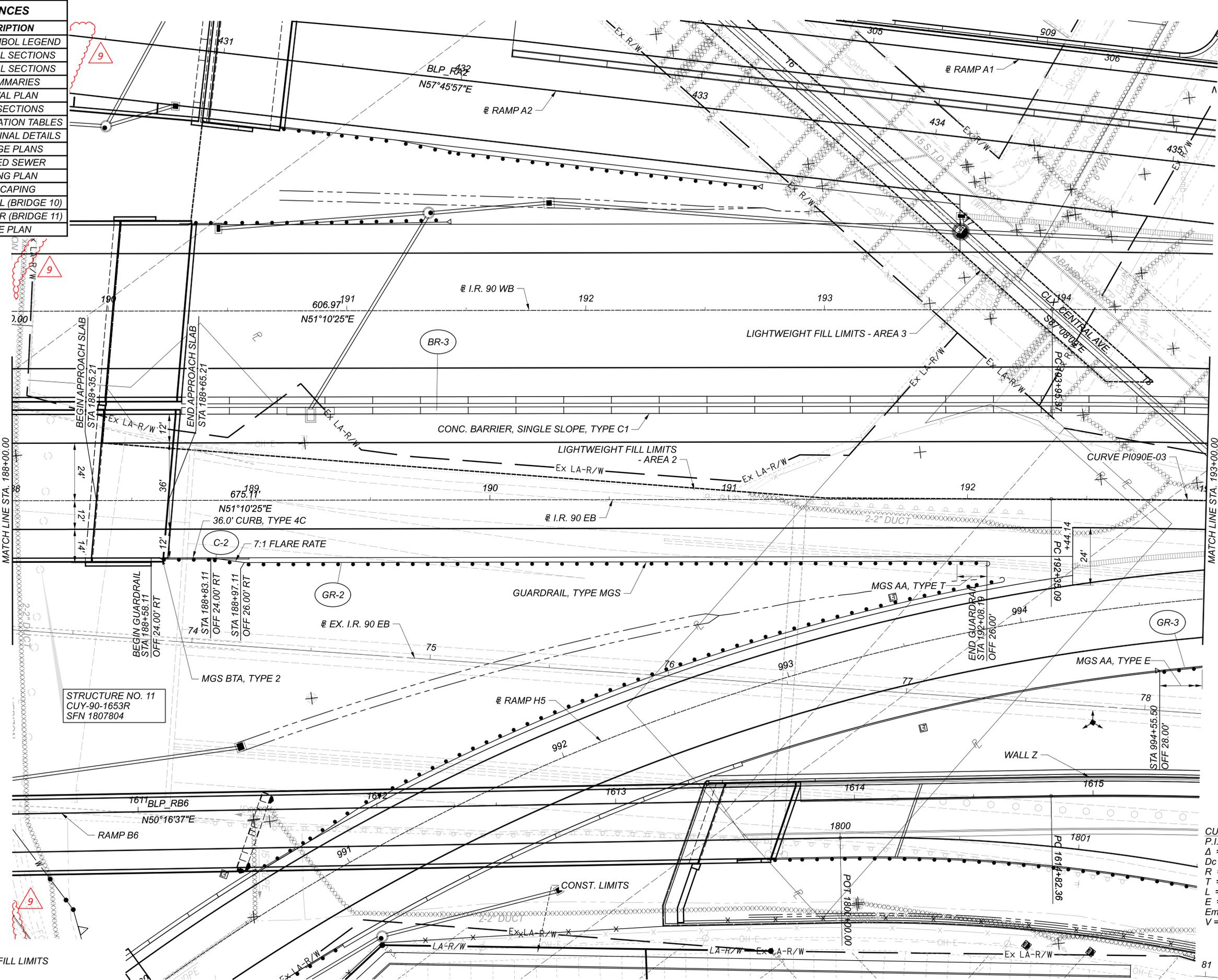
PLAN - I.R. 90 EB
 STA. 183+00.00 TO STA. 188+00.00

DESIGN AGENCY



DESIGNER	AJS
REVIEWER	MRT
DATE	05/01/24
PROJECT ID	82382
SHEET	497
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
18 - 19	EX. TYPICAL SECTIONS
31 - 32	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
712 - 735	CROSS SECTIONS
1013	SUPERELEVATION TABLES
1030 - 1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1368	COMBINED SEWER
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2036	CUY-90-1653L (BRIDGE 10)
2086	CUY-90-1653R (BRIDGE 11)
2383 - 2386	FENCE PLAN



PLAN - I.R. 90 EB
 STA. 188+00.00 TO STA. 193+00.00

LEGEND
 - - - - - LIGHTWEIGHT FILL LIMITS

CURVE PI090E-03
 P.I. = Sta. 195+79.88
 $\Delta = 15^{\circ}59'07''$ RT
 $D_c = 02^{\circ}20'00''$
 $R = 2,455.53'$
 $T = 344.78'$
 $L = 685.09'$
 $E = 24.09'$
 $E_{max} = 0.049$
 $V = 60$ mph

DESIGN AGENCY



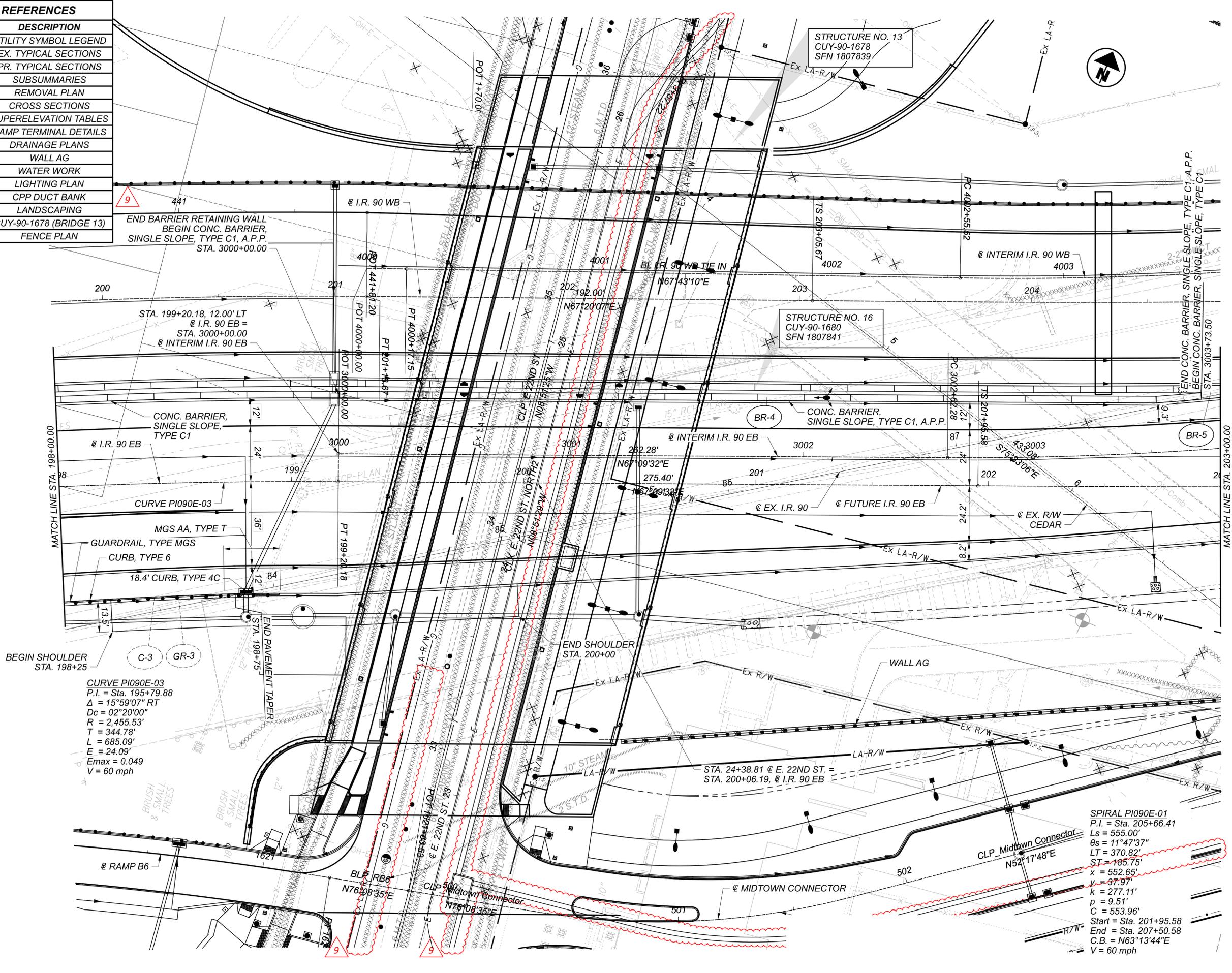
DESIGNER
 AJS

REVIEWER
 MRT 05/01/24

PROJECT ID
 82382

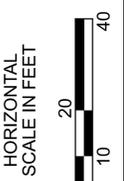
SHEET	TOTAL
499	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
18 - 19	EX. TYPICAL SECTIONS
32	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
712 - 735	CROSS SECTIONS
1013	SUPERELEVATION TABLES
1030 - 1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1229 - 1230	WALL AG
1409	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 & 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2182	CUY-90-1678 (BRIDGE 13)
2383 - 2386	FENCE PLAN



CURVE PI090E-03
 P.I. = Sta. 195+79.88
 $\Delta = 15^\circ 59' 07''$ RT
 $D_c = 02^\circ 20' 00''$
 $R = 2,455.53'$
 $T = 344.78'$
 $L = 685.09'$
 $E = 24.09'$
 $E_{max} = 0.049$
 $V = 60$ mph

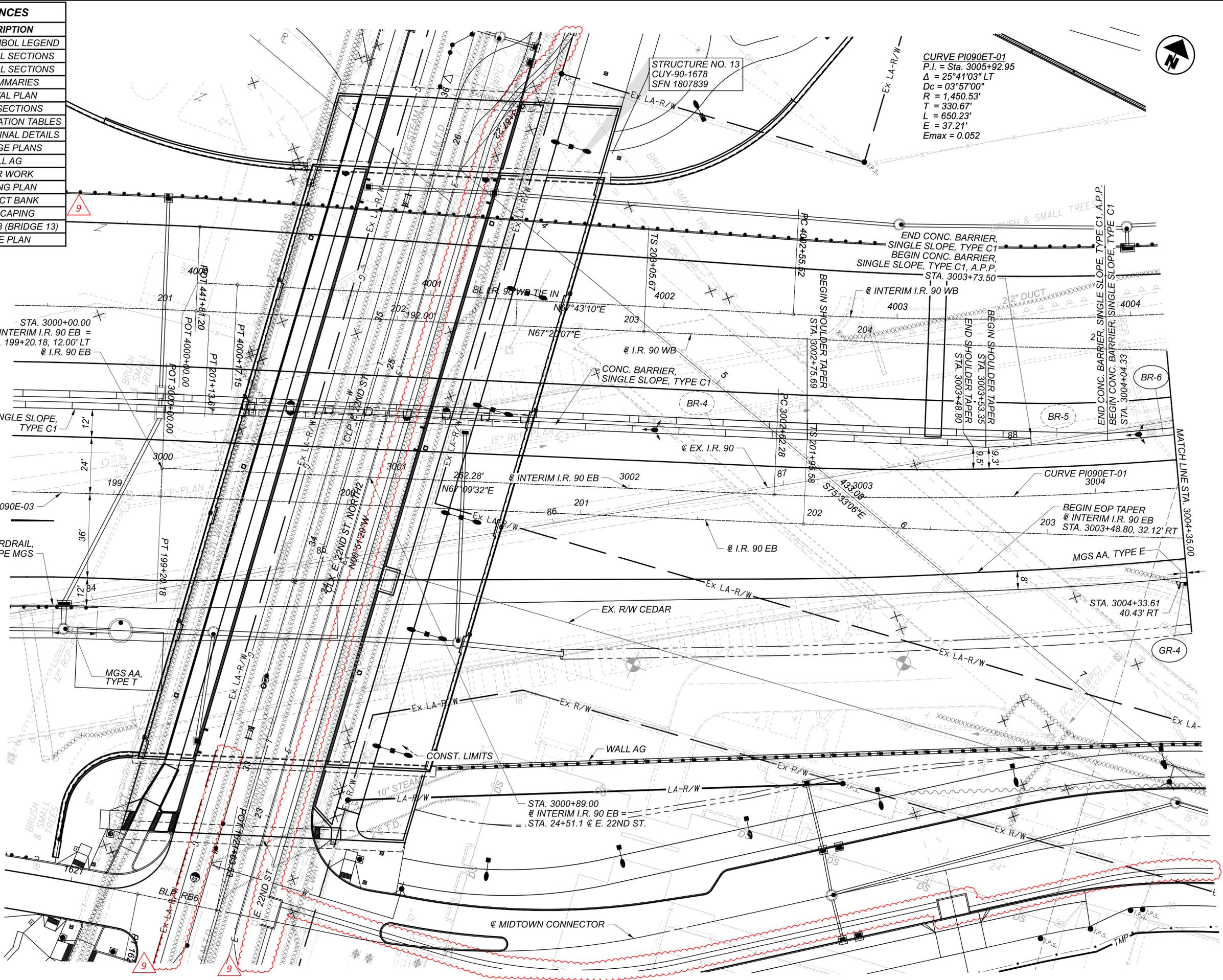
SPIRAL PI090E-01
 P.I. = Sta. 205+66.41
 $L_s = 555.00'$
 $\theta_s = 11^\circ 47' 37''$
 $LT = 370.82'$
 $ST = 185.75'$
 $x = 552.65'$
 $y = 37.97'$
 $k = 277.11'$
 $p = 9.51'$
 $C = 553.96'$
 Start = Sta. 201+95.58
 End = Sta. 207+50.58
 $C.B. = N63^\circ 13' 44'' E$
 $V = 60$ mph



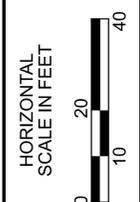
PLAN - I.R. 90 EB
 STA. 198+00.00 TO STA. 203+00.00

DESIGN AGENCY	B&N burgessniple.com
DESIGNER	AJS
REVIEWER	MRT
PROJECT ID	82382
SHEET	503
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
19	EX. TYPICAL SECTIONS
36	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
736 - 749	CROSS SECTIONS
1014 - 1015	SUPERELEVATION TABLES
1030 - 1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1229 - 1230	WALL AG
1409	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2182	CUY-90-1678 (BRIDGE 13)
2383 - 2386	FENCE PLAN



CURVE PI090ET-01
 P.I. = Sta. 3005+92.95
 $\Delta = 25^\circ 41' 03''$ LT
 $D_c = 03^\circ 57' 00''$
 $R = 1,450.53'$
 $T = 330.67'$
 $L = 650.23'$
 $E = 37.21'$
 $E_{max} = 0.052$



PLAN - INTERIM I.R. 90 EB
 STA. 3000+00.00 TO STA. 3004+35.00

DESIGN AGENCY



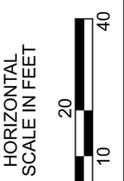
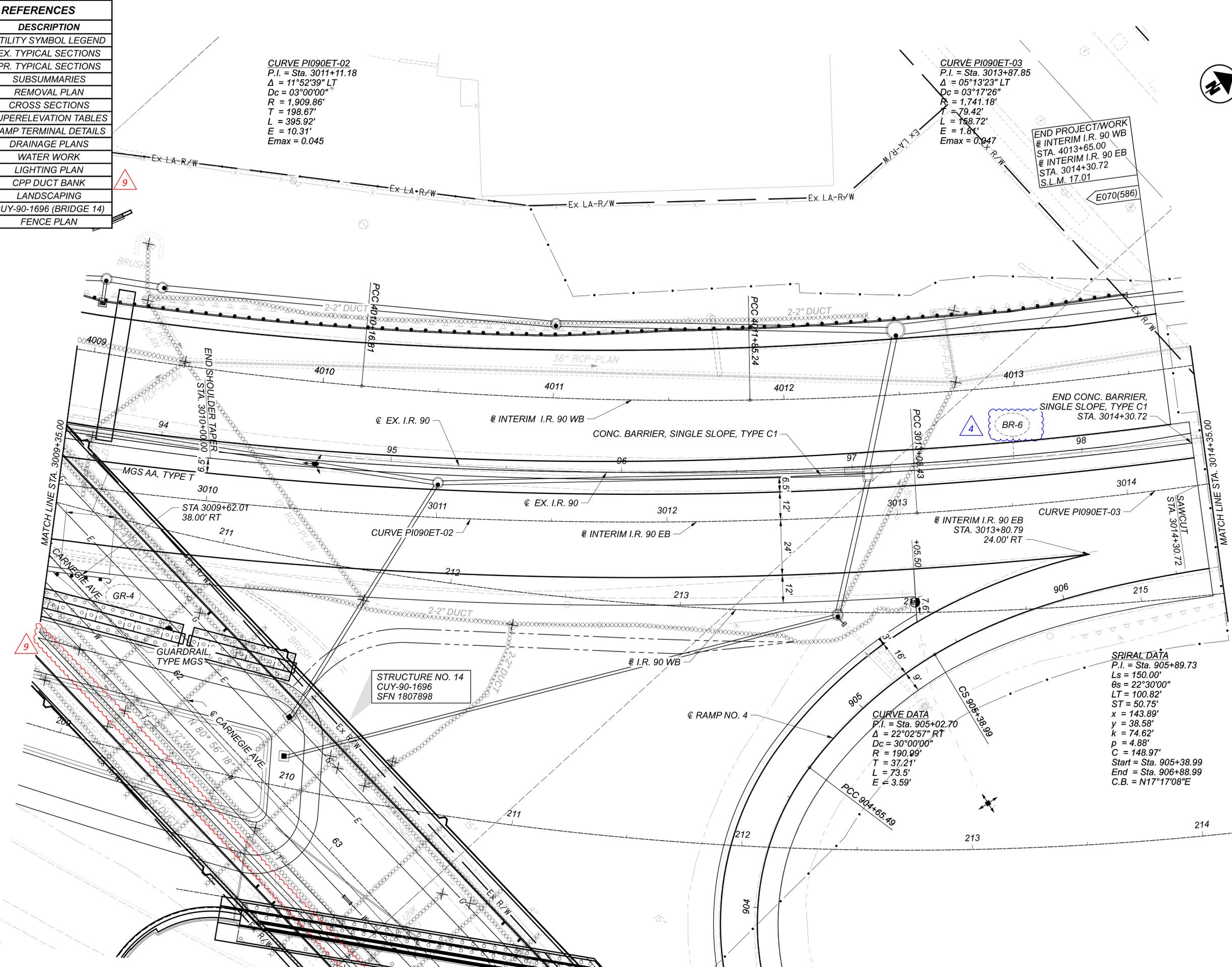
DESIGNER	AJS
REVIEWER	MRT
PROJECT ID	82382
SHEET	508
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
19	EX. TYPICAL SECTIONS
36 - 37	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
736 - 749	CROSS SECTIONS
1014 - 1015	SUPERELEVATION TABLES
1030 - 1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1411 - 1412	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2281 - 2282	CUY-90-1696 (BRIDGE 14)
2383 - 2386	FENCE PLAN

CURVE PI090ET-02
 P.I. = Sta. 3011+11.18
 $\Delta = 11^{\circ}52'39''$ LT
 $D_c = 03^{\circ}00'00''$
 $R = 1,909.86'$
 $T = 198.67'$
 $L = 395.92'$
 $E = 10.31'$
 $E_{max} = 0.045$

CURVE PI090ET-03
 P.I. = Sta. 3013+87.85
 $\Delta = 05^{\circ}13'23''$ LT
 $D_c = 03^{\circ}17'26''$
 $R = 1,741.18'$
 $T = 79.42'$
 $L = 158.72'$
 $E = 1.81'$
 $E_{max} = 0.047$

END PROJECT/WORK
 @ INTERIM I.R. 90 WB
 STA. 4013+65.00
 @ INTERIM I.R. 90 EB
 STA. 3014+30.72
 S.L.M. 17.01

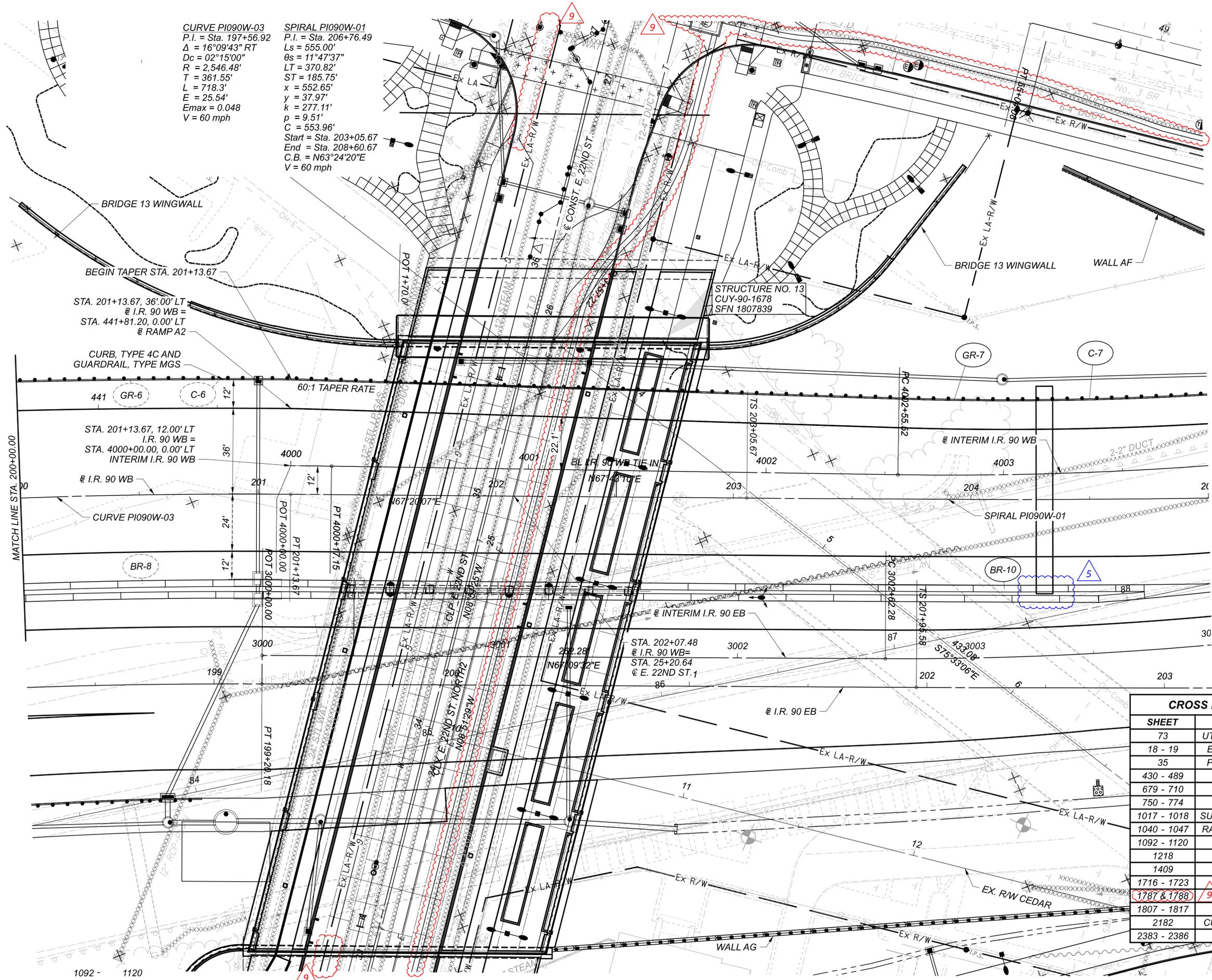


PLAN - INTERIM I.R. 90 EB
 STA. 3009+35.00 TO STA. 3014+35.00

DESIGN AGENCY



DESIGNER	AJS
REVIEWER	MRT
PROJECT ID	82382
SHEET	512
TOTAL	2696



CURVE PI090W-03
 P.I. = Sta. 197+56.92
 $\Delta = 16^\circ 09' 43''$ RT
 $Dc = 02^\circ 15' 00''$
 $R = 2,546.48'$
 $T = 361.55'$
 $L = 718.3'$
 $E = 25.54'$
 $E_{max} = 0.048$
 $V = 60$ mph

SPIRAL PI090W-01
 P.I. = Sta. 206+76.49
 $Ls = 555.00'$
 $\theta_s = 11^\circ 47' 37''$
 $LT = 370.82'$
 $ST = 185.75'$
 $x = 552.65'$
 $y = 37.97'$
 $k = 277.11'$
 $p = 9.51'$
 $C = 553.96'$
 Start = Sta. 203+05.67
 End = Sta. 208+60.67
 C.B. = $N63^\circ 24' 20''$ E
 $V = 60$ mph



PLAN - I.R. 90 WB
 STA. 200+00.00 TO STA. 205+00.00

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
18 - 19	EX. TYPICAL SECTIONS
35	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
750 - 774	CROSS SECTIONS
1017 - 1018	SUPERELEVATION TABLES
1040 - 1047	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1218	WALL AF
1409	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 & 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2182	CUY-90-1678 (BRIDGE 13)
2383 - 2386	FENCE PLAN

DESIGN AGENCY
B&N
 burgessniple.com

DESIGNER
 AJS

REVIEWER
 MRT 05/01/24

PROJECT ID
 82382

SHEET TOTAL
 527 2696

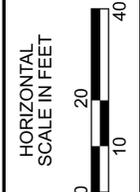
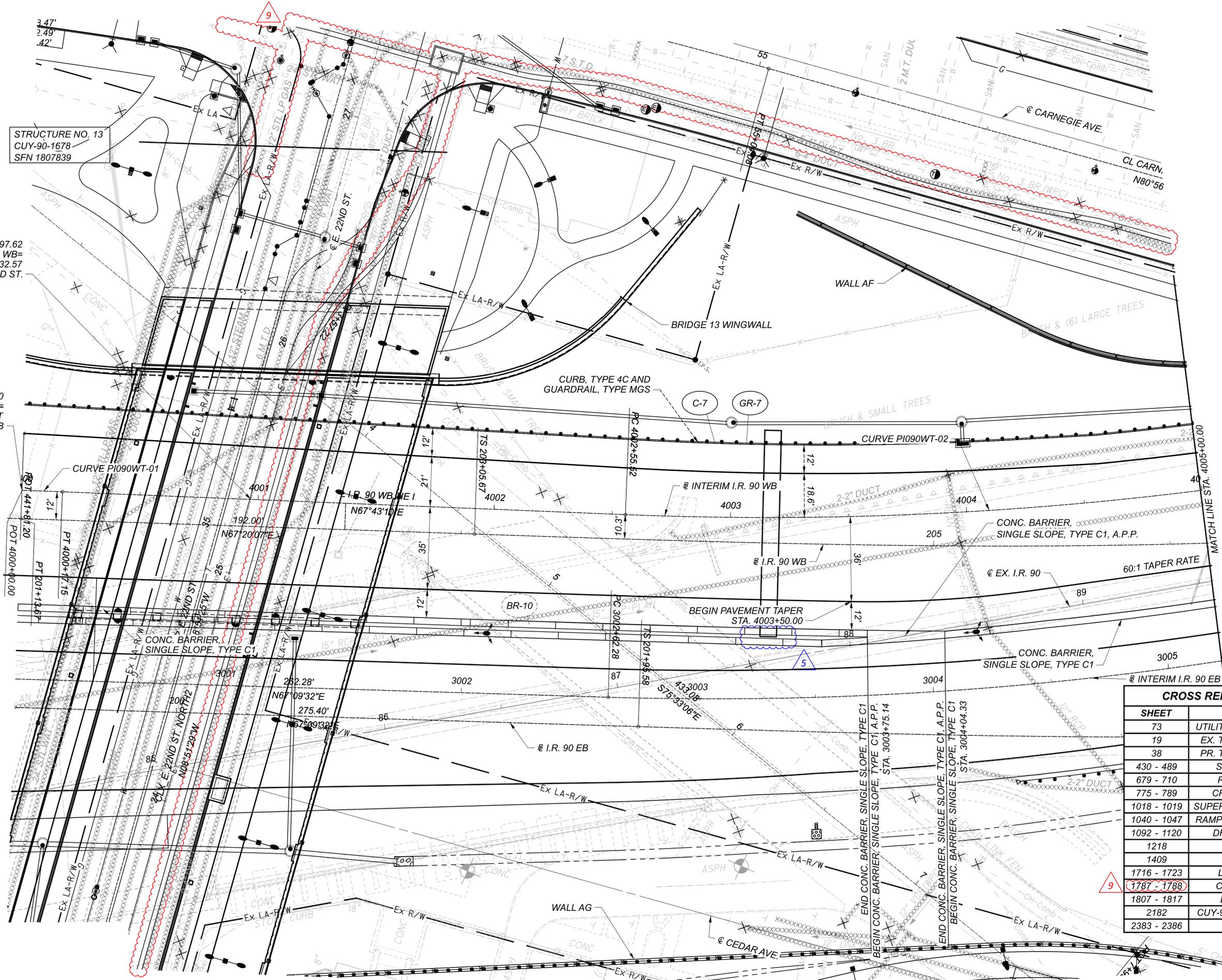
CURVE DATA
 P.I. = Sta. 4006+44.80
 $\Delta = 29^{\circ}30'01''$ LT
 $D_c = 03^{\circ}52'30''$
 $R = 1,478.60'$
 $T = 389.29'$
 $L = 761.30'$
 $E = 50.39'$

CURVE DATA
 P.I. = Sta. 4000+08.58
 $\Delta = 00^{\circ}23'03''$ RT
 $D_c = 02^{\circ}14'22''$
 $R = 2,558.48'$
 $T = 8.58'$
 $L = 17.15'$
 $E = .01'$

STRUCTURE NO. 13
 CUY-90-1678
 SFN 1807839

STA. 4000+97.62
 INTERIM @ I.R. 90 WB=
 STA. 25+32.57
 @ E. 22ND ST.

STA. 4000+00.00
 INTERIM @ I.R. 90 WB=
 STA. 201+13.67, 12.0' LT
 @ I.R. 90 WB



PLAN - INTERIM I.R. 90 WB
 STA. 4000+00.00 TO STA. 4005+00.00

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
19	EX. TYPICAL SECTIONS
38	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
775 - 789	CROSS SECTIONS
1018 - 1019	SUPERELEVATION TABLES
1040 - 1047	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1218	WALL AF
1409	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2182	CUY-90-1678 (BRIDGE 13)
2383 - 2386	FENCE PLAN

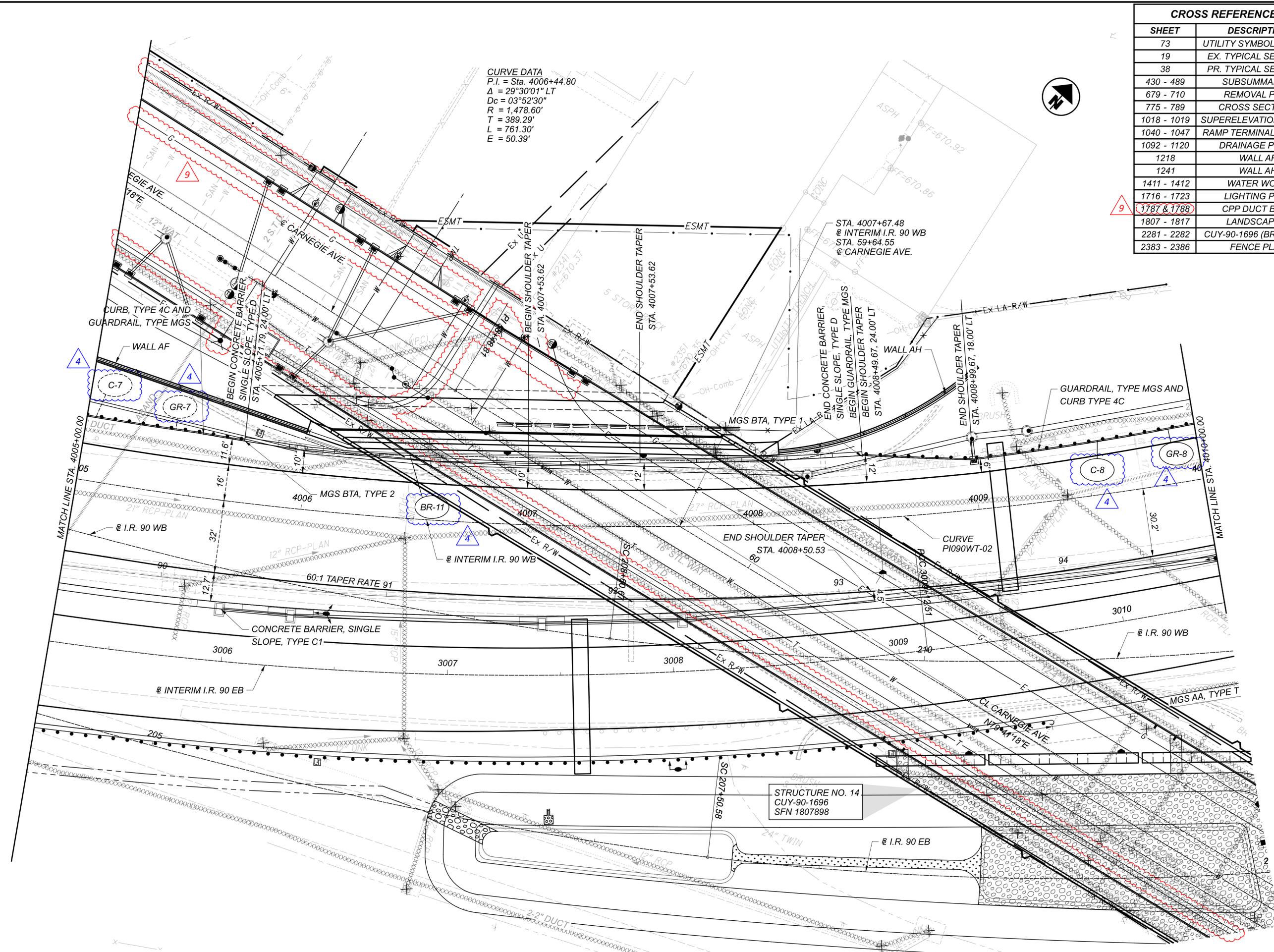
DESIGN AGENCY
B&N
 burgessniple.com

DESIGNER
 AJS

REVIEWER
 MRT 05/01/24

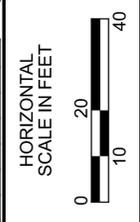
PROJECT ID
 82382

SHEET TOTAL
 534 2696



CURVE DATA
 P.I. = Sta. 4006+44.80
 $\Delta = 29^\circ 30' 01''$ LT
 $D_c = 03^\circ 52' 30''$
 $R = 1,478.60'$
 $T = 389.29'$
 $L = 761.30'$
 $E = 50.39'$

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
19	EX. TYPICAL SECTIONS
38	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
775 - 789	CROSS SECTIONS
1018 - 1019	SUPERELEVATION TABLES
1040 - 1047	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1218	WALL AF
1241	WALL AH
1411 - 1412	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 & 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2281 - 2282	CUY-90-1696 (BRIDGE 14)
2383 - 2386	FENCE PLAN



PLAN - INTERIM I.R. 90 WB
 STA. 4005+00.00 TO STA. 4010+00.00

DESIGN AGENCY	B&N burgessniple.com
DESIGNER	AJS
REVIEWER	MRT
PROJECT ID	05/01/24
SHEET	82382
TOTAL	2696



SPIRAL PR4-01
 P.I. = Sta. 905+89.73
 Ls = 150.00'
 θs = 22°30'00"
 LT = 100.82'
 ST = 50.75'
 x = 143.89'
 y = 38.58'
 k = 74.62'
 p = 4.88'
 C = 148.97'
 Start = Sta. 905+38.99
 End = Sta. 906+88.99
 C.B. = N17°17'08"E

CURVE PR4-03
 P.I. = Sta. 905+02.70
 Δ = 22°02'57" RT
 Dc = 30°00'00"
 R = 190.99'
 T = 37.21'
 L = 73.5'
 E = 3.59'
 e_{max} = MATCH EXISTING (0.059)
 V = 20 mph

CURVE PR4-02
 P.I. = Sta. 905+02.99
 Δ = 140°30'49" RT
 Dc = 51°00'00"
 R = 112.34'
 T = 313.02'
 L = 275.52'
 E = 220.23'
 e_{max} = MATCH EXISTING (0.033)
 V = 20 mph

CURVE PR4-01
 P.I. = Sta. 901+46.94
 Δ = 28°07'01" RT
 Dc = 32°00'00"
 R = 179.05'
 T = 44.84'
 L = 87.87'
 E = 5.53'
 e_{max} = MATCH EXISTING (NO ROADWAY WORK)
 V = 20 MPH



**PLAN - RAMP 4
 BEGIN TO END**

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
41	EX. TYPICAL SECTIONS
41	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1039	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1250	WALL AI
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2281 - 2282	CUY-90-1696 (BRIDGE 14)
2383 - 2386	FENCE PLAN

DESIGN AGENCY



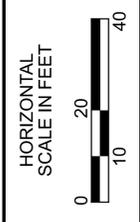
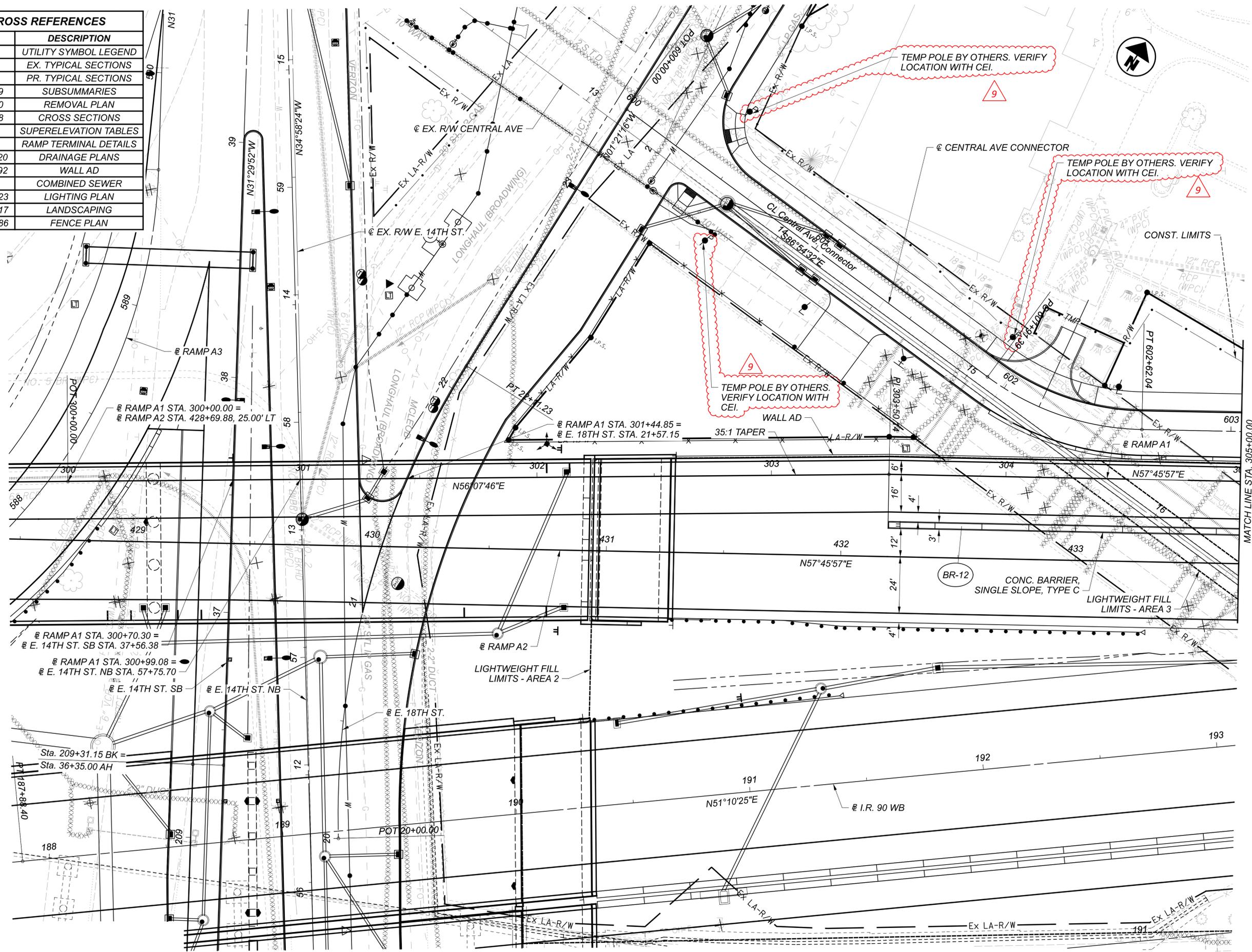
DESIGNER
AJS

REVIEWER
MRT 5/1/24

PROJECT ID
82382

SHEET	TOTAL
541	2696

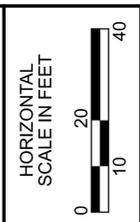
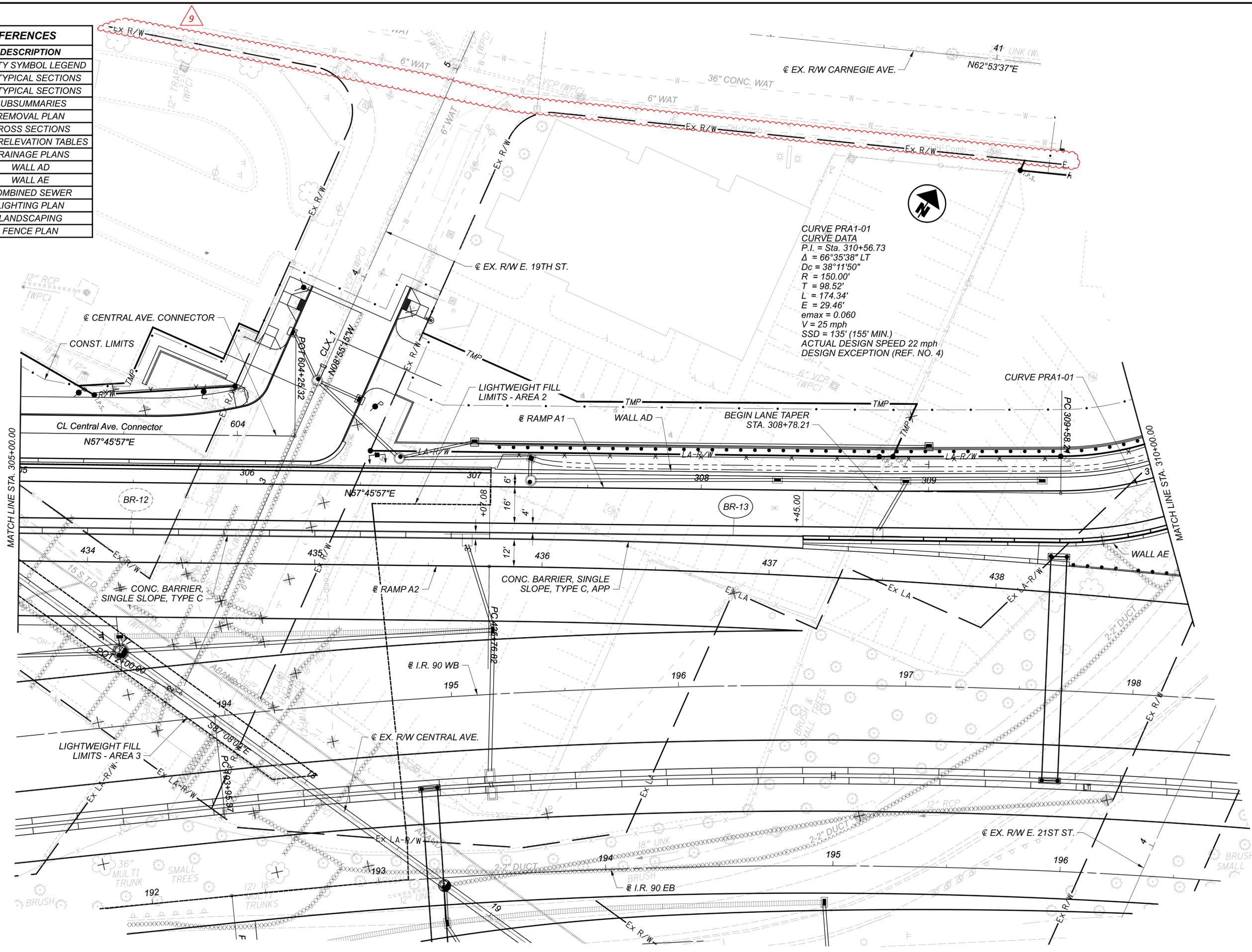
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
42 - 43	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
790 - 798	CROSS SECTIONS
1020	SUPERELEVATION TABLES
1050	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1191 - 1192	WALL AD
1368	COMBINED SEWER
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - RAMP A1
 STA. 300+00.00 TO STA. 305+00.00

DESIGN AGENCY	HR
DESIGNER	BMV
REVIEWER	TJS 04/30/24
PROJECT ID	82382
SHEET	544
TOTAL	2696

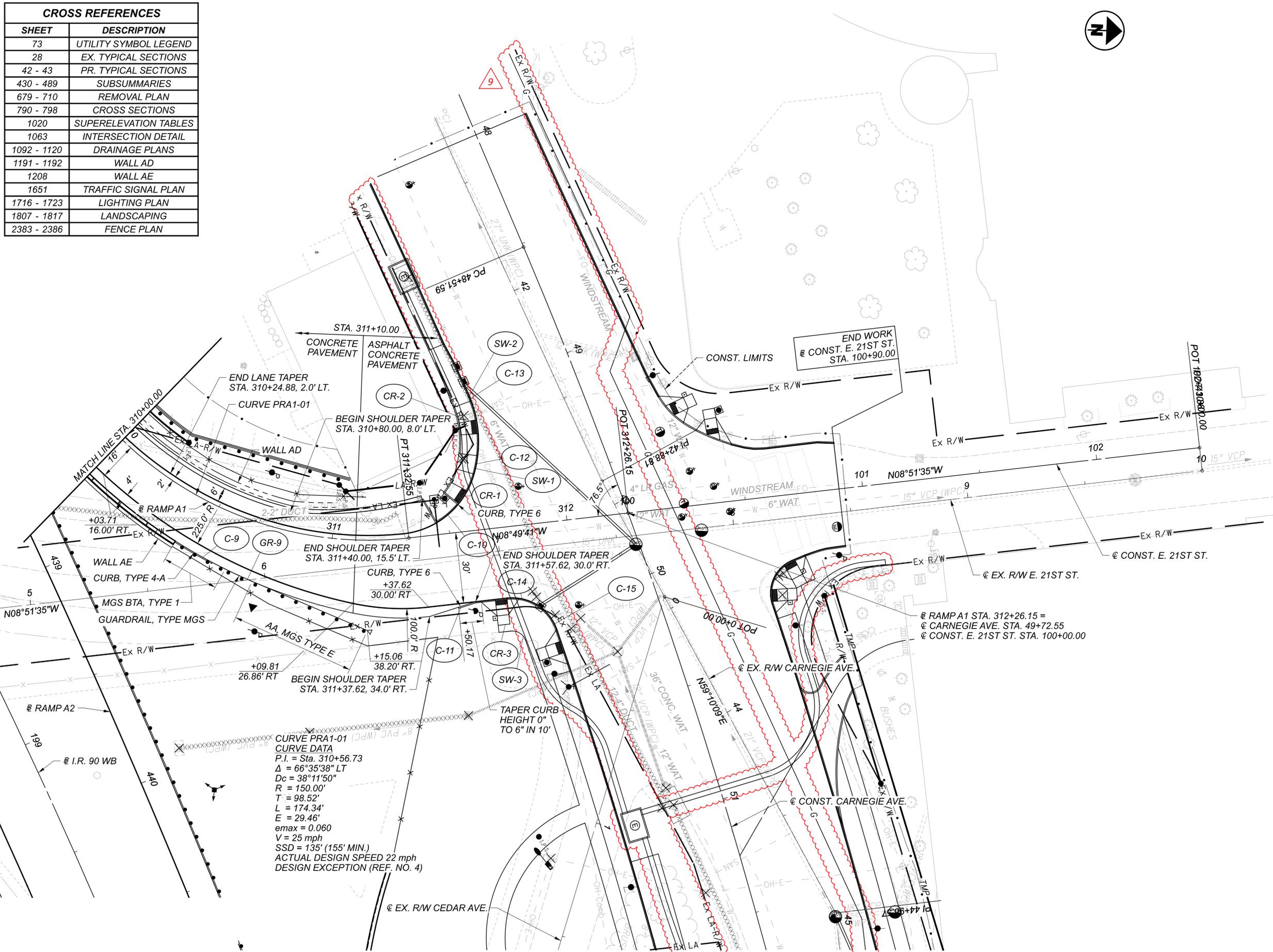
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
42 - 43	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
790 - 798	CROSS SECTIONS
1020	SUPERELEVATION TABLES
1092 - 1120	DRAINAGE PLANS
1191 - 1192	WALL AD
1208	WALL AE
1368	COMBINED SEWER
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - RAMP A1
 STA. 305+00.00 TO STA. 310+00.00

DESIGN AGENCY	HR
DESIGNER	BMV
REVIEWER	TJS 04/30/24
PROJECT ID	82382
SHEET	TOTAL
546	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
42 - 43	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
790 - 798	CROSS SECTIONS
1020	SUPERELEVATION TABLES
1063	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1191 - 1192	WALL AD
1208	WALL AE
1651	TRAFFIC SIGNAL PLAN
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - RAMP A1
 STA. 310+00.00 TO END

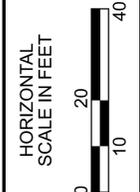
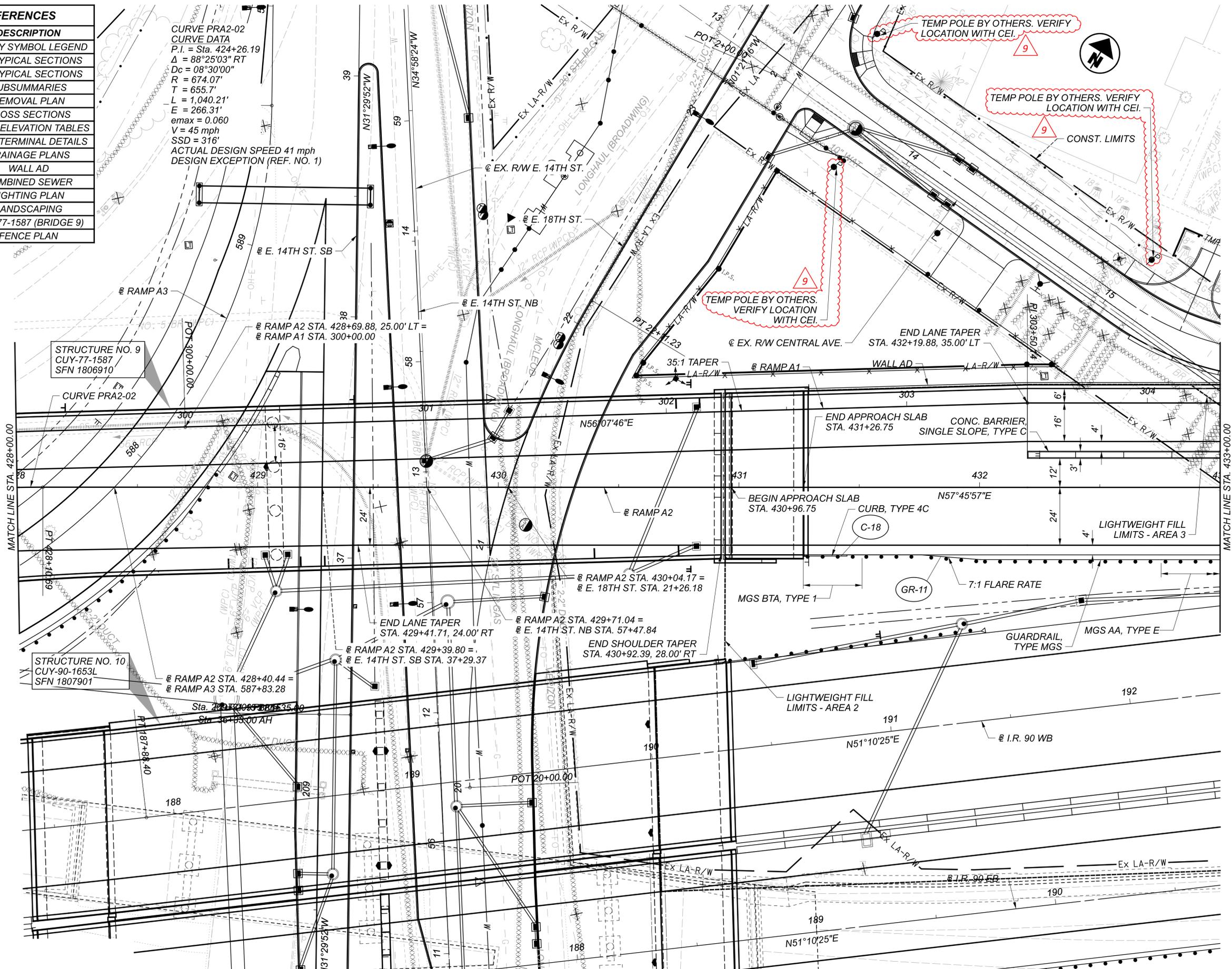
DESIGN AGENCY



DESIGNER	BMV
REVIEWER	TJS 04/30/24
PROJECT ID	82382
SHEET	TOTAL
548	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
44 - 46	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
679 - 710	CROSS SECTIONS
799 - 817	SUPERELEVATION TABLES
1050	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1191 - 1192	WALL AD
1368	COMBINED SEWER
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
1869 - 1873	CUY-77-1587 (BRIDGE 9)
2383 - 2386	FENCE PLAN

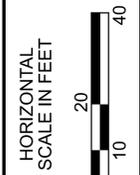
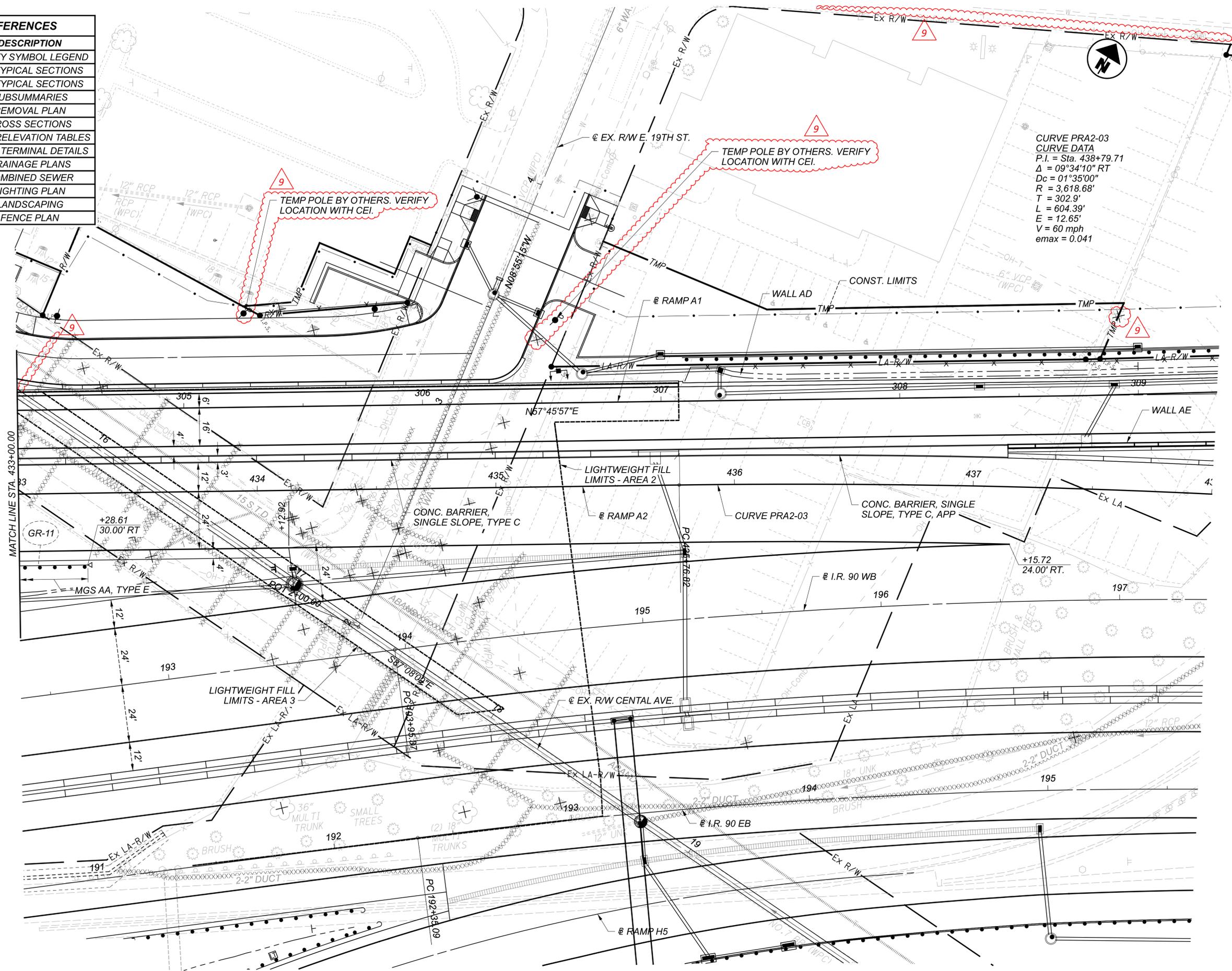
CURVE PRA2-02
 CURVE DATA
 P.I. = Sta. 424+26.19
 $\Delta = 88^{\circ}25'03''$ RT
 $D_c = 08^{\circ}30'00''$
 $R = 674.07'$
 $T = 655.7'$
 $L = 1,040.21'$
 $E = 266.31'$
 $e_{max} = 0.060$
 $V = 45$ mph
 $SSD = 316'$
 ACTUAL DESIGN SPEED 41 mph
 DESIGN EXCEPTION (REF. NO. 1)



PLAN - RAMP A2
 STA. 428+00.00 TO STA. 433+00.00

DESIGN AGENCY	HR
DESIGNER	BMV
REVIEWER	TJS 04/30/24
PROJECT ID	82382
SHEET	562
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
44 - 46	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
679 - 710	CROSS SECTIONS
799 - 817	SUPERELEVATION TABLES
1040 - 1045	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1368	COMBINED SEWER
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - RAMP A2
 STA. 433+00.00 TO STA. 438+00.00

DESIGN AGENCY

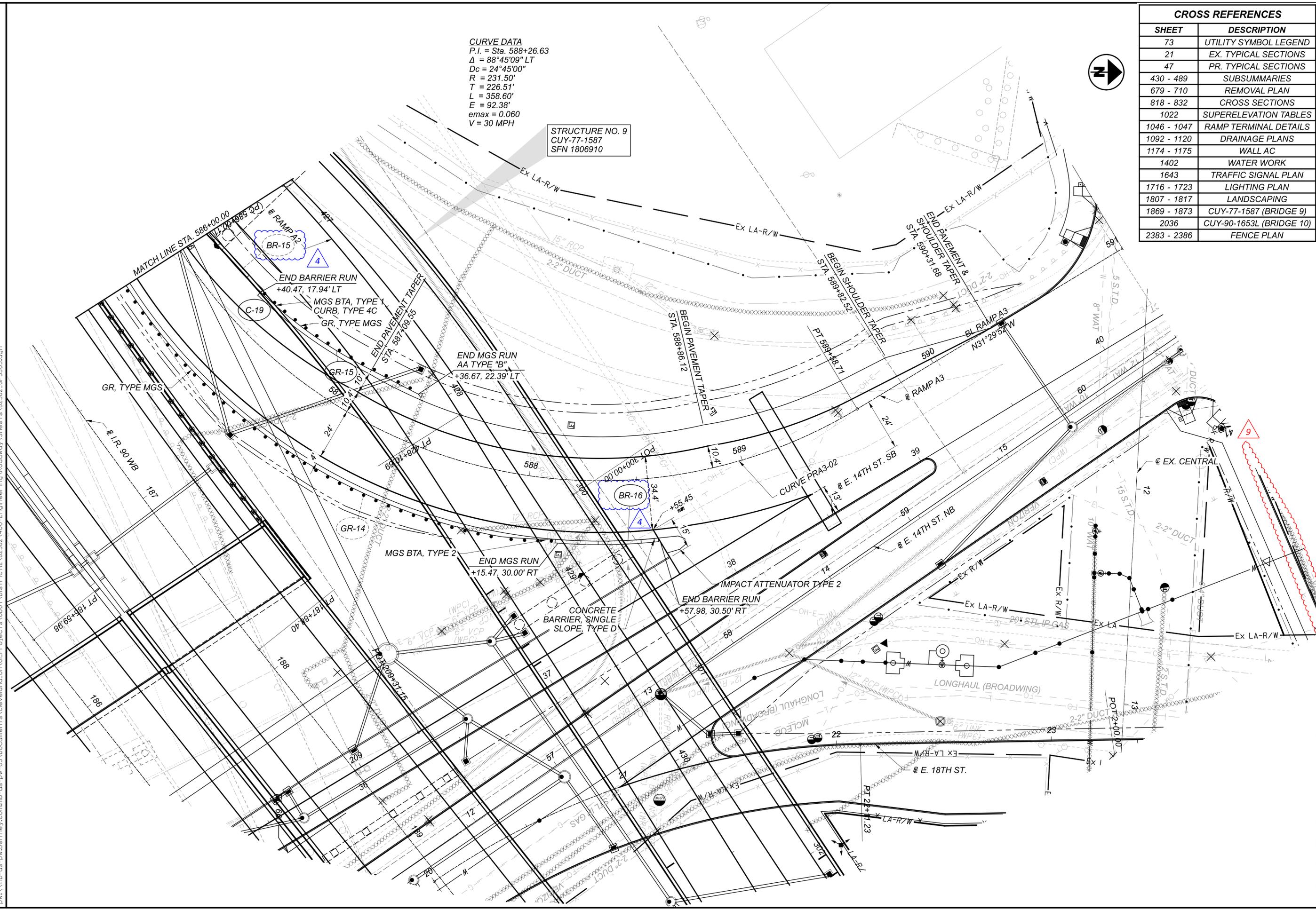
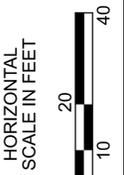


DESIGNER	BMV
REVIEWER	TJS 04/30/24
PROJECT ID	82382
SHEET	TOTAL
564	2696

CURVE DATA
 P.I. = Sta. 588+26.63
 $\Delta = 88^\circ 45' 09''$ LT
 $D_c = 24^\circ 45' 00''$
 $R = 231.50'$
 $T = 226.51'$
 $L = 358.60'$
 $E = 92.38'$
 $e_{max} = 0.060$
 $V = 30$ MPH

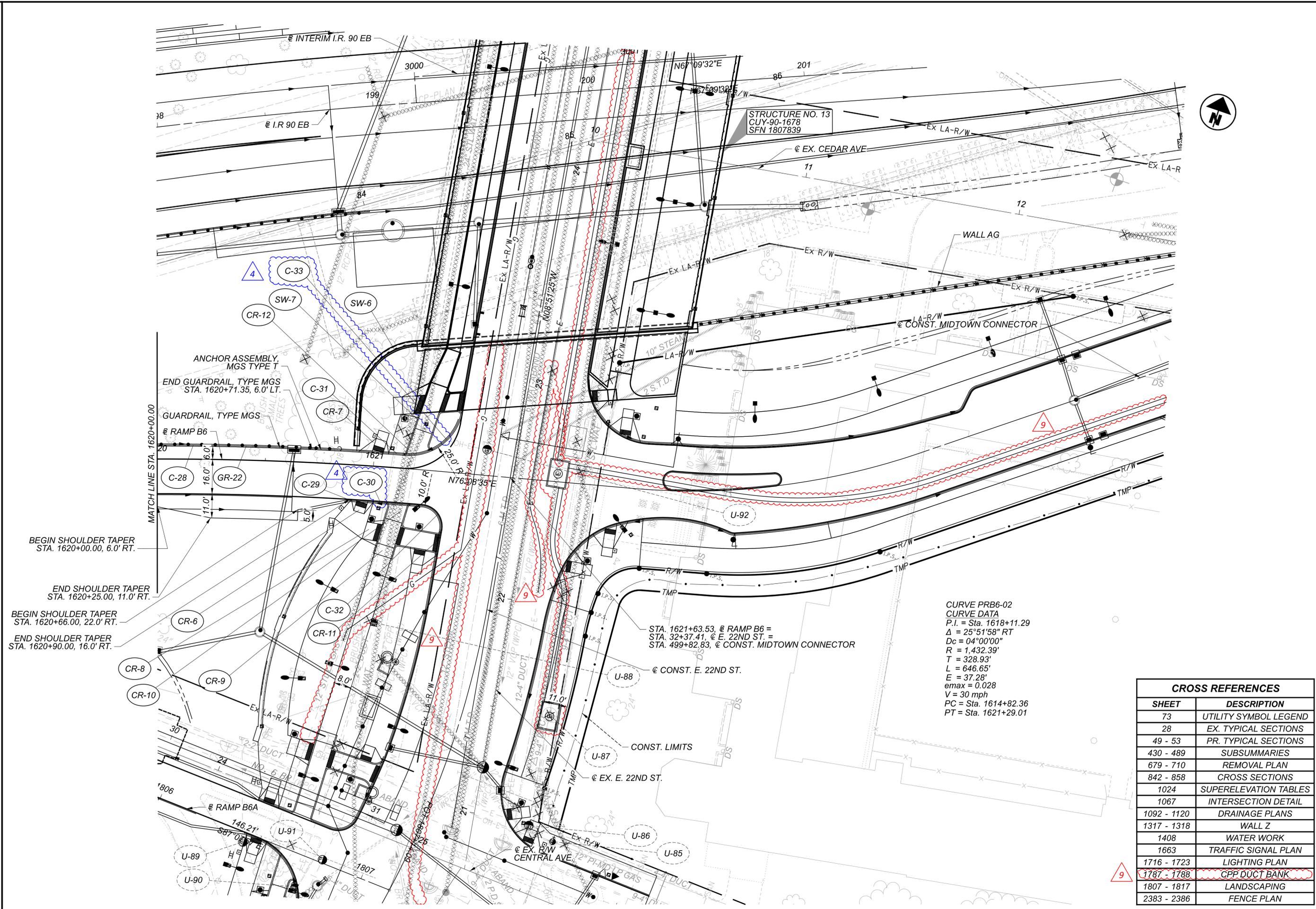
STRUCTURE NO. 9
 CUY-77-1587
 SFN 1806910

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
21	EX. TYPICAL SECTIONS
47	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
818 - 832	CROSS SECTIONS
1022	SUPERELEVATION TABLES
1046 - 1047	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1174 - 1175	WALL AC
1402	WATER WORK
1643	TRAFFIC SIGNAL PLAN
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
1869 - 1873	CUY-77-1587 (BRIDGE 9)
2036	CUY-90-1653L (BRIDGE 10)
2383 - 2386	FENCE PLAN



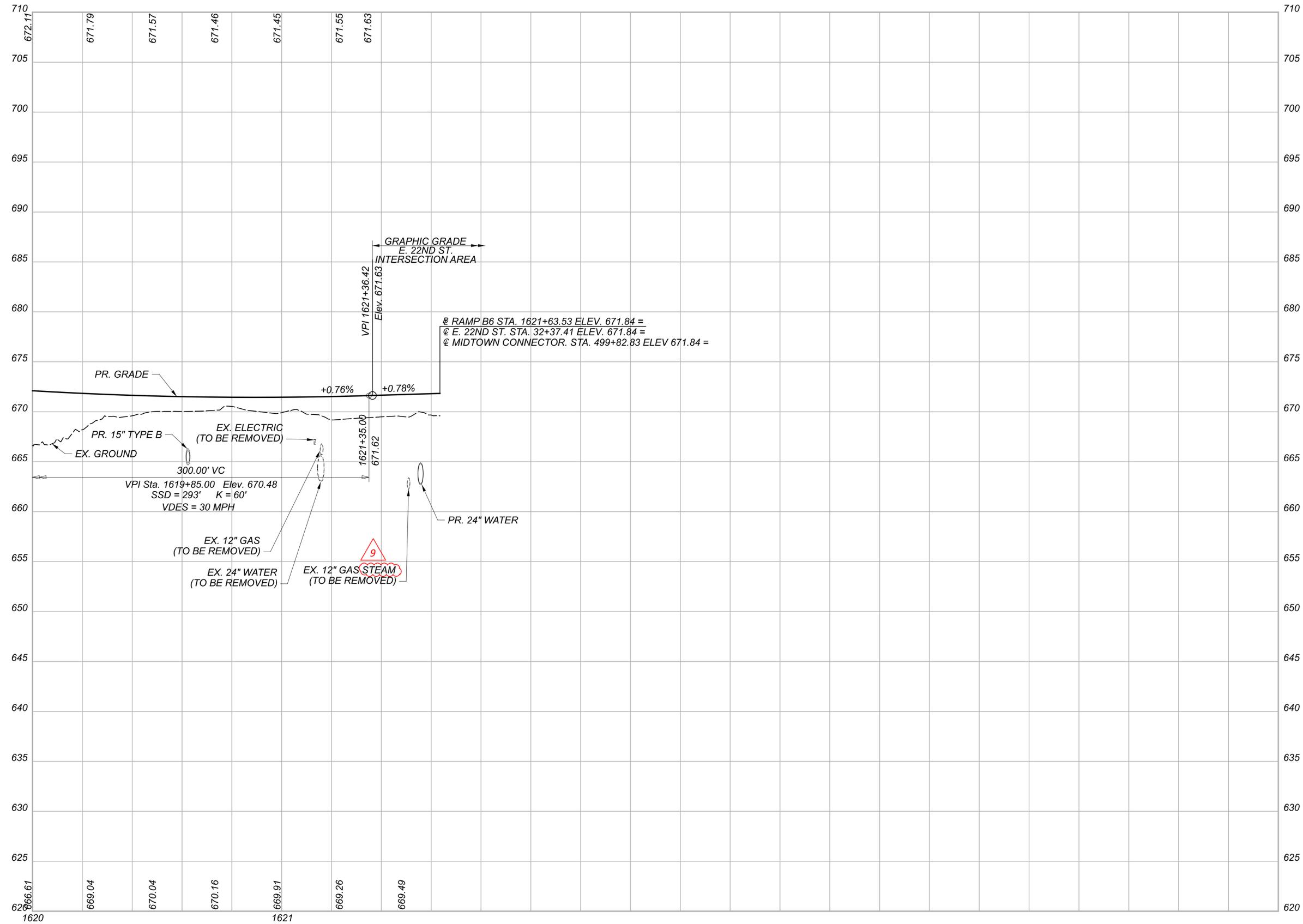
PLAN - RAMP A3
 STA. 586+00.00 TO END

DESIGN AGENCY	B&N burgessniple.com
DESIGNER	AJS
REVIEWER	MRT
DATE	5/1/24
PROJECT ID	82382
SHEET	570
TOTAL	2696



CURVE PRB6-02
 CURVE DATA
 P.I. = Sta. 1618+11.29
 $\Delta = 25^{\circ}51'58''$ RT
 $D_c = 04^{\circ}00'00''$
 $R = 1,432.39'$
 $T = 328.93'$
 $L = 646.65'$
 $E = 37.28'$
 $e_{max} = 0.028$
 $V = 30$ mph
 PC = Sta. 1614+82.36
 PT = Sta. 1621+29.01

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
49 - 53	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
842 - 858	CROSS SECTIONS
1024	SUPERELEVATION TABLES
1067	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1317 - 1318	WALL Z
1408	WATER WORK
1663	TRAFFIC SIGNAL PLAN
1716 - 1723	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PROFILE - RAMP B6
 STA. 1620+00.00 TO END

DESIGN AGENCY

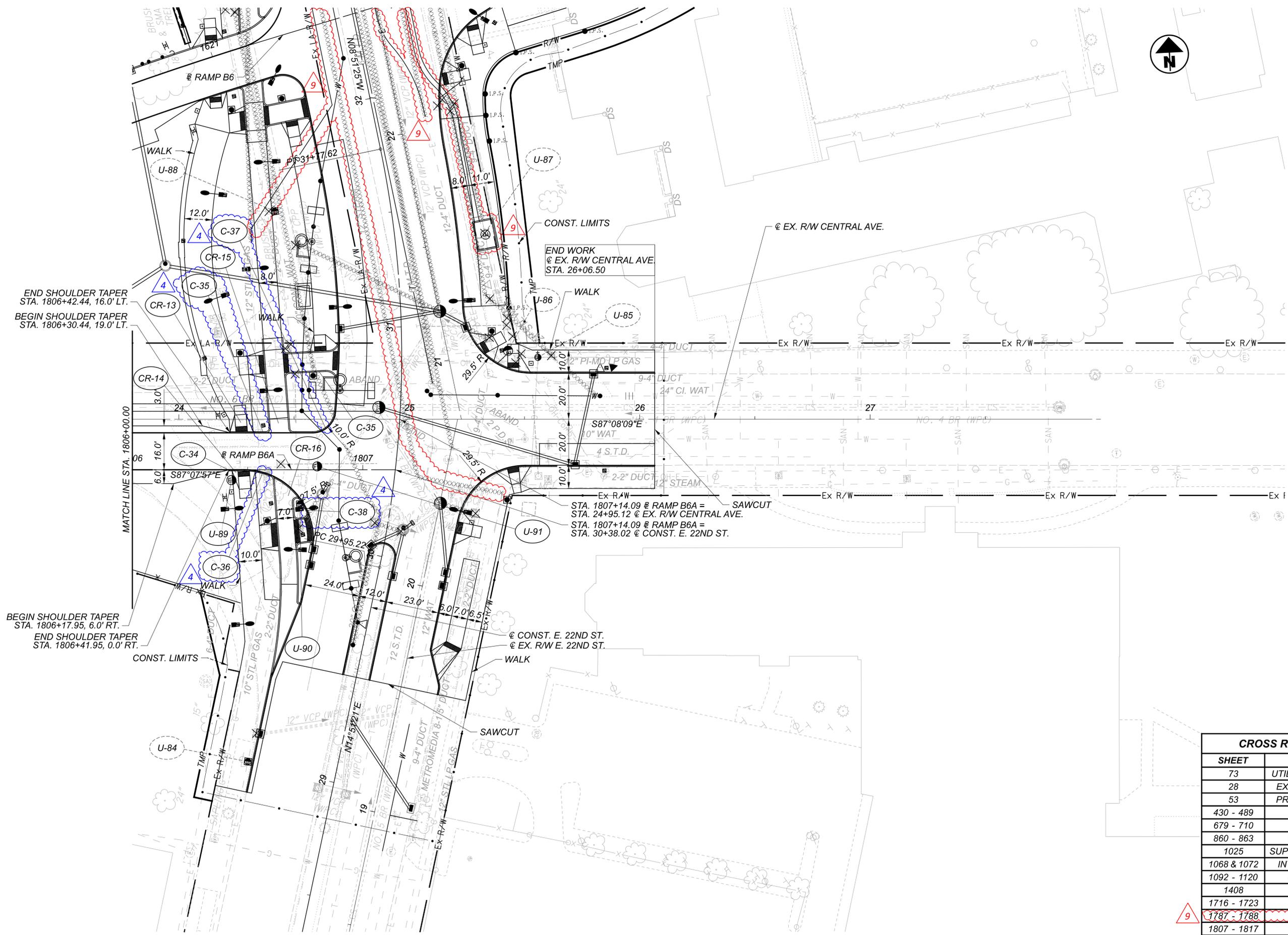


DESIGNER
 BMV

REVIEWER
 TJS 04/30/24

PROJECT ID
 82382

SHEET	TOTAL
589	2696



END SHOULDER TAPER
 STA. 1806+42.44, 16.0' LT.
 BEGIN SHOULDER TAPER
 STA. 1806+30.44, 19.0' LT.

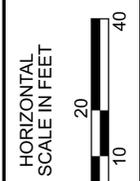
BEGIN SHOULDER TAPER
 STA. 1806+17.95, 6.0' RT.
 END SHOULDER TAPER
 STA. 1806+41.95, 0.0' RT.

END WORK
 @ EX. R/W CENTRAL AVE.
 STA. 26+06.50

STA. 1807+14.09 @ RAMP B6A =
 STA. 24+95.12 @ EX. R/W CENTRAL AVE.
 STA. 1807+14.09 @ RAMP B6A =
 STA. 30+38.02 @ CONST. E. 22ND ST.

@ CONST. E. 22ND ST.
 @ EX. R/W E. 22ND ST.

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
28	EX. TYPICAL SECTIONS
53	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
860 - 863	CROSS SECTIONS
1025	SUPERELEVATION TABLES
1068 & 1072	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1408	WATER WORK
1716 - 1723	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

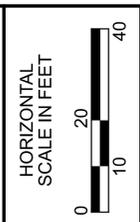
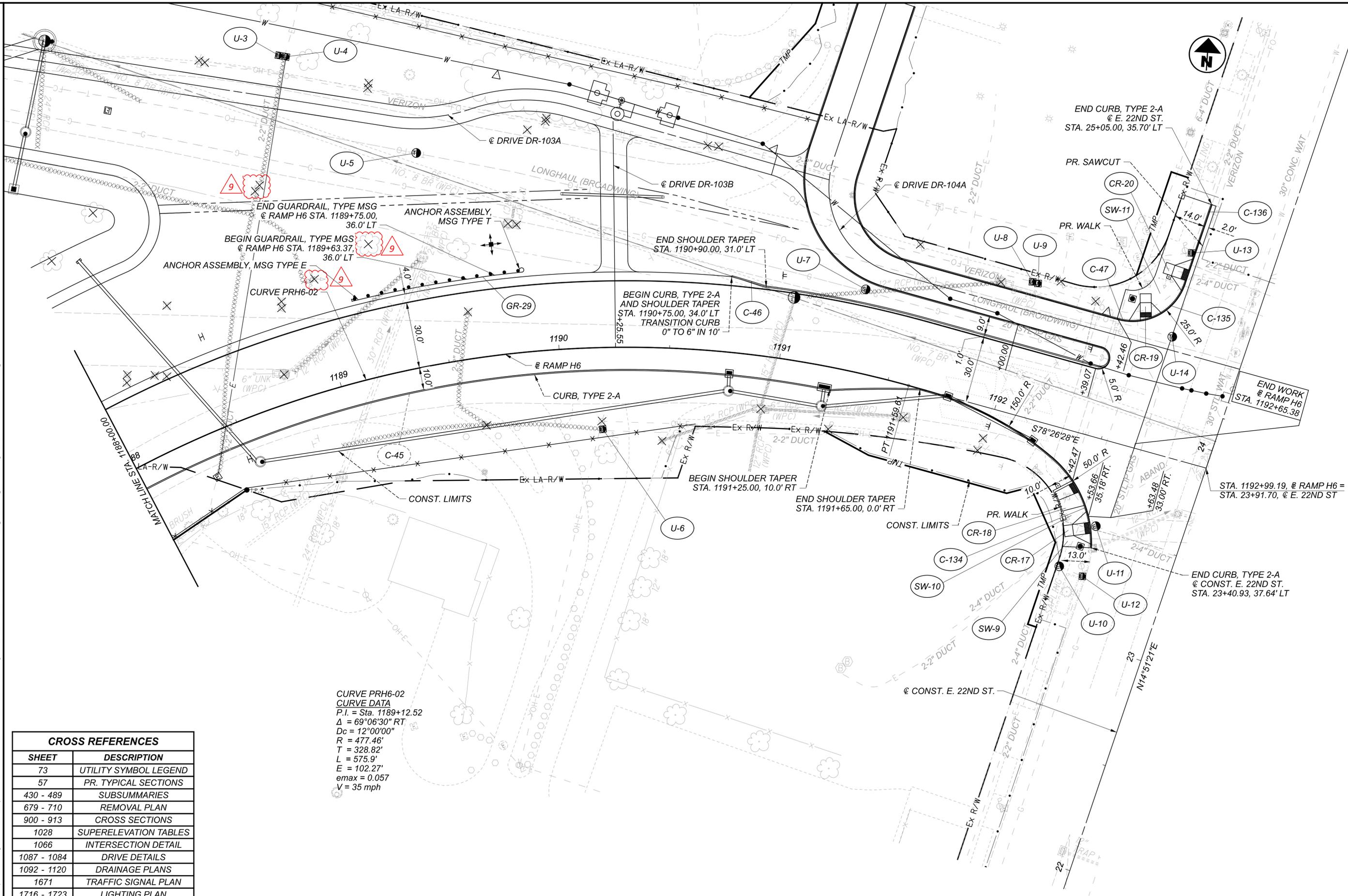


PLAN RAMP B6A
 STA. 1806+00.00 TO END

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	592
TOTAL	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
57	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
900 - 913	CROSS SECTIONS
1028	SUPERELEVATION TABLES
1066	INTERSECTION DETAIL
1087 - 1084	DRIVE DETAILS
1092 - 1120	DRAINAGE PLANS
1671	TRAFFIC SIGNAL PLAN
1716 - 1723	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

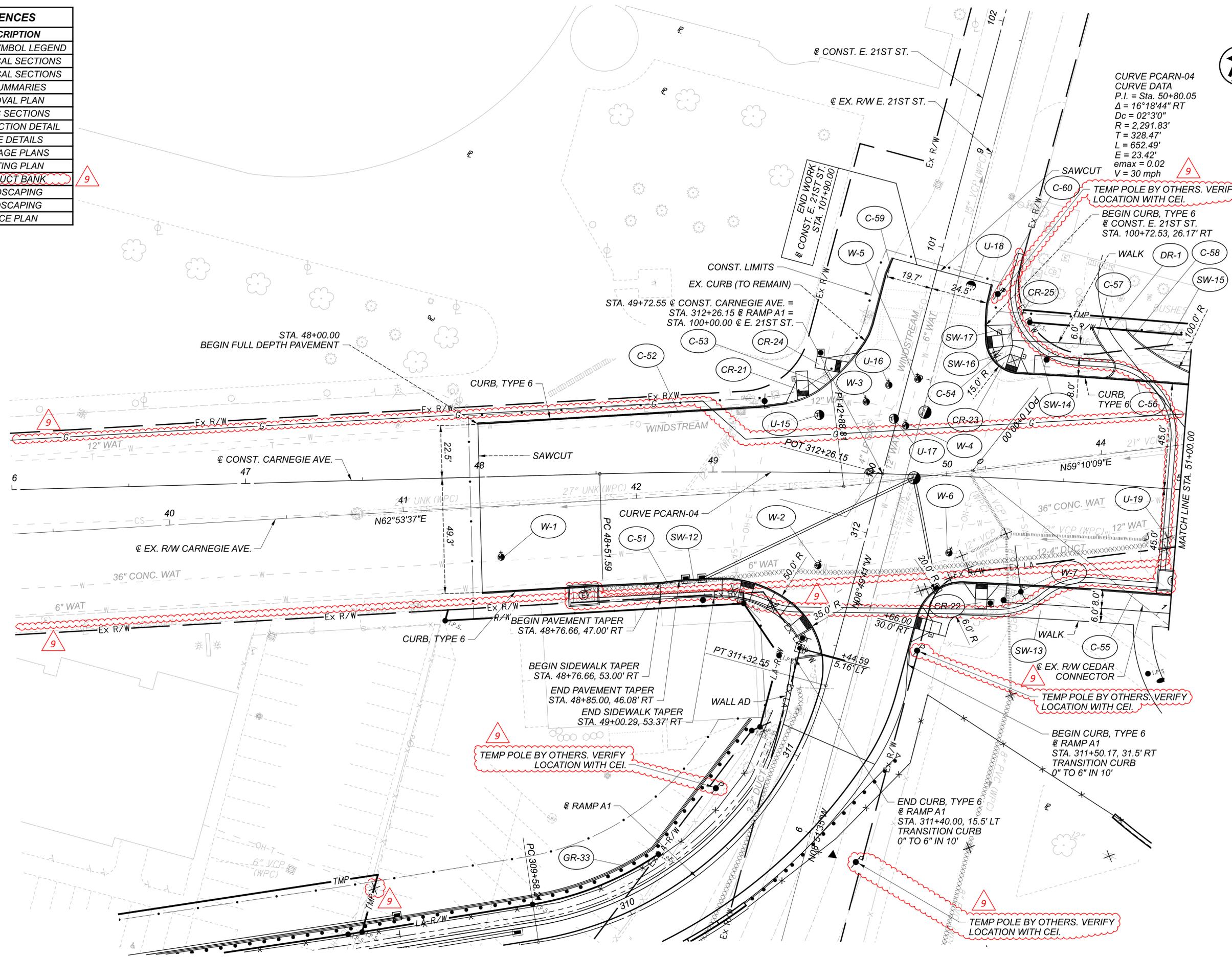
CURVE PRH6-02
CURVE DATA
 P.I. = Sta. 1189+12.52
 $\Delta = 69^{\circ}06'30''$ RT
 $D_c = 12^{\circ}00'00''$
 $R = 477.46'$
 $T = 328.82'$
 $L = 575.9'$
 $E = 102.27'$
 $e_{max} = 0.057$
 $V = 35$ mph



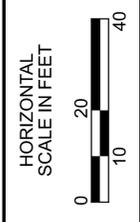
PLAN - RAMP H6
STA. 1188+00.00 TO END

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET TOTAL	616 2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
24	EX. TYPICAL SECTIONS
60 - 61	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
932 - 946	CROSS SECTIONS
1063	INTERSECTION DETAIL
1073	DRIVE DETAILS
1092 - 1120	DRAINAGE PLANS
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1840 - 1843	HARDSCAPING
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



CURVE PCARN-04
 CURVE DATA
 P.I. = Sta. 50+80.05
 $\Delta = 16^{\circ}18'44''$ RT
 $D_c = 02'3''0''$
 $R = 2,291.83'$
 $T = 328.47'$
 $L = 652.49'$
 $E = 23.42'$
 $e_{max} = 0.02$
 $V = 30$ mph



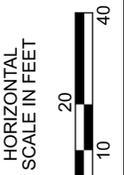
PLAN - CARNEGIE AVE.
 BEGIN TO STA. 51+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	628
TOTAL	2696

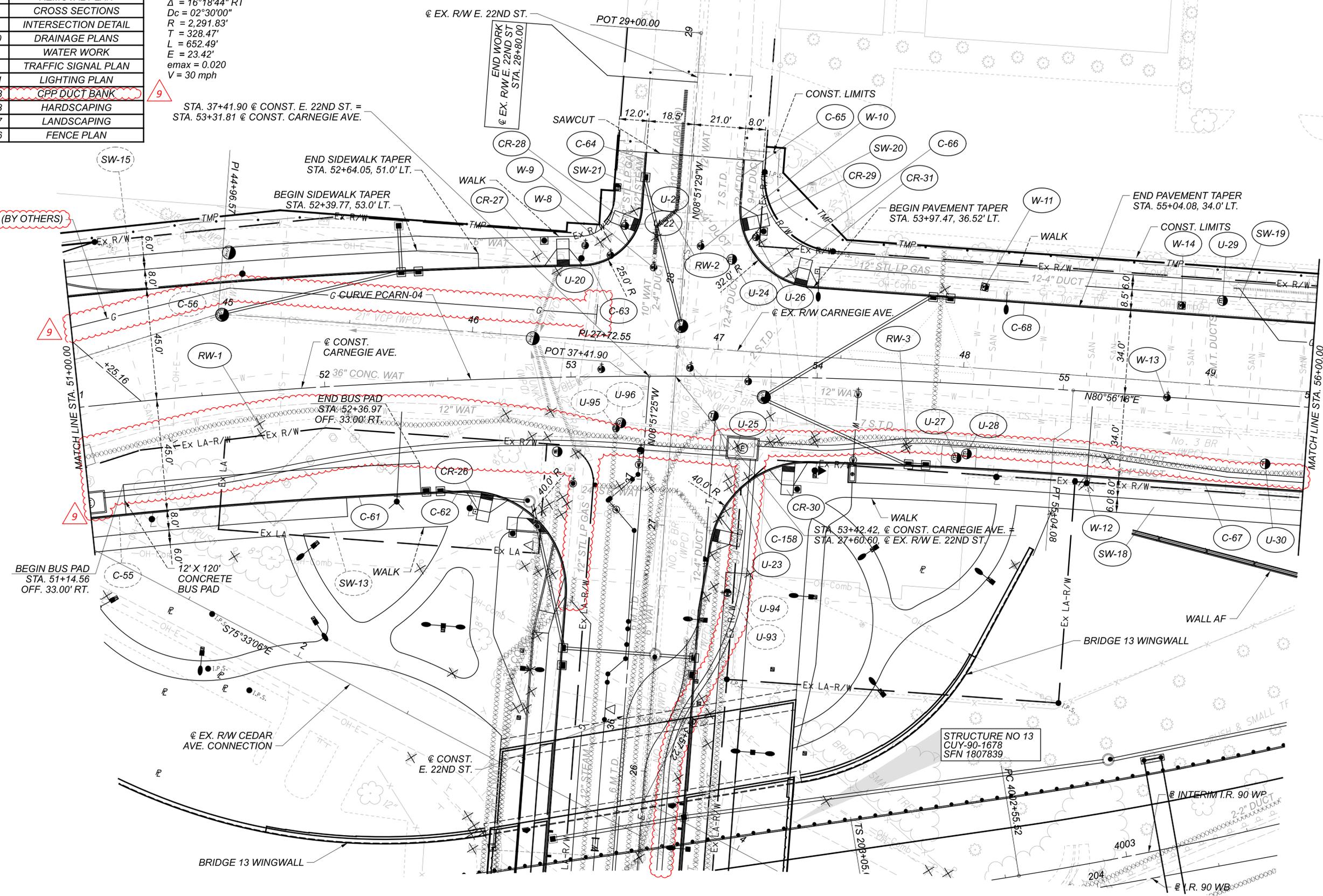
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
24	EX. TYPICAL SECTIONS
60 - 61	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
932 - 946	CROSS SECTIONS
1062	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1409	WATER WORK
1651	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1840 - 1843	HARDSCAPING
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

CURVE PCARN-04
 CURVE DATA
 P.I. = Sta. 51+80.05
 $\Delta = 16^{\circ}18'44''$ RT
 $D_c = 02^{\circ}30'00''$
 $R = 2,291.83'$
 $T = 328.47'$
 $L = 652.49'$
 $E = 23.42'$
 $e_{max} = 0.020$
 $V = 30$ mph

STA. 37+41.90 @ CONST. E. 22ND ST. =
 STA. 53+31.81 @ CONST. CARNEGIE AVE.



9
 GAS LINE (BY OTHERS)



PLAN - CARNEGIE AVE.
 STA. 51+00.00 TO STA. 56+00.00

DESIGN AGENCY

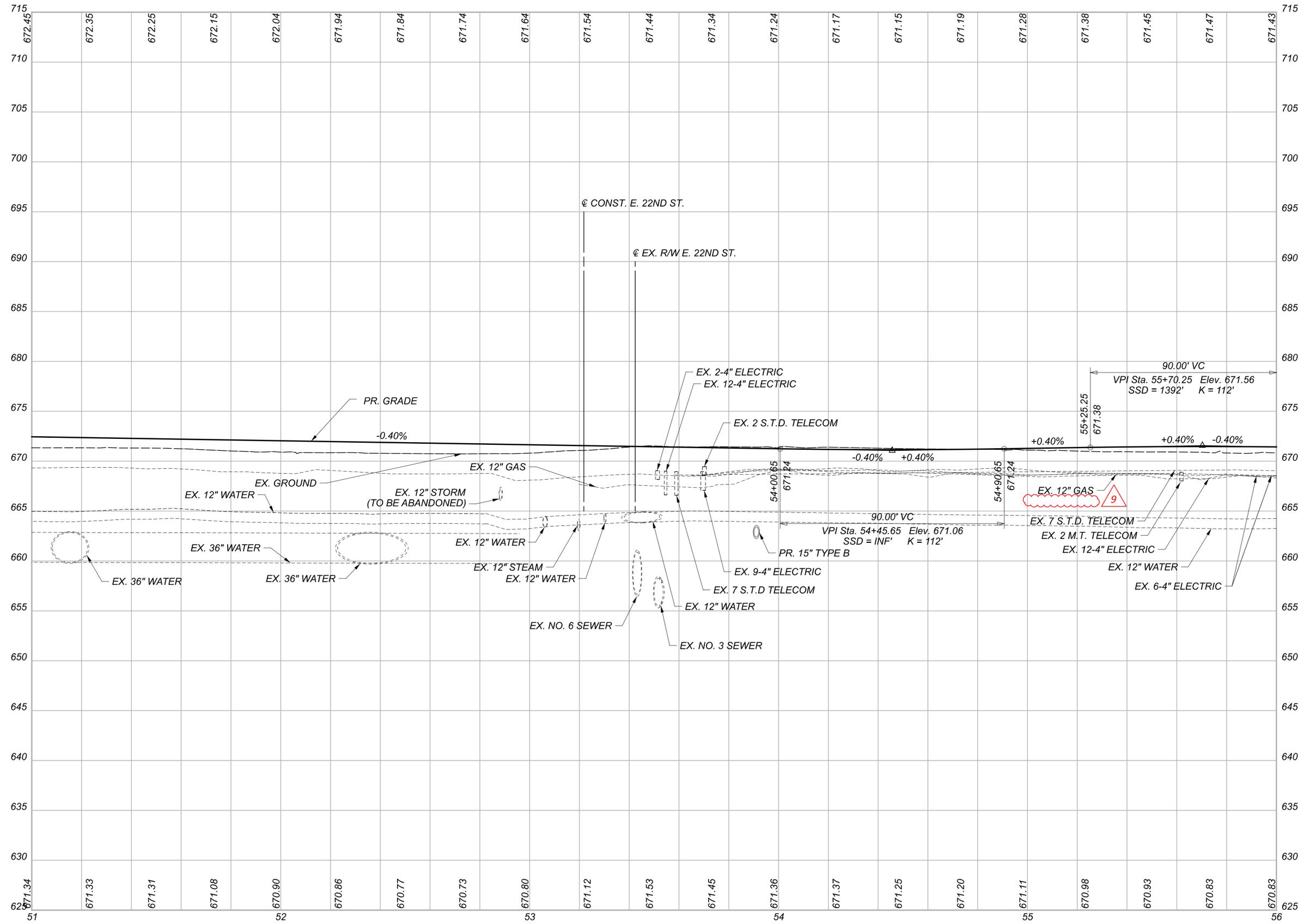
Michael Baker
 INTERNATIONAL

DESIGNER
 KJM

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
630	2696



PROFILE - CARNEGIE AVE.
 STA. 51+00.00 TO STA. 56+00.00

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

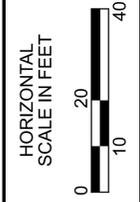
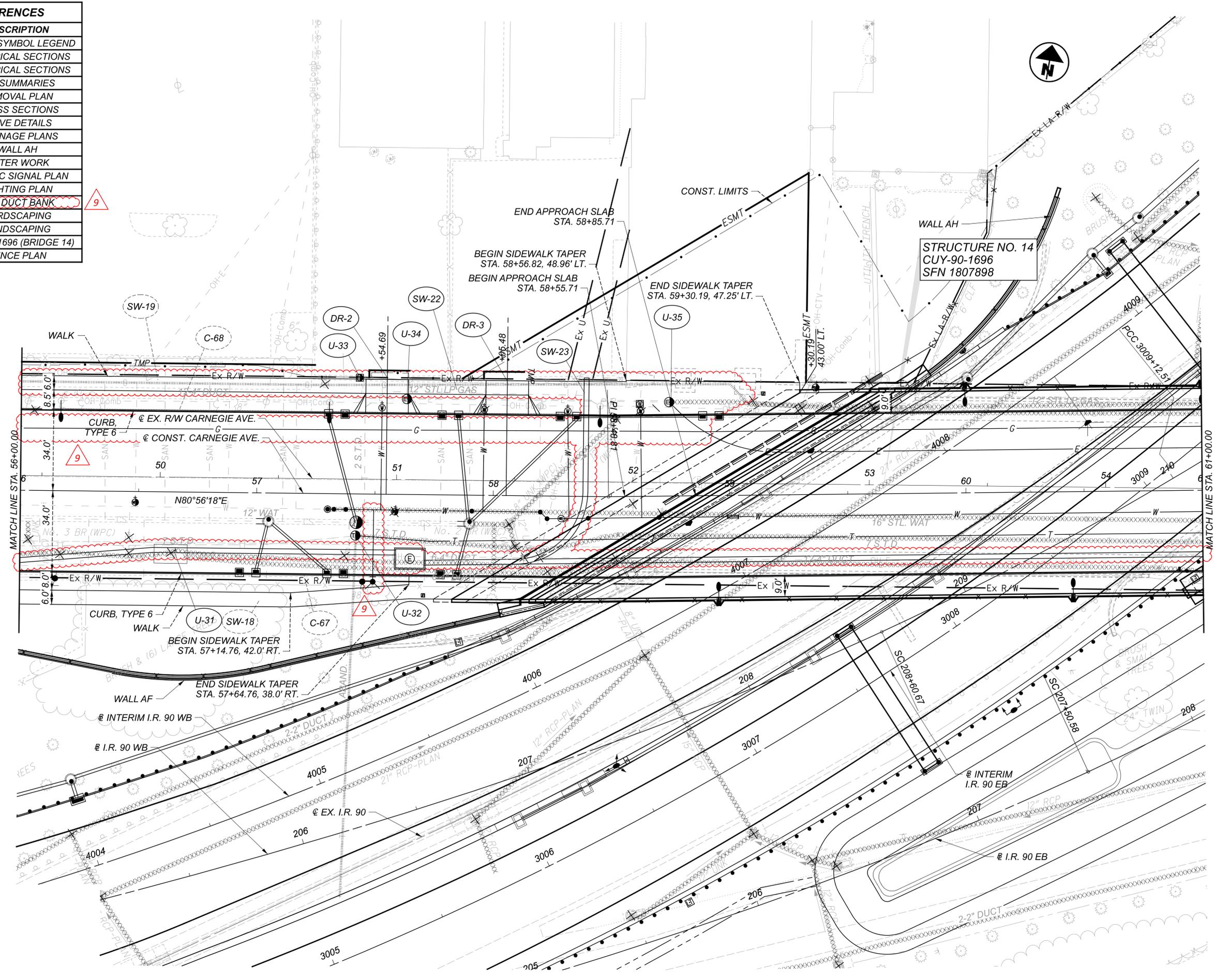
DESIGNER
 KJM

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

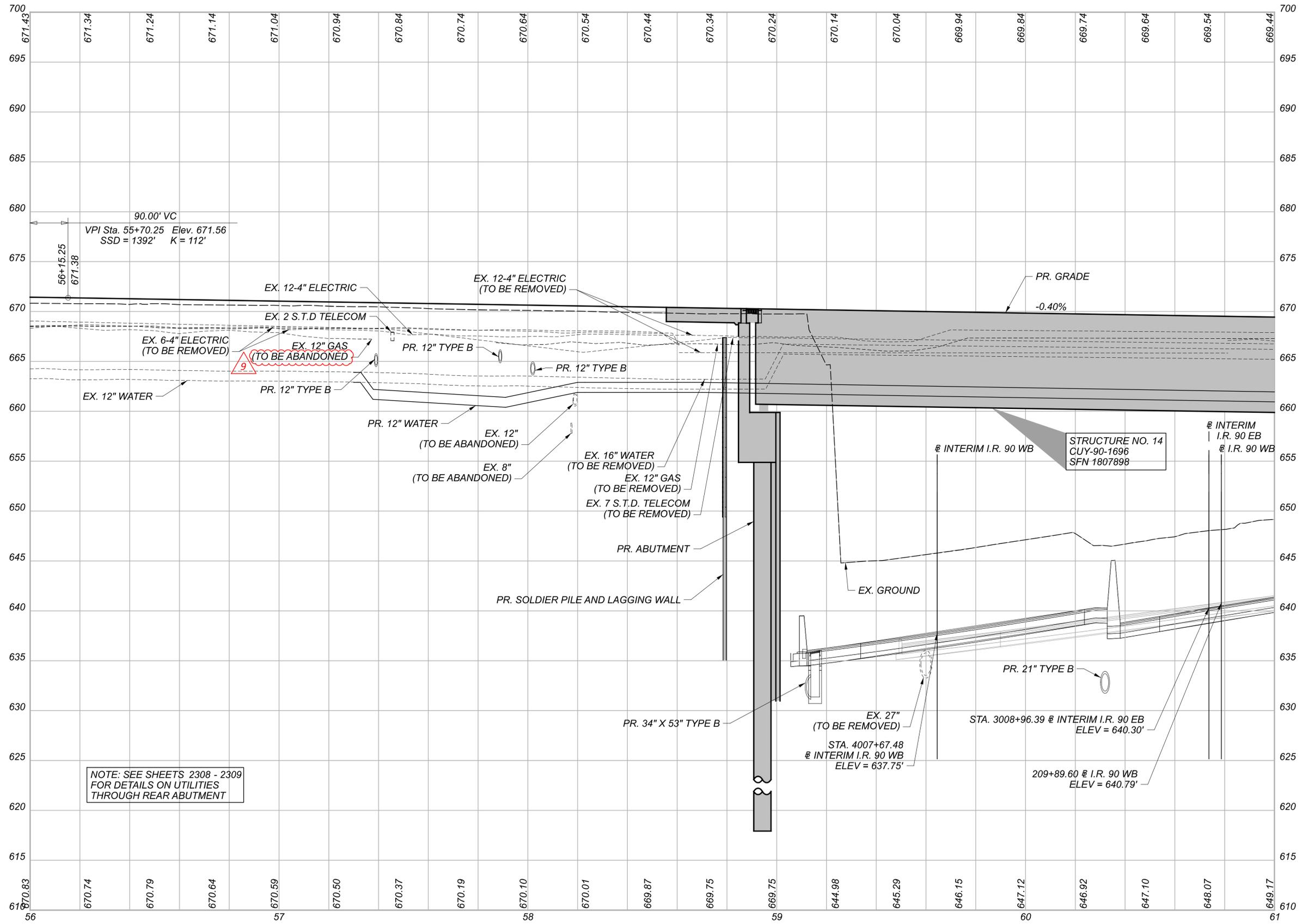
SHEET TOTAL
 631 2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
24	EX. TYPICAL SECTIONS
60 - 61	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
932 - 946	CROSS SECTIONS
1074 - 1075	DRIVE DETAILS
1092 - 1120	DRAINAGE PLANS
1241	WALL AH
1411 - 1413	WATER WORK
1655	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1840 - 1843	HARDSCAPING
1807 - 1817	LANDSCAPING
2281 - 2282	CUY-90-1696 (BRIDGE 14)
2383 - 2386	FENCE PLAN

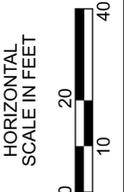
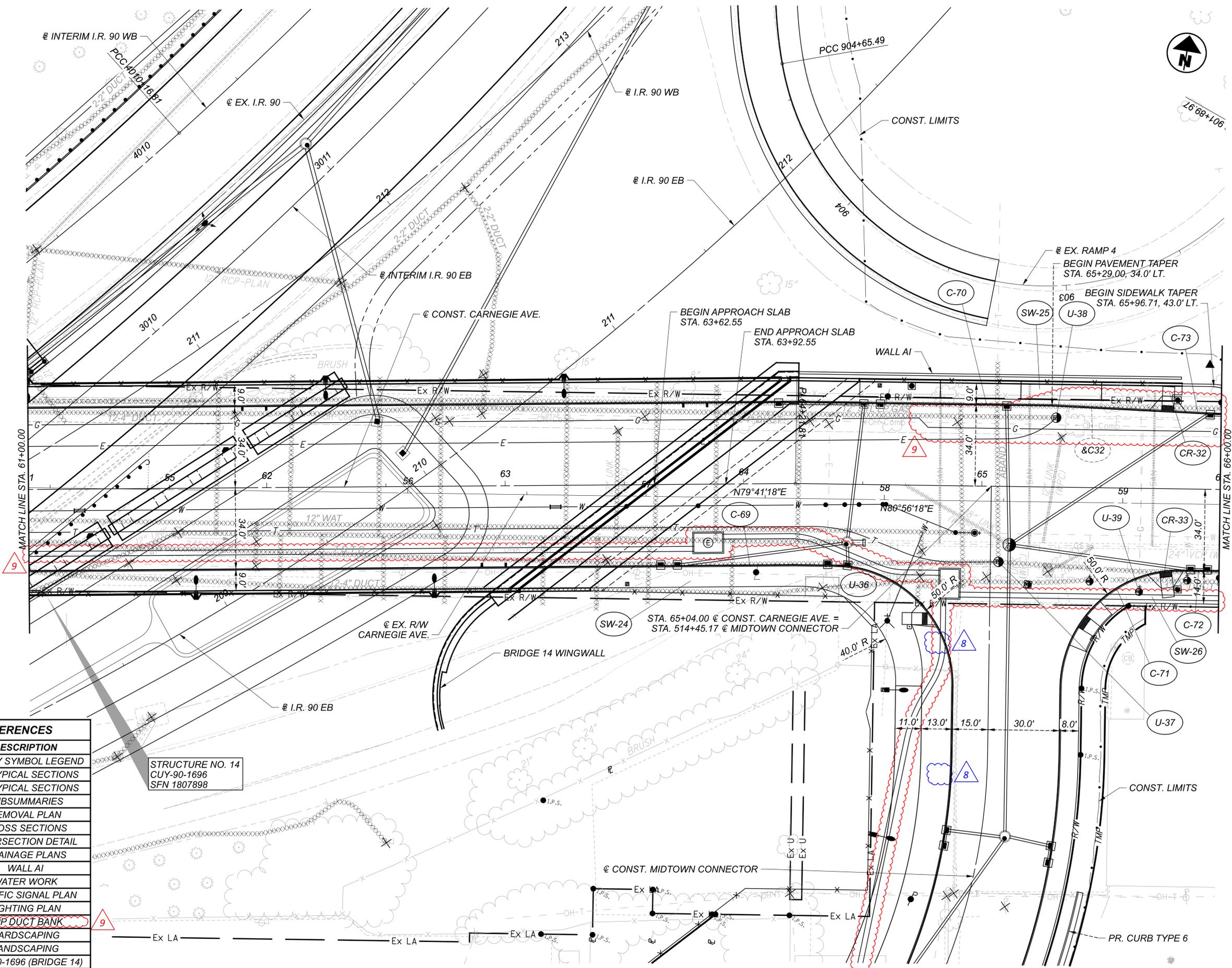


PLAN - CARNEGIE AVE.
 STA. 56+00.00 TO STA. 61+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	632
TOTAL	2696



CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
24	EX. TYPICAL SECTIONS
60 - 61	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
932 - 946	CROSS SECTIONS
1059	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1250	WALL AI
1411 - 1413	WATER WORK
1659	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1840 - 1843	HARDSCAPING
1807 - 1817	LANDSCAPING
2281 - 2282	CUY-90-1696 (BRIDGE 14)
2383 - 2386	FENCE PLAN

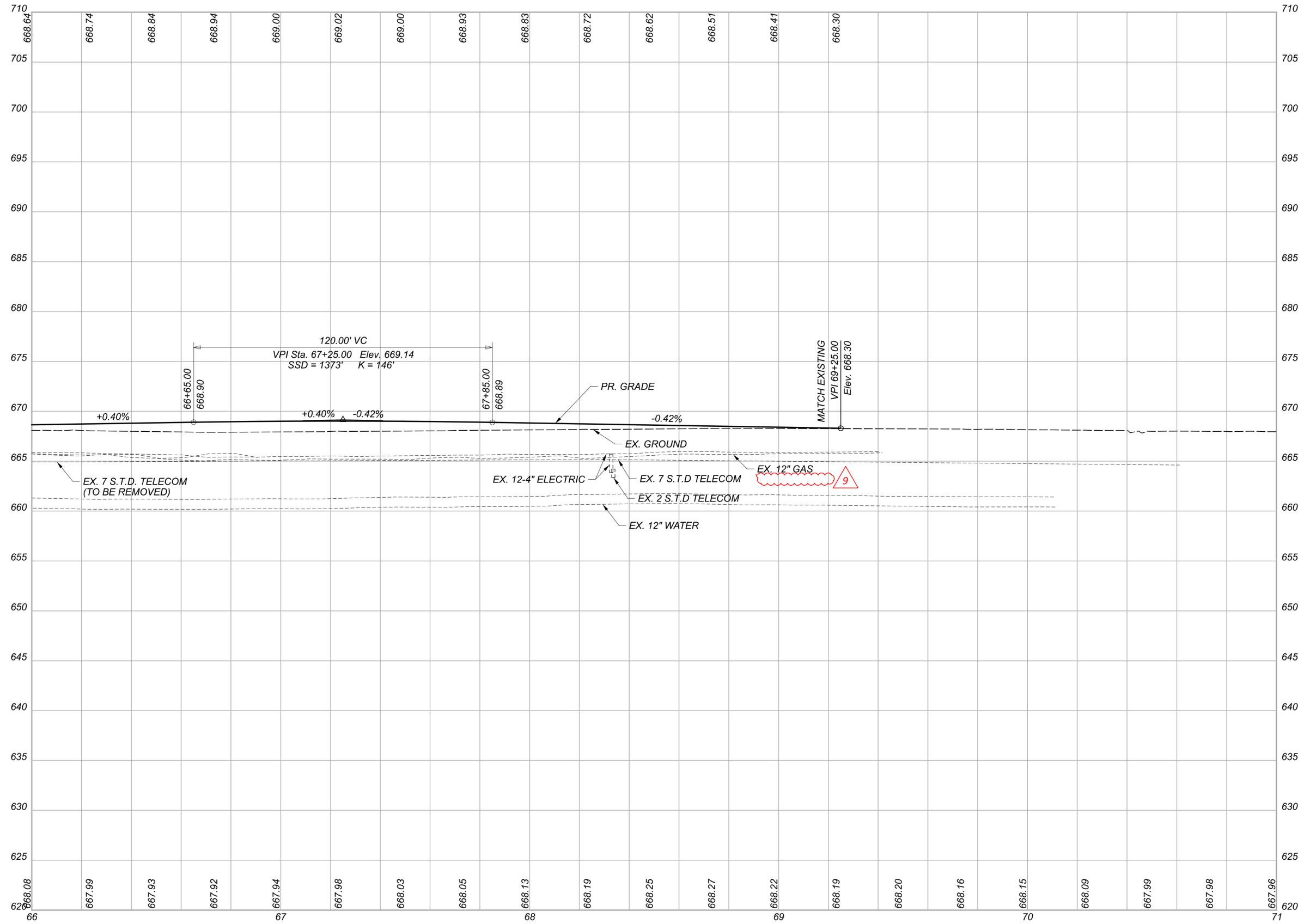


PLAN - CARNEGIE AVE.
 STA. 61+00.00 TO STA. 66+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	634
TOTAL	2696

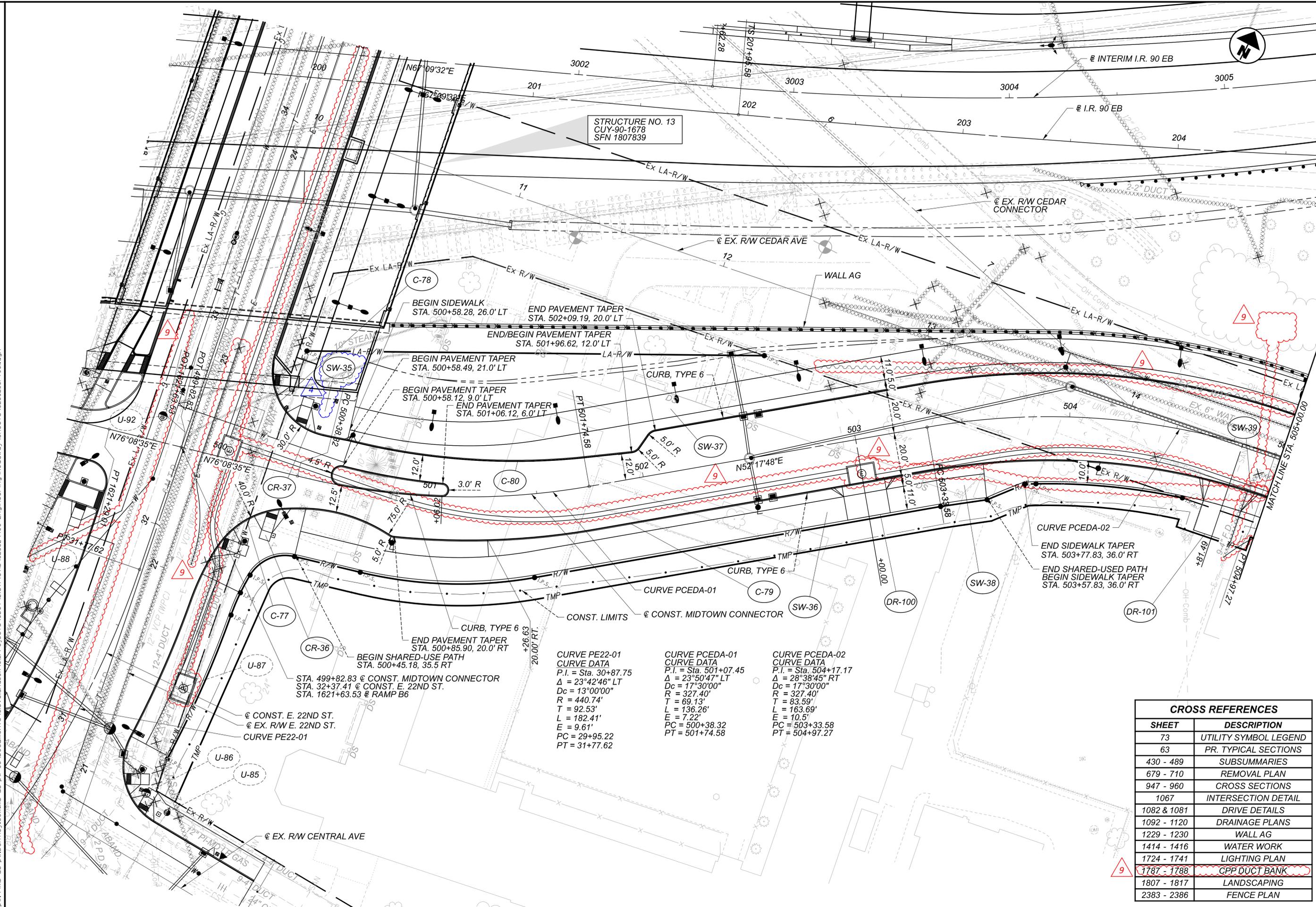
CUY-90-16.28 (CCG3A)

MODEL: 82382.GF705 PAPER SIZE: 34x22 (in.) DATE: 11/4/2025 TIME: 3:08:53 PM USER: Maja.Gallagher
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**PROFILE - CARNEGIE AVE.
 STA. 66+00.00 TO END**

DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
637	2696



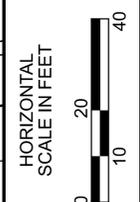
STRUCTURE NO. 13
 CUY-90-1678
 SFN 1807839

CURVE PE22-01
 CURVE DATA
 P.I. = Sta. 30+87.75
 $\Delta = 23^\circ 42' 46''$ LT
 $D_c = 13^\circ 00' 00''$
 $R = 440.74'$
 $T = 92.53'$
 $L = 182.41'$
 $E = 9.61'$
 $PC = 29+95.22$
 $PT = 31+77.62$

CURVE PCEDA-01
 CURVE DATA
 P.I. = Sta. 501+07.45
 $\Delta = 23^\circ 50' 47''$ LT
 $D_c = 17^\circ 30' 00''$
 $R = 327.40'$
 $T = 69.13'$
 $L = 136.26'$
 $E = 7.22'$
 $PC = 500+38.32$
 $PT = 501+74.58$

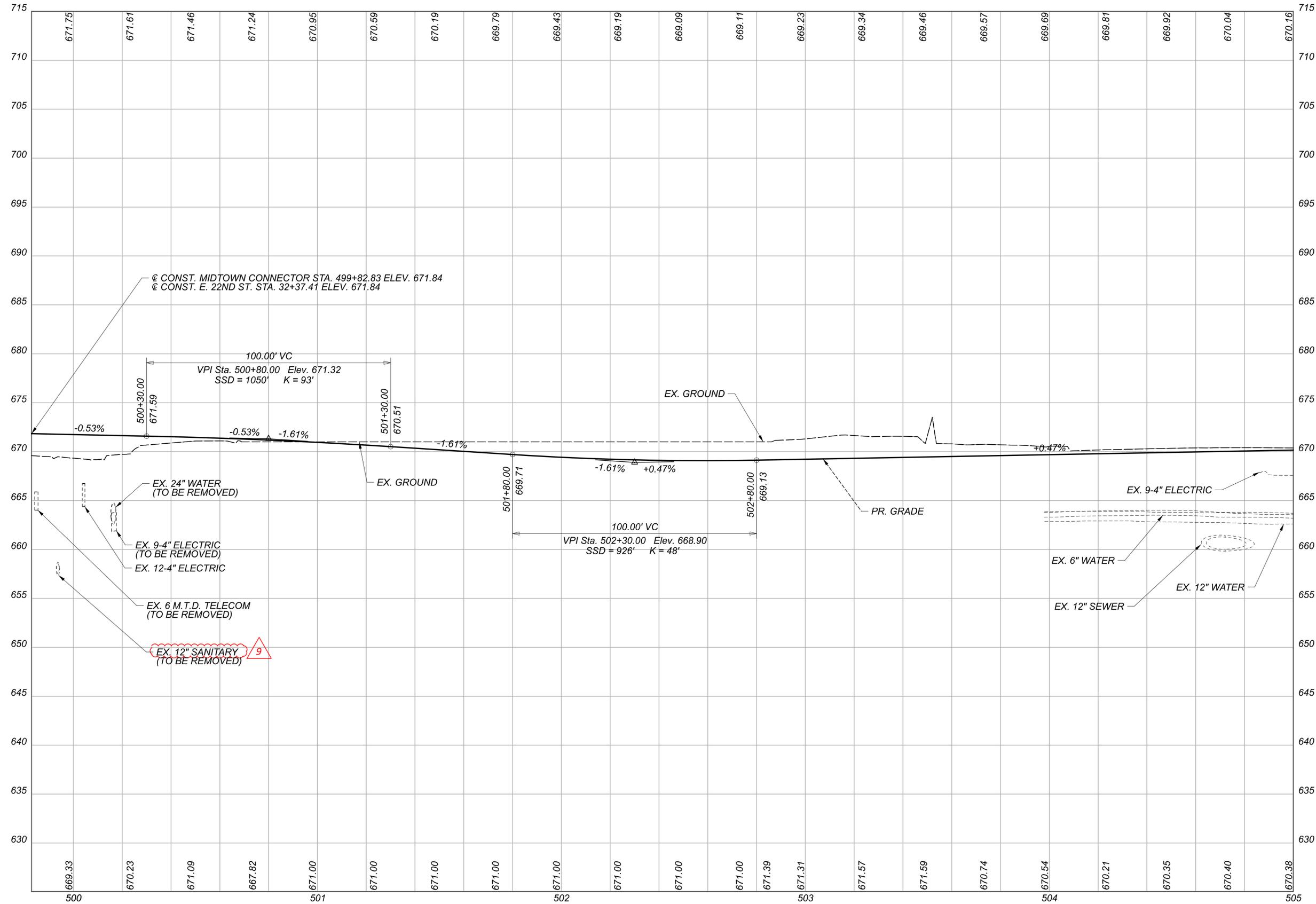
CURVE PCEDA-02
 CURVE DATA
 P.I. = Sta. 504+17.17
 $\Delta = 28^\circ 38' 45''$ RT
 $D_c = 17^\circ 30' 00''$
 $R = 327.40'$
 $T = 83.59'$
 $L = 163.69'$
 $E = 10.5'$
 $PC = 503+33.58$
 $PT = 504+97.27$

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
63	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
947 - 960	CROSS SECTIONS
1067	INTERSECTION DETAIL
1082 & 1081	DRIVE DETAILS
1092 - 1120	DRAINAGE PLANS
1229 - 1230	WALL AG
1414 - 1416	WATER WORK
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - MIDTOWN CONNECTOR
 BEGIN TO STA. 505+00.00

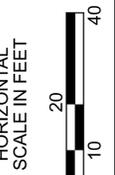
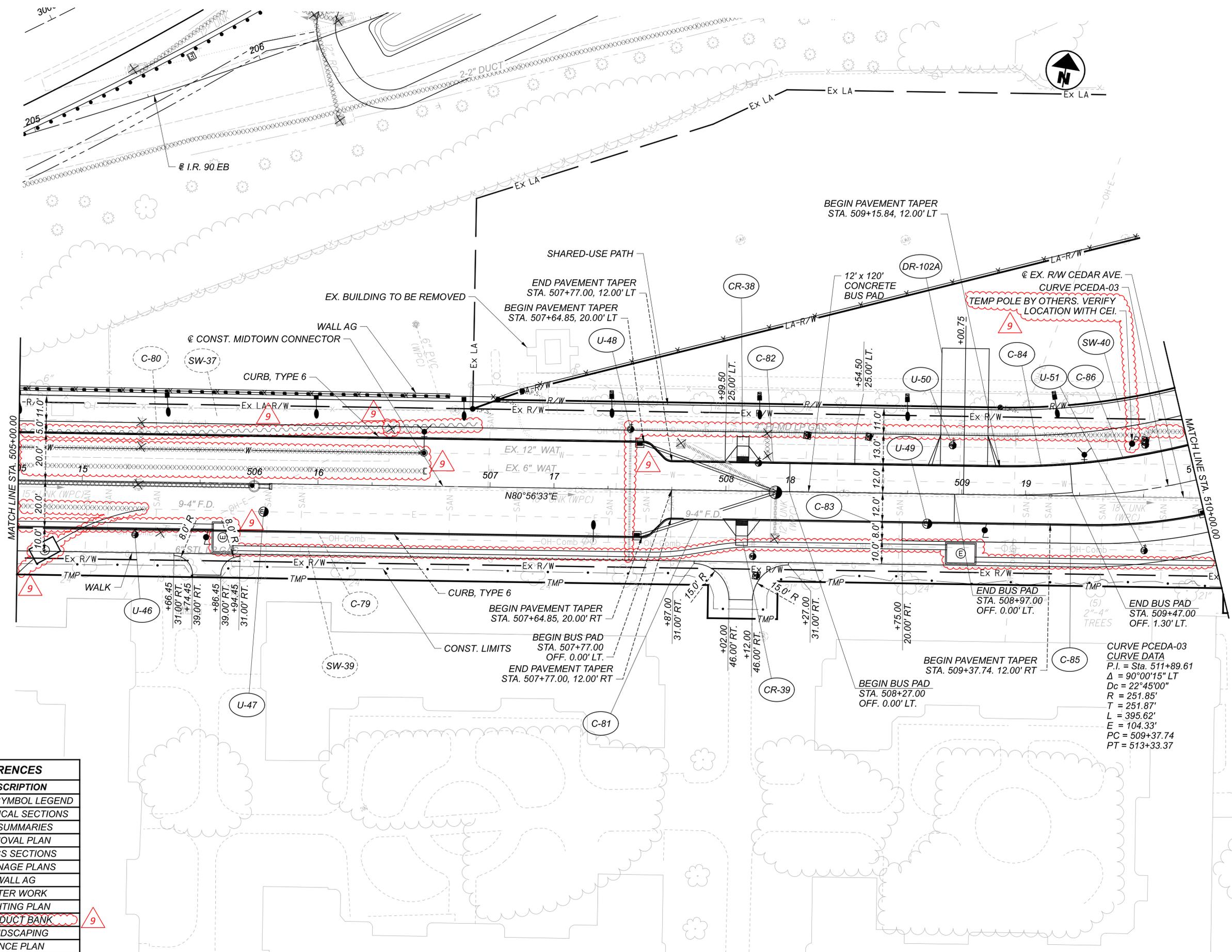
DESIGN AGENCY	Michael Baker International
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	638
TOTAL	2696



PROFILE - MIDTOWN CONNECTOR
 BEGIN TO STA. 505+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
639	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
63	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
947 - 960	CROSS SECTIONS
1092 - 1120	DRAINAGE PLANS
1229 - 1230	WALL AG
1414 - 1416	WATER WORK
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN
1083	DRIVE DETAILS



PLAN - MIDTOWN CONNECTOR
 STA. 505+00.00 to STA. 510+00.00

DESIGN AGENCY

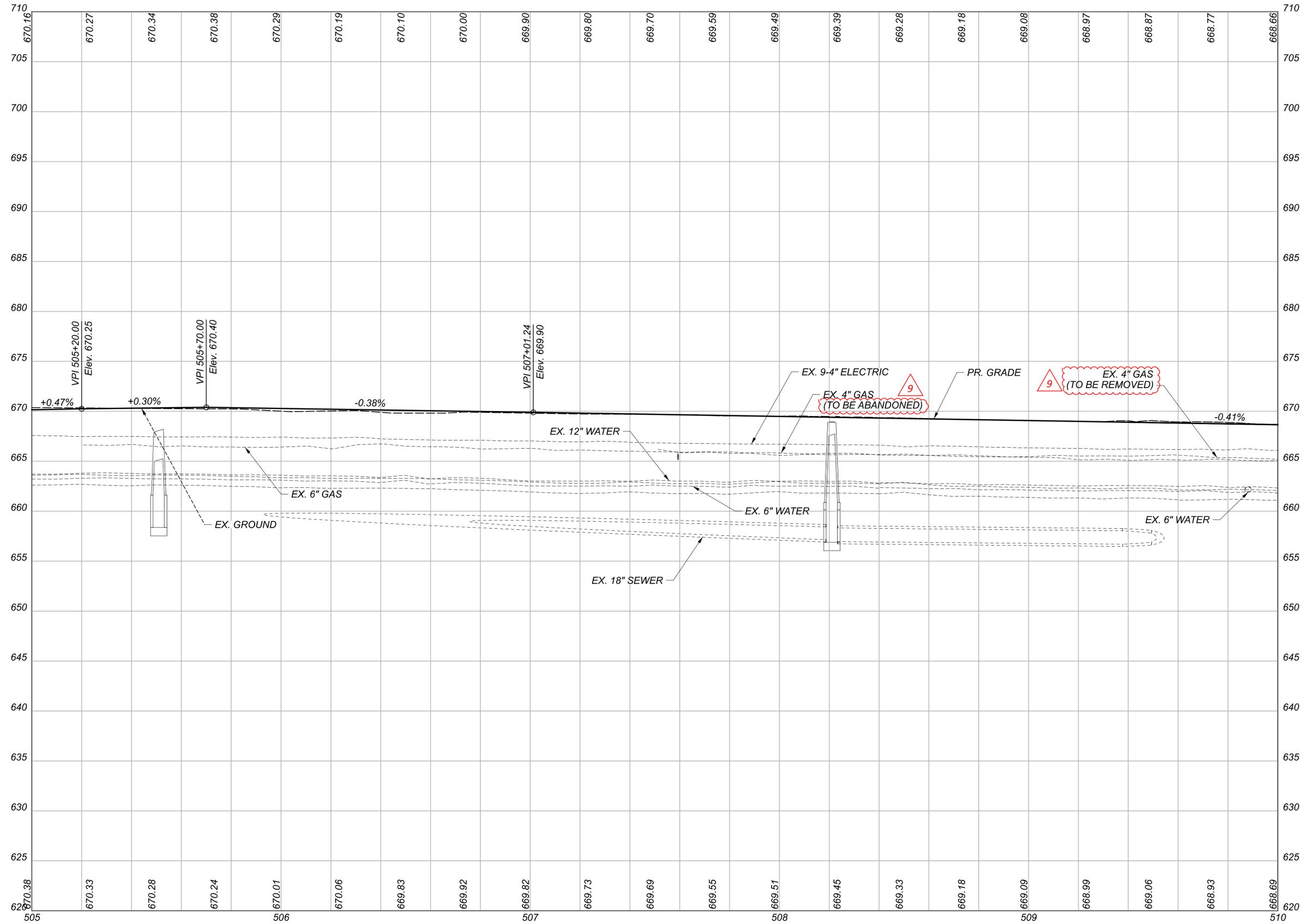
Michael Baker
 INTERNATIONAL

DESIGNER
 KJM

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET TOTAL
 640 2696



PROFILE - MIDTOWN CONNECTOR
 STA. 505+00.00 TO STA. 510+00.00

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

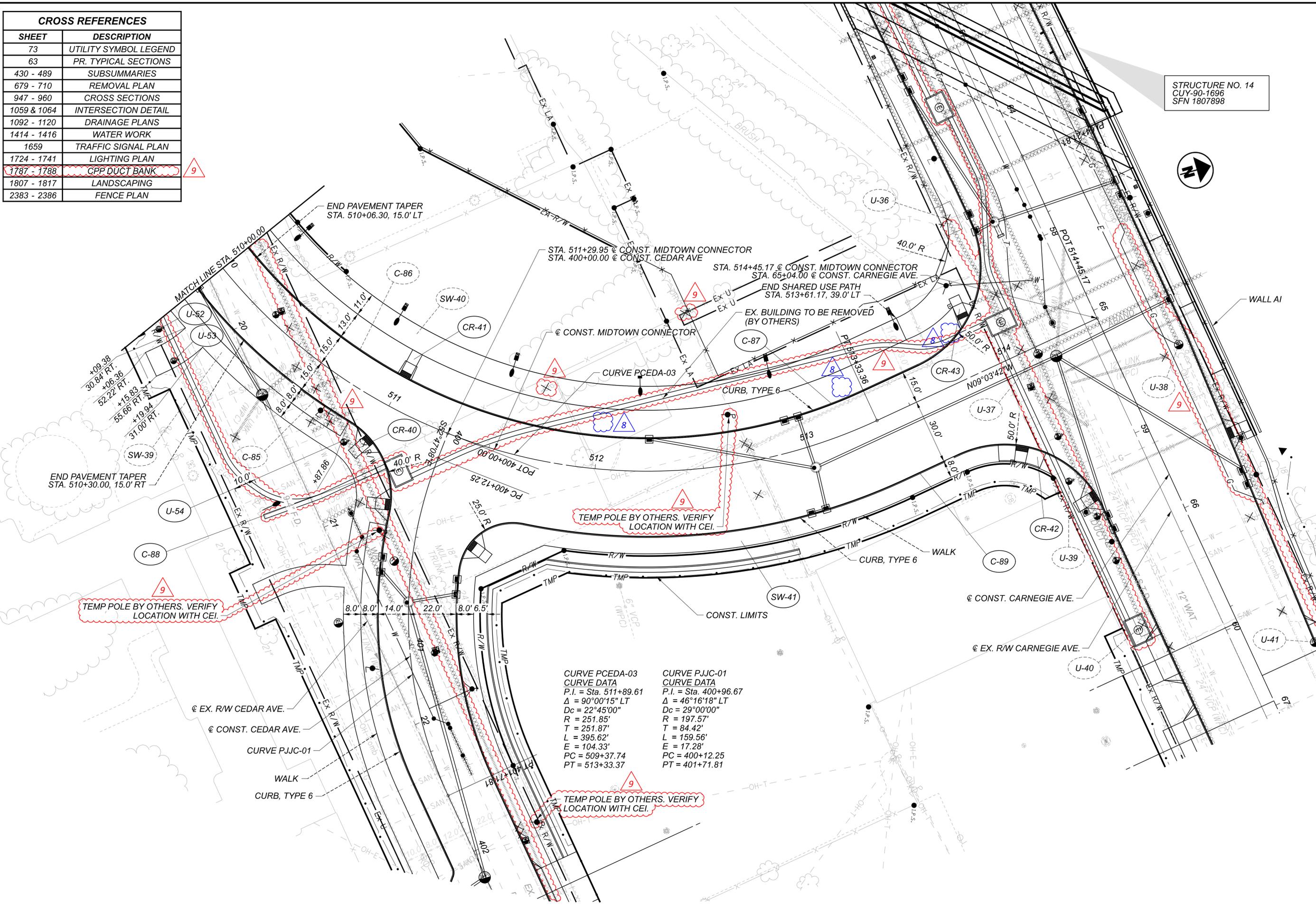
DESIGNER
 KJM

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
641	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
63	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
947 - 960	CROSS SECTIONS
1059 & 1064	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1414 - 1416	WATER WORK
1659	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



STRUCTURE NO. 14
 CUY-90-1696
 SFN 1807898

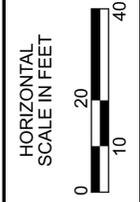


PLAN - MIDTOWN CONNECTOR
 STA. 510+00.00 TO END

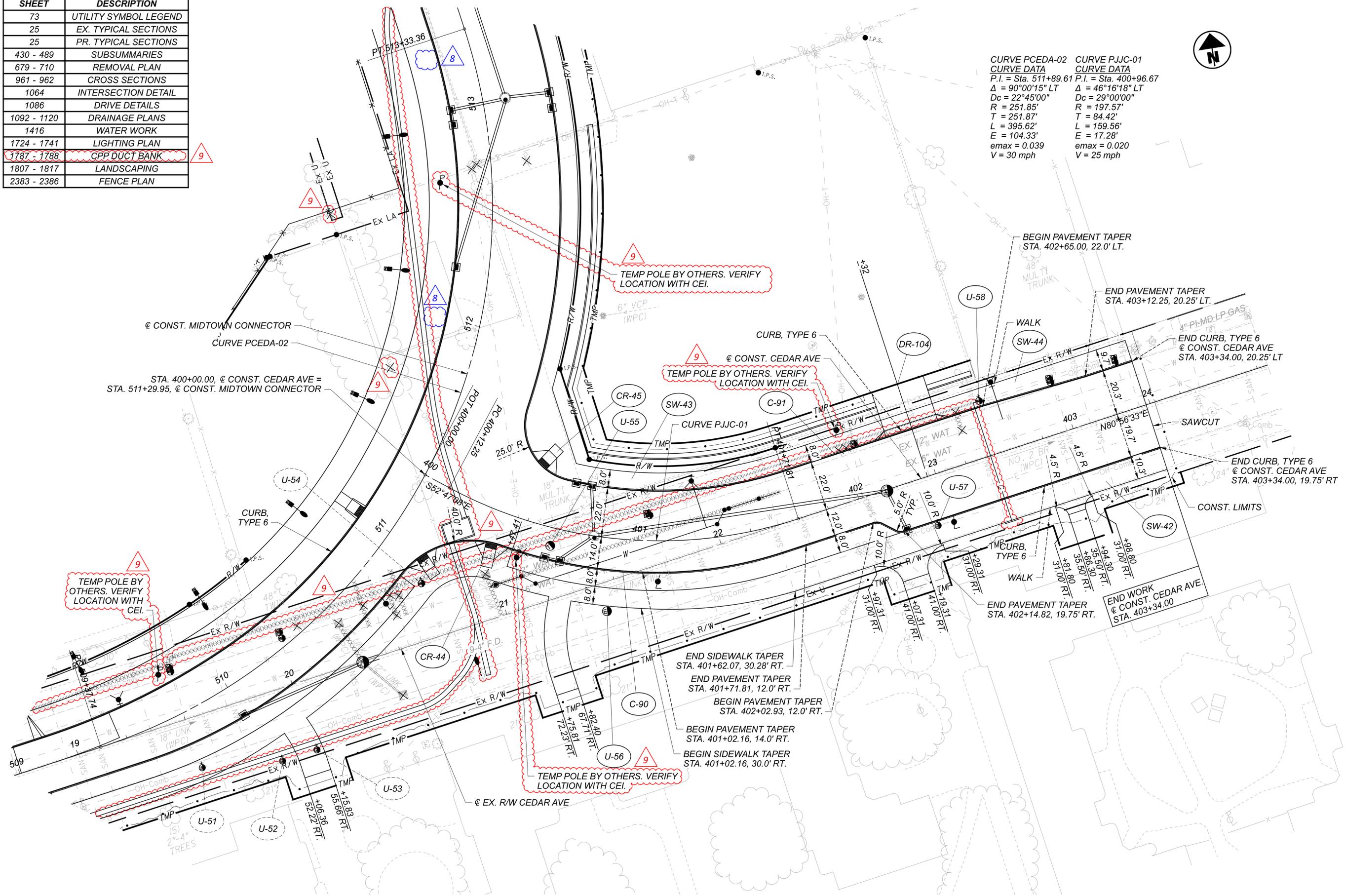
<p>CURVE PCEDA-03 CURVE DATA P.I. = Sta. 511+89.61 $\Delta = 90^{\circ}00'15''$ LT Dc = 22°45'00" R = 251.85' T = 251.87' L = 395.62' E = 104.33' PC = 509+37.74 PT = 513+33.37</p>	<p>CURVE PJJC-01 CURVE DATA P.I. = Sta. 400+96.67 $\Delta = 46^{\circ}16'18''$ LT Dc = 29°00'00" R = 197.57' T = 84.42' L = 159.56' E = 17.28' PC = 400+12.25 PT = 401+71.81</p>
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DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
642	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
25	EX. TYPICAL SECTIONS
25	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
961 - 962	CROSS SECTIONS
1064	INTERSECTION DETAIL
1086	DRIVE DETAILS
1092 - 1120	DRAINAGE PLANS
1416	WATER WORK
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

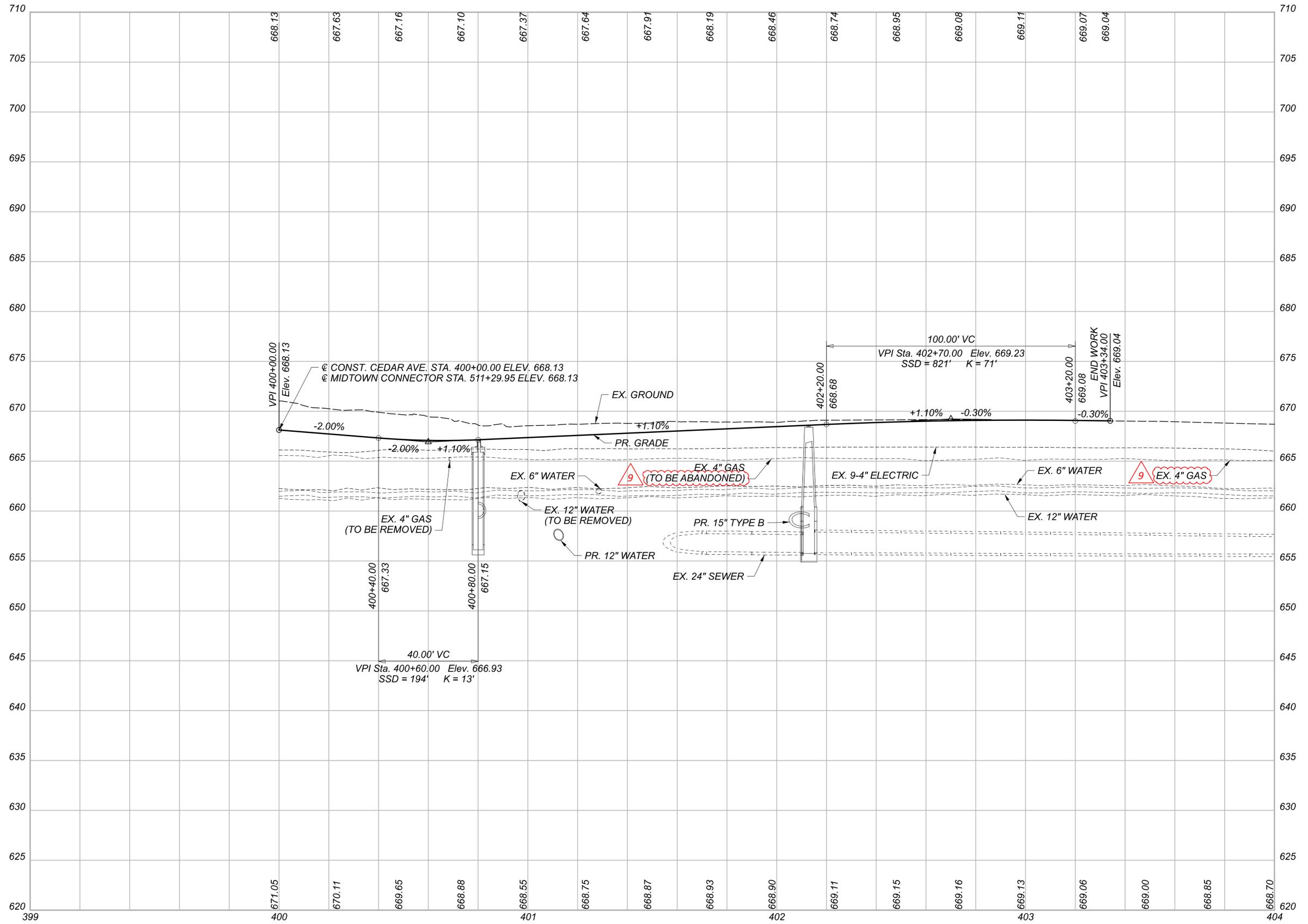


CURVE PCEDA-02 CURVE DATA P.I. = Sta. 511+89.61 $\Delta = 90^{\circ}00'15''$ LT $D_c = 22^{\circ}45'00''$ $R = 251.85'$ $T = 251.87'$ $L = 395.62'$ $E = 104.33'$ $e_{max} = 0.039$ $V = 30$ mph	CURVE PJJC-01 CURVE DATA P.I. = Sta. 400+96.67 $\Delta = 46^{\circ}16'18''$ LT $D_c = 29^{\circ}00'00''$ $R = 197.57'$ $T = 84.42'$ $L = 159.56'$ $E = 17.28'$ $e_{max} = 0.020$ $V = 25$ mph
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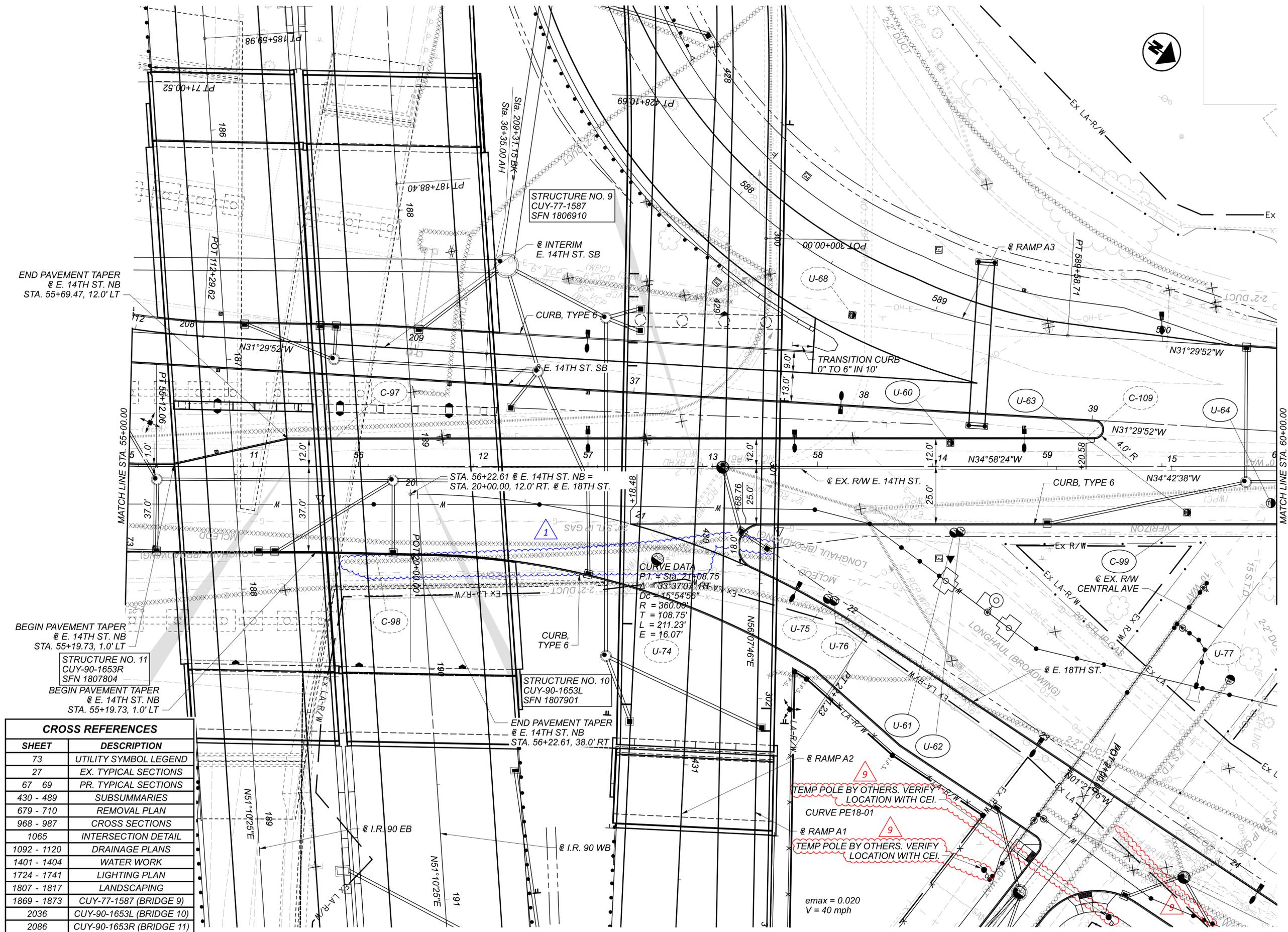
PLAN - CEDAR AVE.
 STA. 400+00.00 TO END

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	644
TOTAL	2696

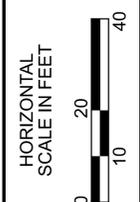


PROFILE - CEDAR AVE.
 STA. 400+00.00 TO END

DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
645	2696

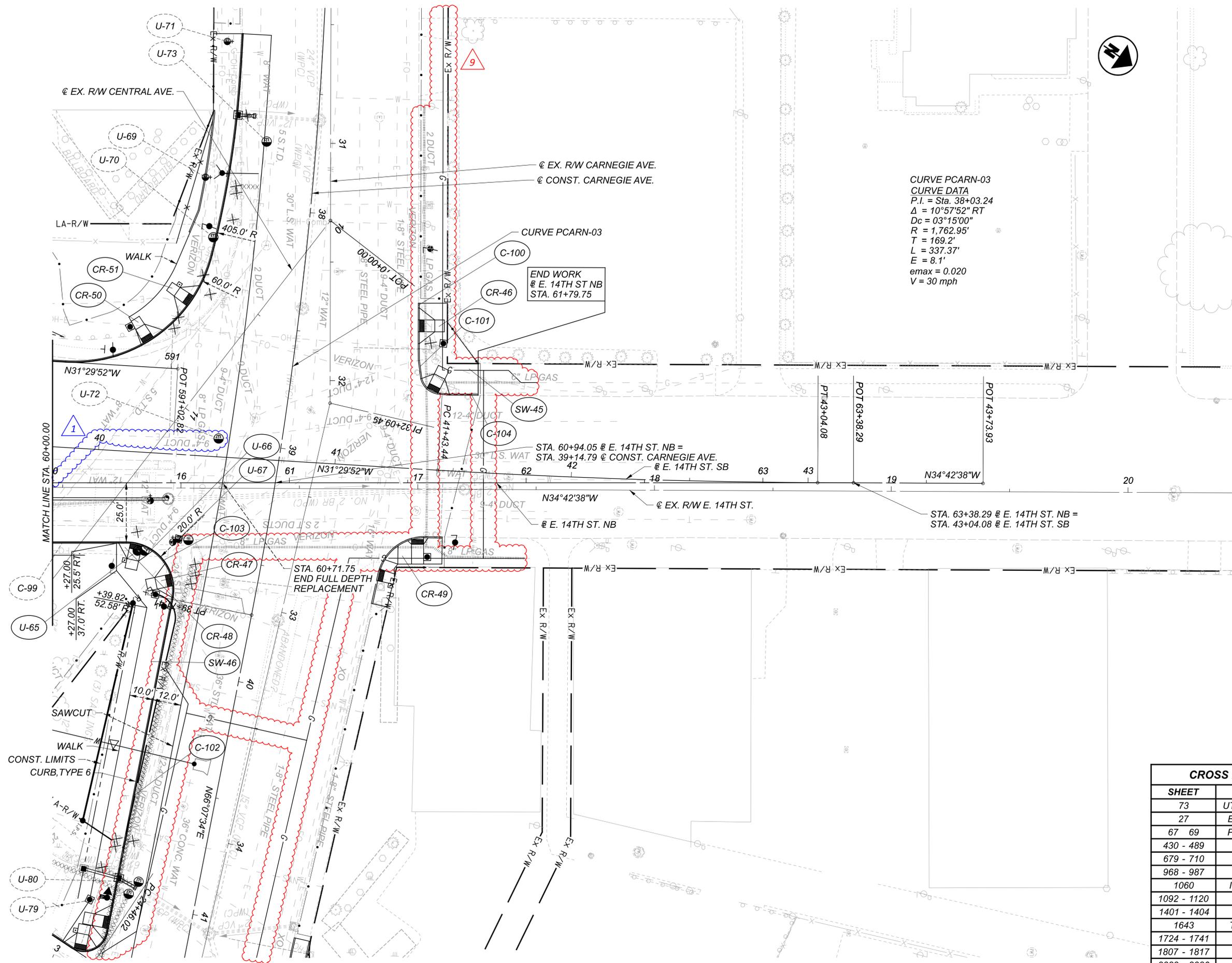


CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
27	EX. TYPICAL SECTIONS
67 69	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
968 - 987	CROSS SECTIONS
1065	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1401 - 1404	WATER WORK
1724 - 1741	LIGHTING PLAN
1807 - 1817	LANDSCAPING
1869 - 1873	CUY-77-1587 (BRIDGE 9)
2036	CUY-90-1653L (BRIDGE 10)
2086	CUY-90-1653R (BRIDGE 11)
2383 - 2386	FENCE PLAN



PLAN - E. 14TH ST. NB
 STA. 55+00.00 TO STA. 60+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
654	2696



CURVE PCARN-03
 CURVE DATA
 P.I. = Sta. 38+03.24
 $\Delta = 10^{\circ}57'52''$ RT
 $D_c = 03^{\circ}15'00''$
 $R = 1,762.95'$
 $T = 169.2'$
 $L = 337.37'$
 $E = 8.1'$
 $e_{max} = 0.020$
 $V = 30$ mph

END WORK
 @ E. 14TH ST NB
 STA. 61+79.75

STA. 60+71.75
 END FULL DEPTH
 REPLACEMENT

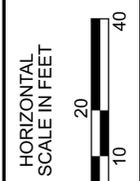
STA. 63+38.29 @ E. 14TH ST. NB =
 STA. 43+04.08 @ E. 14TH ST. SB

STA. 60+94.05 @ E. 14TH ST. NB =
 STA. 39+14.79 @ CONST. CARNEGIE AVE.
 @ E. 14TH ST. SB

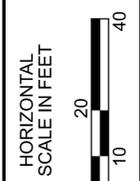
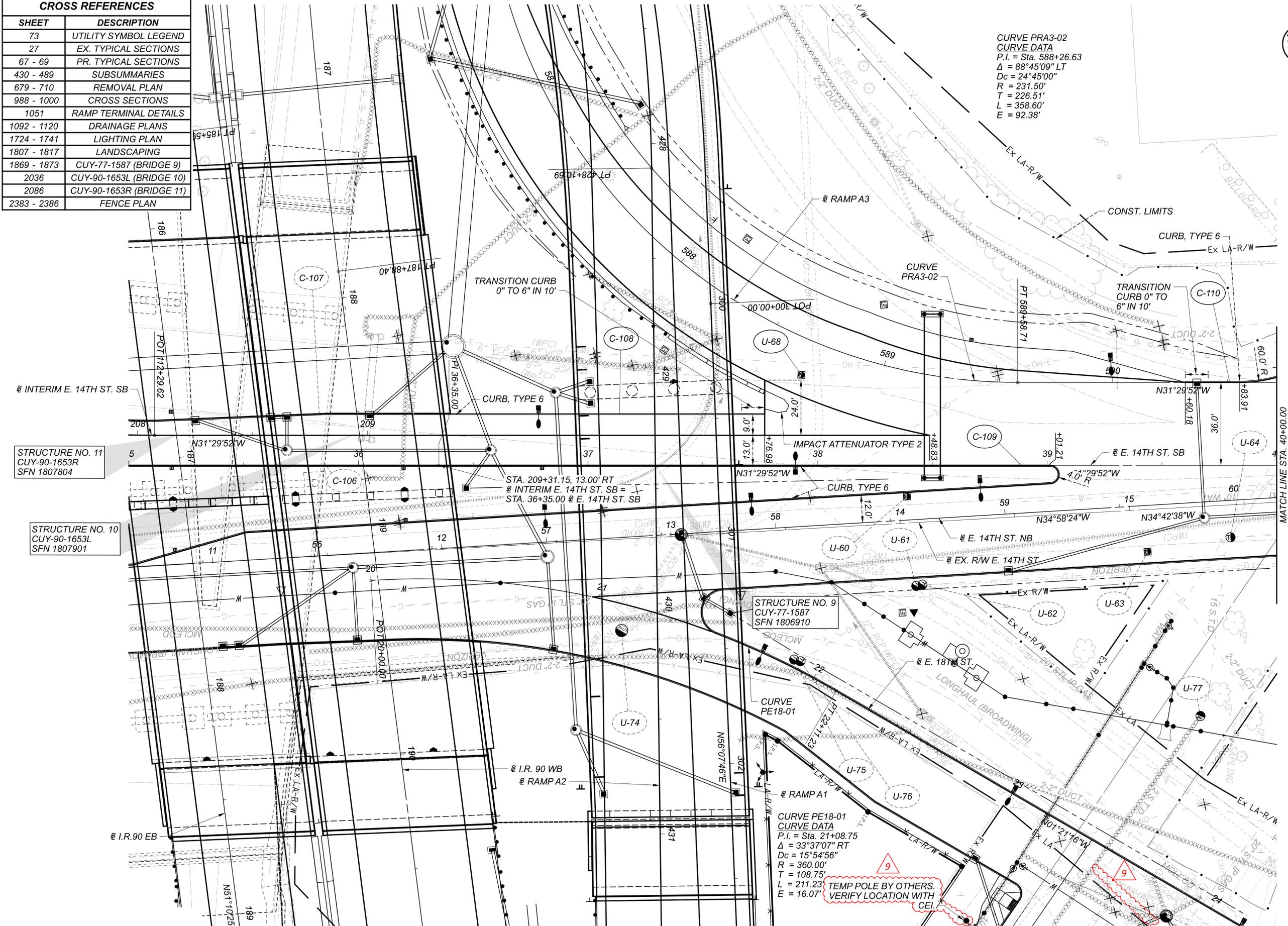
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
27	EX. TYPICAL SECTIONS
67 69	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
968 - 987	CROSS SECTIONS
1060	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1401 - 1404	WATER WORK
1643	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET TOTAL	656 2696

PLAN - E. 14TH ST. NB
 STA. 60+00.00 TO END



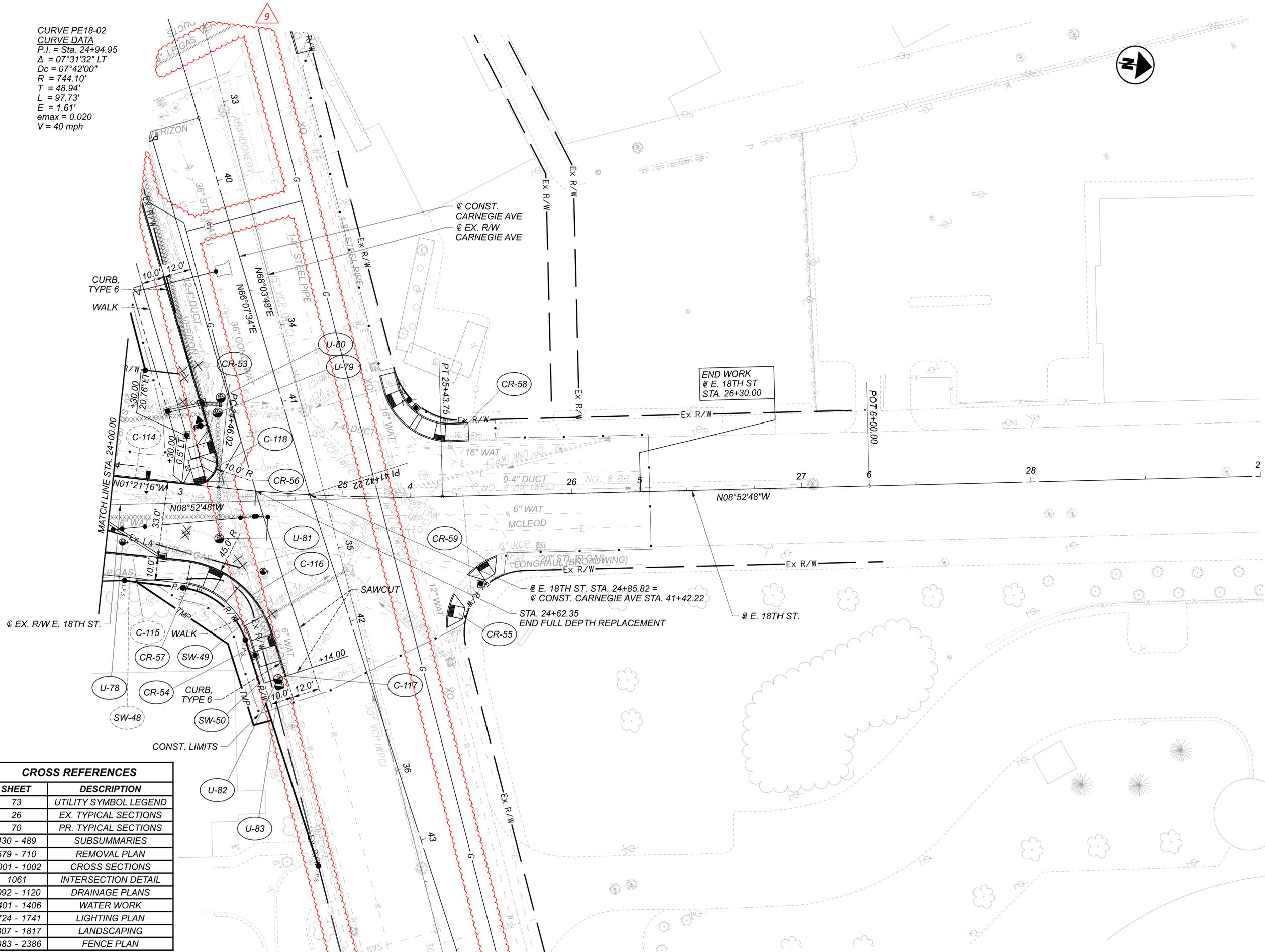
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
27	EX. TYPICAL SECTIONS
67 - 69	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
988 - 1000	CROSS SECTIONS
1051	RAMP TERMINAL DETAILS
1092 - 1120	DRAINAGE PLANS
1724 - 1741	LIGHTING PLAN
1807 - 1817	LANDSCAPING
1869 - 1873	CUY-77-1587 (BRIDGE 9)
2036	CUY-90-1653L (BRIDGE 10)
2086	CUY-90-1653R (BRIDGE 11)
2383 - 2386	FENCE PLAN



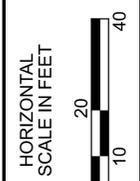
PLAN - E. 14TH ST. SB
 BEGIN TO STA. 40+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	663
TOTAL	2696

CURVE PE18-02
 CURVE DATA
 P.I. = Sta. 24+94.95
 $\Delta = 07^{\circ}31'32''$ LT
 $D_c = 07^{\circ}42'00''$
 $R = 744.10'$
 $T = 48.94'$
 $L = 97.73'$
 $E = 1.61'$
 $e_{max} = 0.020$
 $V = 40$ mph



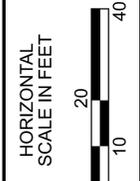
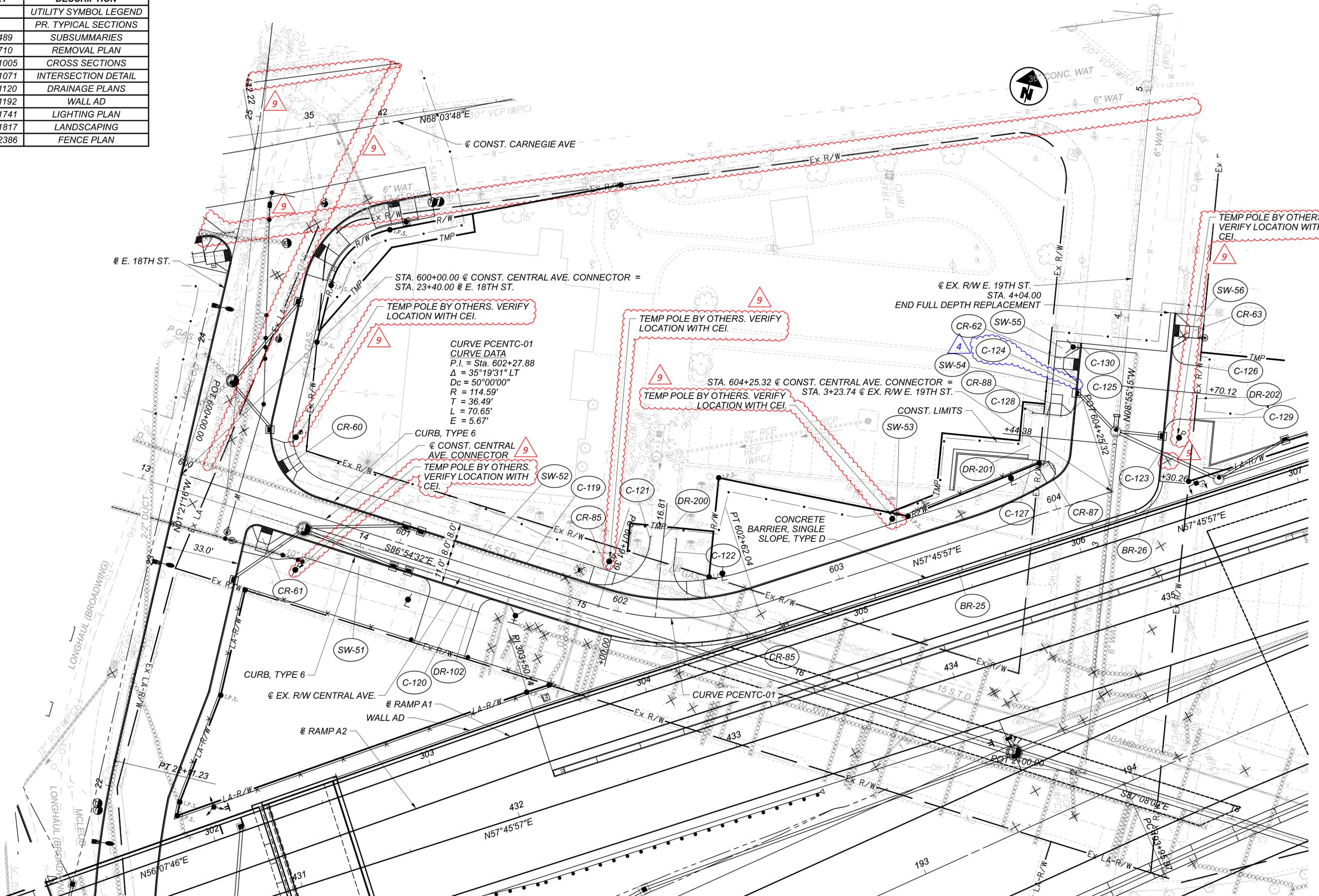
CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
26	EX. TYPICAL SECTIONS
70	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1001 - 1002	CROSS SECTIONS
1061	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1401 - 1406	WATER WORK
1724 - 1741	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - E. 18TH ST.
 STA. 24+00.00 TO END

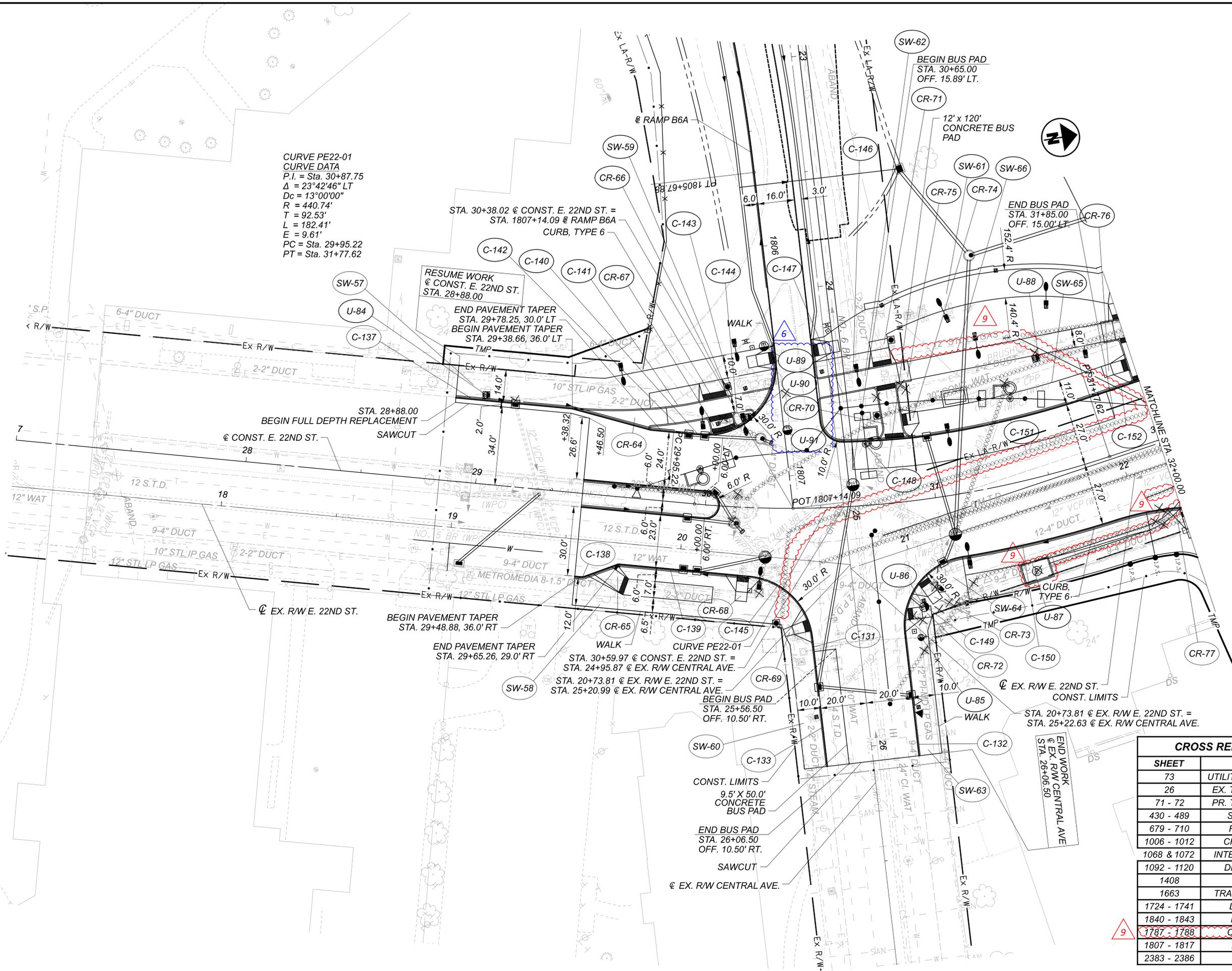
DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
669	2696

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
70	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1003 - 1005	CROSS SECTIONS
1070 - 1071	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1191 - 1192	WALL AD
1724 - 1741	LIGHTING PLAN
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - CENTRAL AVE. CONNECTOR
BEGIN TO END

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	671
TOTAL	2696



CURVE PE22-01
 CURVE DATA
 P.I. = Sta. 30+87.75
 $\Delta = 23^\circ 42' 46''$ LT
 $D_c = 13^\circ 00' 00''$
 $R = 440.74'$
 $T = 92.53'$
 $L = 182.41'$
 $E = 9.61'$
 $PC = Sta. 29+95.22$
 $PT = Sta. 31+77.62$

RESUME WORK
 @ CONST. E. 22ND ST.
 STA. 28+88.00
 END PAVEMENT TAPER
 STA. 29+78.25, 30.0' LT
 BEGIN PAVEMENT TAPER
 STA. 29+38.66, 36.0' LT

STA. 28+88.00
 BEGIN FULL DEPTH REPLACEMENT
 @ CONST. E. 22ND ST.
 SAWCUT

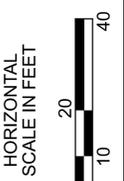
BEGIN PAVEMENT TAPER
 STA. 29+48.88, 36.0' RT
 END PAVEMENT TAPER
 STA. 29+65.26, 29.0' RT

STA. 30+59.97 @ CONST. E. 22ND ST. =
 STA. 24+95.87 @ EX. R/W CENTRAL AVE.
 STA. 20+73.81 @ EX. R/W E. 22ND ST. =
 STA. 25+20.99 @ EX. R/W CENTRAL AVE.

BEGIN BUS PAD
 STA. 25+56.50
 OFF. 10.50' RT.

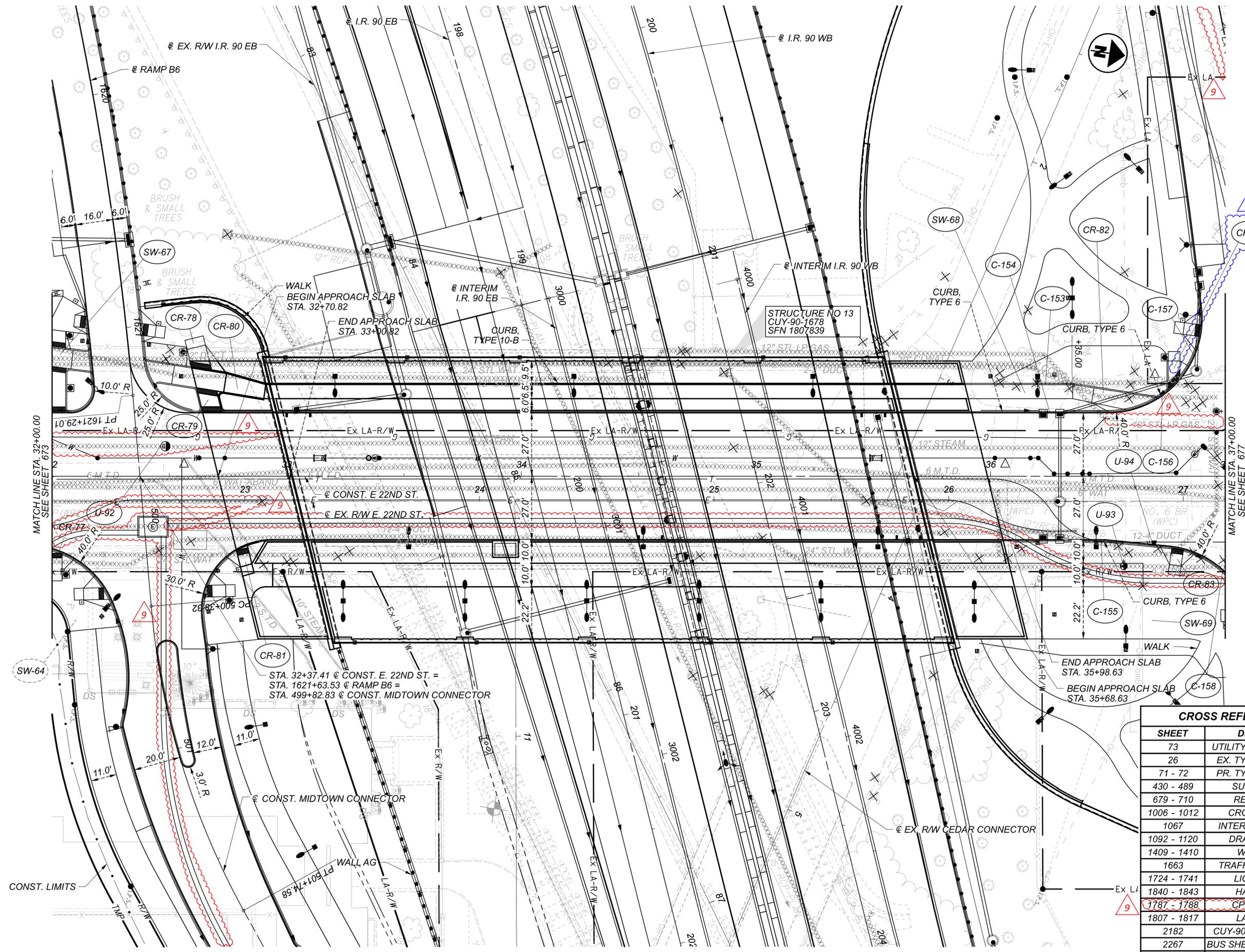
END WORK
 @ EX. R/W CENTRAL AVE
 STA. 26+06.50

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
26	EX. TYPICAL SECTIONS
71 - 72	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1006 - 1012	CROSS SECTIONS
1068 & 1072	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1408	WATER WORK
1663	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1840 - 1843	HARDSCAPING
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN



PLAN - E. 22ND ST.
 BEGIN TO STA. 32+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	673
TOTAL	2696



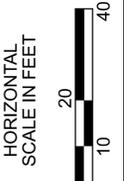
MATCH LINE STA. 32+00.00
SEE SHEET 673

MATCH LINE STA. 37+00.00
SEE SHEET 677

STA. 32+37.41 @ CONST. E. 22ND ST. =
 STA. 1621+63.53 @ RAMP B6 =
 STA. 499+82.83 @ CONST. MIDTOWN CONNECTOR

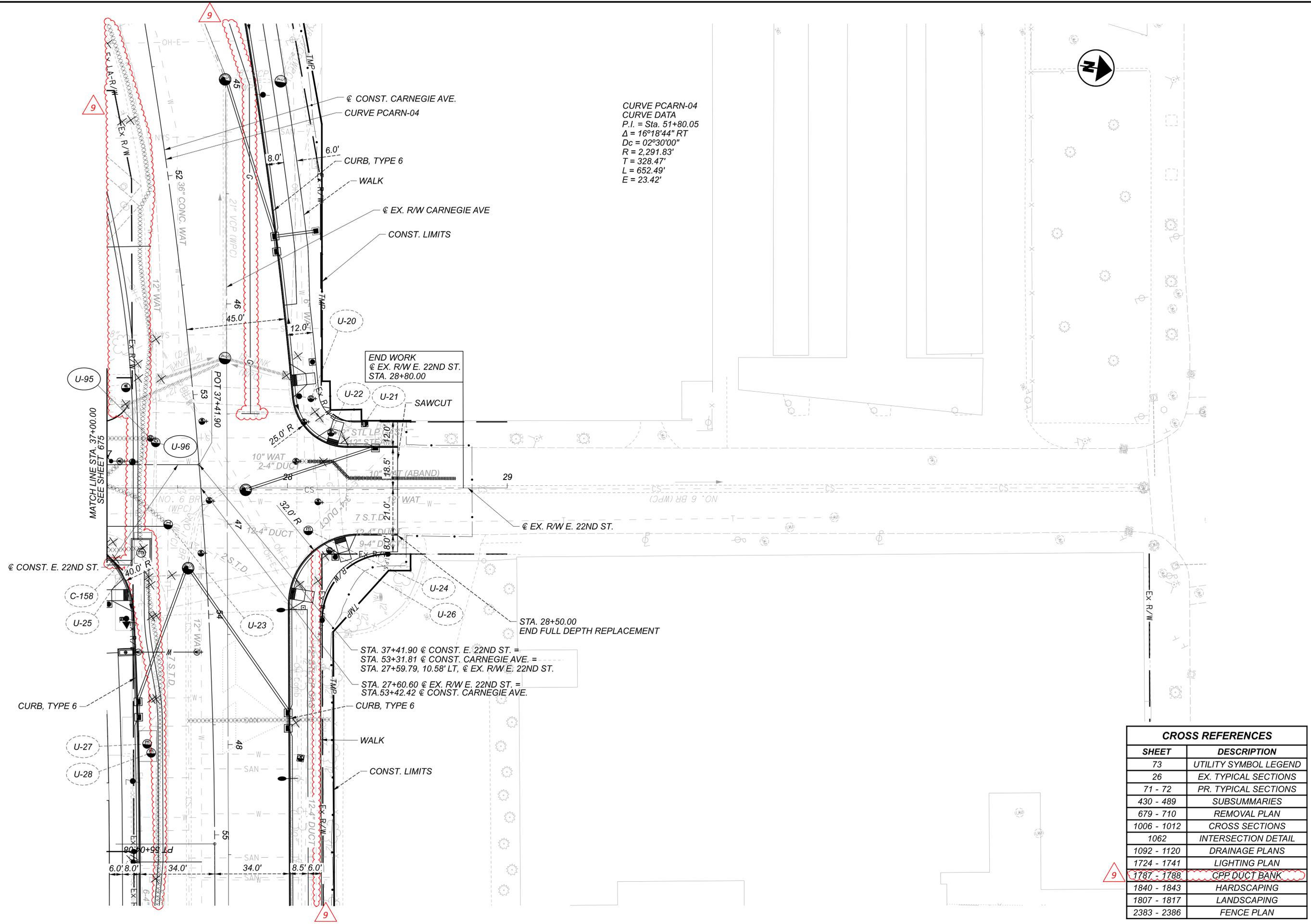
STRUCTURE NO 13
 CUY-90-1678
 SFN 1807839

CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
26	EX. TYPICAL SECTIONS
71 - 72	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1006 - 1012	CROSS SECTIONS
1067	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1409 - 1410	WATER WORK
1663	TRAFFIC SIGNAL PLAN
1724 - 1741	LIGHTING PLAN
1840 - 1843	HARDSCAPING
1787 - 1788	CPP DUCT BANK
1807 - 1817	LANDSCAPING
2182	CUY-90-1678 (BRIDGE 13)
2267	BUS SHELTER ANCHORAGE
2383 - 2386	FENCE PLAN



PLAN - E. 22ND ST.
 STA. 32+00.00 TO STA. 37+00.00

DESIGN AGENCY	Michael Baker International
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	675
TOTAL	2696

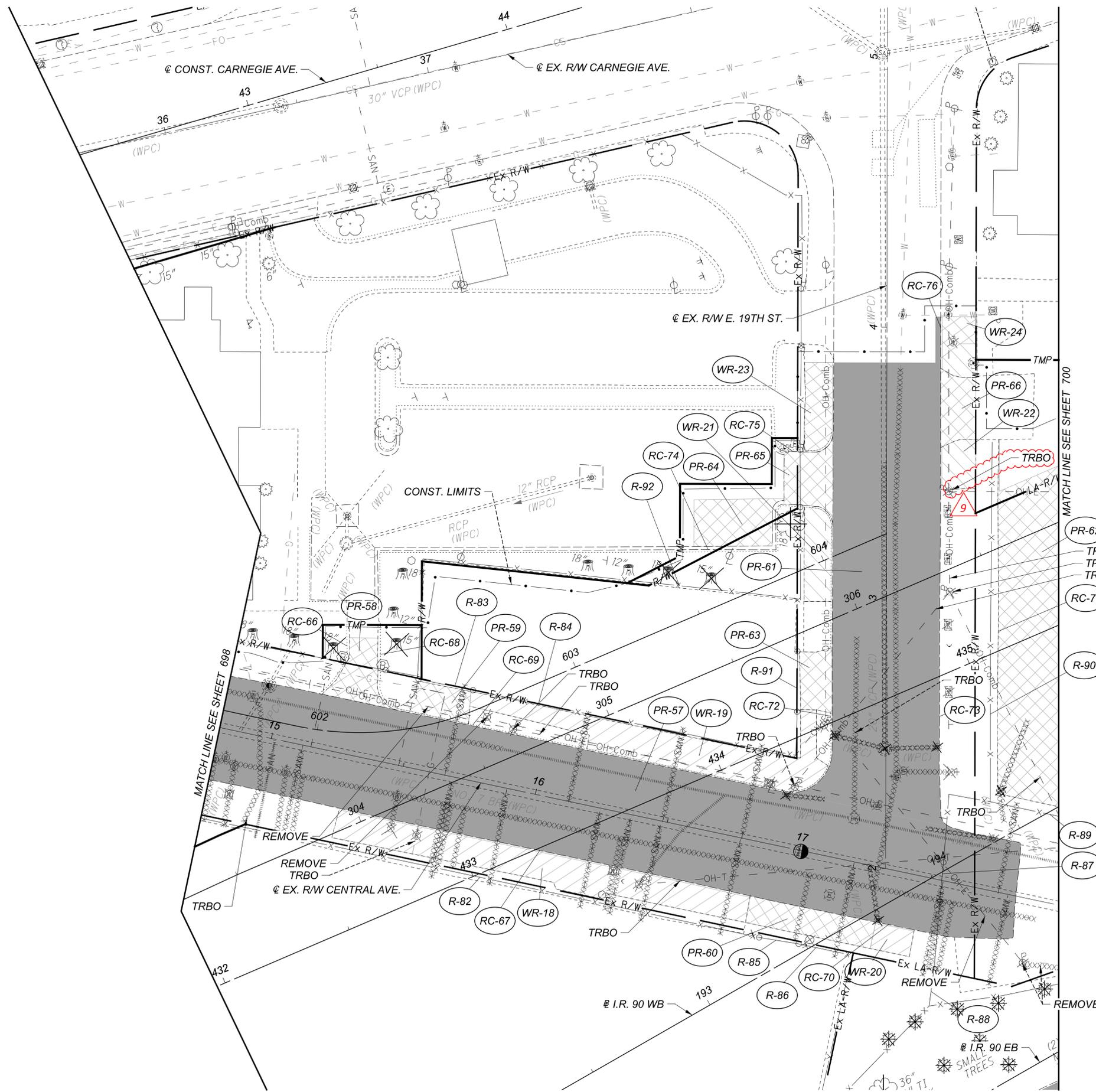


CROSS REFERENCES	
SHEET	DESCRIPTION
73	UTILITY SYMBOL LEGEND
26	EX. TYPICAL SECTIONS
71 - 72	PR. TYPICAL SECTIONS
430 - 489	SUBSUMMARIES
679 - 710	REMOVAL PLAN
1006 - 1012	CROSS SECTIONS
1062	INTERSECTION DETAIL
1092 - 1120	DRAINAGE PLANS
1724 - 1741	LIGHTING PLAN
1787 - 1788	CPP DUCT BANK
1840 - 1843	HARDSCAPING
1807 - 1817	LANDSCAPING
2383 - 2386	FENCE PLAN

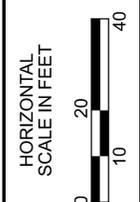


PLAN - E. 22ND ST.
 STA. 37+00.00 TO END

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	677
TOTAL	2696

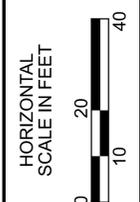
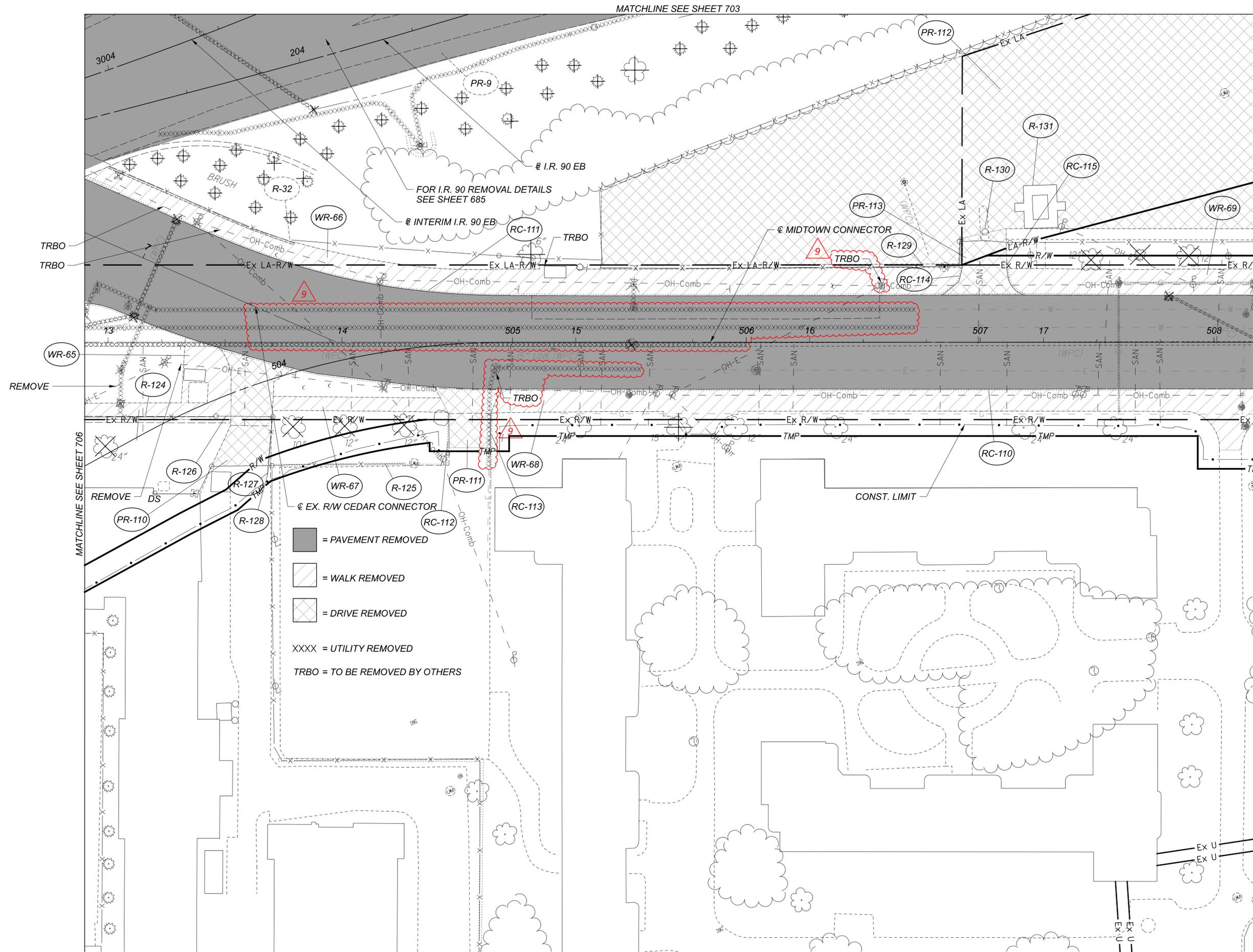


- = PAVEMENT REMOVED
- = WALK REMOVED
- = DRIVE REMOVED
- = UTILITY REMOVED
- TRBO = TO BE REMOVED BY OTHERS



REMOVAL PLAN
E. 19TH ST. / CENTRAL AVE.

DESIGN AGENCY	
DESIGNER	TJS
REVIEWER	BMV 04/30/24
PROJECT ID	82382
SHEET	TOTAL
699	2696



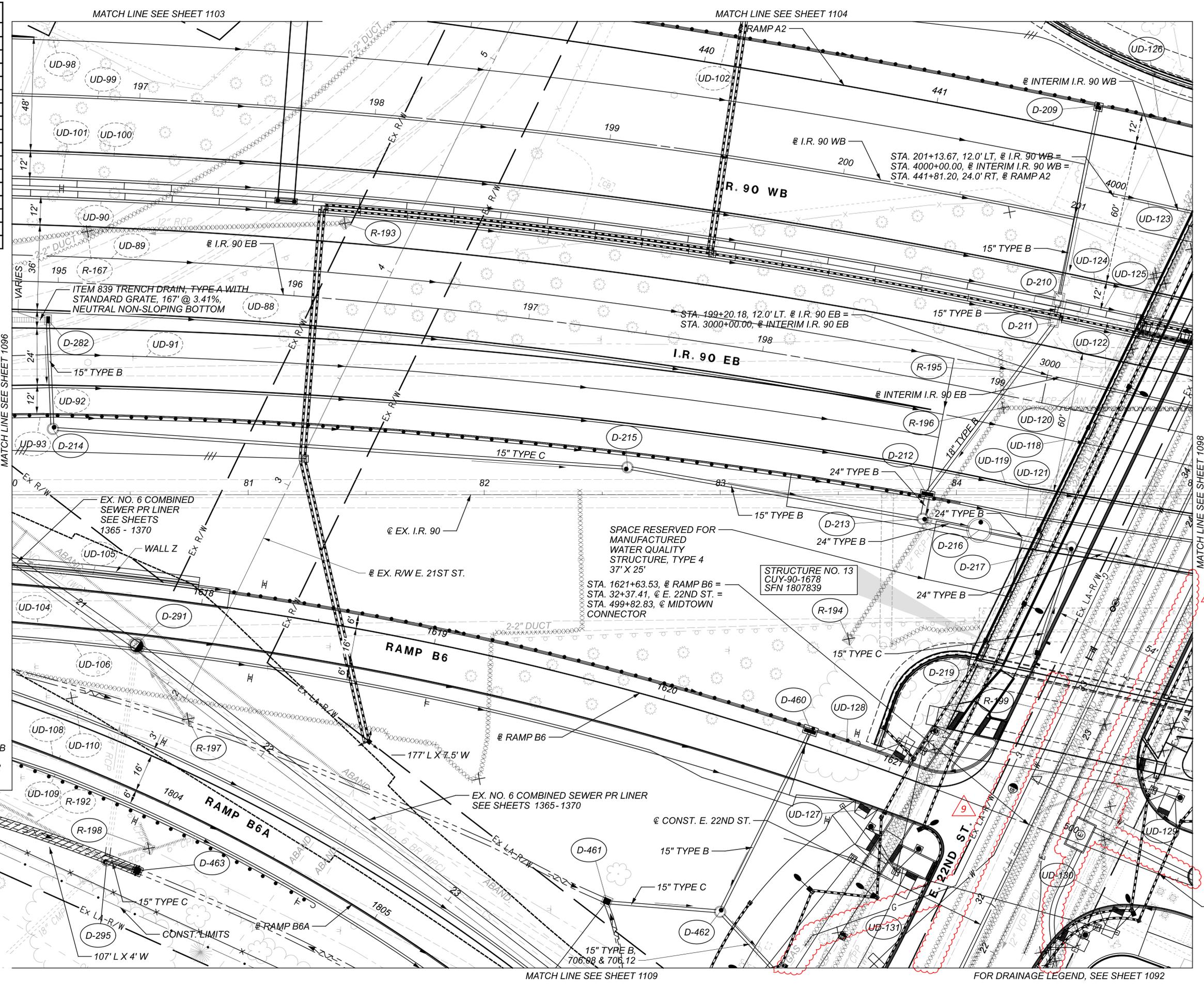
REMOVAL PLAN
 CEDAR CONNECTOR / CEDAR AVE.

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET	TOTAL
707	2696

CUY-90-16.28 (CCG3A)

MODEL: Drainage Plans I - Drainage Plans 5 PAPER SIZE: 34x22 (in.) DATE: 11/14/2025 TIME: 4:45:08 PM USER: MicaGalagher
 p:\mb-us-pw\entley.com\mb-us-pw-03\Projects\ODOT\Distric12\82382_400-Engineering\Drainage\Sheets\82382_DP0005.dgn

CROSS REFERENCES	
STRUCTURE	SHEET
D-209	1124
D-210	1124
D-211	1124
D-212	1124
D-213	1123
D-213	1124
D-214	1123
D-215	1123
D-216	1123
D-217	1123
D-219	1124
D-282	1123
D-460	1157
D-461	1157
D-462	1157
D-463	1158



HORIZONTAL SCALE IN FEET

DRAINAGE PLAN
SHEET 5 OF 28

DESIGN AGENCY

Michael Baker INTERNATIONAL

DESIGNER: BJT

REVIEWER: KGJ 05/22/24

PROJECT ID: 82382

SHEET TOTAL

1097 2696

MATCH LINE SEE SHEET 1096

ITEM 839 TRENCH DRAIN, TYPE A WITH STANDARD GRATE, 167' @ 3.41%, NEUTRAL NON-SLOPING BOTTOM

SPACE RESERVED FOR MANUFACTURED WATER QUALITY STRUCTURE, TYPE 4 37' X 25'

STA. 1621+63.53, @ RAMP B6 =
 STA. 32+37.41, @ E. 22ND ST. =
 STA. 499+82.83, @ MIDTOWN CONNECTOR

STRUCTURE NO. 13
 CUY-90-1678
 SFN 1807839

EX. NO. 6 COMBINED SEWER PR LINER SEE SHEETS 1365 - 1370

STA. 201+13.67, 12.0' LT, @ I.R. 90 WB =
 STA. 4000+00.00, @ INTERIM I.R. 90 WB =
 STA. 441+81.20, 24.0' RT, @ RAMP A2

STA. 199+20.18, 12.0' LT, @ I.R. 90 EB =
 STA. 3000+00.00, @ INTERIM I.R. 90 EB

FOR DRAINAGE LEGEND, SEE SHEET 1092

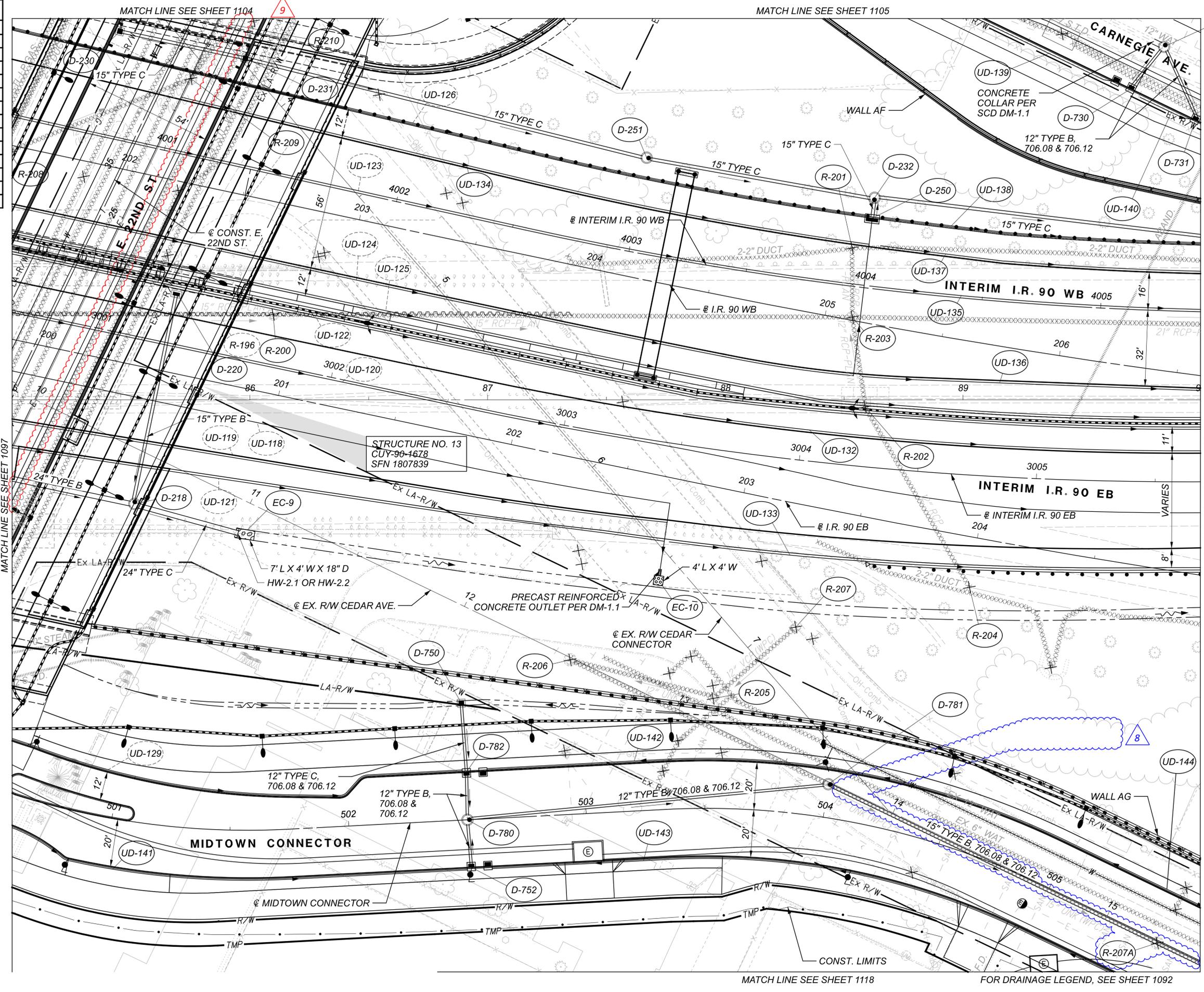
MATCH LINE SEE SHEET 1109

MATCH LINE SEE SHEET 1098

MATCH LINE SEE SHEET 1104

MATCH LINE SEE SHEET 1103

CROSS REFERENCES	
STRUCTURE	SHEET
D-218	1123
D-220	1124
D-230	1125
D-231	1125
D-232	1125
D-250	1127
D-251	1125
D-730	1145
D-731	1145
D-750	1157
D-752	1157
D-780	1158
D-782	1157



MATCH LINE SEE SHEET 1097

MATCH LINE SEE SHEET 1099

MATCH LINE SEE SHEET 1105

MATCH LINE SEE SHEET 1118



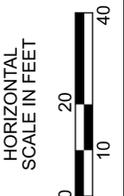
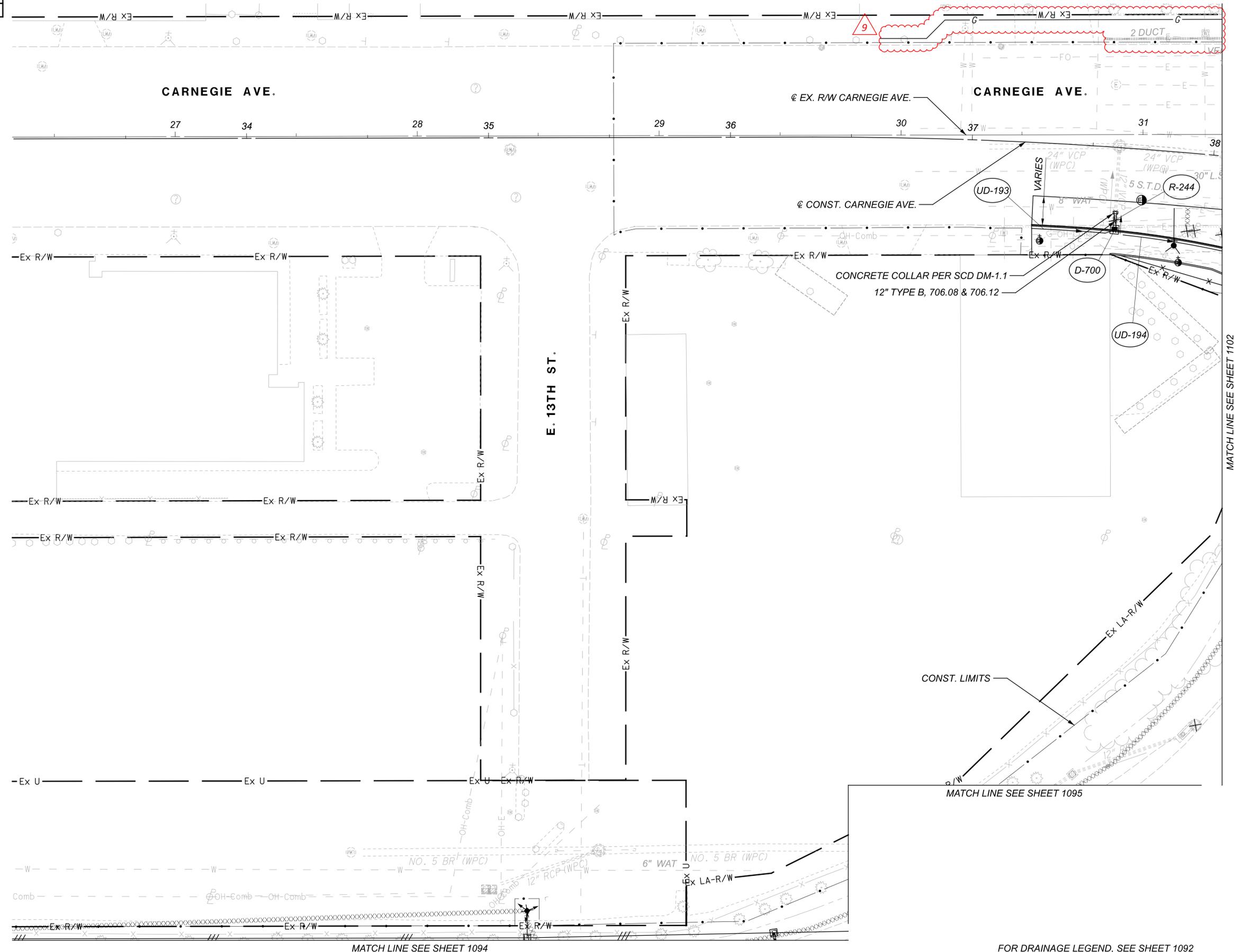
HORIZONTAL SCALE IN FEET
0 20 40

DRAINAGE PLAN
SHEET 6 OF 28

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	BT
REVIEWER	KGJ 05/22/24
PROJECT ID	82382
SHEET TOTAL	1098 2696

FOR DRAINAGE LEGEND, SEE SHEET 1092

CROSS REFERENCES	
STRUCTURE	SHEET
D-700	1141



DRAINAGE PLAN
SHEET 9 OF 28

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

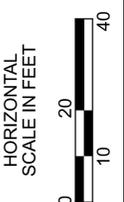
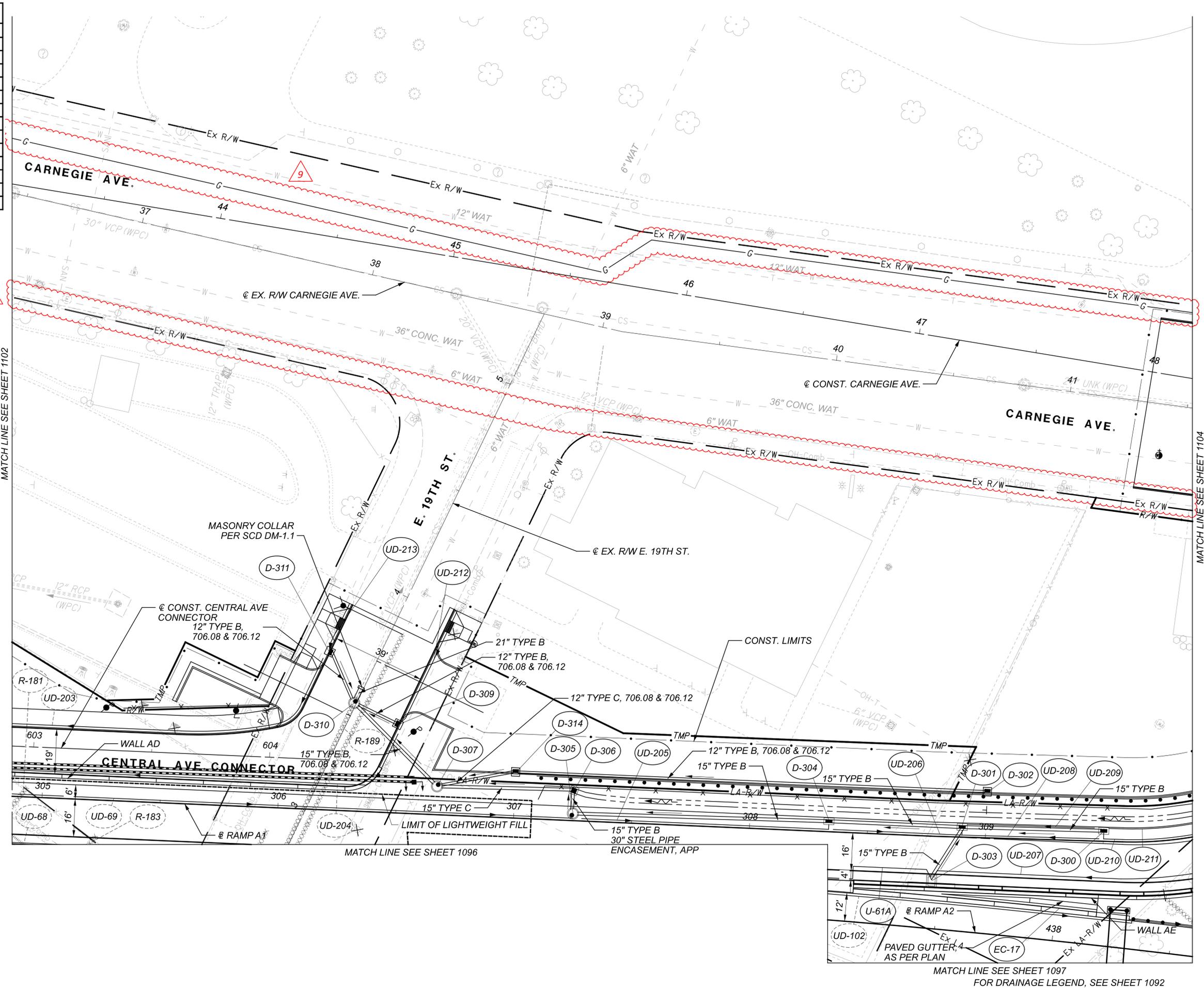
DESIGNER
 BJT

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
1101	2696

CROSS REFERENCES	
STRUCTURE	SHEET
D-300	1130
D-301	1130
D-302	1130
D-303	1131
D-304	1130
D-305	1130
D-306	1130
D-307	1130
D-307	1130
D-309	1131
D-310	1130
D-311	1131
D-314	1130



DRAINAGE PLAN
SHEET 11 OF 28

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

DESIGNER
 BJT

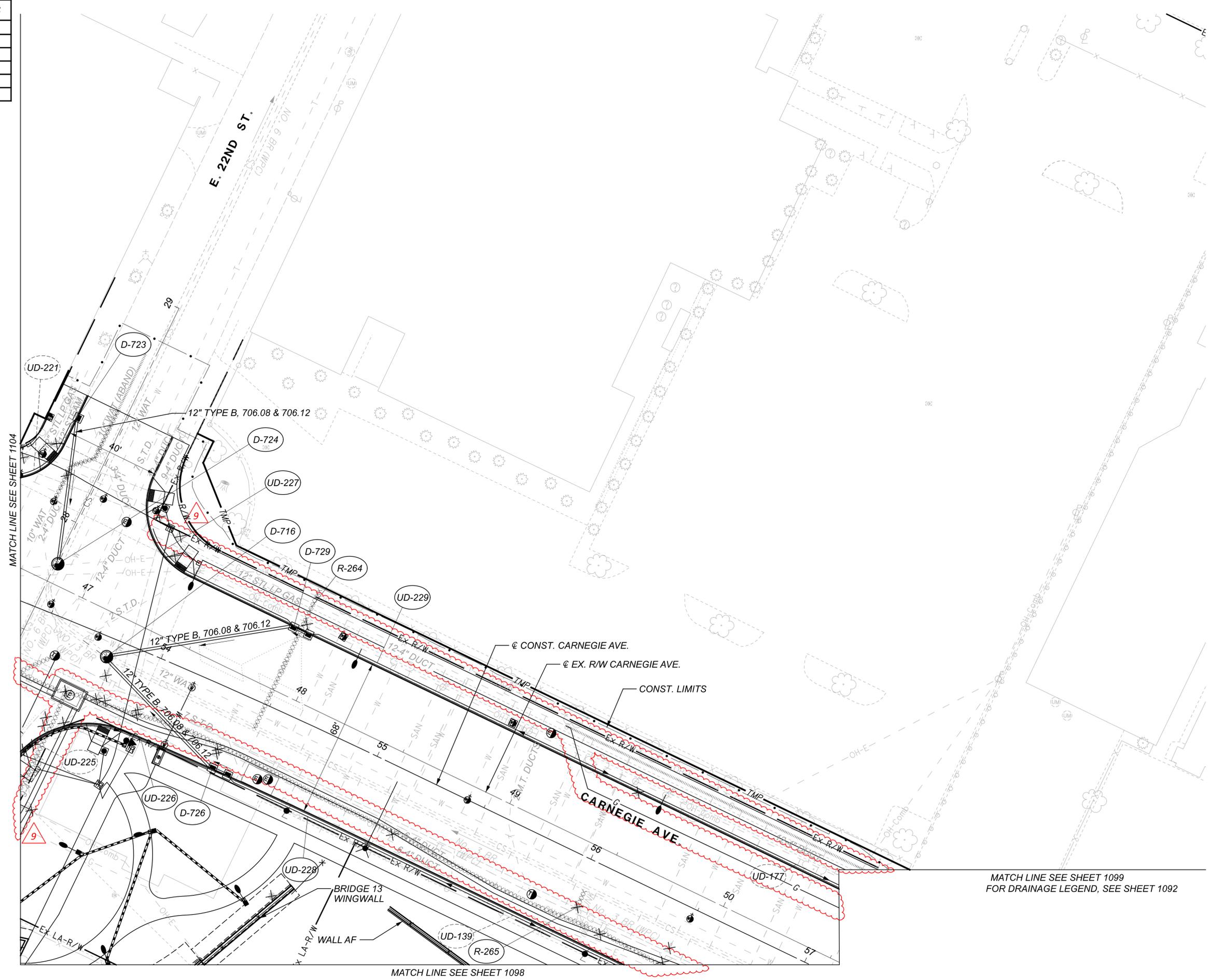
REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
1103	2696

MATCH LINE SEE SHEET 1097
 FOR DRAINAGE LEGEND, SEE SHEET 1092

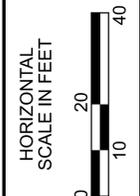
CROSS REFERENCES	
STRUCTURE	SHEET
D-716	1143
D-723	1143
D-724	1143
D-726	1143
D-729	1143



MATCH LINE SEE SHEET 1104

MATCH LINE SEE SHEET 1098

MATCH LINE SEE SHEET 1099
 FOR DRAINAGE LEGEND, SEE SHEET 1092



DRAINAGE PLAN
SHEET 13 OF 28

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

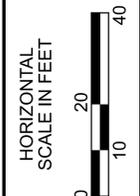
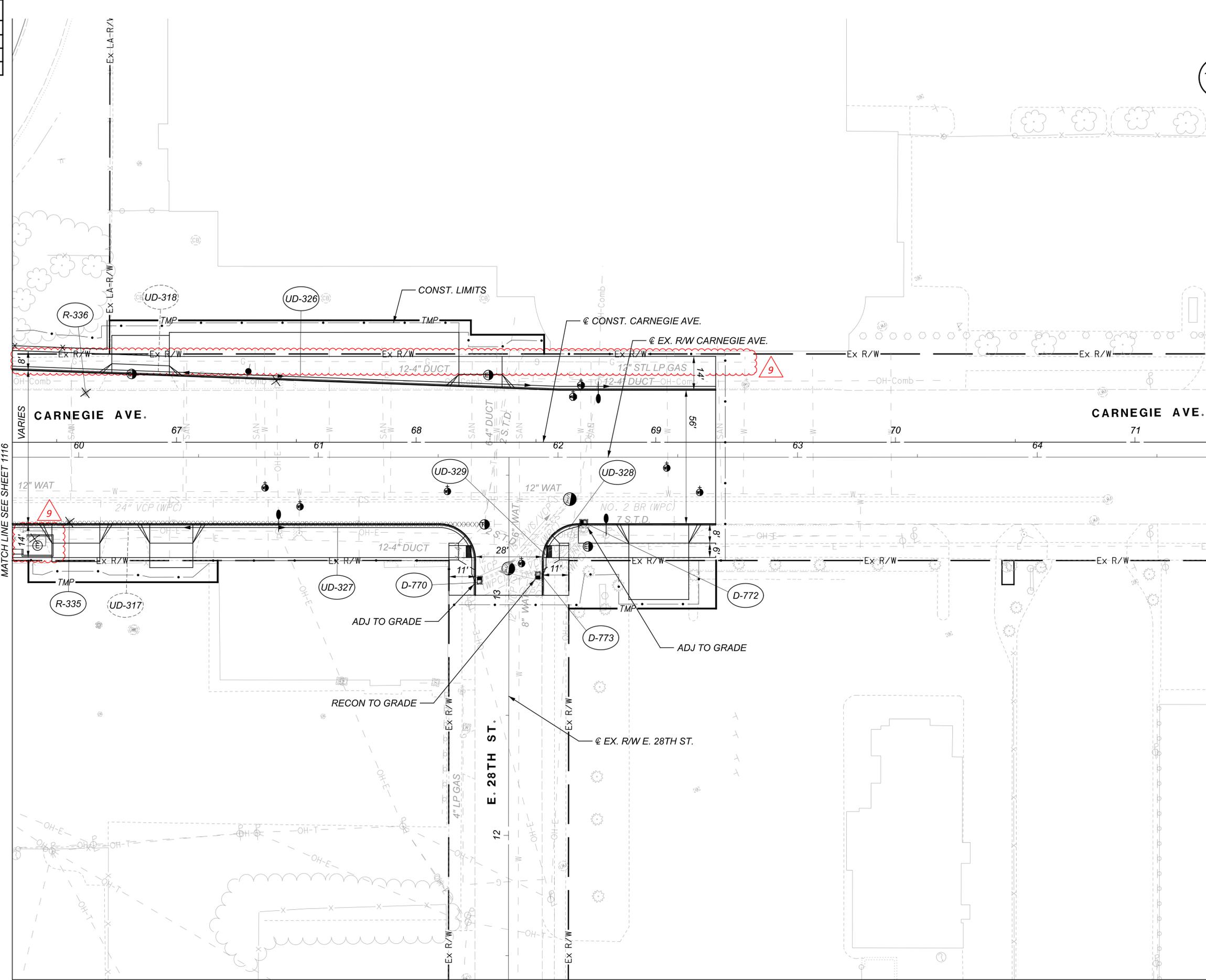
DESIGNER
 BJT

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
1105	2696

CROSS REFERENCES	
STRUCTURE	SHEET
D-770	1147
D-772	1147
D-773	1147



DRAINAGE PLAN
SHEET 25 OF 28

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

DESIGNER
 BJT

REVIEWER
 KGJ 05/22/24

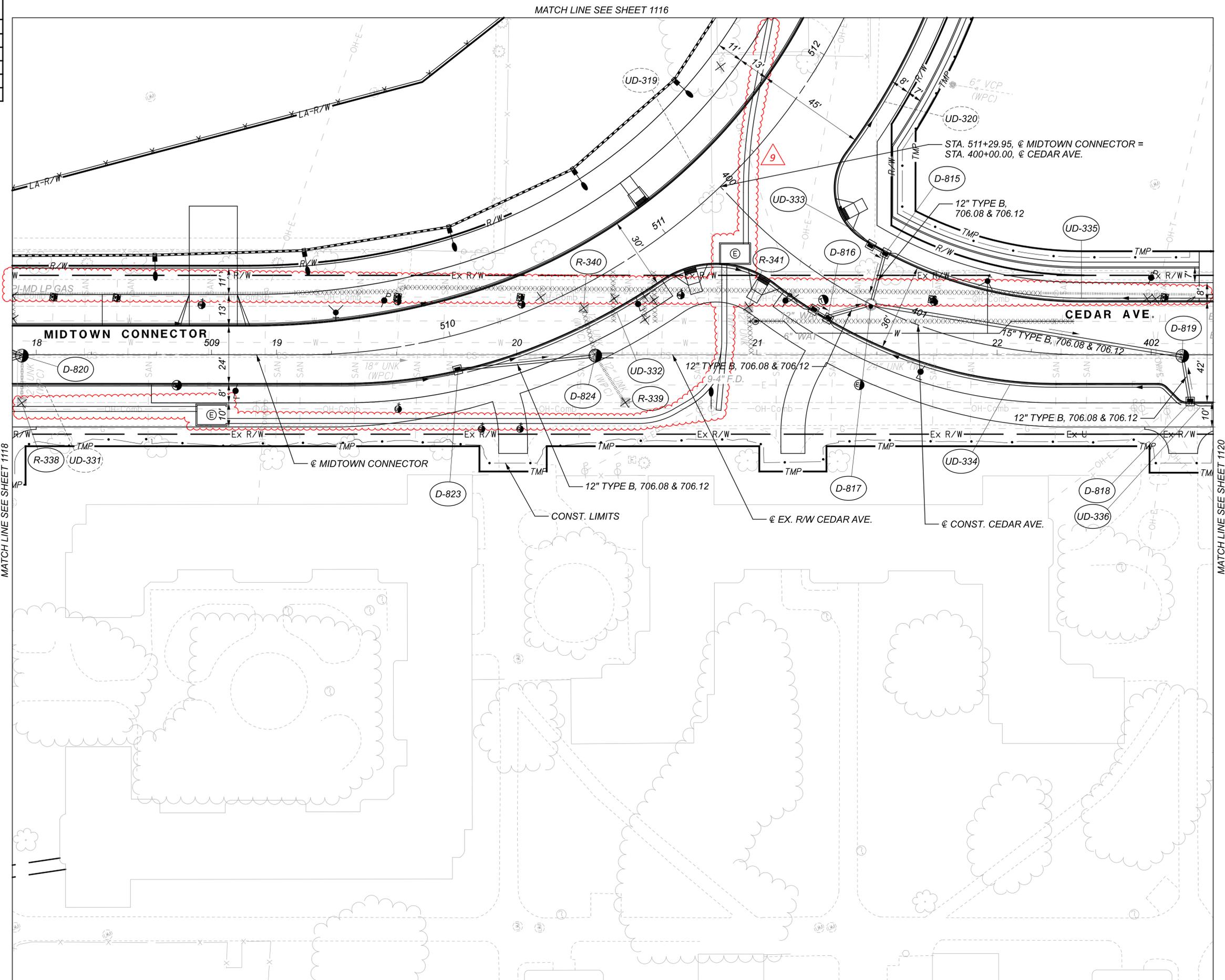
PROJECT ID
 82382

SHEET	TOTAL
1117	2696

MATCH LINE SEE SHEET 1120

FOR DRAINAGE LEGEND, SEE SHEET 1092

CROSS REFERENCES	
STRUCTURE	SHEET
D-815	1156
D-816	1156
D-817	1156
D-818	1156
D-823	1148



DRAINAGE PLAN
SHEET 27 OF 28

DESIGN AGENCY

Michael Baker
 INTERNATIONAL

DESIGNER
 BJT

REVIEWER
 KGJ 05/22/24

PROJECT ID
 82382

SHEET	TOTAL
1119	2696

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD CONSTRUCTION DRAWINGS:

- VPF-1-90 REVISED 7/21/2023
- DM-1.1 REVISED 1/17/2025

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

- 800 DATED SEE TITLE SHEET

REFER TO THE FOLLOWING SUPPLEMENT:

- 1083 DATED 1/20/2017

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS", 9TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE ODOT BRIDGE DESIGN MANUAL, 2020 (DATED 07-21-23).

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI
(CONCRETE FACING, DRILLED SHAFT CAP & FENCE WALL)

CONCRETE CLASS QC SCC, WITH 3/8 IN MAX. AGGREGATE SIZE:
COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFT)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

PERMANENT STEEL CASING - ASTM A252 GRADE 3 - MINIMUM YIELD STRESS 45 KSI

SEQUENCE OF CONSTRUCTION

CONSTRUCT WALL AF DURING MOT PHASE 2.

SEE MAINTENANCE OF TRAFFIC NOTES FOR ADDITIONAL PHASES AND INFORMATION

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)

APPLY A PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. PROVIDE A COATING THAT MEETS THE REQUIREMENTS LISTED BELOW. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

- A. THE MATERIAL SHALL BE A SINGLE COMPONENT, RTV (ROOM TEMPERATURE VULCANIZED), NEUTRAL MOISTURE CURE, PERMANENT (NON-SACRIFICIAL), TYPE III (WATER CLEANABLE) POLYSILOXANE (SILICONE) ANTI-GRAFFITI COATING, FREE OF ANY WAXES, EPOXIES, OR POLYURETHANE COMPONENTS.
- B. THE COATING SHALL BE A ONE COAT SYSTEM (NO PRIMER) CAPABLE OF BEING SPRAY APPLIED TO A DRY FILM THICKNESS OF 15 MILS (375 MICRONS) WITHOUT RUNS OR SAGS (MULTIPLE COAT APPLICATION ACCEPTABLE FOR BRUSH/ROLLER USAGE AND PRIMER USAGE ACCEPTABLE FOR SPECIALTY SUBSTRATES SUCH AS GALVANIZED METAL).
- C. THE COATING SHALL EMIT LESS THAN 300 G/L (2.5 POUNDS PER GALLON) OF VOLATILE ORGANIZE COMPOUNDS (EPA METHOD 24).
- D. THE COATING SHALL MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:
 - 1. CLEANABILITY LEVEL 1 (GRAFFITI COMPLETELY REMOVED WITH COLD WATER POWER WASH) AS PER ASTM D7089 WITH LOW PRESSURE (1200 PSI) COLD WATER WASH AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM D4587.
 - 2. GRAFFITI RESISTANCE LESS THAN 7.5 AS PER ASTM D6578 AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM 4578.
 - 3. NO SIGNS OF GRAFFITI OR GRAFFITI STAINING AND MUST BE INTACT AND EXHIBIT NO SIGNS OF STREAKING, CRACKING, PINHOLING, DISCOLORING, OR OTHER VISIBLE COATING DEGRADATION UPON CASUAL OBSERVATION WHEN TESTED IN ACCORDANCE WITH TXDOT TEX 890-B, TYPE III METHOD.
 - 4. BREATHABILITY OF 10 PERMS (+/- 3) PER ASTM D1653 USING "WET CUP METHOD".
 - 5. ELONGATION AT BREAK GREATER THAN 100% AS PER ASTM D412 (USING DIE "D").
 - 6. ADHESION RATING OF "8 - DIFFICULT TO REMOVE" AS PER ASTM D6677 (ADHESION BY KNIFE).

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN

SEAL ALL EXPOSED SURFACES INCLUDING THE CAST IN PLACE CONCRETE FACING SHOWN IN THE PLANS WITH AN EPOXY-URETHANE SEALER ACCORDING TO C&MS 512. THE FOLLOWING COLOR SHALL BE USED FOR PAINTING AND SEALING STRUCTURAL ELEMENTS:

6	COPING SEALER:	"ALPACA"	7022
	WALL FACING SEALER:	SEE WALL AESTHETIC DETAILS	
	PARAPET:	"ALPACA"	7022

ALL COLOR NAME AND NUMBER REFERENCES ARE TAKEN FROM THE SHERWIN WILLIAMS COLOR PALATE. THE CONTRACTOR MAY SUBSTITUTE SIMILAR COLORS FROM ALTERNATIVE SUPPLIER'S COLOR PALATE.

THE ADDITIONAL MATERIAL AND LABOR REQUIRED TO SEAL THE FORM LINER RELIEF SHALL BE INCLUDED IN THIS ITEM. TO ACCOUNT FOR THE SURFACE VARIATIONS DUE TO THE FORM LINERS, AN EXTRA 20 PERCENT HAS BEEN ADDED TO THE SEALING QUANTITIES FOR THE PURPOSE OF ESTIMATING.

ITEM 518 - PREFABRICATED GEOCOMPOSITE DRAIN

THIS WORK CONSISTS OF FURNISHING AND PLACING PREFABRICATED GEOCOMPOSITE DRAIN (PGD) AGAINST THE CONCRETE WALL FACING.

FURNISH PGD CONSISTING OF A DRAINAGE CORE WITH A GEOTEXTILE FABRIC BONDED TO AT LEAST ONE SIDE. USE CORE MATERIAL THAT CONSISTS OF A STABLE, POLYMER PLASTIC MATERIAL WITH A CUSPATED OR GEONET STRUCTURE. THE CORE MATERIAL SHALL HAVE SUFFICIENT FLEXIBILITY TO WITHSTAND BENDING AND HANDLING DURING INSTALLATION WITHOUT DAMAGE. FURNISH GEOTEXTILE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS FORMED INTO A WOVEN OR NON-WOVEN FABRIC. FURNISH PGD CONFORMING TO THE FOLLOWING REQUIREMENTS. FURNISH MANUFACTURER'S CERTIFIED TEST DATA.

	PROPERTY	TEST METHOD	VALUE
CORE	THICKNESS	ASTM D 5199	0.4 INCH
	COMPRESSIVE STRENGTH	ASTM D 1621	13,650 PSF MIN.
	FLOW RATE	ASTM D 4716	9 TO 25 GPM/FT
	APPARENT OPENING SIZE	ASTM D 4751	0.3 MM MAX.
FABRIC	FLOW RATE	ASTM D 4491	40 GPM/SQ.FT. MIN.
	GRAB TENSILE STRENGTH	ASTM D 4632	90 LBS MIN.
	CBR PUNCTURE	ASTM D 6241	65 LBS MIN.

PLACE PGD BETWEEN THE DRILLED SHAFTS. PLACE THE SIDE FACED WITH GEOTEXTILE AGAINST THE DRILLED SHAFTS, FACING TOWARDS THE RETAINED GROUND, AND SECURE THE PGD TO THE SACRIFICIAL PLYWOOD FORMS BETWEEN THE DRILLED SHAFTS.

SPLICE ABUTTING SECTIONS TOGETHER BY OVERLAPPING THE GEOTEXTILE FLAP (IF PROVIDED) ON ONE SECTION WITH THE ADJACENT SECTION OF PGD. OVERLAP THE GEOTEXTILE IN A SHINGLED OVERLAP SO THAT THE UPPER GEOTEXTILE IS ON TOP OF THE LOWER GEOTEXTILE. IF A GEOTEXTILE FLAP IS NOT PROVIDED, COVER THE SEAM WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC CENTERED OVER THE SEAM AND SECURED IN PLACE USING 3-INCH WIDE WATERPROOF PLASTIC TAPE.

SEAL ALL EXPOSED EDGES OF THE CORE MATERIAL TO PREVENT SOIL INTRUSION. SEAL EXPOSED EDGES BY FOLDING THE GEOTEXTILE FLAPS OVER AND AROUND THE PGD OR, IF A FLAP IS NOT PROVIDED, COVERING THE EXPOSED EDGE WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC, TAPING THE STRIP TO THE PGD GEOTEXTILE 8 INCHES FROM THE EXPOSED EDGE, AND FOLDING THE REMAINING 4 INCHES OVER AND AROUND THE PGD. SECURE LOOSE EDGES OF THE GEOTEXTILE FABRIC WITH 3-INCH WIDE WATERPROOF PLASTIC TAPE.

REPAIR ANY DAMAGE TO THE GEOTEXTILE FABRIC BY COVERING WITH A PATCH WHICH OVERLAPS THE DAMAGED AREA AND EXTENDS AT LEAST 6 INCHES BEYOND THE EDGE OF THE DAMAGED AREA. TAPE THE EDGES OF THE PATCH IN PLACE USING 3 INCH WIDE WATERPROOF PLASTIC TAPE. IF THE CORE OF THE PGD IS DAMAGED, REPLACE IT WITH A NEW SECTION OF PGD SPLICE AS DESCRIBED ABOVE.

**ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, AS PER PLAN
ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN**

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL DRILLED SHAFTS AS DETAILED IN THE PLANS IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS SECTION 524, AND WITH THE ADDITIONAL REQUIREMENTS DEFINED BELOW.

ANTICIPATED DRILLED SHAFT DEFLECTIONS:

TANGENT DRILLED SHAFTS ("SHAFT", "SHAFTS") ARE INCORPORATED AS WALLS IN VARIOUS STRUCTURAL ELEMENTS FOR THIS BRIDGE. AS DESIGNED AND DETAILED THE SHAFTS ARE EXPECTED TO DEFLECT UNDER THE APPLIED PERMANENT LOADS (DC, DW, EP, WA) AND TRANSIENT LOADS (LL, LS, TU) AT THE SERVICE LIMIT STATE. MEASURES FOR ACCOMODATING THESE DEFLECTIONS ARE DETAILED BELOW.

THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN BEAM SEAT ELEVATION FOR SHAFTS INCORPORATED IN ABUTMENTS. THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN TOP OF CAP ELEVATION FOR SHAFTS INCORPORATED IN RETAINING WALLS. IN BOTH CASES THE FINISHED TOP OF SHAFT IS LOWER THAN THE SHAFT HEAD ELEVATION.

THE ANTICIPATED DEFLECTION AT THE SHAFT HEAD ELEVATION RELATIVE TO THE DREDGE LINE ELEVATION DUE TO PERMANENT LOADS ARE AS FOLLOWS:

WALL AF	6.00 INCHES	SHAFTS AF29 THROUGH AF66 ONLY
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DESIGN ASSUMPTIONS:

BEHAVIOR OF THE DRILLED SHAFTS AS DESCRIBED ABOVE IS PREDICATED UPON THE FOLOWING DESIGN ASSUMPTIONS:

- DESIGN HEIGHT OF DRILLED SHAFT IS THE DISTANCE FROM THE SHAFT HEAD ELEVATION TO THE DREDGE LINE ELEVATION
- PERMANENT LOAD DEFLECTIONS ARE ASSUMED TO OCCUR FOLLOWING REMOVAL OF SOIL IN FRONT OF THE TANGENT SHAFT WALLS
- ADDITIONAL ASSUMPTIONS AND CONSTRAINTS ARE DETAILED IN THE PLANS.

DREDGE LINE ELEVATIONS:

SHAFTS AF01 THROUGH AF58:	SLOPING GROUND 42 INCHES BELOW FINAL GRADE AT NEAR FACE OF WALL.
SHAFTS AF58 THROUGH AF66:	ELEV. 631.0 FOR DRAINAGE STRUCTURE EXCAVATION.

DRILLED SHAFT LOCATION SURVEY:

THE CORRECT LOCATION OF SHAFT IS CRITICAL TO ESTABLISHING AND MAINTAINING THE STRUCTURE GEOMETRY. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A OHIO REGISTERED PROFESSIONAL SURVEYOR ("THE SURVEYOR") TO ESTABLISH, MAINTAIN AND VERIFY HORIZONTAL AND VERTICAL SHAFT GEOMETRY. THE SURVEYOR SHALL BE READILY AVAILABLE TO ESTABLISH GEOMETRIC CONTROL AND PERFORM THE SURVEYS REQUIRED BELOW.

CONTRACTOR'S INSTALLATION PLAN:

THE CONTRACTOR SHALL PROVIDE AN INSTALLATION PLAN AS REQUIRED BY ODOT C&MS SECTION 524.03. THE INSTALLATION PLAN SHALL ALSO INCLUDE:

- CONTRACTOR'S PROPOSED METHODS TO MAINTAIN LOCATION AND ALIGNMENT OF SHAFTS
- CONTRACTOR'S PROPOSED METHODS FOR PERFORMING THE DRILLED SHAFT LOCATION SURVEY

COSTRUCTION CONSTRAINTS:

THE CONTRACTOR IS ADVISED THAT THE PROPOSED DRILLED SHAFT INSTALLATIONS MAY REQUIRE ADVANCING SHAFTS THROUGH EXISTING PILES. ADDITIONAL INFORMATION AND NOTES REGARDING POSSIBLE CONFLICTS ARE PROVIDED IN THE PLANS.

DO NOT EXCAVATE WITHIN THREE DIAMETERS OF DRILLED SHAFTS WITH NEW CONCRETE UNTIL AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.

MATERIALS:

CONCRETE AND REINFORCING STEEL FOR DRILLED SHAFTS SHALL CONFORM TO ODOT C&MS SECTION 524.02.

A SELF CONSOLIDATING CONCRETE MIX SHALL BE INCORPORATED

THE MAXIMUM COARSE AGGREGATE SIZE SHALL BE: 3/4"

PERMANENT STEEL CASINGS SHALL BE ASTM A252 GRADE 3 WITH A MINIMUM YIELD STRESS OF 45 KSI. CASING SECTION LENGTHS SHALL BE MAXIMIZED TO MINIMIZE THE NUMBER OF FIELD SPLICE LOCATIONS. SPLICES SHALL CONFORM TO C&MS 507.09. THE USE OF SPIRAL WELDED PIPE IS PERMITTED.

CUY-90-16.28 (CCG3A)

MODEL: Sheet (1 of 2) PAPER SIZE: 34x22 (in.) DATE: 11/15/2025 TIME: 11:39:31 AM USER: Shane Weiss
pvc:\mb-us-pw-bentley.com\mb-us-pw-03\Documents\Cleveland_OH01_P\Projects\ODOT\District12\28232400-Eng\Engineering\Structures\WALL_AF_Sheets\82382_AF_WN001.dgn

WALL GENERAL NOTES (1 OF 2)
WALL AF
ALONG NORTH SIDE OF I.R. 90 NEAR E. 22ND ST. AND CARNEGIE AVE.

SFN	N/A
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
SW/GZ	JC/SD
REVIEWER	
LPC	05-09-24
PROJECT ID	82382
SUBSET	TOTAL
2	11
SHEET	TOTAL
1219	2696

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD CONSTRUCTION DRAWINGS:

- VPF-1-90 REVISED 7/21/2023
- DM-1.1 REVISED 1/17/2025

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

800 DATED SEE TITLE SHEET

REFER TO THE FOLLOWING SUPPLEMENT:

1083 DATED 1/20/2017

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS", 9TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE ODOT BRIDGE DESIGN MANUAL, 2020 (DATED 07-21-23).

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI
(CONCRETE FACING, DRILLED SHAFT CAP & FENCE WALL)

CONCRETE CLASS QC SCC, WITH 3/8" IN MAX. AGGREGATE SIZE:
COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFT)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

PERMANENT STEEL CASING - ASTM A252 GRADE 3 - MINIMUM YIELD STRESS 45 KSI

SEQUENCE OF CONSTRUCTION:

CONSTRUCT WALL AH DURING MOT PHASE 4.

SEE MAINTENANCE OF TRAFFIC NOTES FOR ADDITIONAL PHASES AND INFORMATION

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)

APPLY A PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. PROVIDE A COATING THAT MEETS THE REQUIREMENTS LISTED BELOW. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

- A. THE MATERIAL SHALL BE A SINGLE COMPONENT, RTV (ROOM TEMPERATURE VULCANIZED), NEUTRAL MOISTURE CURE, PERMANENT (NON-SACRIFICIAL), TYPE III (WATER CLEANABLE) POLYSILOXANE (SILICONE) ANTI-GRAFFITI COATING, FREE OF ANY WAXES, EPOXIES, OR POLYURETHANE COMPONENTS.
- B. THE COATING SHALL BE A ONE COAT SYSTEM (NO PRIMER) CAPABLE OF BEING SPRAY APPLIED TO A DRY FILM THICKNESS OF 15 MILS (375 MICRONS) WITHOUT RUNS OR SAGS (MULTIPLE COAT APPLICATION ACCEPTABLE FOR BRUSH/ROLLER USAGE AND PRIMER USAGE ACCEPTABLE FOR SPECIALTY SUBSTRATES SUCH AS GALVANIZED METAL).
- C. THE COATING SHALL EMIT LESS THAN 300 G/L (2.5 POUNDS PER GALLON) OF VOLATILE ORGANIZE COMPOUNDS (EPA METHOD 24).
- D. THE COATING SHALL MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:
 - 1. CLEANABILITY LEVEL 1 (GRAFFITI COMPLETELY REMOVED WITH COLD WATER POWER WASH) AS PER ASTM D7089 WITH LOW PRESSURE (1200 PSI) COLD WATER WASH AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM D4587.
 - 2. GRAFFITI RESISTANCE LESS THAN 7.5 AS PER ASTM D6578 AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM 4578.
 - 3. NO SIGNS OF GRAFFITI OR GRAFFITI STAINING AND MUST BE INTACT AND EXHIBIT NO SIGNS OF STREAKING, CRACKING, PINHOLING, DISCOLORING, OR OTHER VISIBLE COATING DEGRADATION UPON CASUAL OBSERVATION WHEN TESTED IN ACCORDANCE WITH TXDOT TEX 890-B, TYPE III METHOD.
 - 4. BREATHABILITY OF 10 PERMS (+/- 3) PER ASTM D1653 USING "WET CUP METHOD".
 - 5. ELONGATION AT BREAK GREATER THAN 100% AS PER ASTM D412 (USING DIE "D").
 - 6. ADHESION RATING OF "8 - DIFFICULT TO REMOVE" AS PER ASTM D6677 (ADHESION BY KNIFE).

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN

SEAL ALL EXPOSED SURFACES INCLUDING THE CAST IN PLACE CONCRETE FACING SHOWN IN THE PLANS WITH AN EPOXY-URETHANE SEALER ACCORDING TO C&MS 512. THE FOLLOWING COLOR SHALL BE USED FOR PAINTING AND SEALING STRUCTURAL ELEMENTS:

6	COPING SEALER:	"ALPACA"	7022
	WALL FACING SEALER:	SEE WALL AESTHETIC DETAILS	
	PARAPET:	"ALPACA"	7022

ALL COLOR NAME AND NUMBER REFERENCES ARE TAKEN FROM THE SHERWIN WILLIAMS COLOR PALATE. THE CONTRACTOR MAY SUBSTITUTE SIMILAR COLORS FROM ALTERNATIVE SUPPLIER'S COLOR PALATE.

THE ADDITIONAL MATERIAL AND LABOR REQUIRED TO SEAL THE FORM LINER RELIEF SHALL BE INCLUDED IN THIS ITEM. TO ACCOUNT FOR THE SURFACE VARIATIONS DUE TO THE FORM LINERS, AN EXTRA 20 PERCENT HAS BEEN ADDED TO THE SEALING QUANTITIES FOR THE PURPOSE OF ESTIMATING.

ITEM 518 - PREFABRICATED GEOCOMPOSITE DRAIN

THIS WORK CONSISTS OF FURNISHING AND PLACING PREFABRICATED GEOCOMPOSITE DRAIN (PGD) AGAINST THE CONCRETE WALL FACING.

FURNISH PGD CONSISTING OF A DRAINAGE CORE WITH A GEOTEXTILE FABRIC BONDED TO AT LEAST ONE SIDE. USE CORE MATERIAL THAT CONSISTS OF A STABLE, POLYMER PLASTIC MATERIAL WITH A CUSPATED OR GEONET STRUCTURE. THE CORE MATERIAL SHALL HAVE SUFFICIENT FLEXIBILITY TO WITHSTAND BENDING AND HANDLING DURING INSTALLATION WITHOUT DAMAGE. FURNISH GEOTEXTILE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS FORMED INTO A WOVEN OR NON-WOVEN FABRIC. FURNISH PGD CONFORMING TO THE FOLLOWING REQUIREMENTS. FURNISH MANUFACTURER'S CERTIFIED TEST DATA.

	PROPERTY	TEST METHOD	VALUE
CORE	THICKNESS	ASTM D 5199	0.4 INCH
	COMPRESSIVE STRENGTH	ASTM D 1621	13,650 PSF MIN.
	FLOW RATE	ASTM D 4716	9 TO 25 GPM/FT
FABRIC	APPARENT OPENING SIZE	ASTM D 4751	0.3 MM MAX.
	FLOW RATE	ASTM D 4491	40 GPM/SQ.FT. MIN.
	GRAB TENSILE STRENGTH	ASTM D 4632	90 LBS MIN.
	CBR PUNCTURE	ASTM D 6241	65 LBS MIN.

PLACE PGD BETWEEN THE DRILLED SHAFTS. PLACE THE SIDE FACED WITH GEOTEXTILE AGAINST THE DRILLED SHAFTS, FACING TOWARDS THE RETAINED GROUND, AND SECURE THE PGD TO THE SACRIFICIAL PLYWOOD FORMS BETWEEN THE DRILLED SHAFTS.

SPLICE ABUTTING SECTIONS TOGETHER BY OVERLAPPING THE GEOTEXTILE FLAP (IF PROVIDED) ON ONE SECTION WITH THE ADJACENT SECTION OF PGD. OVERLAP THE GEOTEXTILE IN A SHINGLED OVERLAP SO THAT THE UPPER GEOTEXTILE IS ON TOP OF THE LOWER GEOTEXTILE. IF A GEOTEXTILE FLAP IS NOT PROVIDED, COVER THE SEAM WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC CENTERED OVER THE SEAM AND SECURED IN PLACE USING 3-INCH WIDE WATERPROOF PLASTIC TAPE.

SEAL ALL EXPOSED EDGES OF THE CORE MATERIAL TO PREVENT SOIL INTRUSION. SEAL EXPOSED EDGES BY FOLDING THE GEOTEXTILE FLAPS OVER AND AROUND THE PGD OR, IF A FLAP IS NOT PROVIDED, COVERING THE EXPOSED EDGE WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC, TAPING THE STRIP TO THE PGD GEOTEXTILE 8 INCHES FROM THE EXPOSED EDGE, AND FOLDING THE REMAINING 4 INCHES OVER AND AROUND THE PGD. SECURE LOOSE EDGES OF THE GEOTEXTILE FABRIC WITH 3-INCH WIDE WATERPROOF PLASTIC TAPE.

REPAIR ANY DAMAGE TO THE GEOTEXTILE FABRIC BY COVERING WITH A PATCH WHICH OVERLAPS THE DAMAGED AREA AND EXTENDS AT LEAST 6 INCHES BEYOND THE EDGE OF THE DAMAGED AREA. TAPE THE EDGES OF THE PATCH IN PLACE USING 3 INCH WIDE WATERPROOF PLASTIC TAPE. IF THE CORE OF THE PGD IS DAMAGED, REPLACE IT WITH A NEW SECTION OF PGD SPLICE AS DESCRIBED ABOVE.

ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, AS PER PLAN
ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL DRILLED SHAFTS AS DETAILED IN THE PLANS IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS SECTION 524, AND WITH THE ADDITIONAL REQUIREMENTS DEFINED BELOW.

ANTICIPATED DRILLED SHAFT DEFLECTIONS:

TANGENT DRILLED SHAFTS ("SHAFT", "SHAFTS") ARE INCORPORATED AS WALLS IN VARIOUS STRUCTURAL ELEMENTS FOR THIS BRIDGE. AS DESIGNED AND DETAILED THE SHAFTS ARE EXPECTED TO DEFLECT UNDER THE APPLIED PERMANENT LOADS (DC, DW, EP, WA) AND TRANSIENT LOADS (LL, LS, TU) AT THE SERVICE LIMIT STATE. MEASURES FOR ACCOMODATING THESE DEFLECTIONS ARE DETAILED BELOW.

THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN BEAM SEAT ELEVATION FOR SHAFTS INCORPORATED IN ABUTMENTS. THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN TOP OF CAP ELEVATION FOR SHAFTS INCORPORATED IN RETAINING WALLS. IN BOTH CASES THE FINISHED TOP OF SHAFT IS LOWER THAN THE SHAFT HEAD ELEVATION.

THE ANTICIPATED DEFLECTION AT THE SHAFT HEAD ELEVATION RELATIVE TO THE DREDGE LINE ELEVATION DUE TO PERMANENT LOADS ARE AS FOLLOWS:

WALL AH 6.00 INCHES SHAFTS AH01 THROUGH AF14 ONLY

DESIGN ASSUMPTIONS:

BEHAVIOR OF THE DRILLED SHAFTS AS DESCRIBED ABOVE IS PREDICATED UPON THE FOLOWING DESIGN ASSUMPTIONS:

- DESIGN HEIGHT OF DRILLED SHAFT IS THE DISTANCE FROM THE SHAFT HEAD ELEVATION TO THE DREDGE LINE ELEVATION
- PERMANENT LOAD DEFLECTIONS ARE ASSUMED TO OCCUR FOLLOWING REMOVAL OF SOIL IN FRONT OF THE TANGENT SHAFT WALLS
- THE GROUND SURFACE BEHIND THE WALL WAS CONSIDERED AT ELEV. 673 TO ACCOUNT FOR POSSIBLE FILL IN THE FUTURE.
- ADDITIONAL ASSUMPTIONS AND CONSTRAINTS ARE DETAILED IN THE PLANS.

DREDGE LINE ELEVATIONS:

SHAFTS AH01 THROUGH AH08: ELEV. 631.0
FOR DRAINAGE STRUCTURE EXCAVATION.

SHAFTS AH09 THROUGH AH22: SLOPING GROUND 42 INCHES BELOW FINAL GRADE
AT NEAR FACE OF WALL.

DRILLED SHAFT LOCATION SURVEY:

THE CORRECT LOCATION OF SHAFT IS CRITICAL TO ESTABLISHING AND MAINTAINING THE STRUCTURE GEOMETRY. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A OHIO REGISTERED PROFESSIONAL SURVEYOR ("THE SURVEYOR") TO ESTABLISH, MAINTAIN AND VERIFY HORIZONTAL AND VERTICAL SHAFT GEOMETRY. THE SURVEYOR SHALL BE READILY AVAILABLE TO ESTABLISH GEOMETRIC CONTROL AND PERFORM THE SURVEYS REQUIRED BELOW.

CONTRACTOR'S INSTALLATION PLAN:

THE CONTRACTOR SHALL PROVIDE AN INSTALLATION PLAN AS REQUIRED BY ODOT C&MS SECTION 524.03. THE INSTALLATION PLAN SHALL ALSO INCLUDE:

- CONTRACTOR'S PROPOSED METHODS TO MAINTAIN LOCATION AND ALIGNMENT OF SHAFTS
- CONTRACTOR'S PROPOSED METHODS FOR PERFORMING THE DRILLED SHAFT LOCATION SURVEY

COSTRUCTION CONSTRAINTS:

THE CONTRACTOR IS ADVISED THAT THE PROPOSED DRILLED SHAFT INSTALLATIONS MAY REQUIRE ADVANCING SHAFTS THROUGH EXISTING PILES. ADDITIONAL INFORMATION AND NOTES REGARDING POSSIBLE CONFLICTS ARE PROVIDED IN THE PLANS.

9 DO NOT EXCAVATE WITHIN THREE DIAMETERS OF DRILLED SHAFTS WITH NEW CONCRETE UNTIL AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.

MATERIALS:

CONCRETE AND REINFORCING STEEL FOR DRILLED SHAFTS SHALL CONFORM TO ODOT C&MS SECTION 524.02.

A SELF CONSOLIDATING CONCRETE MIX SHALL BE INCORPORATED

THE MAXIMUM COARSE AGGREGATE SIZE SHALL BE: 3/8"

9 PERMANENT STEEL CASINGS SHALL BE ASTM A252 GRADE 3 WITH A MINIMUM YIELD STRESS OF 45 KSI. CASING SECTION LENGTHS SHALL BE MAXIMIZED TO MINIMIZE THE NUMBER OF FIELD SPLICE LOCATIONS. SPLICES SHALL CONFORM TO C&MS 507.09. THE USE OF SPIRAL WELDED PIPE IS PERMITTED.

CUY-90-16.28 (CCG3A) MODEL: Sheet (1 of 2) PAPER SIZE: 34x22 (in.) DATE: 11/15/2025 TIME: 11:42:26 AM USER: Shane Weiss p:\vmb-us-pw-bentley.com\mb-us-pw-03\Documents\Cleveland_OH01_Projects\ODOT\District12\23232400-Engineering\Structures\WALL_AH\Sheets\82382_AH_VN001.dgn

WALL GENERAL NOTES (1 OF 2)
WALL AH
ALONG NORTH SIDE OF I.R. 90 UNDER CARNEGIE AVE.

SFN	N/A
DESIGN AGENCY	
Michael Baker	INTERNATIONAL
DESIGNER	CHECKER
SW/GZ	JC/SD
REVIEWER	
LPC	05-09-24
PROJECT ID	82382
SUBSET	TOTAL
2	9
SHEET	TOTAL
1242	2696

ESTIMATED QUANTITIES

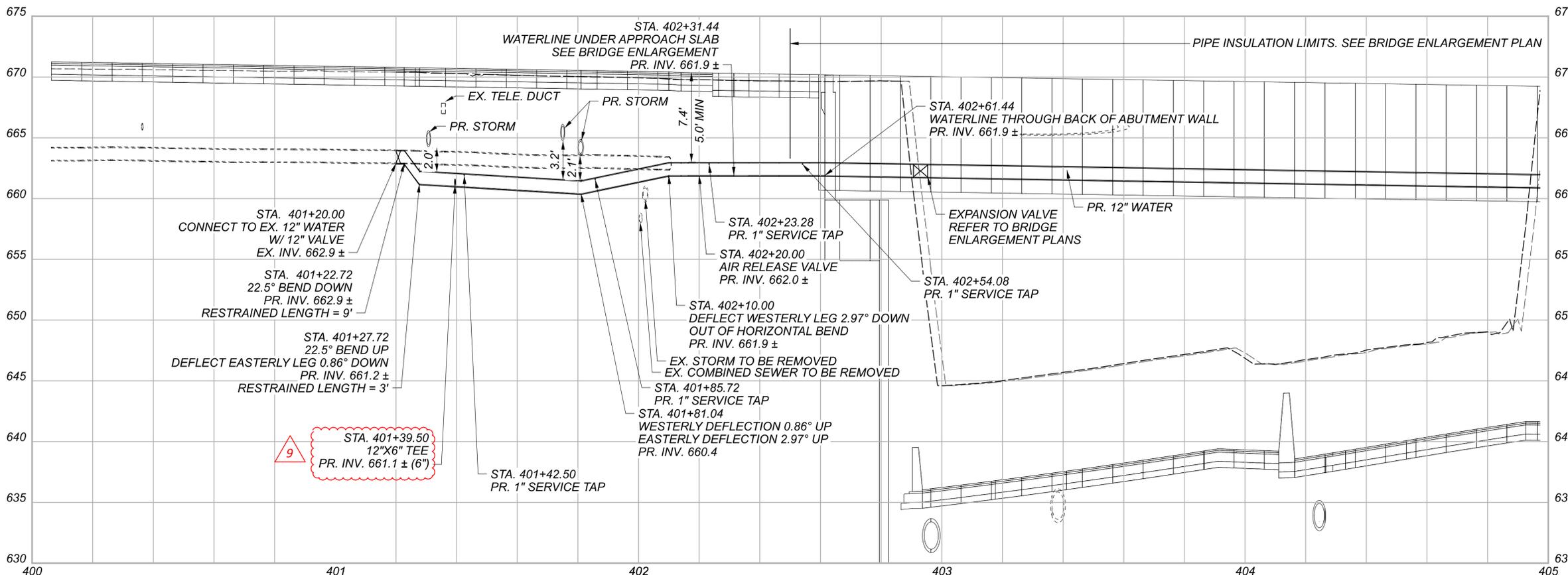
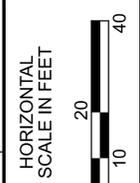
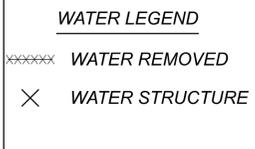
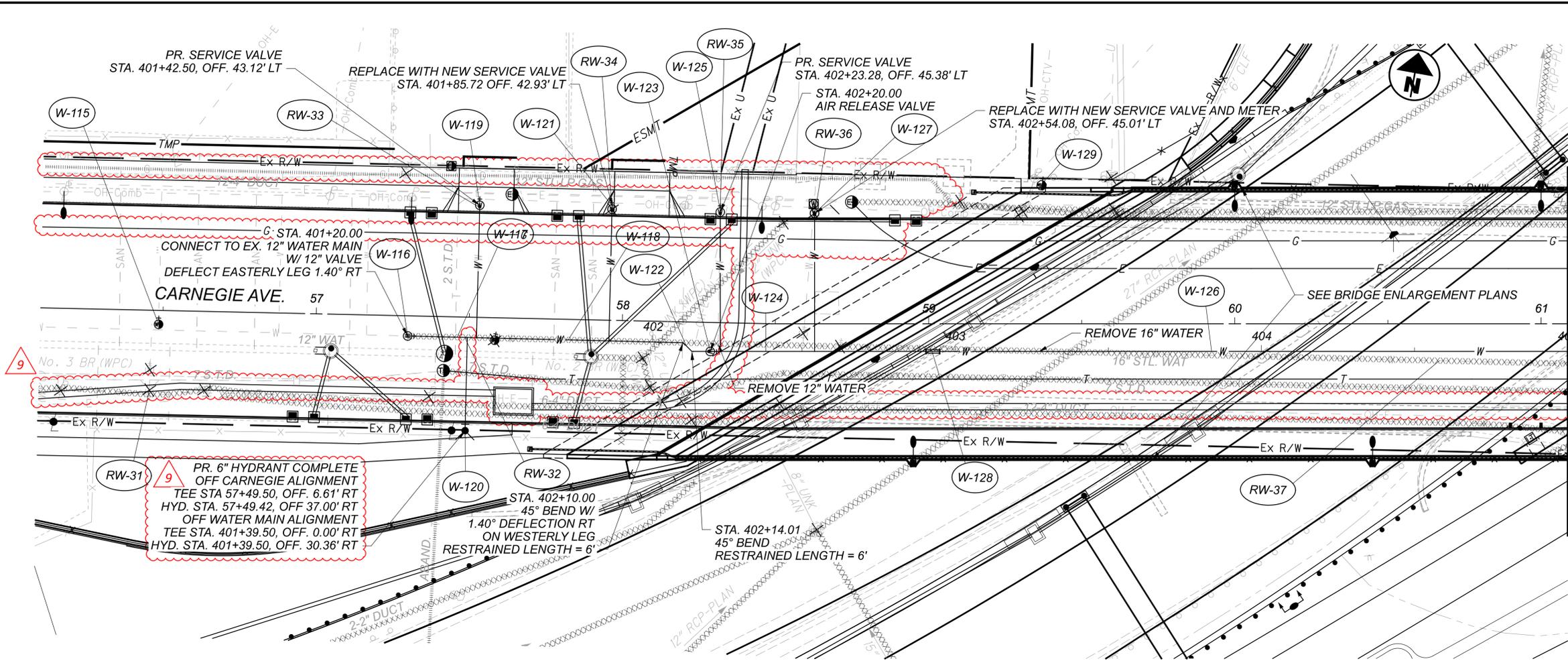
CALCULATED BY: ZES DATE: 04/24/24

CHECKED BY: SSW DATE: 05/14/24

PARTICIPATION	ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SHEET REF.	
	01/IMS/04	503	21100	223	CY	UNCLASSIFIED EXCAVATION	
6	01/IMS/04	507	00400	462	FT	STEEL PILES, MISC.: W24x162, FURNISHED	2
	01/IMS/04	507	00400	115	FT	STEEL PILES, MISC.: W24x229, FURNISHED	2
	01/IMS/04	509	10000	12,522	LB	EPOXY COATED STEEL REINFORCEMENT	
	01/IMS/04	511	46013	27	CY	CLASS QC1 CONCRETE WITH QC/QA, RETAINING/WINGWALL NOT INCLUDING FOOTING, AS PER PLAN	9
	01/IMS/04	511	53012	70	CY	CLASS QC2 CONCRETE, MISC.: MOMENT SLAB AND PARAPET WITH QC/QA	2
	01/IMS/04	511	81300	11	EACH	CONCRETE, MISC.: CLASS QC1 CONCRETE FOR RAISED PANEL SEAT	2
	01/IMS/04	512	10001	276	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	2
	01/IMS/04	512	10101	276	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN	2
	01/IMS/04	513	90000	526	LB	STRUCTURAL STEEL, MISC.: RETENTION ANGLE	2
	01/IMS/04	516	13600	87	SF	1" PREFORMED EXPANSION JOINT FILLER	
	01/IMS/04	516	13900	276	SF	2" PREFORMED EXPANSION JOINT FILLER	
6	01/IMS/04	516 9	42000	190	EACH	ELASTOMERIC BEARING PAD, MISC.: 6" x 10" x 3/8" THICK	8
	01/IMS/04	518	21200	111	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
	01/IMS/04	518	40000	161	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
	01/IMS/04	518	40010	14	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	8
	01/IMS/04	524	94703	391	FT	DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN	2
	01/IMS/04	SPECIAL	530E51010	1,373	SF	RETAINING WALL, PRECAST CONCRETE LAGGING	3
6	01/IMS/04	607	39910	136	FT	VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC	

ESTIMATED QUANTITIES
 WALL AI
 ALONG NORTH SIDE OF CARNEGIE AVE.

SFN	N/A
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
MKB	YC
REVIEWER	
LPC	05-09-24
PROJECT ID	82382
SUBSET	TOTAL
4	12
SHEET	TOTAL
1253	2696



RESTRAINED LENGTH SHOWN IS THE MINIMUM RESTRAINED LENGTH FOR EACH SIDE OF BEND.

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EX. SANITARY LATERALS WITHIN WORK LIMITS.

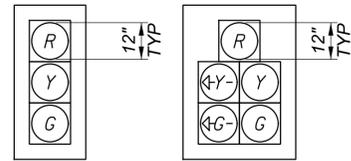
LATERALS DEEMED IN CONFLICT WILL BE ABANDONED OR RECONSTRUCTED PER DETAILS IN THE DRAINAGE PLANS AT THE DIRECTION OF THE ENGINEER.

12" WATERLINE PLAN AND PROFILE (CARNEGIE AVE.)
 STA. 400+00.00 TO STA. 405+00.00

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	SMP
REVIEWER	SM 05/15/24
PROJECT ID	82382
SHEET TOTAL	1411 2696

PROPOSED SIGNALS

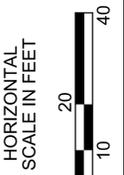
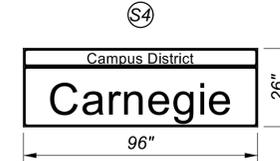
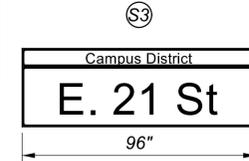
VEHICULAR SIGNAL HEADS
 (12" LENS, LED, YELLOW,
 W/ REFLECTIVE BACKPLATES)



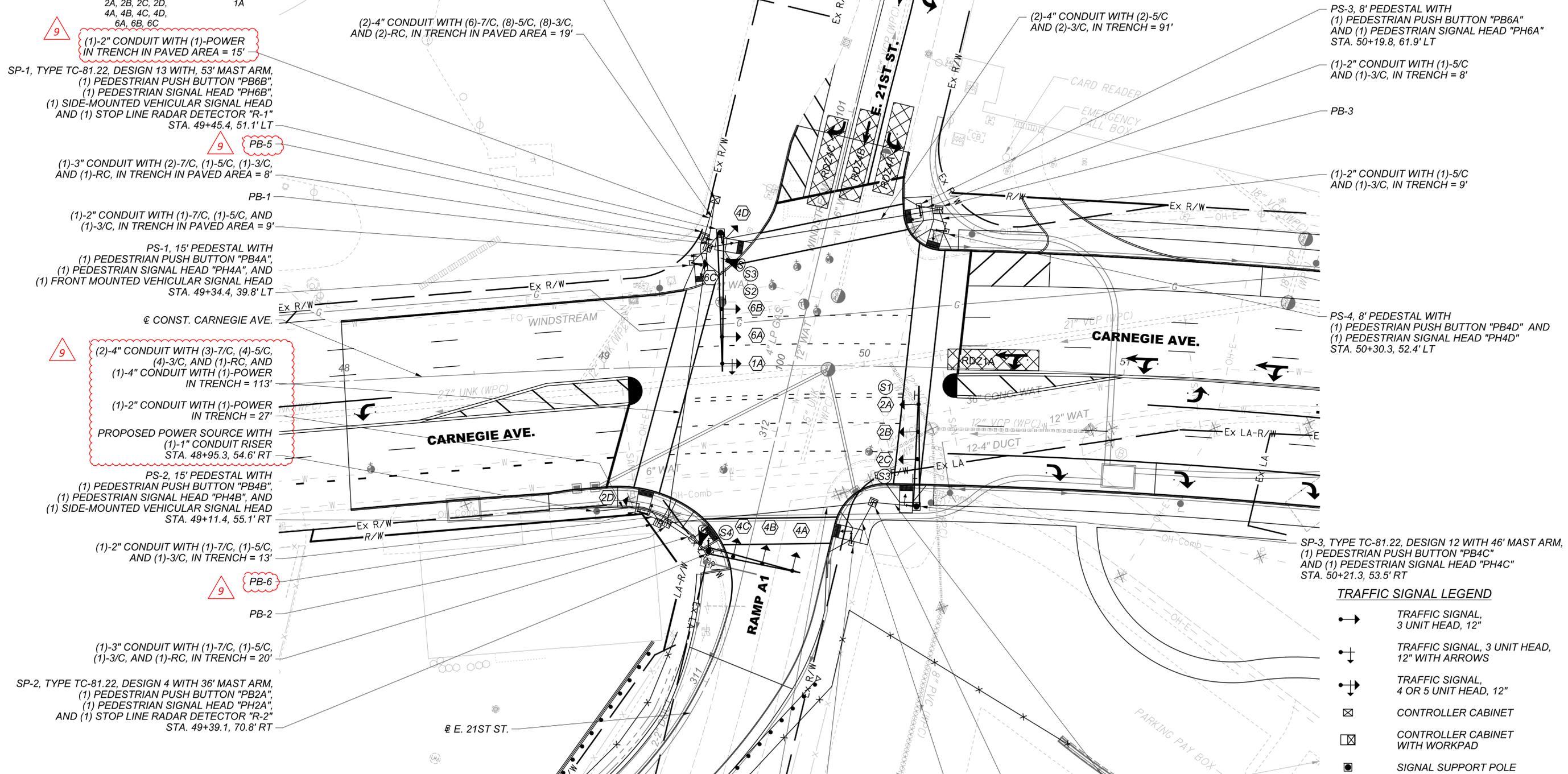
PEDESTRIAN HEADS
 (LED, COUNTDOWN,
 TYPE D2)

CONTROLLER CABINET
 STA. 49+43.5, 64.0' LT

PROPOSED SIGNS



**TRAFFIC SIGNAL PLAN
 CARNEGIE AVE. & E. 21ST ST.**



(1)-2" CONDUIT WITH (1)-POWER
 IN TRENCH IN PAVED AREA = 15'

(2)-4" CONDUIT WITH (6)-7/C, (8)-5/C, (8)-3/C,
 AND (2)-RC, IN TRENCH IN PAVED AREA = 19'

(2)-4" CONDUIT WITH (2)-5/C
 AND (2)-3/C, IN TRENCH = 91'

PS-3, 8' PEDESTAL WITH
 (1) PEDESTRIAN PUSH BUTTON "PB6A"
 AND (1) PEDESTRIAN SIGNAL HEAD "PH6A"
 STA. 50+19.8, 61.9' LT

(1)-2" CONDUIT WITH (1)-5/C
 AND (1)-3/C, IN TRENCH = 8'

(1)-2" CONDUIT WITH (1)-5/C
 AND (1)-3/C, IN TRENCH = 9'

PS-4, 8' PEDESTAL WITH
 (1) PEDESTRIAN PUSH BUTTON "PB4D" AND
 (1) PEDESTRIAN SIGNAL HEAD "PH4D"
 STA. 50+30.3, 52.4' LT

SP-3, TYPE TC-81.22, DESIGN 12 WITH 46' MAST ARM,
 (1) PEDESTRIAN PUSH BUTTON "PB4C"
 AND (1) PEDESTRIAN SIGNAL HEAD "PH4C"
 STA. 50+21.3, 53.5' RT

(2)-4" CONDUIT WITH (3)-7/C, (4)-5/C,
 (4)-3/C, AND (1)-RC, AND
 (1)-4" CONDUIT WITH (1)-POWER
 IN TRENCH = 113'

(1)-2" CONDUIT WITH (1)-POWER
 IN TRENCH = 27'

PROPOSED POWER SOURCE WITH
 (1)-1" CONDUIT RISER
 STA. 48+95.3, 54.6' RT

PS-2, 15' PEDESTAL WITH
 (1) PEDESTRIAN PUSH BUTTON "PB4B",
 (1) PEDESTRIAN SIGNAL HEAD "PH4B", AND
 (1) SIDE-MOUNTED VEHICULAR SIGNAL HEAD
 STA. 49+11.4, 55.1' RT

(1)-2" CONDUIT WITH (1)-7/C, (1)-5/C,
 AND (1)-3/C, IN TRENCH = 13'

(1)-3" CONDUIT WITH (1)-7/C, (1)-5/C,
 (1)-3/C, AND (1)-RC, IN TRENCH = 20'

SP-2, TYPE TC-81.22, DESIGN 4 WITH 36' MAST ARM,
 (1) PEDESTRIAN PUSH BUTTON "PB2A",
 (1) PEDESTRIAN SIGNAL HEAD "PH2A",
 AND (1) STOP LINE RADAR DETECTOR "R-2"
 STA. 49+39.1, 70.8' RT

(2)-4" CONDUIT WITH (1)-7/C, (2)-5/C,
 AND (2)-3/C, IN TRENCH = 80'

PS-5, 8' PEDESTAL WITH
 (1) PEDESTRIAN PUSH BUTTON "PB2B"
 AND (1) PEDESTRIAN SIGNAL HEAD "PH2B"
 STA. 49+95.8, 68.1' RT

(1)-2" CONDUIT WITH (1)-5/C
 AND (1)-3/C, IN TRENCH = 18'

(1)-3" CONDUIT WITH (1)-7/C, (1)-5/C,
 AND (1)-3/C, IN TRENCH = 17'

PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	49+40.5	LT	45.6	24 x 36
PB-2	49+23.0	RT	60.0	24 x 36
PB-3	50+27.3	LT	60.5	24 x 36
PB-4	50+04.2	RT	52.2	24 x 36
PB-5	49+39.2	LT	49.7	13 x 24
PB-6	49+19.5	RT	59.8	13 x 24

NOTE:

1. RADAR DETECTION LOCATION IS FOR
 REFERENCE ONLY, ACTUAL PLACEMENT WILL
 BE RECOMMENDED BY MANUFACTURER

TRAFFIC SIGNAL LEGEND

- TRAFFIC SIGNAL, 3 UNIT HEAD, 12"
- TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS
- TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"
- CONTROLLER CABINET
- CONTROLLER CABINET WITH WORKPAD
- SIGNAL SUPPORT POLE
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PEDESTAL SUPPORT
- TRAFFIC PULL BOX
- SIGNAL CONDUIT
- RADAR DETECTION ZONE
- RADAR DETECTOR

DESIGN AGENCY

**Michael Baker
 INTERNATIONAL**

DESIGNER
 SED

REVIEWER
 RMG 05/22/24

PROJECT ID
 82382

SHEET TOTAL
 1651 2696

CONTACT OHIO UTILITIES PROTECTION SERVICE, TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION. IN OHIO, CALL TOLL FREE 1-800-362-2764. IT'S THE LAW.

UTILITIES SHOWN ARE FROM BEST AVAILABLE RECORDS AND FIELD INVESTIGATION, AND ARE NOT NECESSARILY COMPLETE OR EXACT. THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THIS PLAN OR NOT.

ALL POWER CONDUIT RUNS ARE TO BE CONSTRUCTED BY USING 2", 4", 5", OR 6" PVC TYPE EB CONDUITS, AS DEPICTED ON THE PLANS, ENCASED WITH A 3" CONCRETE ENVELOPE AND 2" SPACING BETWEEN CONDUITS, UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS. THE CONCRETE USED SHALL CONFORM TO ODOT CLASS QC 1 PER C&MS 499.

A RUGGED POLYETHYLENE MATERIAL WARNING TAPE CAPABLE OF RESISTING HIGH OR LOW PH CONDITIONS MUST BE PLACED ABOVE THE ELECTRICAL CONDUIT BANK. THIS WARNING TAPE IS TO BE SIX INCHES WIDE, RED IN COLOR, AND IMPRINTED WITH THE WORDS, "DANGER - BURIED HIGH VOLTAGE CABLES BELOW". THIS TAPE IS TO BE PLACED 6" ABOVE THE NEWLY INSTALLED DUCT BANK. THIS SHALL CONFORM WITH THE STANDARDS AS SET BY OHIO UTILITIES PROTECTION SERVICE. WARNING TAPE PAYMENT INCLUDED IN APPROPRIATE CONDUIT, PAY ITEM.

AS AN OPTION, CONTRACTOR MAY ELECT TO ENCASE CPP'S CONDUITS IN RED CONCRETE. BOTH METHODS ARE APPROVED BY CLEVELAND PUBLIC POWER AND ARE RECOMMENDED BY OHIO UTILITIES PROTECTION SERVICE. PAYMENT FOR TINTED DUCT CONCRETE, OR TINTED CONCRETE PROTECTIVE SLABS INCLUDED IN APPROPRIATE CONDUIT PAY ITEM.

THE TOP OF THE CONCRETE ENCASED CONDUIT SHALL BE INSTALLED AT A MINIMUM DEPTH OF 3'-0" BELOW THE EXISTING AND/OR PROPOSED GRADES. THE TOTAL TRENCH DEPTH WILL BE BASED UPON THE CONDUIT FORMATION. SEE DRAWINGS ISSUED BY CLEVELAND PUBLIC POWER FOR DETAILS.

VERTICAL AND HORIZONTAL CURVES SHALL HAVE A MINIMUM RADIUS OF NO LESS THAN 30 FEET. THESE CURVES ARE TO BE CONDUITS AS NOTED CONSTRUCTED BY USING THE APPROPRIATE 5" COUPLINGS, AND ASSOCIATED CHORD LENGTHS AS SHOWN ON THE CONDUIT CURVE CONSTRUCTION CHART. ANY OTHER CURVE DESIGN, FIELD CHANGES, OR THE USE OF PREFORMED RADIUS BENDS MUST BE APPROVED BY THE ENGINEERING DEPARTMENT OF CLEVELAND PUBLIC POWER.

ALL MANHOLES OUTSIDE WALLS AND CONDUIT RUNS ARE TO HAVE A MINIMUM CLEARANCE OF 5' (FACE TO FACE), HORIZONTALLY FROM ALL WATER LINES. VERTICAL CLEARANCE SHALL BE AT A MINIMUM OF 1'-6". CLEARANCE BETWEEN OTHER UTILITIES SHALL BE 1 FOOT, UNLESS NOTED OTHERWISE. CPP'S DUCT BANK SHALL CROSS OVER OR UNDER OTHER UTILITIES AT AN ANGLE OF NO MORE THAN 45°.

ANY CONDUIT RUNS THAT ARE CROSSING ANY STEAM LINES SHALL HAVE A MINIMUM CLEARANCE OF 5', OR BE INSTALLED PER THE CPP ENGINEERING DEPARTMENT. IN THE EVENT THAT THIS CAN'T BE ACCOMPLISHED, NOTIFY THE ENGINEERING DEPARTMENT OF CLEVELAND PUBLIC POWER PRIOR TO THE INSTALLATION OF CONDUITS.

EACH NEWLY CONSTRUCTED MANHOLE SHALL BE FREE OF ALL FOREIGN OBJECTS AND DEBRIS. THE CONTRACTOR SHALL ALSO PROVIDE A PULLING LINE IN EACH OF THE NEW CONDUITS. ALL MANHOLE COVERS SHOULD BE INSCRIBED WITH THE CLEVELAND PUBLIC POWER LOGO "CPP".

THE CONTRACTOR SHALL PROVIDE CLEVELAND PUBLIC POWER WITH AS-BUILT PLANS OF THE NEWLY INSTALLED CONDUIT SYSTEM, SHOWING BOTH VERTICAL AND HORIZONTAL LOCATIONS. THESE LOCATIONS SHALL BE AT 50' INTERVALS. ALL ELEVATIONS ARE TO BE BASED ON HORIZONTAL AND VERTICAL STATE PLANE COORDINATES. PAYMENT INCLUDED IN APPROPRIATE CONDUIT PAY ITEM. IN ADDITION, THE CONTRACTOR SHALL PROVIDE AS-BUILTS OF THE MANHOLES, INCLUDING AS-BUILTS PHOTOGRAPHS OF ALL INTERIOR SURFACES (WALLS, FLOOR, CEILING).

BACKFILL MATERIAL AND BACKFILLING PROCEDURES

FOR ALL BACKFILL UNDER ROADWAY PAVEMENT, REFER TO FLOWABLE FILL SPECIFICATIONS IN THIS SHEET. FOR ALL OTHER LOCATIONS, THE BACKFILL MATERIAL USED SHALL BE CRUSHED LIMESTONE OR GRAVEL AS PER ODOT ITEM 304-AGGREGATE BASE. CRUSHED AIR-COOLED SLAG MEETING #304 GRADATION MAY BE USED WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER. THE USE OF SAND OR #57 AGGREGATE AS A PREMIUM BACKFILL IS PROHIBITED. SAND MAY ONLY BE USED AS INDICATED ON THE PLAN DETAILS FOR ITEMS SUCH AS CONDUIT COVER. THE SAND MATERIAL SHALL BE NATURAL RIVER OR BANK SAND; FREE OF SILT, CLAY, LOAM, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATTER. THE BACKFILL SHALL BE INSTALLED IN 4 INCH (4") LIFTS AND COMPACTED USING MECHANICAL MEANS ONLY. COMPACT TO WITHIN 12" OF SUBGRADE

AND EACH LAYER OF BACKFILL TO 95% MAXIMUM DRY DENSITY AS DETERMINED BY STANDARD PROCTOR TEST (ASTM D698). THE USE OF WATER FOR COMPACTION IS PROHIBITED, E.G. FLOODING OR PUDDLING. SAND USED AS EMBANKMENT CONSTRUCTION AND AS BACKFILL AROUND STRUCTURES SHALL BE ODOT ITEM 203- EMBANKMENT OR MEETING THE REQUIREMENTS OF 703 - SPECIAL BACKFILL MATERIAL OF THE SECTION.

EMPLOY A PLACEMENT METHOD THAT DOES NOT DISTURB OR DAMAGE CONDUIT ENCASEMENT.

DO NOT BACKFILL OVER WET, FROZEN OR UNSTABLE SUBGRADE SURFACES.

FLOWABLE FILL SPECIFICATION FOR UTILITY TRENCHES

PART I CERTIFICATE OF COMPLIANCE

MATERIAL MUST COME FROM A PLANT WITH A CURRENT CERTIFICATE OF COMPLIANCE DEMONSTRATING THE ABILITY OF THE MIX DESIGN TO MEET THE SPECIFIED REQUIREMENTS. CERTIFICATES IN EXCESS OF ONE YEAR WILL NOT BE ACCEPTED. CERTIFICATES MUST CONTAIN THE NAME OF SUPPLIER, DATE, CONTRACT NUMBER AND MIX DESIGN DATA ON EACH DELIVERY TICKET.

PART II MATERIALS

ALL MATERIALS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS STATED HERIN.

- 1. CEMENT SHALL BE ASTM C-150 TYPE I.
- 2. THE USE OF FLY ASH IS STRICTLY PROHIBITED.
- 3. FINE AGGREGATE SHALL CONFORM TO ODOT SPECIFICATION 703.03. FINE AGGREGATE FOR MORTAR OR GROUT. (ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS MOST CURRENT EDITION). THE USE OF SPENT FOUNDRY SAND OR CORE SAND IS STRICTLY PROHIBITED.

PART III PERFORMANCE ENHANCING ADMIXTURE

AN AIR-ENHANCING ADMIXTURE SHALL BE INCORPORATED IN THE MIX THAT WILL HAVE THE EFFECT OF LOWERING THE WATER/CEMENT RATIO TO BETWEEN 95 AND 105 LBS/CUBIC FOOT. THE AIR ENTRAINED CONTENT FOR THE MIX SHALL BE 30% TO ELIMINATE/MINIMIZE THE EXCESSIVE WATER AND SEGREGATION. COMPRESSIVE STRENGTHS SHALL HAVE A RANGE OF 50 PSI TO 80 PSI AT 28 DAYS WILL BE REQUIRED IF ADDITIONAL EXCAVATION BY MACHINE OR HAND IS REQUIRED.

SPECIFICATIONS

ALL WORK IN THIS CONTRACT SHALL CONFORM TO THE LATEST STATE OF OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIALS SPECIFICATIONS, NATIONAL ELECTRIC SAFETY CODE FOR INSTALLATION BEFORE METER, NATIONAL ELECTRIC CODE FOR INSTALLATION AFTER METER AND OSHA REQUIREMENTS, EXCEPT WHERE LOCAL REGULATIONS ARE MORE STRINGENT, IN WHICH CASE LOCAL REGULATIONS SHALL GOVERN.

SCOPE OF WORK

- A. THE CONTRACTOR SHALL RELOCATE OR REMOVE ALL CLEVELAND PUBLIC POWER (CPP) FACILITIES AS INDICATED ON THE PLANS AND/OR AS DIRECTED BY THE ENGINEER. THIS WORK SHALL BE PROPERLY COMPLETED, INCLUDING INCIDENTALS, AS SHOWN ON THE DRAWINGS AND HEREINAFTER SPECIFIED.
- B. THE MAJOR ITEMS OF WORK TO BE FURNISHED AND INSTALLED BY THE CONTACTOR SHALL BE AS FOLLOWS.

WORK BY CONTRACTOR (E. 22ND ST.)

THE CONTRACTOR SHALL PROVIDE TEMPORARY PRIMARY ELECTRIC FACILITIES TO RE-ROUTE POWER OFF THE 22ND STREET BRIDGE DURING THE DEMOLITION AND REPLACEMENT OF THE BRIDGE. FOLLOWING CONSTRUCTION OF THE NEW BRIDGE, PERMANENT UNDERGROUND FACILITIES WILL BE PLACED ON THE BRIDGE, THE TEMPORARY FACILITIES WILL BE REMOVED AND PERMANENT CONNECTIONS MADE. THIS WORK INCLUDES:

- FURNISHING AND INSTALLING CONCRETE ENCASED PVC AND FRE DUCT BANKS OF VARIOUS ARRANGEMENTS.
- INSTALLING TEMPORARY WOODEN POWER POLES AND OVERHEAD ELECTRICAL CABLE SPANS OVER INTERSTATE 90.
- INSTALLING ELECTRICAL CABLES IN DUCTS AND INSTALLING CABLE ID TAGS
- INSTALLING DUCT BANK SYSTEM ACROSS BRIDGE INCLUDING BEAM SUPPORT SYSTEM
- TESTING ELECTRICAL SYSTEM
- FURNISHING AND INSTALLING ELECTRICAL VAULT/MANHOLE RACKING SYSTEMS WITHIN VAULTS OR MANHOLES.
- FURNISHING AND INSTALLING ELECTRICAL SPLICES, TRAINING AND BONDING WITHIN VAULTS OR MANHOLES.
- COORDINATING WITH CPP AND ITS CONTRACTORS
- REMOVAL OF EXISTING ELECTRICAL CABLES.

WORK BY CONTRACTOR (CARNEGIE AVE.)

THE CONTRACTOR SHALL PROVIDE TEMPORARY PRIMARY ELECTRIC FACILITIES TO RE-ROUTE POWER OFF THE CARNEGIE AVENUE BRIDGE DURING THE DEMOLITION AND REPLACEMENT OF THE BRIDGE. FOLLOWING CONSTRUCTION OF THE NEW BRIDGE, PERMANENT UNDERGROUND FACILITIES WILL BE PLACED ON THE BRIDGE, THE TEMPORARY FACILITIES WILL BE REMOVED AND PERMANENT CONNECTIONS MADE. THIS WORK INCLUDES:

- FURNISHING AND INSTALLING CONCRETE ENCASED PVC AND FRE DUCT BANKS OF VARIOUS ARRANGEMENTS.
- FURNISHING AND INSTALLING TEMPORARY WOODEN POWER POLES AND OVERHEAD ELECTRICAL CABLE SPANS OVER INTERSTATE 90.
- FURNISHING AND INSTALLING ELECTRICAL CABLES IN DUCTS AND INSTALLING CABLE ID TAGS
- FURNISHING AND INSTALLING DUCT BANK SYSTEM ACROSS BRIDGE INCLUDING BEAM SUPPORT SYSTEM
- TESTING ELECTRICAL SYSTEM
- FURNISHING AND INSTALLING ELECTRICAL VAULT/MANHOLE RACKING SYSTEMS WITHIN VAULTS OR MANHOLES.
- FURNISHING AND INSTALLING ELECTRICAL SPLICES, TRAINING AND BONDING WITHIN VAULTS OR MANHOLES.
- COORDINATING WITH CPP AND ITS CONTRACTORS
- REMOVAL OF EXISTING ELECTRICAL CABLES.

WORK BY CPP

- ENERGIZING ELECTRICAL SYSTEM
- DE-ENERGIZING OF EXISTING ELECTRICAL CABLES WITHIN DUCTS

ALONG PORTIONS OF THE CORRIDOR THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN THE EXISTING UNDERGROUND ELECTRICAL SERVICE UNTIL COMPLETION AND ACTIVATION OF THE PROPOSED UNDERGROUND POWER SYSTEM. THE CONTRACTOR SHALL COORDINATE THE DETAILS OF THIS WORK WITH CPP.

CABLE MARKING

FEEDER CABLE LOCATION IN CONDUIT BANK SHALL BE ASSIGNED BY CPP. EACH CABLE UPON ENTERING AND LEAVING MANHOLES SHALL BE MARKED WITH TAGS, INDICATING THE FEEDER NUMBER AND CABLE SIZE. THE LETTER SIZE SHALL BE A MINIMUM OF 1/2 IN., 1 IN. HIGH IS PREFERRED.

SUBMITTALS

IN ADDITION TO THE REQUIREMENTS OF CMS105 THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIAL FURNISHED AND REQUIRED TO PERFORM THE WORK.

DEFINITIONS

WHENEVER IN THESE SPECIFICATIONS OR IN ANY DOCUMENT OR INSTRUCTIONS ON CONSTRUCTION WHERE THESE SPECIFICATIONS GOVERN, THE FOLLOWING TERMS (OR PRONOUNS IN PLACE OF THEM) ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE CITY OR THE CITY OF CLEVELAND, IS THE DIRECTOR OF THE CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES.

STATUS OF CITY INSPECTOR

INSPECTORS AS DESIGNATED BY THE CITY OF CLEVELAND SHALL BE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED. SUCH INSPECTING MAY EXTEND TO ALL OR ANY PART OF THE WORK, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WORK. THE CITY INSPECTOR AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL GIVE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER.

ITEM 625 - CONDUIT, CONCRETE ENCASED, AS PER PLAN (#-5" EB-20 PVC)
ITEM 625 - CONDUIT, AS PER PLAN, 5" FRE

A. WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT TO MANHOLES, AS SHOWN ON THE PLANS OR AS DIRECTED, ALL NON-REINFORCED AND REINFORCED CONCRETE-ENCASED EB-20 PVC CONDUIT AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. ALL CONDUITS SHALL BE ENCASED IN CONCRETE UNLESS NOTED OTHERWISE.

B. CONDUIT AND FITTINGS

- 1. POLYVINYL CHLORIDE (PVC) EB 20 CONDUIT SHALL CONFORM TO THE UL651 STANDARDS, 5 INCH INSIDE DIAMETER WITH CONCRETE ENCASEMENT AS DETAILED ON PLANS, COUPLINGS SHALL BE SOCKET TYPE, END BELLS AT MANHOLE ENTRANCE, 5 DEGREE SWEEPS, 11-1/4 DEGREE TO 90 DEGREES INCLUDING FILED DEGREES ANGLE COUPLINGS, STANDARD COUPLINGS, VARIOUS BENDS AND PLUGS OR CAPS TO CLOSE UNUSED CONDUITS, SHALL BE MADE OF THE SAME MATERIAL AS THE

CONDUIT. CONDUIT SPACERS SHALL BE AS SHOWN IN THE PLAN DETAILS. CONCRETE BLOCK SPACERS WILL NOT BE ACCEPTED. CONTRACTOR SHALL CONTACT CPP BEFORE CONCRETE ENCASEMENT ANY BENDS IN CONDUITS

- 2. FIBERGLASS REINFORCED EPOXY CONDUIT SHALL CONFORM TO UL 1684 AND UL1684A. FIBERGLASS CONDUIT SHALL HAVE A MINIMUM WALL THICKNESS OF 0.095". FIBERGLASS CONDUIT SHALL HAVE 5 INCH INSIDE DIAMETER EITHER CONCRETE ENCASED OR RACK MOUNTED AS INDICATED ON THE DRAWINGS. COUPLINGS SHALL HAVE BELL ON ONE END AND A SPIGOT ON THE OTHER END. ALL COUPLINGS SHALL BE MADE OF THE SAME MATERIAL. EXPANSION FITTINGS SHALL BE PROVIDED ON ALL EXPOSED CONDUIT RUNS.

C. CONCRETE

CONCRETE USED FOR ENCASEMENT OF CONDUITS SHALL CONFORM TO ODOT CLASS QC 1 PER C&MS 499.

D. INSTALLATION

CONDUIT SHALL BE INSTALLED BY THE BUILT-UP METHOD WITH JOINTS IN ADJACENT DUCTS STAGGERED. NECESSARY SPACERS SHALL BE PLACED NO GREATER THAN 8-FEET INTERVALS TO HOLD DUCTS IN THE DESIRED CONFIGURATION, WITH THE DUCT BANK BRACED SECURELY TO KEEP IT FROM SHIFTING AND FLOATING WHILE CONCRETE IS POURED. SEALER COMPOUND FURNISHED BY THE CONDUIT AND EACH SECTION SHALL BE TAPPED SECURELY INTO PLACE IN THE PREVIOUS COUPLING TO OBTAIN JOINTS THAT ARE TIGHT AND LEAK-PROOF.

- 1. CONCRETE SHALL BE WORKED INTO THE SPACES BETWEEN DUCTS SO THAT THE CONDUIT BANK IS EFFECTIVELY ENCASED IN CONCRETE WITHOUT VOIDS OR EMPTY SPACES. REINFORCING RODS SHALL BE INSTALLED AS REQUIRED AND WHERE SHOWN ON THE PLANS.

- 2. CONDUIT WHICH IS CUT TO FIT SHORT SECTIONS SHALL BE DEBURRED ON THE DUCT END AND THE END OF THE BELL SHALL BE REAMED IN THE INSIDE DIAMETER FOR EACH ENTRY OF THE DUCT INTO COUPLING TO PRODUCE THE SAME JOINTING CONDITIONS AS PROVIDED BY FACTORY-MADE CONDUIT SECTIONS.

- 3. THE END BELLS SHALL BE GROUTED IN PLACE.

E. BACKFILLING

REFER TO NOTES "BACKFILL MATERIAL AND BACKFILLING PROCEDURES" AND "FLOWABLE FILL SPECIFICATION FOR UTILITY TRENCHES".

F. MEASUREMENT

THE NUMBER OF FEET OF CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET FURNISHED AND PLACED AND ACCEPTED IN ACCORDANCE WITH THESE SPECIFICATIONS, AS MEASURED ALONG THE AXIS OF THE CONDUIT LINE, INCLUDING FITTINGS.

G. PAYMENT

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE AID FOR AT THE CONTRACTOR PRICE BID PER FOOT UNDER ITEM 625 AS DESCRIBED BELOW, CLASSIFIED AS TO SIZE AND TYPE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING, PLACING THE CONDUIT, FITTINGS, CAPPING, SPACERS, CONCRETE, REINFORCING STEEL, SHEETING AND BRACING, BACKFILL, PLASTIC CAUTION TAPE (OR RED TINTED CONCRETE), INCIDENTAL CONCRETE, REMOVAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIAL, BREAKING AND RESTORATION OF EXISTING MANHOLE WALLS AND ALL LABOR EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

THESE ITEMS AS MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR UNDER:

ITEM	UNIT	DESCRIPTION
625	FT	CONDUIT, CONCRETE ENCASED, AS PER PLAN, (#-5" EB-20 PVC)
625	FT	CONDUIT, AS PER PLAN, 5" FRE

CLEVELAND PUBLIC POWER
GENERAL NOTES - 1

DESIGN AGENCY



DESIGNER
JCS

REVIEWER
WH 05/17/24

PROJECT ID
82382

SHEET TOTAL
1777 2696

DISTRIBUTION CABLE MISC.: 556KCMIL 15KV SPACER CABLE WITH 0052 AWA MESSENGER

1. 15KV SPACER CABLE AND STEEL MESSENGER SHALL BE MANUFACTURED IN ACCORDANCE WITH
 - a. ASTM B415-16 (LATEST REVISION)
 - b. ANSI/NEMA WC74 / ICA S-93-639 (LATEST REVISION)
 - c. ASTM B230
 - d. ASTM B400
 - e. ASTM D1248

2. PRODUCT REQUIREMENTS

2.1 MESSENGER

- a. MESSENGER IS USED TO SUPPORT SPACER CABLE SYSTEMS. THE MESSENGER'S STRENGTH SHALL PROTECT THE SYSTEM FROM FALLING TREES AND BRANCHES AS WELL AS CONTINUE TO SUPPORT HTE CABLE DURING HIGH WIND LOADS AND ICING CONDITIONS.
- b. THE MESSENGER SERVES AS THE SUPPORT MEMBER FOR SPACER CABLE SYSTEMS. TWO CONSTRUCTIONS OF MESSENGER SHALL BE ALUMOWELD-ALUMINUM (AWA). THE STRANDS USED TO MANUFACTURE THESE TYPES OF MESSENGERS SHALL BE A COMBINATION OF ALUMINUM CLAD STEEL WIRES AND 1350-H19 ALUMINUM WIRES.
- c. THE MESSENGER SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST EDITIONS OF ASTM B415-16 - STANDARD SPECIFICATION FOR HARD-DRAWN ALUMINUM-CLAD STEEL WIRE. THE MESSENGER SHALL FURTHER MEET OR EXCEED THOSE APPLICABLE STANDARDS REFERENCED BY ASTM B415-16.
- d. MESSENGER FOR 556 KCMIL SPACER CABLE SHALL BE SIZE 0052 AWA, 0.546 IN OVERALL DIAMETER, SHALL HAVE 5 AW WIRES OF 0.1819 IN. DIAMETER AND 2 AL WIRES OF 0.1819 IN. DIAMETER. WEIGHT SHALL BE APPROXIMATELY 438 LBS PER 1000 FT AND SHALL HAVE A BREAKING STRENGTH OF AT LEAST 20,420 LBS.
- e. PACKAGING: REELS SHALL HAVE 18 TO 24 INCHES OF INSIDE TAIL WIRE EXPOSED THROUGH THE REEL STARTHOLE AND SECURED TO THE REEL FLANGE. WOODEN REELS SHALL HAVE 3 INCH MINIMUM DIAMETER CENTER ARBOR HOLES AND 1-1/2 INCH MINIMUM DIAMETER DRIVE PIN HOLES LOCATED 6 TO 21 INCHES FROM THE SPOOL FLANGE CENTER PER NEMA WC26.

2.2 COVERED CONDUCTOR

- a. THIS CONDUCTOR IS USED FOR PRIMARY OVERHEAD DISTRIBUTION. IT IS INSTALLED AS AN UNINSULATED CONDUCTOR; HOWEVER, THE COVERING SHALL BE EFFECTIVE IN PREVENTING DIRECT SHORTS AND INSTANTANEOUS FLASHOVERS SHOULD TREE LIMBS OR OTHER OBJECTS CONTACT CONDUCTORS IN SUCH CLOSE PROXIMITY. CONDUCTOR IS TO BE INSTALLED WITH OTHER SPACER CABLE CONDUCTORS AND A SUPPORTING MESSENGER THROUGH A SERIES OF SPACE-MAINTAINING DEVICES (SPACERS). CONDUCTORS SHALL BE RATED FOR CONTINUOUS OPERATION AT 75°C.
- b. CONDUCTORS SHALL BE COMPACT ROUND, CONCENTRICALLY STRANDED, 1350-H19 HARD DRAWN ALUMINUM.
- c. CONDUCTOR SHIELDING SHALL BE AN EXTRUDED BLACK SEMICONDUCTING POLYMER MEETING PHYSICAL REQUIREMENTS OF ANSI/NEMA WC 74. NOMINAL THICKNESS OF SHIELDING SHALL BE 15 MILS. THE MINIMUM THICKNESS AT ANY POINT SHALL NOT BE LESS THAN 0.010".
- d. CONDUCTOR COVERING:
 1. SHALL CONSIST OF TWO LAYERS THERMALLY BONDED TO EACH OTHER AND TO THE CONDUCTOR SHIELDING.
 2. THE INNER LAYER SHALL BE EXTRUDED NATURAL LOW DENSITY POLYETHYLENE, COMPLYING WITH ASTM SPECIFICATION D-1248 LATEST EDITION, FOR TYPE I, CLASS A, CATEGORY 5, GRADE E4 MATERIAL. NOMINAL THICKNESS OF THE INNER LAYER SHALL BE 75 MILS.
 3. THE OUTER LAYER SHALL BE AN EXTREDED BLACK, TRACK RESISTANT, HIGH DENSITY POLYETHYLENE, COMPLYING WITH ASTM SPECIFICATION D1248, LATEST EDITION, FOR TYPE III, CLASS C, CATEGORY 5, GRADE J5 MATERIAL. NOMINAL THICKNESS OF THE OUTER LAYER SHALL BE 75 MILS.
 4. OVERALL COVERING (DIAMETER) TOLERANCES SHALL BE LIMITED TO NOMINAL PLUS 20 MILS OR NOMINAL MINUS 10 MILS FOR ALL CONDUCTORS. NOMINAL OUTER DIAMETERS ARE PER SECTION 2.2.e.
- e. CONDUCTORS SHALL BE 556.5 KCMIL, 19 STRANDS, WITH A NOMINAL OUTER DIAMETER OF 1.120 IN. WEIGHT SHALL BE APPROXIMATELY 752 LBS PER 1000' OF CABLE.
- f. TESTING SHALL BE PERFORMED ON EACH REEL OF CABLE. TEST REPORTS SHALL BE FURNISHED UPON REQUEST OF THE PURCHASER. TESTS SHALL INCLUDE THE FOLLOWING MEASUREMENTS:
 1. CONDUCTOR DIAMETER
 2. WALL THICKNESS
 3. FINISHED DIAMETER
 4. CONCENTRICITY
 5. AC SPARK. AC SPARK SHALL BE PERFORMED CONTINUOUSLY AS THE CABLE IS BEING EXTRUDED. THE APPLIED AC VOLTAGE SHALL BE 15,000 VOLTS.

- g. SPACER CABLE CONDUCTORS SHALL BE PROVIDED WITH TRIANGULAR CABLE SPACERS, MADE OF HDPE AND SUITABLE FOR THE SELECTED CABLE. SPACERS SHALL BE PROVIDED EVERY 30' OF CIRCUIT LENGTH UNLESS NOTED OTHERWISE. SPACERS SHALL BE HENDRIX RTL OR APPROVED EQUAL.
- h. 556 KCMIL, 15KV SPACER CABLE, WITH 0052 AWA MESSENGER SHALL INCLUDE (3) PRIMARY COVERED CONDUCTORS, (1) MESSENGER, AND CABLE SPACERS AS SPECIFIED ABOVE.

ITEM 1. 556 KCMIL 15 KV SPACER CABLE WITH 0052 AWA MESSENGER

DISTRIBUTION CABLE MISC.: 500KCMIL 15KV CU WITH CONCENTRIC NEUTRAL

A. WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR MATERIALS, TOOLS AND EQUIPMENT FOR INSTALLING ALL POWER CABLES, AS SPECIFIED, REQUIRED OR SHOWN ON THE PLANS.

B. DETAILED SPECIFICATIONS

MEDIUM VOLTAGE CABLES - EPR URD

1. ALL ETHYLENE PROPYLENE RUBBER INSULATED URD CABLE IS MANUFACTURED, TESTED AND WARRANTED IN ACCORDANCE WITH:
 - a. A.E.I.C CS-8 (LATEST REVISION)
 - b. I.C.E.A S-94-649 (LATEST REVISION)
2. CHARACTERISTICS
 - a. BARE ANNEALED COPPER CENTER CONDUCTOR, COMPACT CLASS B STRANDING PER ASTM B-3, AS SPECIFIED ON THE BID SHEET.
 - b. 1/3 COPPER CONCENTRIC NEUTRAL, AS SPECIFIED ON BID SHEET
 - c. ETHYLENE PROPYLENE RUBBER INSULATION
 - d. AVERAGE MINIMUM INSULATION THICKNESS 220 MILS
 - e. POLYETHYLENE JACKET

3. 15 KV EPR URD

- a. RATED 15 KV 133%, 220-MIL INSULATION THICKNESS

ITEM 1. 500 KCMIL, 15 KV 133%, EPR URD, 33% NEUTRAL

C. MOLDED SPLICES

1. DESIGNED AND TESTED PER IEEE STANDARD 404.

2. VOLTAGE RATING:

- a. 15 KV CLASS (8.7 KV PHASE-TO-GROUND)
- b. IMPULSE WITHSTAND : A = 110 KV, 1.2 X 50 MICROSECOND WAVE.
- c. CORONA EXTINCTION VOLTAGE : A = 13 KV, MINIMUM, 3PC SENSITIVITY.
- d. DC WITHSTAND : DURING INSTALLATION : 56 KV
- e. DC WITHSTAND : 18 KV FOR XLPE INSULATED CABLES 45 KV FOR EPR INSULATED CABLES REFERENCE AEIC CS6 AND CS8, SECTION L.2.0

ITEM 1. SPLICE FOR 500 KCMIL, 15 KV URD, ELASTIMOLD 15 PCJ 1 LM 2 330

OBTAIN CABLE SPLICE KITS AND ACCESSORIES FROM A SINGLE SOURCE MANUFACTURER AND SHALL BE APPROVED BY CPP.

3. SPLICE KITS: COMPLY WITH IEEE 404; TYPE AS RECOMMENDED BY CABLE OR SPLICING KIT MANUFACTURER FOR THE APPLICATION.

4. SPLICING PRODUCTS: AS RECOMMENDED, IN WRITING, BY SPLICING KIT MANUFACTURER FOR SPECIFIC D.CABLE LUBRICANTSIZES, MATERIALS, RATINGS, AND CONFIGURATIONS OF CABLE CONDUCTORS. INCLUDE ALL COMPONENTS REQUIRED FOR COMPLETE SPLICE, WITH DETAILED INSTRUCTIONS.

- a. HEAT-SHRINK SPLICING KIT OF UNIFORM, CROSS-SECTION, POLYMERIC CONSTRUCTION WITH OUTER HEAT-SHRINK JACKET.

5. MEDIUM-VOLTAGE TAPES: ETHYLENE/PROPYLENE RUBBER-BASED, 30-MIL SPLICING TAPE, RATED FOR 130 DEG C OPERATION. MINIMUM 1-1/2 INCH WIDE.

D. CABLE LUBRICANT

USE MANUFACTURERS APPROVED PULLING COMPOUND OR LUBRICANTS FOR CABLE BEING INSTALLED THAT DO NOT DETERIORATE CONDUCTOR OR INSULATION.

E. BONDING WIRE

1. BONDING CONDUCTOR: NO. 4, STRANDED COPPER, ASTM B 8.

2. LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED.

F. CABLE PULLING

1. BEFORE STARTING CABLE INSTALLATION, THE DUCTS TO BE OCCUPIED SHOULD BE SELECTED THROUGHOUT THE ENTIRE LENGTH OF THE RUN AND THE DUCTS SELECTED MUST BE CHECKED TO SEE THAT THEY ARE CLEAN AND FREE FROM ALL OBSTRUCTIONS.

- a. PROOF CONDUITS PRIOR TO CONDUCTOR INSTALLATION BY PASSING A WIRE BRUSH MANDREL AND THEN A RUBBER DUCT SWAB THROUGH THE CONDUIT.

- i. WIRE BRUSH MANDREL: CONSISTS OF A LENGTH OF BRUSH APPROXIMATELY THE SIZE OF THE CONDUIT INNER DIAMETER WITH STIFF STEEL BRISTLES AND AN EYE ON EACH END FOR ATTACHING THE PULL ROPES. IF AN OBSTRUCTION IS FELT, PULL THE BRUSH BACK AND FORTH REPEATEDLY TO BREAK UP THE OBSTRUCTION.

- ii. RUBBER DUCT SWAB: CONSISTS OF A SERIES OF RUBBER DISCS APPROXIMATELY THE SIZE OF THE CONDUIT INNER DIAMETER ON A LENGTH OF STEEL CABLE WITH AN EYE ON EACH END FOR ATTACHING THE PULL ROPES. PULL THE RUBBER DUCT SWAB THROUGH THE DUCT TO EXTRACT LOOSE DEBRIS FROM THE DUCT.

- b. USE PULLING MEANS, INCLUDING FISH TAPE, ROPE, AND BASKET- WEAVE CABLE GRIPS, THAT DO NOT DAMAGE CABLES AND RACEWAYS. DO NOT USE ROPE HITCHES FOR PULLING ATTACHMENT TO CABLE.

- c. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.

- d. USE PULL-IN GUIDES, CABLE FEEDERS, AND DRAW-IN PROTECTORS AS REQUIRED TO PROTECT CABLES DURING INSTALLTION.

- e. DO NOT PULL CABLES WITH ENDS UNSEALED. SEAL CABLE ENDS WITH RUBBER TAPE.

- f. SUPPORT CABLES USING GALVANIZED STEEL CHANNEL AND PORCELAIN OR MAPLE BLOCKS.

2. IF REELS ARE LEFT IN THE STREET, WARNING LIGHTS SHALL BE PLACED AROUND THEM.

3. LUBRICANT SHALL BE APPLIED TO THE CABLE JUST BEFORE IT ENTERS THE FEEDING TUBE. A COATING ABOUT 1/6" THICK IS AMPLE. NO LUBRICANT SHALL BE APPLIED FIRST AND LAST 5-FEET OF CABLE FOR CONVENIENCE AND CLEANLINESS IN SPLICING.

4. THE REEL OF CABLE MUST BE PROPERLY PLACED AT THE FEEDING END TO CAUSE MINIMUM FLEXING OF THE CABLE. IT SHOULD ALWAYS BE LOCATED ON THE SIDE OF THE MANHOLE TOWARD WHICH THE CABLE IS PULLED.

5. WHERE THERE IS A BEND IN THE DUCT LINE, THE PULLING SET-UP, WHENEVER POSSIBLE, SHOULD BE PLANNED FOR FEEDING-IN AT THE MANHOLE NEAREST THE BEND.

6. THE AMOUNT OF SLACK IN THE CABLE AT THE FEEDING END SHALL BE REGULATED BY WORKERS STATIONED AT THE CABLE REEL SO THAT THE CABLE PASSES FREELY INTO THE FEEDING TUBE WITHOUT SCRAPING THE MANHOLE FRAME.

7. THE CABLE SHALL BE DRAWN INTO THE DUCT JUST FAST ENOUGH TO KEEP THE CABLE AND REEL MOVING SMOOTHLY AND SO THE CABLE CAN BE PROPERLY INSPECTED AND LUBRICATED.

8. EYES OR SEALS DAMAGED DURING PULLING SHALL BE REPAIRED UNLESS SPLICING FOLLOWS IMMEDIATELY.

9. WHEN THE CABLE IS CUT, UNLESS SPLICING IS TO BE DONE IMMEDIATELY, THE ENDS SHALL BE PREPARED AND SEALED BY AN APPROVED METHOD. ALL SEALED ENDS SHOULD BE RACKED HIGH.

G. CABLE RACKING AND TRAINING

1. RACK AND TRAIN CABLES ON CABLE RACK ASSEMBLIES CONSISTING OF HOT-DIP GALVANIZED, EXCEPT INSULATORS.

2. IDENTIFY CABLES PHASE AND CIRCUIT NUMBER OF EACH CONDUCTOR AT EACH SPLICE, TERMINATION, PULL POINT, AND JUNCTION BOX. ARRANGE IDENTIFICATION SO THAT IT IS UNNECESSARY TO MOVE THE CABLE OR CONDUCTOR TO READ THE IDENTIFICATION.

H. BONDING

1. MAINTAIN SHIELD CONTINUITY AND CONNECTIONS TO METAL CONNECTION HARDWARE AT ALL CONNECTION POINTS.

2. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT OR DAMAGE.

3. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.
 - a. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS.

I. TESTING

1. VISUAL AND MECHANICAL INSPECTIONS.
2. INSPECT EXPOSED CABLE SECTIONS FOR PHYSICAL DAMAGE.
3. INSPECT SHIELD GROUNDING AND CABLE SUPPORT. VISUALLY INSPECT CABLE TERMINATIONS PERFORMED BY CPP.
4. INSPECT COMPRESSION CONNECTORS FOR CORRECT CABLE MATCH AND IDENTIFICATION.
5. TESTING AGENCY: ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.

6. PERFORM THE FOLLOWING TESTS AND INSPECTIONS WITH THE ASSISTANCE OF A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE:
 - a. PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ATS. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
 - b. AFTER INSTALLING MEDIUM-VOLTAGE CABLES AND BEFORE ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS.
 - c. PERFORM DIRECT-CURRENT HIGH POTENTIAL TEST OF EACH NEW CONDUCTOR ACCORDING TO NETA ATS, CH. 7.3.3. DO NOT EXCEED CABLE MANUFACTURER'S RECOMMENDED MAXIMUM TEST VOLTAGE.

7. MEDIUM-VOLTAGE CABLES WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS.
8. PREPARE TEST AND INSPECTION REPORTS.

J. MEASUREMENT

THE NUMBER OF FEET OF CIRCUIT CABLE TO BE PAID FOR SHALL INCLUDE CABLE LENGTH IN DUCT PLUS LENGTH IN MANHOLES PER THE CABLE WIRING PLANS, INSTALLED IN PLACE INCLUDING CABLE RACKING, TRAINING, TESTING, CABLE TAGS, AND OTHER INCIDENTAL WORK. MEASUREMENT IS IN FEET OF CIRCUIT. EACH FOOT OF CIRCUIT INCLUDES (3) 500KCMIL 15KV CABLES WITH CONCENTRIC NEUTRAL.

SPECIALS

15KV TERMINATORS - PROVIDE 15 KV TERMINATION KITS FOR 500 KCMIL 15 KV CONDUCTORS AT RISER POLE INSTALLATIONS.

15KV SPLICES - PROVIDE 15 KV SPLICE KITS FOR 4/0 CU 15 KV CONDUCTORS OR 500 KCMIL CU 15 KV CONDUCTORS AS NOTED ON THE PLAN.

OVERHEAD TRANSFORMER REMOVAL - REMOVE EXISTING OVERHEAD TRANSFORMER (EQUAL/LESS THAN 75 KVA) AND TURN OVER TO CPP.

DOUBLE CROSS-ARM AND DEAD-END ASSEMBLY - PROVIDE 8' WOOD DOUBLE CROSS-ARM AND 15 KV CONDUCTOR DEAD-END CONSISTING OF THREE SINGLE CONDUCTOR, SINGLE INSULATORS.

15KV TEST CAP FOR SUBMERSIBLE USE

15KV 600 AMP DISCONNECT SWITCH FOR CROSS-ARM MOUNTING.

CUY-90-16.28 (CCG3A)

MODEL: 82382.LUN301.PAPERSIZE: 34x22 (in.) DATE: 11/5/2025 TIME: 10:00:43 AM USER: Joseph.Hogan
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CLEVELAND PUBLIC POWER
GENERAL NOTES - 2

DESIGN AGENCY
AEO ADVANCED ENGINEERING CONSULTANTS Mechanical/Electrical/Plumbing/HVAC/Process and Control Design Cleveland, Ohio 44115 Fax: (414) 886-0802
DESIGNER
JCS
REVIEWER
WH 05/17/24
PROJECT ID
82382
SHEET TOTAL
1778 2696

ITEM 625 - LIGHTING MISC.: 24" SPACER CABLE TANGENT BRACKET

24" SPACER CABLE TANGENT BRACKETS SHALL CONFORM TO THE FOLLOWING:

- A. 24" SPACER CABLE TANGENT BRACKET SHALL BE SUPPLIED WITH MESSENGER CLAMP FOR 1/2 INCH TO 9/16 INCH MESSENGER. HENDRIX BM-24 OR APPROVED EQUAL.
- B. GROUND WIRE - THE GROUND WIRE SHALL BE #6 SOLD SOFT DRAWN BARE COPPER.
- C. CONNECTORS - COPPER COMPRESSION TYPE.
- D. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. THE 24" BRACKET SHALL BE USED ON TANGENT POLES AND LINE ANGLES UP TO AND INCLUDING FIVE (5) DEGREES, TO ATTACH THE MESSENGER WIRE TO THE POLE. CABLE SPACERS SHALL BE USED TO SUPPORT THE SPACER CABLE FROM THE MESSENGER.
- B. THE BRACKET SHALL BE ATTACHED TO THE POLE USING 5/8" DIAMETER MACHINE BOLTS WITH 2-1/4"x2-1/4"x3/16" SQ. CURVED WASHERS, SPRING LOCK DOUBLE COIL WASHERS. ALL STEEL HARDWARE SHALL BE GALVANIZED.
- C. A #6 AWG COPPER GROUND WIRE SHALL CONNECT THE MESSENGER WIRE AND POLE GROUND.

THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE 24" SPACER CABLE TANGENT BRACKET IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: PRIMARY CONDUIT RISER

PRIMARY CONDUIT RISER SHALL CONSIST OF UNDERGROUND CONDUIT TURNED UP AND SECURED TO A POWER POLE, INCLUDED STANDOFF BRACKETS, CUTOUPS, LIGHTNING ARRESTERS AND CABLE TERMINATION EQUIPMENT. MATERIAL SHALL BE AS FOLLOWS:

- A. CONDUIT SHALL BE 5" SCHEDULE 40 PVC IN CONFORMANCE WITH CONDUIT SPECIFICATIONS AS DETAILED IN THESE SPECIFICATIONS.
- B. CONDUIT STAND-OFF BRACKET SHALL BE ALUMAFORM # CSO-6 OR -9 WITH #STS-5 STRAPS OR ENGINEER APPROVED EQUAL.
- C. CUTOUPS SHALL BE 600A SOLID BLADE CUTOUP SWITCHES.
- D. LIGHTNING ARRESTERS SHALL BE RISER POLE TYPE, 12KV RATED VOLTAGE, 10.2KV MCOV, 35.5IR-KV 0.5USEC 10KA MAXIMUM, 23.6 IRKV 500A SWITCHING SURGE MAXIMUM. ARRESTERS SHALL BE CONNECTED TO POLE GROUND USING #6 SOFT DRAWN SOLID BARE COPPER WIRE.
- E. RISER TERMINATION POTHEADS SHALL BE 15KV AND RATED FOR MINIMUM 600A.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL PRIMARY CONDUIT RISER IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: SPACER CABLE DEADEND ASSEMBLY

SPACER CABLE DEADEND ASSEMBLY SHALL INCLUDE A DOUBLE CROSSARM, PRIMARY CONDUCTOR DEADEND HARDWARE, MESSENGER HARDWARE, AND ALL ASSOCIATED INCIDENTAL HARDWARE REQUIRED TO CONSTRUCT THE DEADEND ASSEMBLY. MATERIAL SHALL INCLUDE:

- A. TWO WOOD CROSSARMS, DOUGLAS FIR, 3-3/4" x 10'-0", WITH ALUMAFORM RA6018 CROSSARM BRACES. CROSSARMS SHALL CONFORM TO ANSI 05.1, AWWA C-1-89, AWWA P-8-89, AWWA-C-9-87, REA 1728H-701, AND SHALL BE CURED AND TREATED WITH PENTACHLOROPHENAL IN ACCORDANCE WITH THE AWWA BOOK OF STANDARDS. TREATMENT SHALL HAVE A MINIMUM RETENSION OF 0.40, AND AN ASSAY ZONE OF 0.25-1.0.
- B. GROUND WIRE SHALL BE #6 SOLID SOFT DRAWN BARE COPPER
- C. CONNECTORS SHALL BE COPPER COMPRESSION TYPE
- D. PRESHAPED TYPE GRIP FOR MESSENGER SHALL BE PREFORMED LINE PRODUCTS #AWDE-4128.
- E. PRESHAPED TYPE GRIP FOR 556 MCM SPACER CABLE SHALL BE PREFORMED LINE PRODUCTS #ND-0123.
- F. 15KV POLYMER DEADEND INSULATOR SHALL BE 5/8" DIAMETER ROD DEADEND INSULATOR, 16" LEAKAGE DISTANCE, OHIO BRASS #401015-0215
- G. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE SPACER CABLE DEADEND ASSEMBLY IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: SPACER CABLE TO SPACER CABLE DOUBLE DEADEND ASSEMBLY

SPACER CABLE TO SPACER CABLE DOUBLE DEADEND ASSEMBLY SHALL INCLUDE A DOUBLE CROSSARM, PRIMARY CONDUCTOR DEADEND HARDWARE ON EACH SIDE OF THE CROSSARM ASSEMBLY, MESSENGER HARDWARE, AND ALL ASSOCIATED INCIDENTAL HARDWARE REQUIRED TO CONSTRUCT THE DEADEND ASSEMBLY. MATERIAL SHALL INCLUDE:

- A. TWO WOOD CROSSARMS, DOUGLAS FIR, 3-3/4" x 10'-0", WITH ALUMAFORM RA6018 CROSSARM BRACES. CROSSARMS SHALL CONFORM TO ANSI 05.1, AWWA C-1-89, AWWA P-8-89, AWWA-C-9-87, REA 1728H-701, AND SHALL BE CURED AND TREATED WITH PENTACHLOROPHENAL IN ACCORDANCE WITH THE AWWA BOOK OF STANDARDS. TREATMENT SHALL HAVE A MINIMUM RETENSION OF 0.40, AND AN ASSAY ZONE OF 0.25-1.0.
- B. GROUND WIRE SHALL BE #6 SOLID SOFT DRAWN BARE COPPER
- C. CONNECTORS SHALL BE COPPER COMPRESSION TYPE
- D. PRESHAPED TYPE GRIP FOR MESSENGER SHALL BE PREFORMED LINE PRODUCTS #AWDE-4128.
- E. PRESHAPED TYPE GRIP FOR 556 MCM SPACER CABLE SHALL BE PREFORMED LINE PRODUCTS #ND-0123.
- F. 15KV POLYMER DEADEND INSULATOR SHALL BE 5/8" DIAMETER ROD DEADEND INSULATOR, 16" LEAKAGE DISTANCE, OHIO BRASS #401015-0215
- G. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE SPACER CABLE TO SPACER CABLE DOUBLE DEADEND ASSEMBLY IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: DEADEND ASSEMBLY.

DEADEND ASSEMBLY SHALL INCLUDE A DOUBLE CROSSARM, PRIMARY CONDUCTOR DEADEND HARDWARE AND ALL ASSOCIATED INCIDENTAL HARDWARE REQUIRED TO CONSTRUCT THE DEADEND ASSEMBLY. MATERIAL SHALL INCLUDE:

- A. TWO WOOD CROSSARMS, DOUGLAS FIR, 3-3/4" x 10'-0", WITH ALUMAFORM RA6018 CROSSARM BRACES. CROSSARMS SHALL CONFORM TO ANSI 05.1, AWWA C-1-89, AWWA P-8-89, AWWA-C-9-87, REA 1728H-701, AND SHALL BE CURED AND TREATED WITH PENTACHLOROPHENAL IN ACCORDANCE WITH THE AWWA BOOK OF STANDARDS. TREATMENT SHALL HAVE A MINIMUM RETENSION OF 0.40, AND AN ASSAY ZONE OF 0.25-1.0.
- B. GROUND WIRE SHALL BE #6 SOLID SOFT DRAWN BARE COPPER
- C. CONNECTORS SHALL BE COPPER COMPRESSION TYPE
- D. CLAMP, STRAIN, CLEVIS AS REQUIRED, STRAIGHT LINE DEADEND SIZED FOR THE CONDUCTOR AND MATERIAL AS SHOWN ON THE DRAWINGS.
- E. 15KV GREAD DEADEND INSULATORS
- G. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE DEADEND ASSEMBLY IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: DOUBLE DEADEND ASSEMBLY.

DEADEND ASSEMBLY SHALL INCLUDE A DOUBLE CROSSARM, PRIMARY CONDUCTOR DEADEND HARDWARE ON EACH SIDE OF THE CROSSARM ASSEMBLY AND ALL ASSOCIATED INCIDENTAL HARDWARE REQUIRED TO CONSTRUCT THE DOUBLE DEADEND ASSEMBLY. MATERIAL SHALL INCLUDE:

- A. TWO WOOD CROSSARMS, DOUGLAS FIR, 3-3/4" x 10'-0", WITH ALUMAFORM RA6018 CROSSARM BRACES. CROSSARMS SHALL CONFORM TO ANSI 05.1, AWWA C-1-89, AWWA P-8-89, AWWA-C-9-87, REA 1728H-701, AND SHALL BE CURED AND TREATED WITH PENTACHLOROPHENAL IN ACCORDANCE WITH THE AWWA BOOK OF STANDARDS. TREATMENT SHALL HAVE A MINIMUM RETENSION OF 0.40, AND AN ASSAY ZONE OF 0.25-1.0.
- B. GROUND WIRE SHALL BE #6 SOLID SOFT DRAWN BARE COPPER
- C. CONNECTORS SHALL BE COPPER COMPRESSION TYPE
- D. CLAMP, STRAIN, CLEVIS AS REQUIRED, STRAIGHT LINE DEADEND SIZED FOR THE CONDUCTOR AND MATERIAL AS SHOWN ON THE DRAWINGS.
- E. 15KV GREAD DEADEND INSULATORS
- G. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE DOUBLE DEADEND ASSEMBLY IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: JOINT-USE CONDUIT RISER

JOINT CONDUIT RISER SHALL CONSIST OF UNDERGROUND CONDUIT TURNED UP AND SECURED TO A POWER POLE, INCLUDED STANDOFF BRACKETS AND WEATHERHEAD. MATERIAL SHALL BE AS FOLLOWS:

- A. CONDUIT SHALL BE 4" SCHEDULE 40 PVC IN CONFORMANCE WITH CONDUIT SPECIFICATIONS AS DETAILED IN THESE SPECIFICATIONS.
- B. CONDUIT STAND-OFF BRACKET SHALL BE ALUMAFORM # CSO-6 OR -9 WITH #STS-5 STRAPS OR ENGINEER APPROVED EQUAL.
- C. WEATHERHEAD FOR 4" PVC CONDUIT.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE JOINT-USE CONDUIT RISER IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: JOINT-USE MESSENGER ASSEMBLY

JOINT USE MESSENGER ASSEMBLIES SHALL CONSIST OF A DEADEND OR SPOOL/CLEVIS ASSEMBLY FOR SUPPORTING JOINT-USE MESSENGER WIRES. MATERIAL SHALL BE COORDINATED WITH EACH JOINT USER AND FURNISHED ACCORDING TO THEIR REQUIREMENTS.

THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE JOINT-USE MESSENGER ASSEMBLY IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: TWO-WAY BUCK

EAACH TWO WAY BUCK SHALL INCLUDE TWO DEADEND ASSEMBLIES, WITH PIN INSULATORS AND COPPER CONDUCTOR TIES BETWEEN BRANCHES OF THE PRIMARY CIRCUIT.

- A. DEADEND ASSEMBLY, PER ITEM 625: LIGHTING MISC.: DEADEND ASSEMBLY.
- B. 15 KV PIN INSULATORS
- C. CONNECTORS SHALL BE COPPER COMPRESSION TYPE
- D. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE TWO-WAY BUCK IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - GROUND ROD, AS PER PLAN

GROUND ROD AS PER PLAN SHALL CONSIST OF UTILITY POLE GROUNDING, INCLUDING GROUNDING WIRE, ATTACHMENT STAPLES, A GROUND ROD AND WOOD MOLDING FOR CONNECTION OF GROUNDED EQUIPMENT ON A WOOD UTILITY POLE.

- A. GROUNDING WIRE SHALL BE #4 AWG SOFT DRAWN COPPER. GROUND WIRE JUMPERS FROM SOFT DRAWN POLE GROUND TO FIXED APPARATES SHALL BE #4 SOT DRAWN COPPER. THE GROUND WIRE JUMPERS FROM POLE GROUND TO VIBRATING CONDUCTORS SHALL BE #4 STRANDED SOFT DRAWN.
- B. GROUND ROD SHALL BE 1/2" DIAMETER X 10' LONG COPPERWELD. ERICO, JOSLYN, CHANCE OR APPROVED EQUAL.
- C. GROUND ROD CONNECTORS SHALL BE ERICO #CC12F COMPRESSION COUPLING OR APPROVED EQUAL FOR CONNECTION BETWEEN GROUND RODS AND SHALL BE TYPE GR EXOTHERMIC WELDING FOR CONNECTION BETWEEN GROUND WIRE AND GROUND ROD.
- D. GROUND WIRE MOLDING SHALL BE TREATED WOOD, 8' LONGE, 1" WIDE, JOSLYN #EE-1/2 OR APPROVED EQUAL.
- E. STAPLES SHALL BE ROLLED DIAMOND POINT COPPER COATED.

INSTALLATION:

- A. INSTALLATION SHALL BE AS SHOWN ON POLE DETAIL SHEETS.
- B. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE POLE GROUNDING IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 632 - DOWN GUY, AS PER PLAN

DOWN GUY, AS PER PLAN SHALL INCLUDE ALL HARDWARE FOR POLE ATTACHMENT, THE STRANDED GUY WIRE, SCREW ANCHOR, INSULATORS, ANCHOR EXTENSIONS AND ALL OTHER HARDWARE REQUIRED TO COMPLETE THE INSTALLATION OF THE DOWN GUY. MATERIAL IS AS FOLLOWS:

- A. ALL STEEL HARDWARE SHALL BE HOT DIP GALVANIZED.
- B. GUY PLATE - 6" BOLT HOLE SPACING FOR 3/4" TO 7/8" BOLT, FOR USE WITH GUY STRAIN INSULATOR, 7/8" PIN, MATERIAL DUCTILE IRON, GALVANIZED, MACLEAN #EPR-66S-7 OR APPROVED EQUAL
- C. GUY WIRE - EHS GALVANIZED STEEL, 5/8" O.D. 1x7 STRANDED, 42400 LB STRENGTH.
- D. SCREW ANCHOR - 1-1/2" SQUARE SHAFT, 5" LENGTH WITH 1-10" AND 1-12" HELIX, GALVANIZED STEEL, 24,000 LB PULLOUT. CHANCE #P012642-EJ, JOSLYN #J23382ACA OR APPROVED EQUAL.
- E. ANCHOR EXTENSION - 1-1/2" SQ. SHAFT X 7' LENGTH, GALVANIZED STEEL, CHANCE #12655, JOSLYN #J23378.3 OR APPROVED EQUAL.
- F. ANCHOR EXTENSION - 1-1/2" SQ. SHAFT X 3-1/2' LENGTH, GALVANIZED STEEL, CHANCE #12655, JOSLYN #J23378.3 OR APPROVED EQUAL.
- G. ADAPTER - DOUBLE EYE FOR 1-1/2" SQUARE SHAFT, GALVANIZED STEEL, CHANCE #C102-0024, JOSLYN #J23365 OR APPROVED EQUAL.

- H. GUY GUARD - PLASTIC, 1-1/2" X 2" X 8', YELLOW, FOR USE ON 5/8" GUY WIRE.
- I. **PREFORMED GRIP - FOR 5/8" 1x7 EHS GALVANIZED STEEL GUY WIRE.**
- K. INSULATOR - INSULATOR STRAIN, FIBERGLASS, 7/8" X 96", MIN STRENGTH 30,000 LBS, CLEVIS-CLEVIS END FITTINGS, ONE SHEAVE WHEEL, JOSLYN # 300-96, ANDERSON #APF396R OR APPROVED EQUAL.

INSTALLATION:

- A. THE ANCHOR MUST PENETRATE INTO SOIL STIFF ENOUGH FOR THE REQUIRED HOLDING STRENGTH. ADDITIONAL ANCHOR EXTENSIONS HALL BE INSTALLED AS NECESSARY TO REACH SUFFICIENTLY STIFF SOILS.
- B. THE DIGGER OPERATOR SHALL MAINTAIN CONSTANT DOWNWARD PRESSURE ON THE ANCHOR AS IT IS INSTALLED SUCH THAT FOR EACH REVOLUTION OF THE ANCHOR DURING INSTALLATION THE ANCHOR ADVANCES AT A RATE EQUAL TO THE PITCH OF THE ANCHOR'S HELIX.
- C. UNIVORM ADVANCEMENT OF THE ANCHOR IS NECESSARY TO SCREW THE ANCOR INTO THE SOIL. TURNING THE ANCHOR WITHOUT ADVANCEMENT WILL HAVE A NEGATIVE IMPACT ON THE ANCHOR'S HOLDING CAPABILITIES.
- D. ANCHORS AND EXTENSIONS SHALL BE INSTALLED IN LINE WITH GUY WIRE. THE DIFFERENCE BETWEEN THE ANGLE OF ANCHOR INSTALLATION AND GUY ANGLE SHALL NOT EXCEED +/- 5 DEGREES.
- E. ANCHORS MUST BE INSTALLED A MINIMUM OF 6 FEET AS MEASURED ALONG THE ANCHOR EXTENSION.
- F. ANCHOR EXTENSION RODS SHOULD BE INSTALLED SO THAT THE ANCHOR EYE IS 6 TO 12 INCHES ABOVE GRADE.
- G. MULTIPLE ANCHOR INSTALLTIONS SOULD BE SEPARATED BY A MINIMUM FO 5 FEET.
- H. THE ANCHOR SHALL BE INSTALLED APPROXIMATELY 25 FEET FROM THE POLE, OR AS INDICATED ON THE DRAWINGS. WHEN AN ANCHOR MUST BE MOVED DUE TO AN OBSTRUCTION, EVERY EFFORT SHOULD BE MADE TO MOVE IT FURTHER FROM THE POLE THAN SPECIFIED.
- I. THE GUY PLATE SHALL BE INSTALLED ON THE POLE AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. THE GUY PLATE SHALL BE BOLTED TO THE POLE USING PRE-DRILLED HOLES. WHEN NEW HOLES MUST BE DRILLED INT HE POLE, THE NEW HOLES SHALL BE TREATED TO PREVENT DECAY OF THE WOOD POLE.
- J. THE FIBERGLASS GUY INSULATOR SHALL ATTACH TO THE GUY PLATE WITH A 3/4" CLEVIS PIN WHICH IS SECURED WITH A COTTER PIN.
- K. ADDITIONAL FIBERGLASS GUY INSULATORS MAY BE REQUIRED FOR ADEQUATE CLEARANCE. WHEN CONNECTING THE INSULATORS BACK TO BACK USE A 90 DEGREE FIGURE 8 LINK.
- L. GUY WIRES MUST BE INSTALLED BEFORE LINE CONDUCTORS ARE INSTALLED. GUY WIRES SHALL BE PULLED TAUT BY MEANS OF A HOIST UNTIL THE POLE IS PULLED OVER SLIGHTLY TOWARD THE GUY.
- M. PREFORMED GUY GRIPS SHALL BE USED TO TERMINATE THE GUY STRAND TO THE FIBERGLASS GUY INSULATOR AND ANCHOR ADAPTER. THE ENDS OF THE GRIPS ARE WRAPPED AROUND THE GUY STRAND AND SNAPPED INTO POSITION COMPLETING THE INSTALLATION.
- N. THE GUY GUARD SHALL BE INSTALLED OVER THE GROUND WIRE FROM A POINT NEAR THE GROUND.
- O. THIS ITEM SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE POLE GROUNDING IN A COMPLETE AND WORKMANLIKE MANNER.

ITEM 625 - LIGHTING MISC.: DISTRIBUTION SYSTEM REMOVED

DISTRIBUTION SYSTEM REMOVED CONSISTS OF ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO PERFORM DISTRIBUTION SYSTEM REMOVALS, AS DIRECTED BY THE PLAN SHEETS.

THESE INCLUDE, BUT ARE NOT LIMITED TO:

- A. WIRE AND CABLE
- B. WOOD UTILITY POLES
- C. INSULATORS
- D. CROSSARMS AND HARDWARE
- E. GUYS, ANCHORS AND RODS
- F. TRANSFORMERS AND ASSOCIATED HARDWARE
- G. MISCELLANEOUS HARDWARE AND EQUIPMENT
- H. UNDERGROUND DUCTS AND DUCTBANKS
- I. VAULTS, MANHOLES AND PULL BOXES

CABLE SHALL BE COLLECTED ON COLLAPSIBLE REELS AND SECURED INTO COILS AND STACKED ON PALLETS FOR RETURN TO CPP. CABLE SHALL BE SEPARATED BY TYPE AND SIZE. WHEN STRUCTURES ARE REMOVED, REMOVAL METHODS SHALL BE USED WHICH ENSURE THAT OTHER EXISTING INSTALLATIONS SUCH AS ADJACENT PAVEMENTS, ETC, WHICH ARE TO REMAIN IN PLACE WILL NOT BE DAMAGED. HOLES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH ODOT SPECIFICATIONS. DAMAGE THAT OCCURS TO A PAVED AREA DUE TO REMOVAL SHALL BE RESTORED WITH SIMILAR MATERIALS.

THIS ITEM SHALL INCLUDE ALL LABOR, EQUIPEMENT, TOOLS, SUPERVISION AND SAFETY REQUIREMENTS REQUIRED FOR A COMPLETE REMOVAL OPERATION WITH SITE LEFT IN A SAFE AND SECURED CONDITION.

9 ITEM SPECIAL - PRECAST ELECTRIC MANHOLE

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING COMPLETE IN PLACE PRECAST REINFORCED CONCRETE MANHOLE (VAULT) STRUCTURES IN ACCORDANCE WITH CLEVELAND PUBLIC POWER (CPP) REQUIREMENTS AND DESIGNED TO MEET OR EXCEED THE LATEST ASTM STANDARDS FOR UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES (ASTM C858-10E1) AND MINIMUM STRUCTURAL DESIGN LOADING FOR UNDERGROUND PRECAST UTILITY STRUCTURES (ASTM 857-14) HS25 LOADING. THE FOLLOWING CPP DEVELOPED PLAN DETAILS HAVE BEEN INCLUDED IN THE PLAN SET FOR THIS WORK:

- SAMPLE INDIVIDUAL MANHOLE DETAILS INCLUDING WINDOW OPENING DETAILS AND LIST OF MANHOLE REQUIREMENTS
- TYPICAL INSTALLATION DETAILS
- SAMPLE PRECAST NECK RING SCHEDULE
- GENERAL UNDERGROUND CONSTRUCTION NOTES
- BACKFILL MATERIAL AND BACKFILLING PROCEDURES

IT IS NOTED THAT NUMEROUS UNDERGROUND UTILITIES ARE PRESENT ALONG THE CORRIDOR THAT COULD NECESSITATE CHANGES TO MANHOLE DEPTHS AND WINDOW DIMENSIONS. THE CONTRACTOR SHALL PERFORM UTILITY TEST HOLES AT ALL VAULT LOCATIONS PRIOR TO DEVELOPING SHOP DRAWINGS FOR ELECTRIC MANHOLES. IN ADDITION, THE CONTRACTOR WILL BE SUPPLYING AND INSTALLING ELECTRICAL RACK AND BOND SYSTEMS WITHIN THE MANHOLES. CABLE RACKING ASSEMBLIES SHALL CONSIST OF STEEL, HOT-DIP GALVANIZED STANCHIONS AND ARMS, AND PORCELAIN INSULATORS MANUFACTURED BY HUBBELL POWER SYSTEMS, INC OR APPROVED EQUIVALENT.

1. STANCHIONS: NOB-LOC; 1-3/4 INCH NOMINAL SIZE; DUJB SERIES FOR CABLE-ARM ATTACHMENT.
2. ARMS: 1.97 INCHES WIDE, LENGTHS RANGING FROM 3-7/8 INCHES WITH 400 LB MINIMUM CAPACITY TO 14-7/8 INCHES WITH 200 LB MINIMUM CAPACITY. ARMS SHALL BE ARRANGED FOR SECURE MOUNTING IN HORIZONTAL POSITION AT ANY VERTICAL LOCATION ON STANCHIONS.
3. INSULATORS: HIGH-GLAZE, DRY-PROCESS PORCELAIN ARRANGED FOR MOUNTING ON CABLE ARMS. THE CONTRACTOR SHALL COORDINATE MANHOLE WORK WITH CPP TO ENSURE COMPATIBILITY AND TIMELY COMPLETION OF RELATED WORK ELEMENTS.

SEALING DUCT ENDS IN MANHOLES: USE SEALING COMPOUND IN DUCT ENDS CONTAINING CABLES AND PLUGS IN SPARE DUCTS TO WITHSTAND AT LEAST 15 PSIG HYDROSTATIC PRESSURE. DUCT SEALING COMPOUND SHALL BE NON-HARDENING, SAFE FOR CONTACT WITH HUMAN SKIN, NOT DELETERIOUS TO CABLE INSULATION AND WORKABLE AT TEMPERATURES AS LOW AS 35 DEG F. CAPABLE OF WITHSTANDING TEMPERATURE OF 300 DEG F WITHOUT SLUMP, AND ADHERING TO CLEAN SURFACES OF PLASTIC DUCTS, METALLIC CONDUITS, CONDUIT COATINGS, CONCRETE, MASONRY, LEAD, CABLE SHEATHS, CABLE JACKETS, INSULATION MATERIALS AND COMMON METALS.

THE MANHOLES TO BE PAID WILL BE THE ACTUAL NUMBER COMPLETED AND ACCEPTED, INCLUDING CONCRETE LEVELING PAD, GROUND ROD (5/8 INCH X LENGTH, PER CPP DETAILS), CLAMP, GROUND WIRE, BONDING, RACK SYSTEM, NECK RINGS, CAP RINGS, PULLING IRONS, AND CASTINGS.

DESIGN AGENCY



DESIGNER
 JCS

REVIEWER
 WH 05/17/24

PROJECT ID
 82382

SHEET	TOTAL
1779A	2696

SHEET NO.	STATION		SIDE	CIRCUIT NODES	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	632	632	632	632	632	632	632	690	690		
	FROM	TO			FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH								
	EX. CEDAR AVE. CONNECTOR																															
1783	1+20.00		RT	P8																												
1783	1+20.00	1+28.00	RT	P8 TO P9		14																										
1783	1+22.00		RT	P1																												
1783	1+22.00	1+30.00	RT	P1 TO P2		14																										
1783	1+28.00		RT	P9																												
1783	1+28.00	83+11.00	RT/LT	P9 TO P10		320																										
1783	1+30.00		RT	P2																												
1783	1+30.00	1+37.00	RT	P2 TO P3		28																										
1783	1+37.00		RT	P3																												
	EX. CARNEGIE AVE																															
1783	1+37.00	44+24.00	RT	P1,P2,P3,P8,P9 TO EX MH 80-36		790																										
	EX. CEDAR AVE. CONNECTOR																															
1783	1+37.00	83+26.00	RT/LT	P3 TO P4		480																										
	EX. E. 22ND ST. N																															
1783	21+51.00		RT	EX MH 81-27																												
1783	21+51.00	22+77.00	RT	EX MH 81-27 TO EX MH 80-45									630		20																	
	I.R. 90																															
1783	21+51.00	82+64.00	RT	EX MH 81-27 TO P5,P6,P7,P11,P12		1150																										
	EX. E. 22ND ST. N																															
1783	22+77.00	25+20.00	RT	EX MH 80-45 TO EX MH 80-44									1220																			
1783	25+20.00	27+35.00	RT	EX MH 80-44 TO EX MH 80-21									1085																			
1783	27+35.00		RT	EX MH 80-21																												
1783	27+35.00	44+24.00	RT	EX MH 80-21 TO EX MH 80-36		282																										
	EX. CARNEGIE AVE																															
1783	44+24.00		RT	EX MH 80-36																												
	I.R. 90																															
1783	82+61.00		RT	P12																												
1783	82+61.00	82+64.00	RT	P12 TO P11		14																										
1783	82+64.00		RT	P11																												
1783	82+64.00	93+11.00	RT/LT	P11 TO P10		396																										
1783	82+73.00		RT	P7																												
1783	82+73.00	82+76.00	RT	P7 TO P6		14																										
1783	82+76.00		RT	P6																												
1783	82+76.00	82+79.00	RT	P6 TO P5		28																										
1783	82+79.00		RT	P5																												
1783	82+79.00	83+26.00	RT/LT	P5 TO P4		591																										
1783	83+26.00		LT	P4																												
1783	93+11.00		LT	P10																												
	EX. CEDAR AVE																															
	NOT USED																															
	NOT USED																															
	NOT USED																															
	EX. CARNEGIE AVE																															
	NOT USED																															
TOTALS CARRIED TO SHEET 1782					2222	1899	-	-	272	-	368	-	-	-	2935	12	44	5	-	-	10	10	8	-	10	-	-	2	-	28	-	-

CLEVELAND PUBLIC POWER SUBSUMMARY - 1

DESIGN AGENCY	
DESIGNER	JCS
REVIEWER	WH 05/17/24
PROJECT ID	82382
SHEET TOTAL	1780 2696

SHEET NO.	STATION	SIDE	CIRCUIT NODES	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	632	632	632	632	632	632	632	690	690	
				FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH							
9	EX. CARNEGIE AVE (CONT.)																														
	NOT USED																														
	NOT USED																														
1784	50+00.00	RT	P20																												
1784	50+00.00	RT	P20 TO P21		13																										
1784	50+05.00	RT	EX MH 95-32																												
1784	50+05.00	RT	EX MH 95-32 TO P13-15,P20-23	546																											
1784	50+05.00	RT	EX MH 95-32 TO EX MH 96-31																												
1784	50+12.00	RT	P21																												
1784	50+12.00	RT	P21 TO P22		26																										
1784	50+23.00	RT	P22																												
1784	50+23.00	RT	P22 TO P23		39																										
1784	50+35.00	RT	P23																												
1784	50+35.00	RT	P23 TO P24		1112																										
1784	50+53.00	RT	P13																												
1784	50+53.00	RT	P13 TO P14		11																										
1784	50+63.00	RT	P14																												
1784	50+63.00	RT	P14 TO P15		22																										
1784	50+73.00	RT	P15																												
1784	50+73.00	RT	P15 TO P16		786																										
1784	54+82.00	RT	P25																												
1784	54+82.00	RT	P25 TO P26		33																										
1784	54+82.00	RT	P16-19,P25-28 TO EX MH 96-31	2331																											
1784	I.R. 90	RT	P25 TO P24		716																										
1784	54+92.00	RT	P26																												
1784	54+92.00	RT	P26 TO P27		22																										
1784	55+01.00	RT	P27																												
1784	55+01.00	RT	P27 TO P28		11																										
1784	55+11.00	RT	P28																												
1784	55+20.00	RT	P17																												
1784	55+20.00	RT	P17 TO P18		22																										
1784	I.R. 90	RT	P17 TO P16		588																										
1784	55+30.00	RT	P18																												
1784	55+30.00	RT	P18 TO P19		11																										
1784	55+40.00	RT	P19																												
1784	57+74.00	RT	EX MH 96-31																												
1784	I.R. 90	RT	P24																												
1784	91+67.00	RT	P16																												
1787	31+36.00	RT	MH 80-19 / 80-27																												
1787	31+36.00	RT	MH 80-19 / 80-27 TO MH 80-45	91950																											
TOTALS CARRIED TO SHEET 1782				4827	3412	-	-	-	-	-	391	110	-	5390	16	76	7	4	18	14	14	18	2	5	6	1	-	2	44	1	-

CLEVELAND PUBLIC POWER SUBSUMMARY - 2

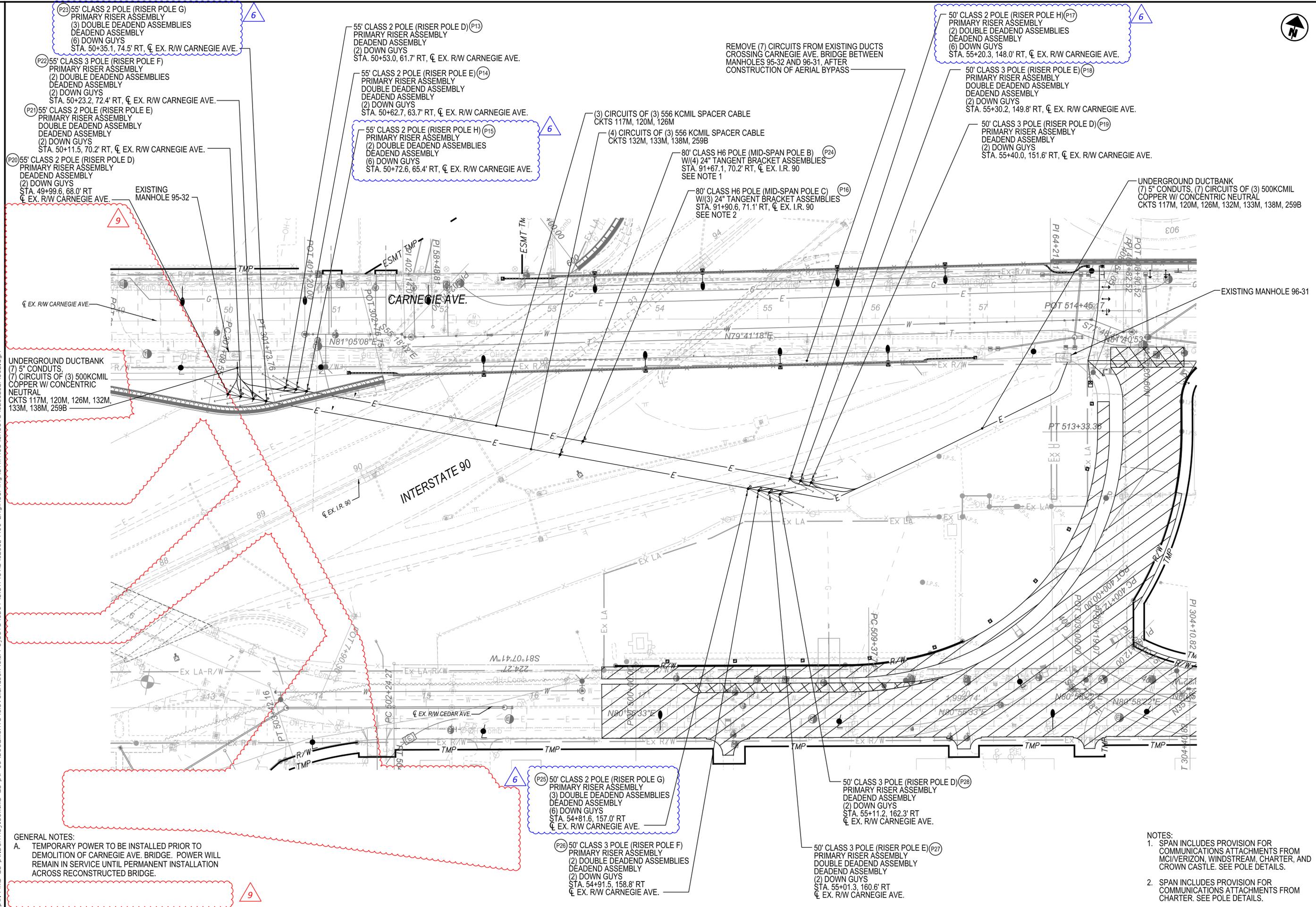
DESIGN AGENCY


DESIGNER
 JCS

REVIEWER
 WH 05/17/24

PROJECT ID
 82382

SHEET TOTAL
 1781 | 2696



GENERAL NOTES:
 A. TEMPORARY POWER TO BE INSTALLED PRIOR TO DEMOLITION OF CARNEGIE AVE. BRIDGE. POWER WILL REMAIN IN SERVICE UNTIL PERMANENT INSTALLATION ACROSS RECONSTRUCTED BRIDGE.

(P25) 50' CLASS 2 POLE (RISER POLE G)
 PRIMARY RISER ASSEMBLY
 (3) DOUBLE DEADEND ASSEMBLIES
 DEADEND ASSEMBLY
 (6) DOWN GUYS
 STA. 54+81.6, 157.0' RT, CL EX. R/W CARNEGIE AVE.

(P26) 50' CLASS 3 POLE (RISER POLE F)
 PRIMARY RISER ASSEMBLY
 (2) DOUBLE DEADEND ASSEMBLIES
 DEADEND ASSEMBLY
 (2) DOWN GUYS
 STA. 54+91.5, 158.8' RT, CL EX. R/W CARNEGIE AVE.

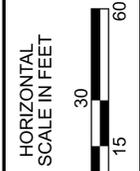
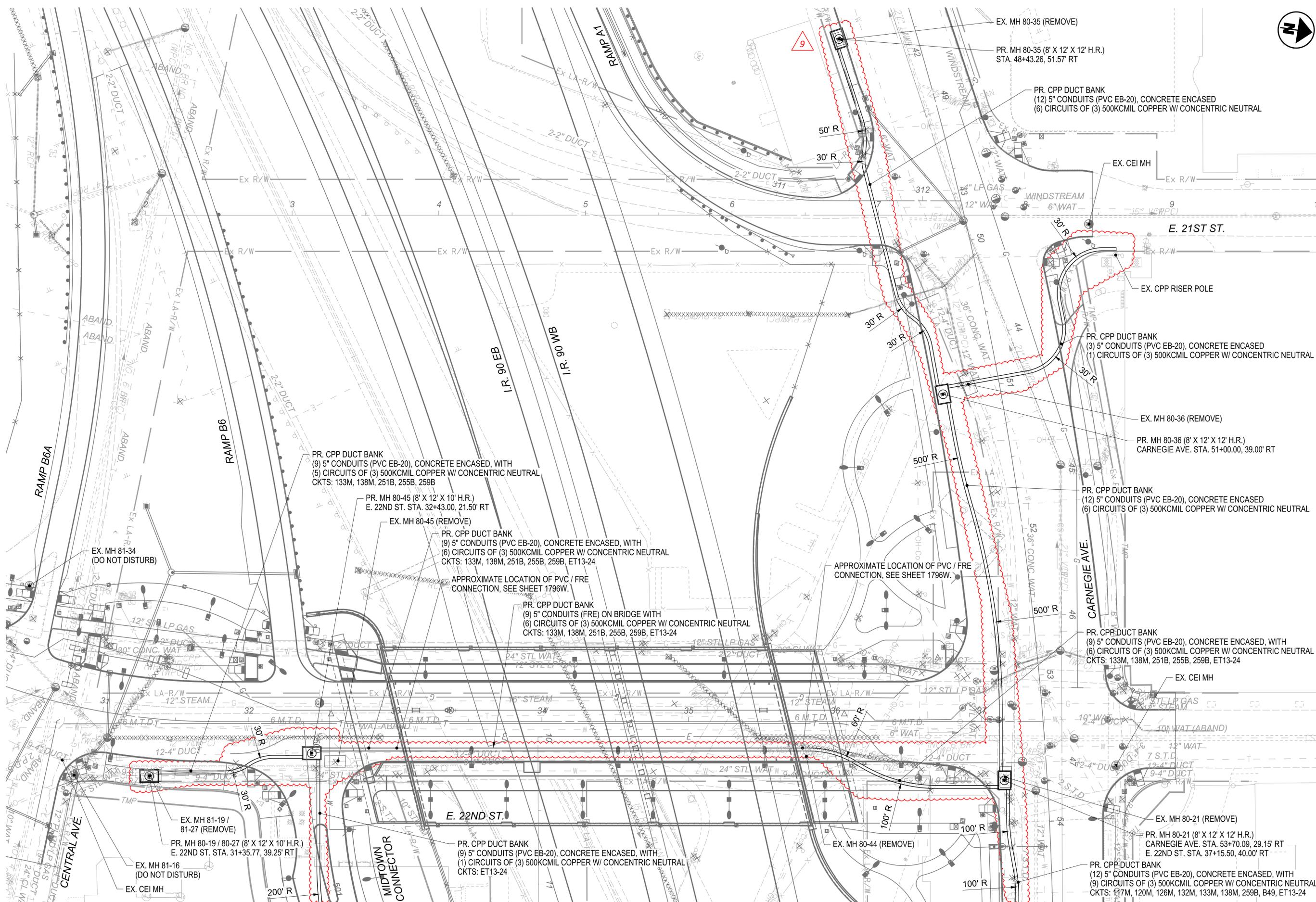
50' CLASS 3 POLE (RISER POLE D) (P28)
 PRIMARY RISER ASSEMBLY
 DEADEND ASSEMBLY
 (2) DOWN GUYS
 STA. 55+11.2, 162.3' RT, CL EX. R/W CARNEGIE AVE.

50' CLASS 3 POLE (RISER POLE E) (P27)
 PRIMARY RISER ASSEMBLY
 DOUBLE DEADEND ASSEMBLY
 DEADEND ASSEMBLY
 (2) DOWN GUYS
 STA. 55+01.3, 160.6' RT, CL EX. R/W CARNEGIE AVE.

NOTES:
 1. SPAN INCLUDES PROVISION FOR COMMUNICATIONS ATTACHMENTS FROM MCIVERIZON, WINDSTREAM, CHARTER, AND CROWN CASTLE. SEE POLE DETAILS.
 2. SPAN INCLUDES PROVISION FOR COMMUNICATIONS ATTACHMENTS FROM CHARTER. SEE POLE DETAILS.

CLEVELAND PUBLIC POWER
 TEMPORARY POWER SCHEMATIC PLAN
 CARNEGIE AVE. BRIDGE REPLACEMENT

DESIGN AGENCY	AFC ADVANCED ENGINEERING CONSULTANTS
DESIGNER	JCS
REVIEWER	WH 05/17/24
PROJECT ID	82382
SHEET	TOTAL
1784	2696

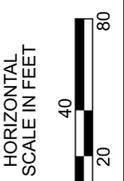
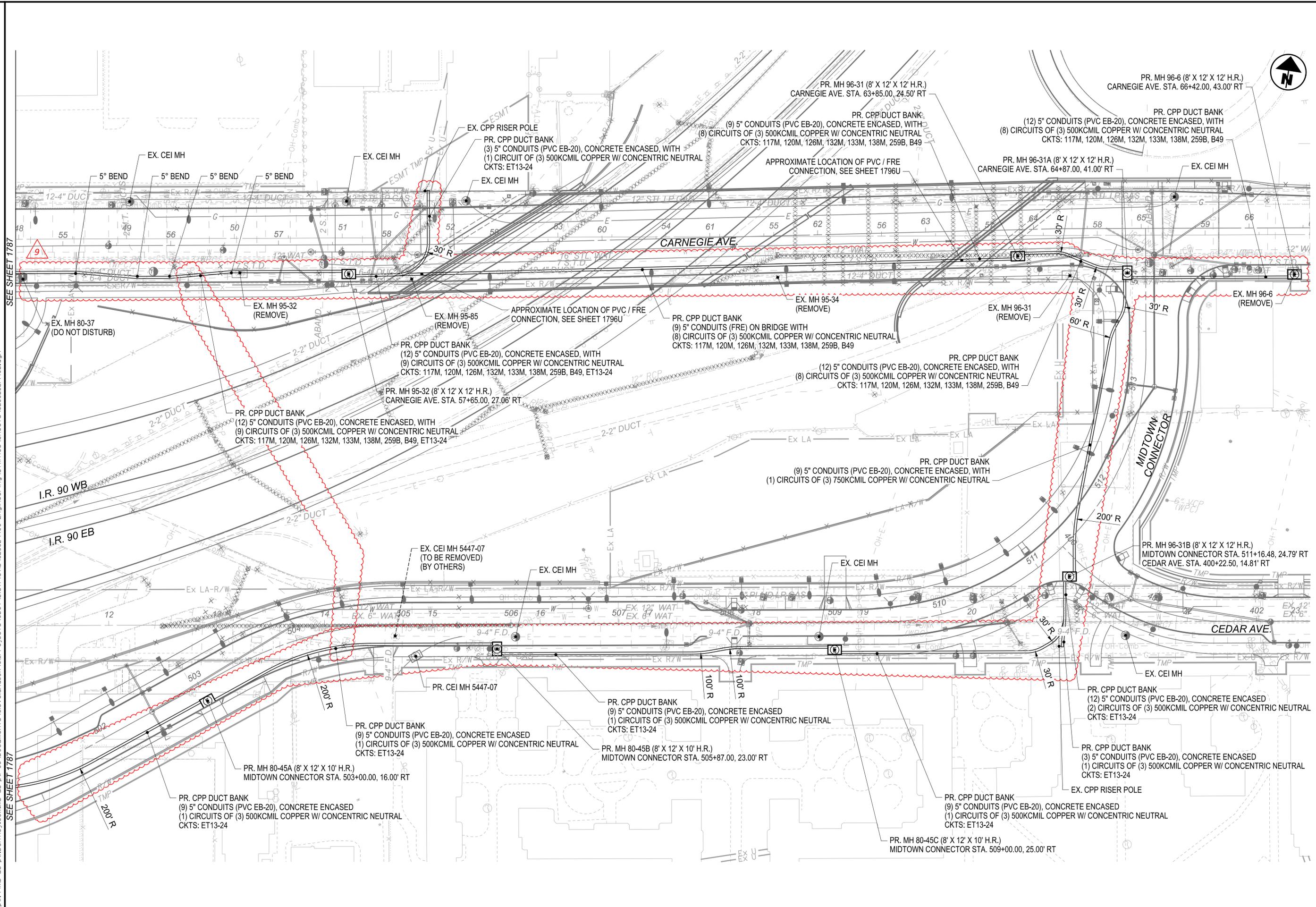


**CLEVELAND PUBLIC POWER
POWER PLAN
E. 22ND ST. BRIDGE REPLACEMENT**

SEE SHEET 1788

SEE SHEET 1788

DESIGN AGENCY	AFCO ADVANCED ENGINEERING CONSULTANTS Mechanical, Electrical, Plumbing & Fire Protection 14800 South Road Cleveland, Ohio 44130
DESIGNER	JCS
REVIEWER	WH 05/17/24
PROJECT ID	82382
SHEET TOTAL	1787 2696



CLEVELAND PUBLIC POWER
 POWER PLAN
 CARNEGIE AVE. BRIDGE REPLACEMENT

DESIGN AGENCY



DESIGNER
JCS

REVIEWER
WH 05/17/24

PROJECT ID
82382

SHEET	TOTAL
1788	2696

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER
KJM

REVIEWER
JTH 11/03/25

PROJECT ID
82382

SHEET	TOTAL
1796A	2696

CLEVELAND PUBLIC POWER
DUCT BANK PROFILES
80-19/80-27 TO 80-45 | 80-45 TO 80-21

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

82382

SHEET

1796B

TOTAL

2696

CLEVELAND PUBLIC POWER

DUCT BANK PROFILES

80-35 TO 80-36 | 80-36 TO 80-21 | 80-36 TO RISER POLE

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY



DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

82382

SHEET

1796C

TOTAL

2696

CLEVELAND PUBLIC POWER
DUCT BANK PROFILES
80-21 TO 95-32 | 95-32 TO RISER POLE

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

82382

SHEET TOTAL

1796D 2696

CLEVELAND PUBLIC POWER
DUCT BANK PROFILES
95-32 TO 96-31

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

82382

SHEET

1796E

TOTAL

2696

CLEVELAND PUBLIC POWER
DUCT BANK PROFILES

96-31 TO 96-31A | 96-31A TO 96-6 | RISER POLE TO 96-31B | 96-31B TO 96-31A

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

82382

SHEET TOTAL

1796F | 2696

CLEVELAND PUBLIC POWER
DUCT BANK PROFILES
80-45 TO 80-45A | 80-45A TO 80-45B

PLACEHOLDER SHEET
PROFILES TO BE INCLUDED WITH ADDENDUM 10

DESIGN AGENCY

Michael Baker
INTERNATIONAL

DESIGNER

KJM

REVIEWER

JTH 11/03/25

PROJECT ID

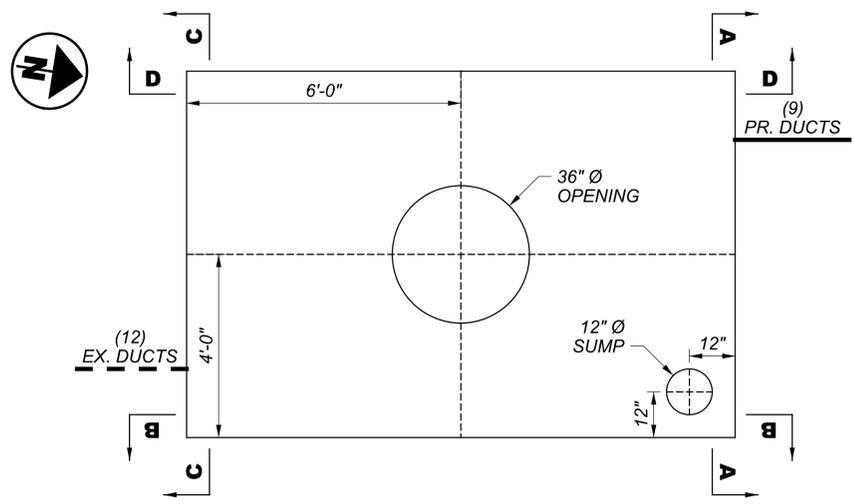
82382

SHEET TOTAL

1796G 2696

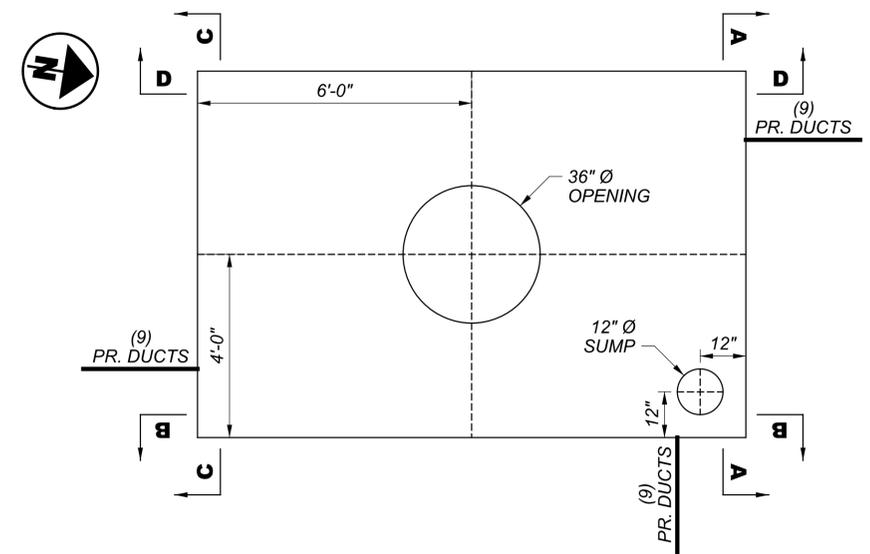
CLEVELAND PUBLIC POWER
DUCT BANK PROFILES
80-45B TO 80-45C | 80-45C TO 96-31B

8'-0" WIDE	12'-0" LONG	10'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-19 / 80-27
LOCATION: E. 22ND ST. STA. 31+35.77, 39.25' RT					

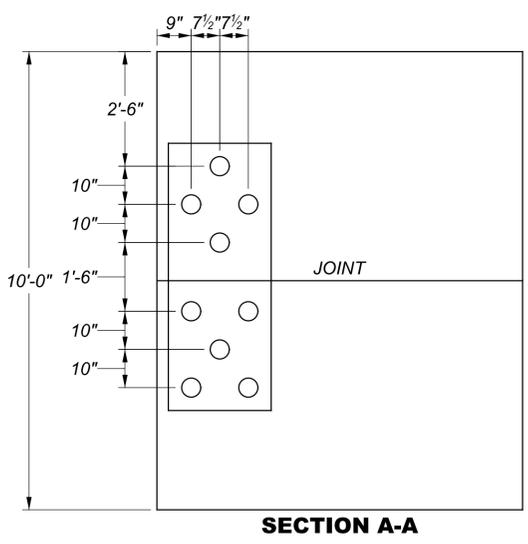


- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 18 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING
 - EJIW #1585 W/HOLES

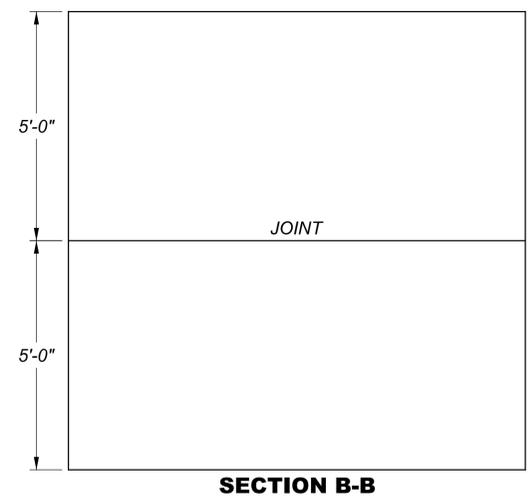
8'-0" WIDE	12'-0" LONG	10'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-45
LOCATION: E 22ND ST. STA. 32+43.00, 21.50' RT					



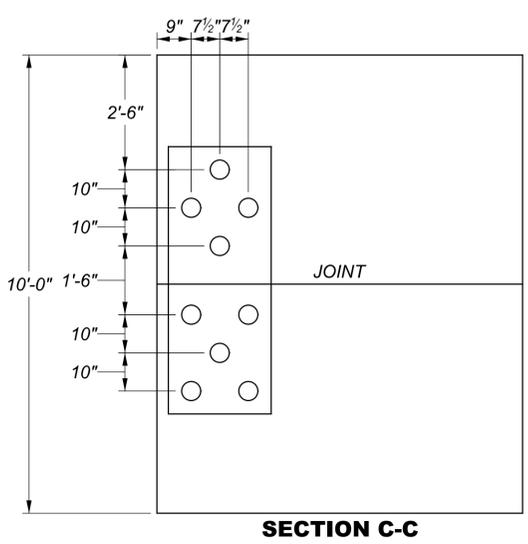
- REQUIREMENTS:
- 3 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 27 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING
 - EJIW #1585 W/HOLES



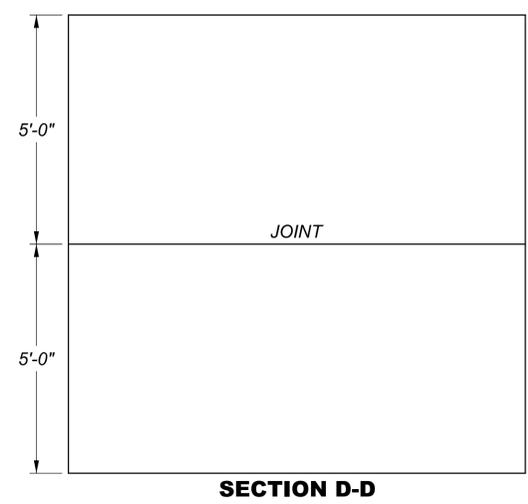
SECTION A-A



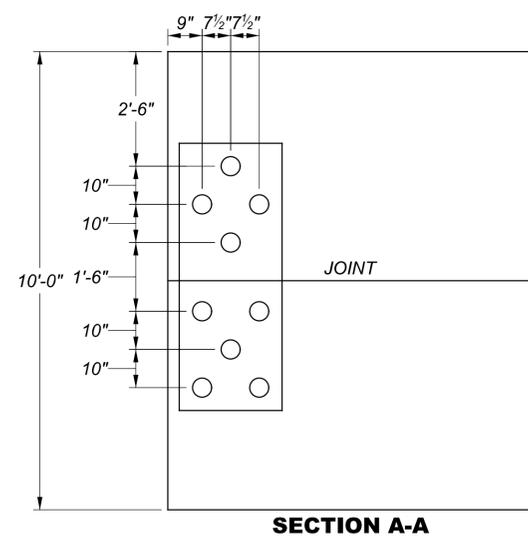
SECTION B-B



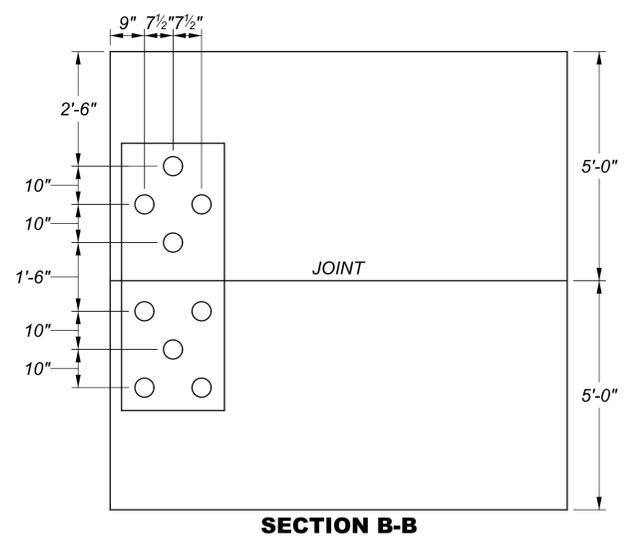
SECTION C-C



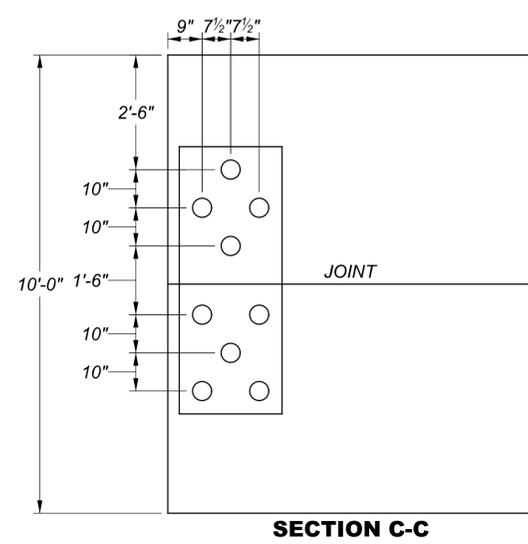
SECTION D-D



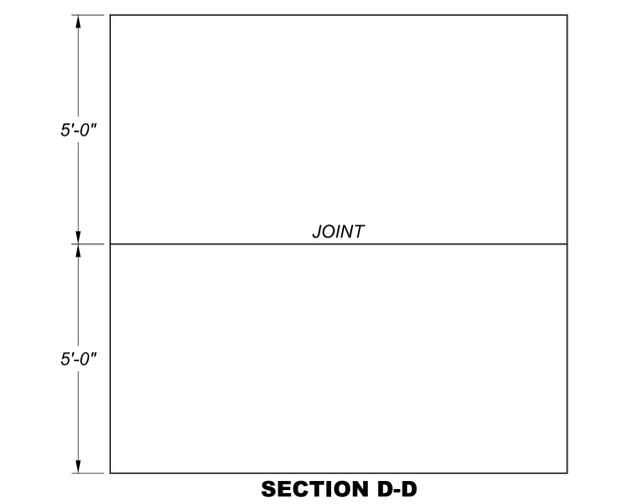
SECTION A-A



SECTION B-B



SECTION C-C



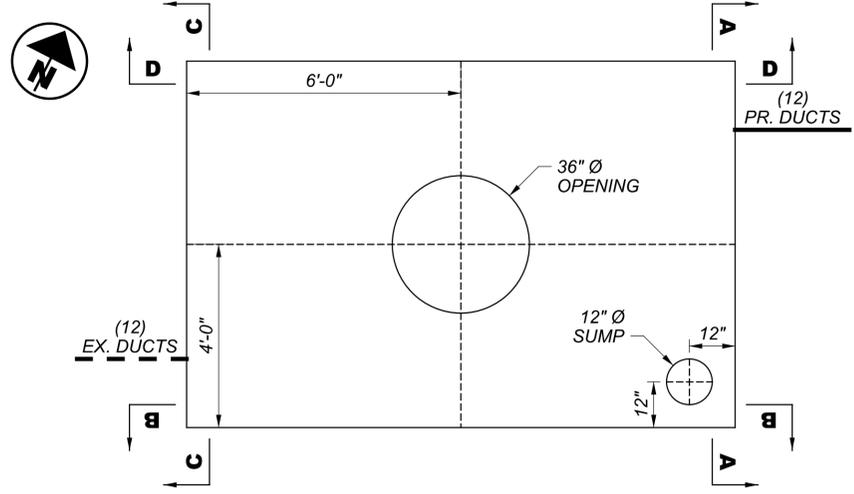
SECTION D-D

CUY-90-16.28 (CCG3A)
 MODEL: Sheet-01 PAPER SIZE: 34x22 (in.) DATE: 11/4/2025 TIME: 7:33:32 PM USER: Joseph.Hogan
 p:\mb-us-pw\ben\ley.com\mb-us-pw-03\Documents\Cleveland_OH\OL\Projects\ODOT\District12\82382_400-Engineering\Files\Sheets\82382_ID1400.dgn

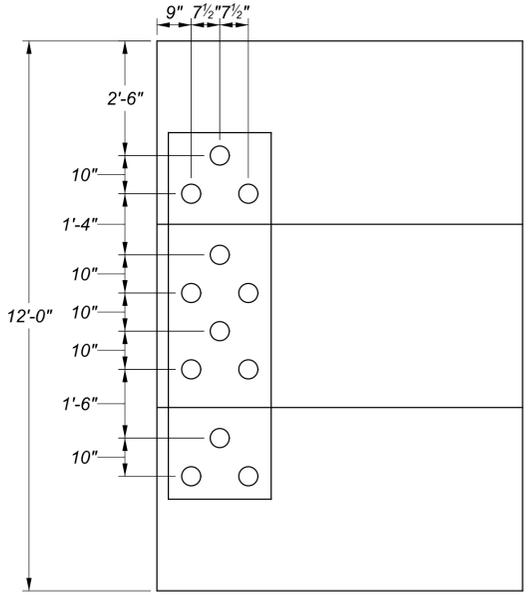
CLEVELAND PUBLIC POWER
 VAULT DETAILS
 80-19 / 80-27 & 80-45

DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	JTH 11/03/25
PROJECT ID	82382
SHEET	TOTAL
1796H	2696

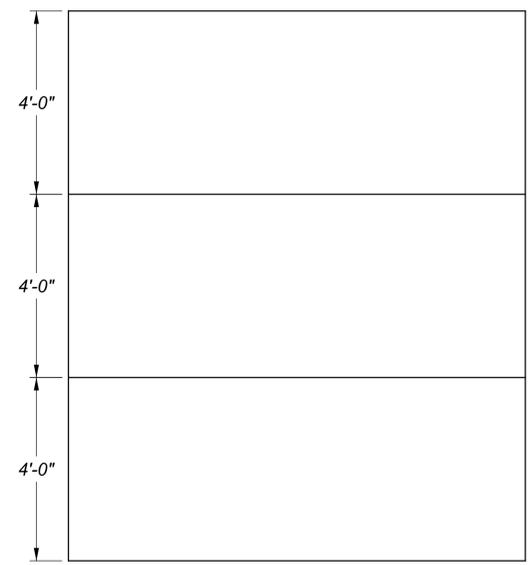
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LOCATION: CARNEGIE AVE. STA. 48+43.26, 51.57' RT					



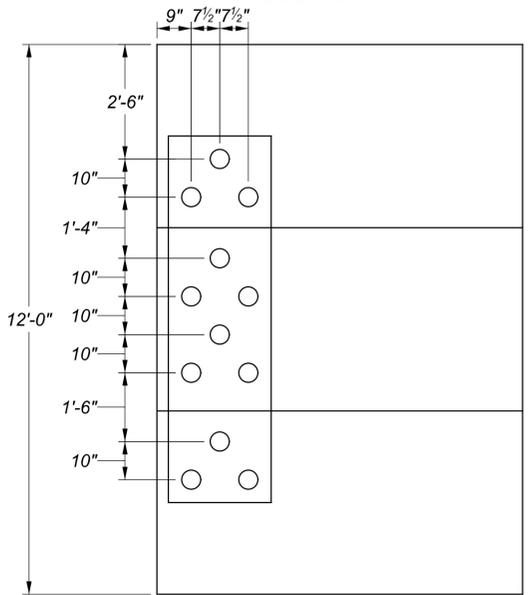
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 24 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



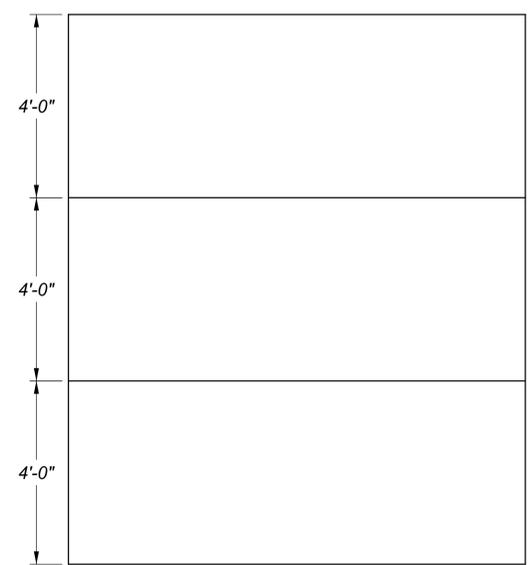
SECTION A-A



SECTION B-B

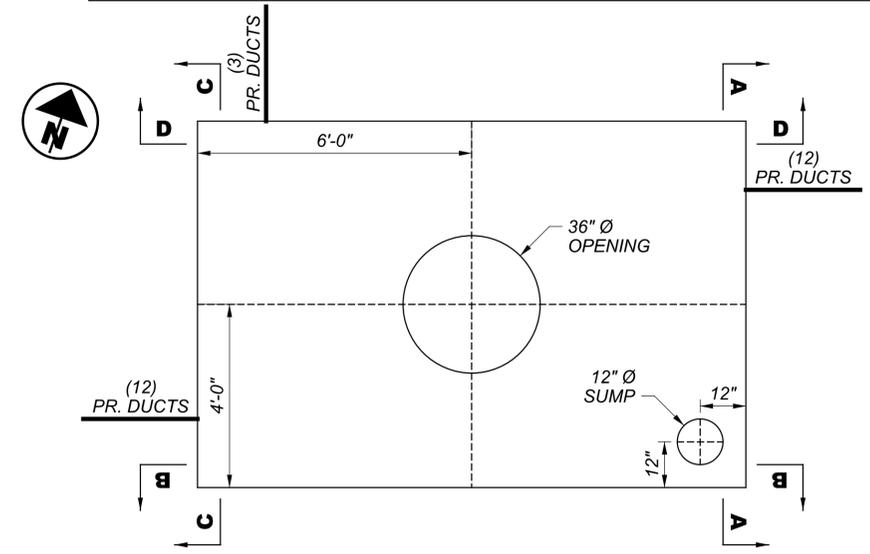


SECTION C-C

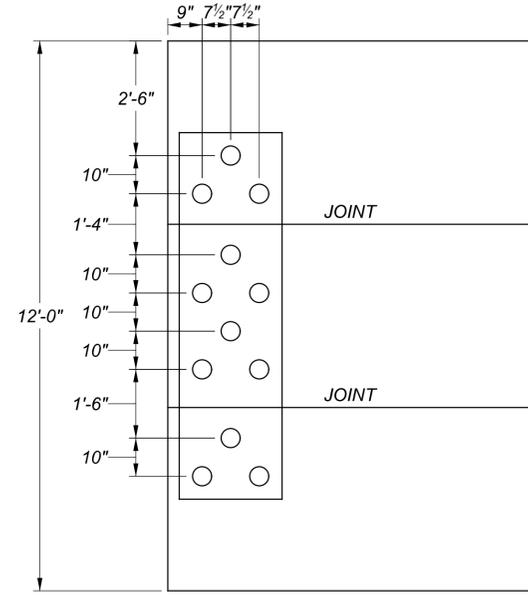


SECTION D-D

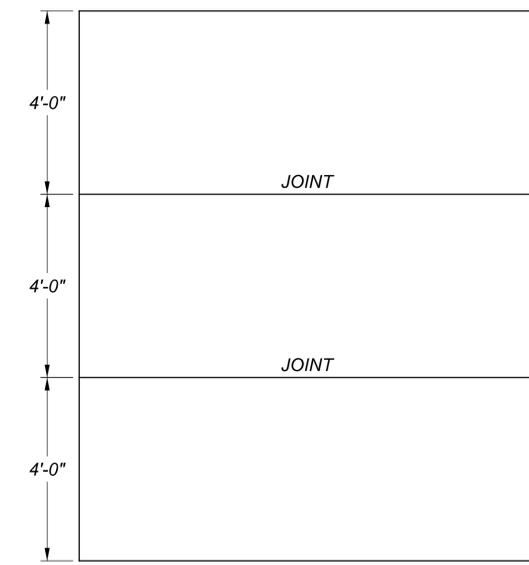
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LOCATION: CARNEGIE AVE. STA. 51+00.00, 39.00' RT					



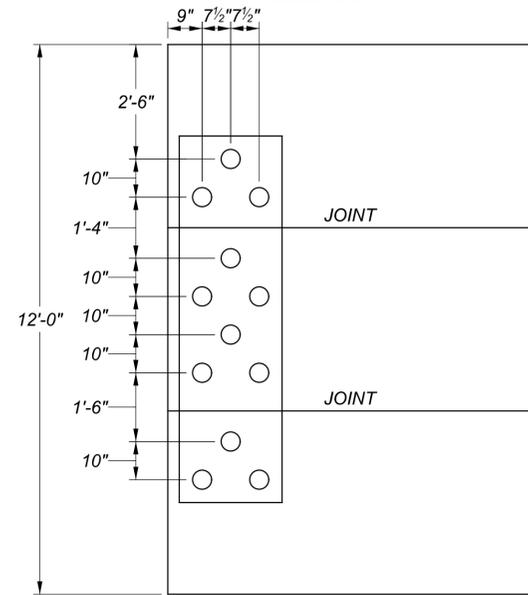
- REQUIREMENTS:
- 3 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 27 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



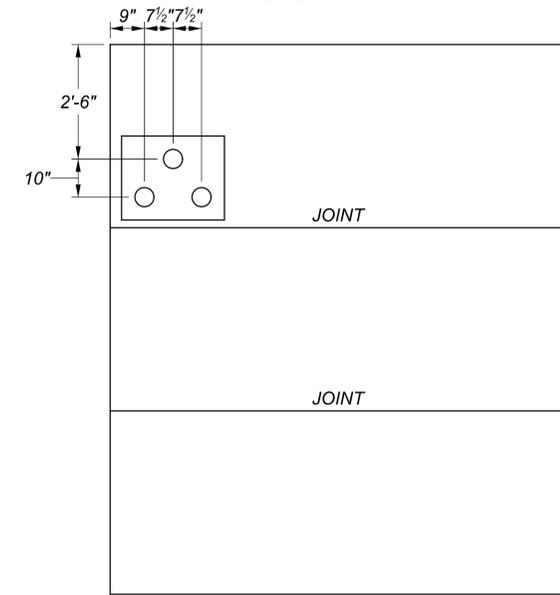
SECTION A-A



SECTION B-B



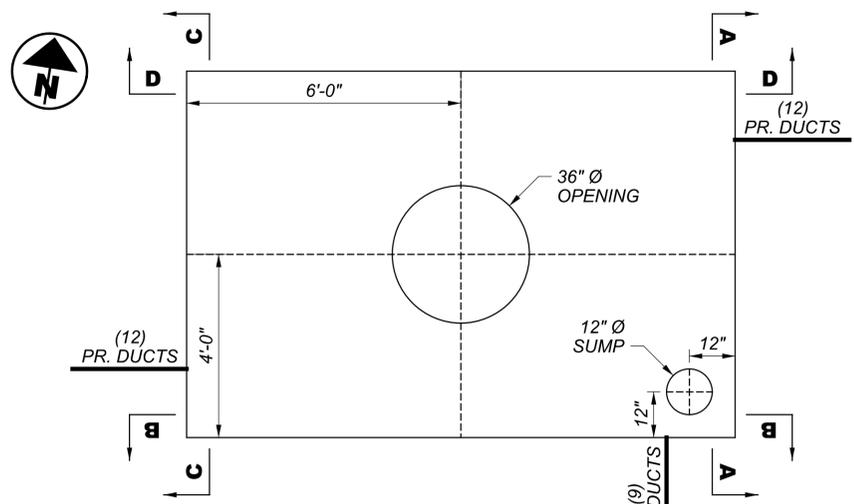
SECTION C-C



SECTION D-D

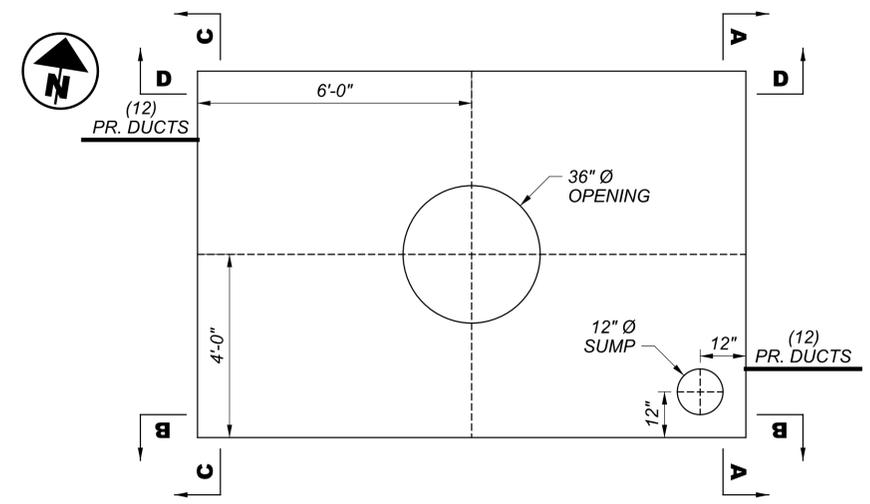
DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	JTH 11/03/25
PROJECT ID	82382
SHEET TOTAL	17961 2696

8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-21
LOCATION: CARNEGIE AVE. STA. 53+70.09, 29.15' RT / E. 22ND ST. STA. 37+15.50, 40.00' RT					

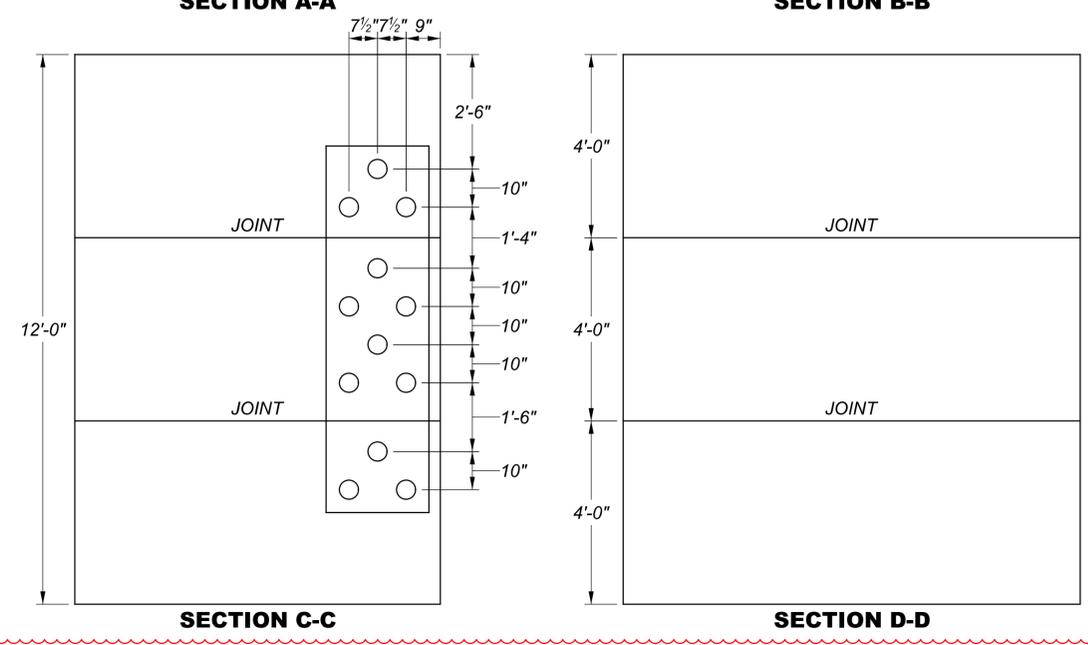
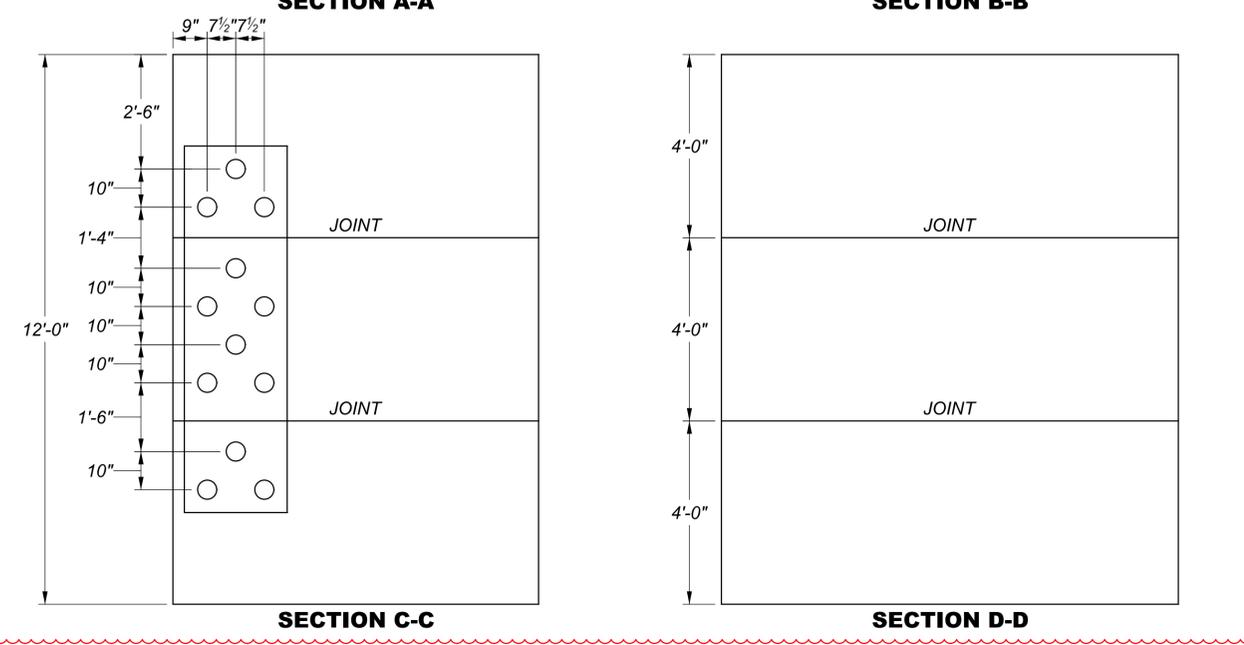
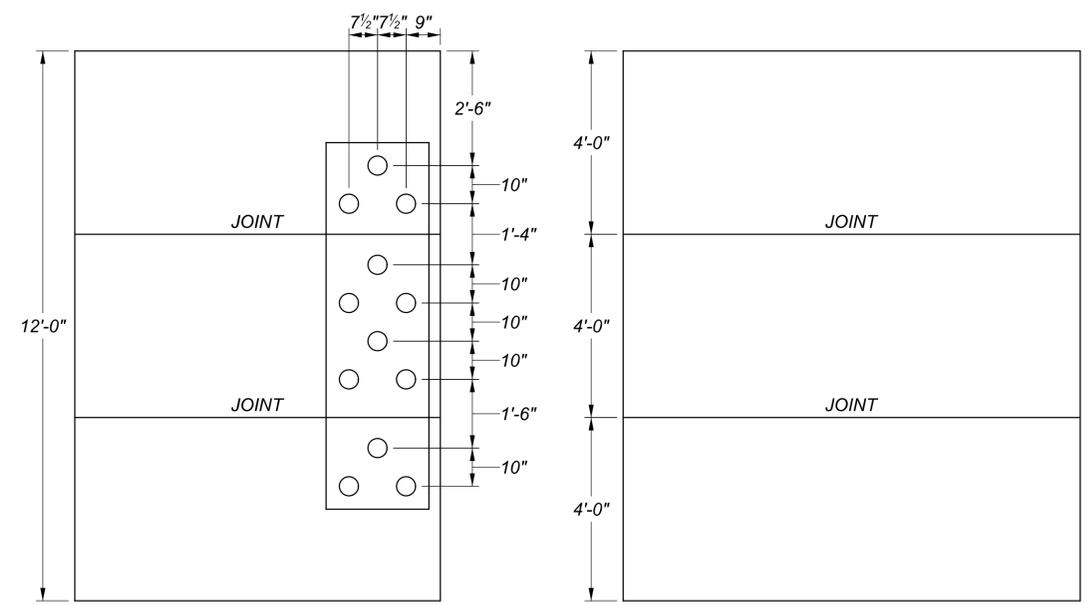
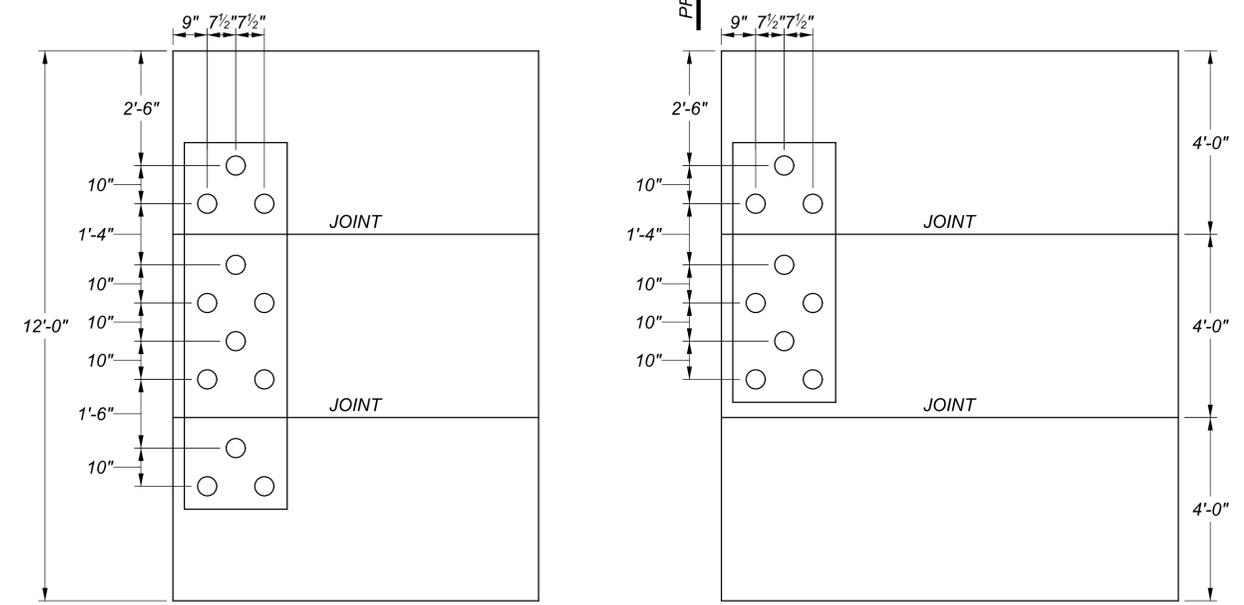


- REQUIREMENTS:
- 3 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 33 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES

8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 95-32
LOCATION: CARNEGIE AVE. STA. 57+65.00, 27.06' RT					



- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 24 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES

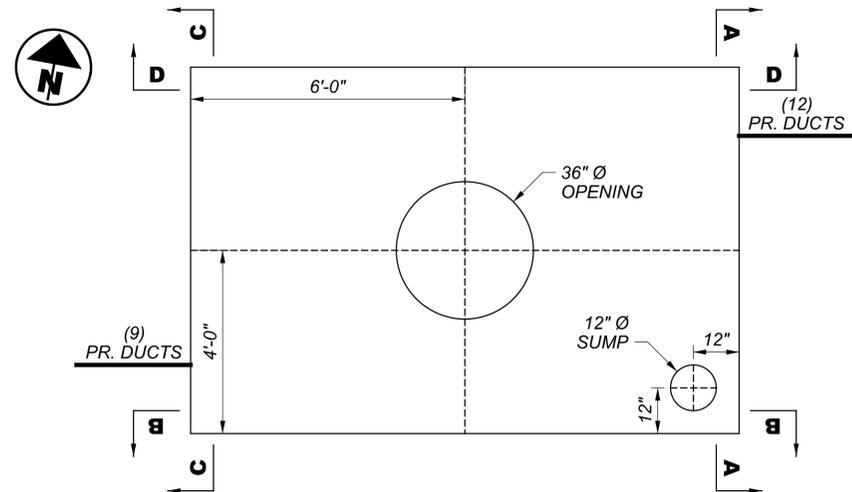


CUY-90-16.28 (CCG3A)
 MODEL: Sheet-03 PAPER: 34x22 (in.) DATE: 11/4/2025 TIME: 7:33:33 PM USER: Joseph.Hogan
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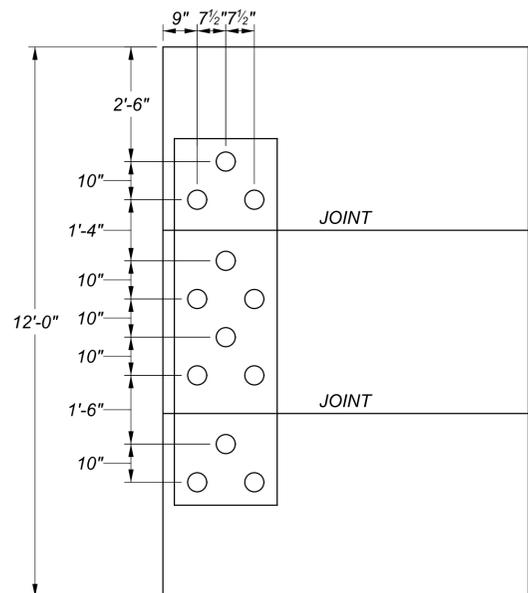
CLEVELAND PUBLIC POWER
 VAULT DETAILS
 80-21 & 95-32

DESIGN AGENCY	
DESIGNER	KJM
REVIEWER	JTH 11/03/25
PROJECT ID	82382
SHEET	TOTAL
1796J	2696

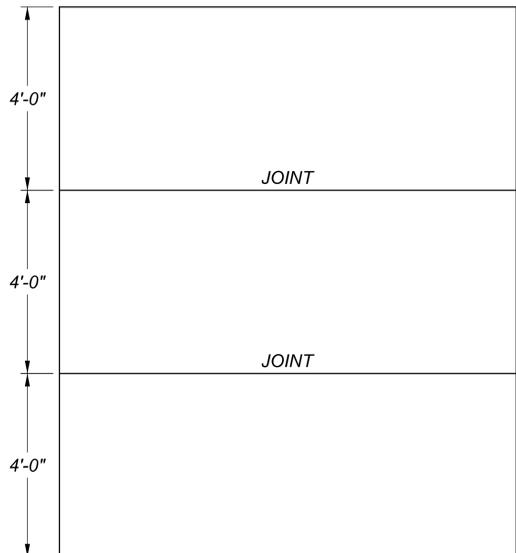
8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 96-31
LOCATION: CARNEGIE AVE. STA. 63+85.00, 24.50' RT					



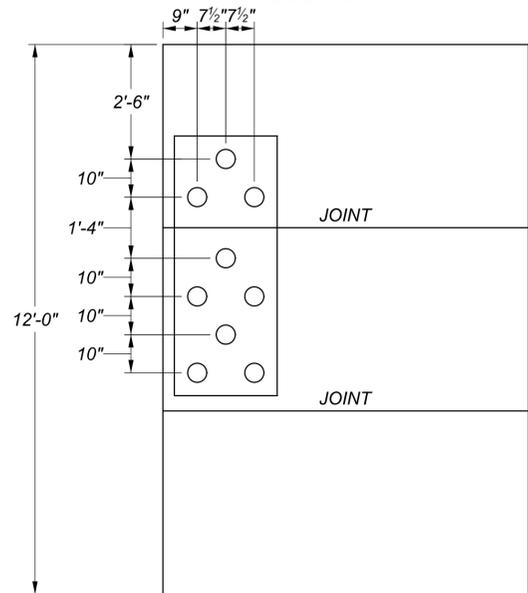
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 21 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



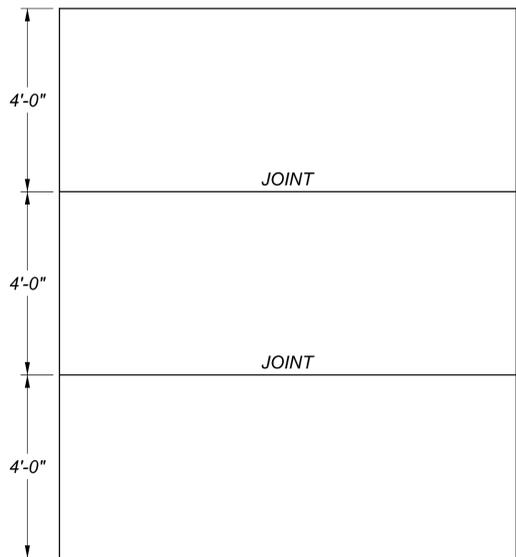
SECTION A-A



SECTION B-B

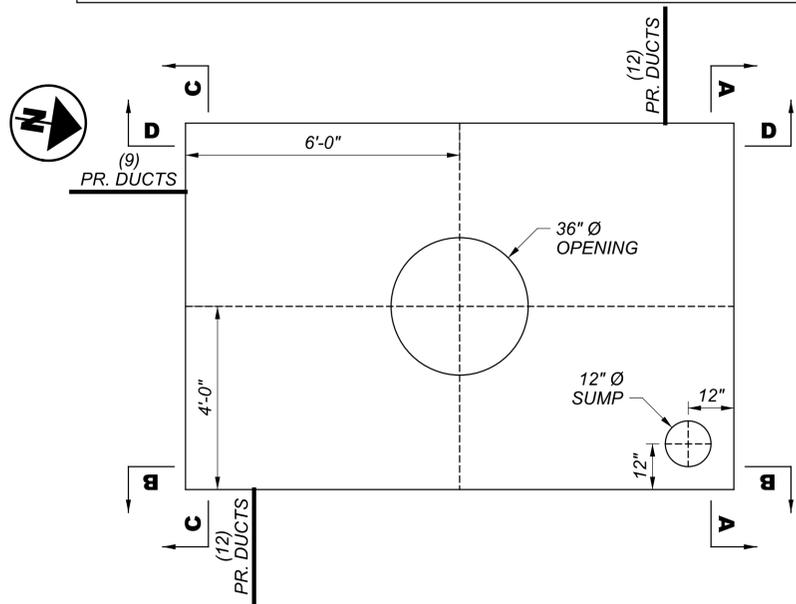


SECTION C-C

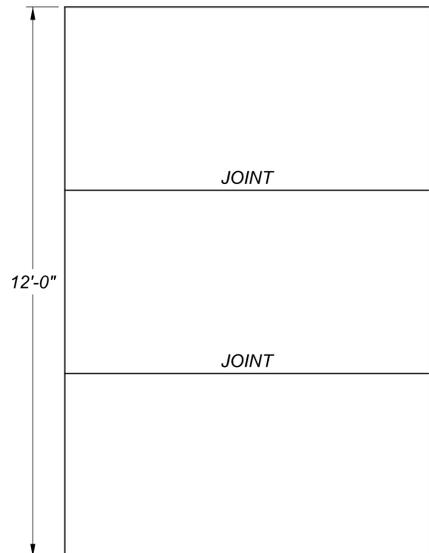


SECTION D-D

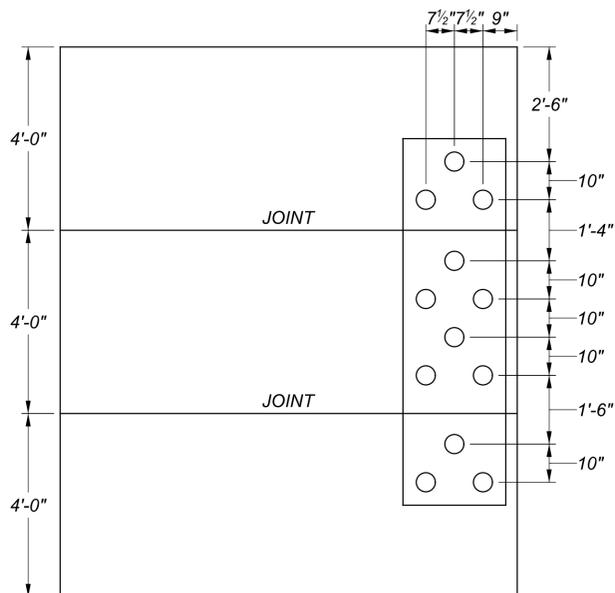
8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 96-31A
LOCATION: CARNEGIE AVE. STA. 64+87.00, 41.00' RT					



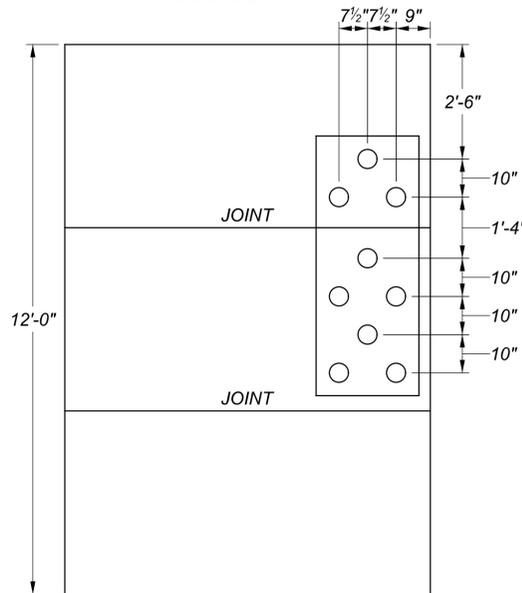
- REQUIREMENTS:
- 3 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 33 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



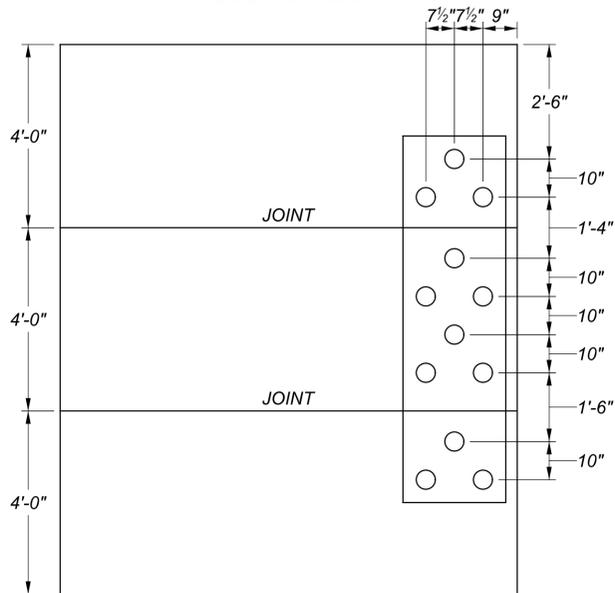
SECTION A-A



SECTION B-B



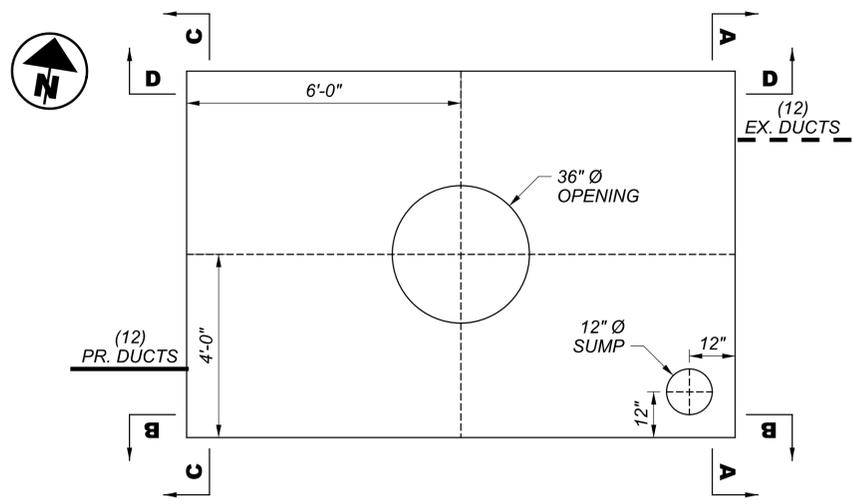
SECTION C-C



SECTION D-D

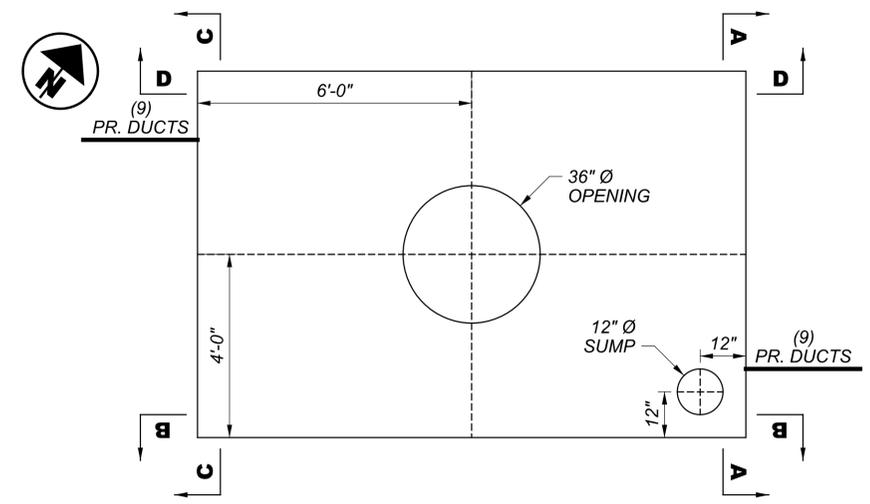
DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	JTH 11/03/25
PROJECT ID	82382
SHEET	TOTAL
1796K	2696

8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 96-6
LOCATION: CARNEGIE AVE. STA. 66+42.00, 43.00' RT					

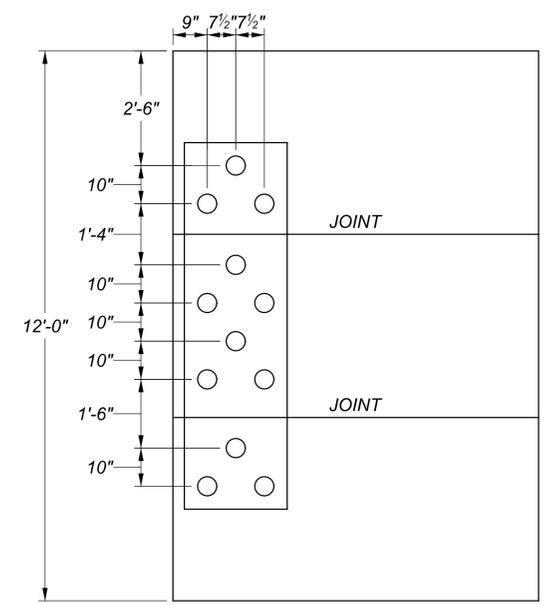


- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 24 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES

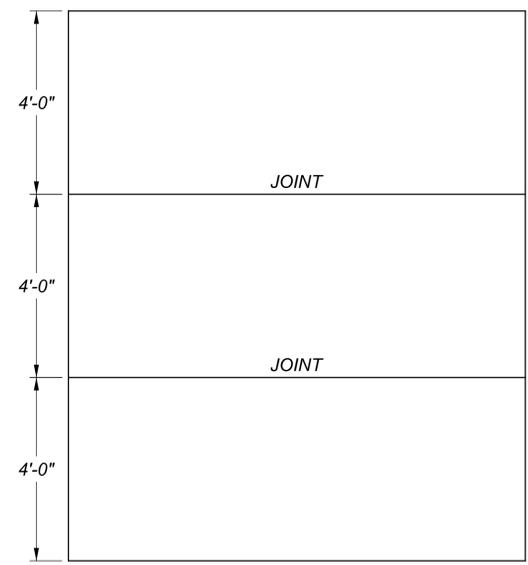
8'-0" WIDE	12'-0" LONG	10'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-45A
LOCATION: MIDTOWN CONNECTOR STA. 503+00.00, 16.00' RT					



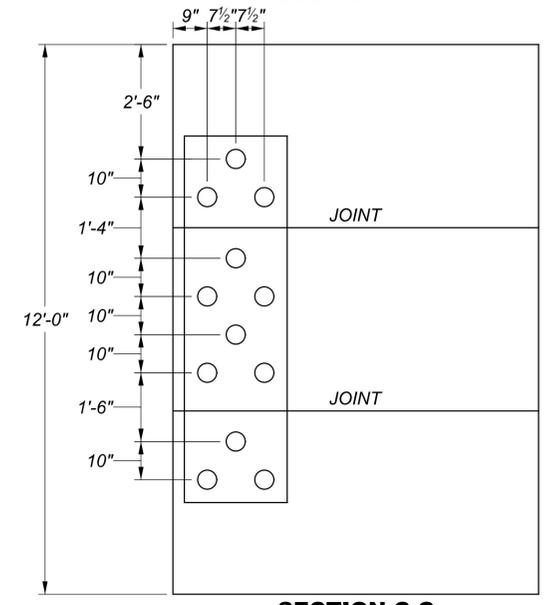
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 18 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



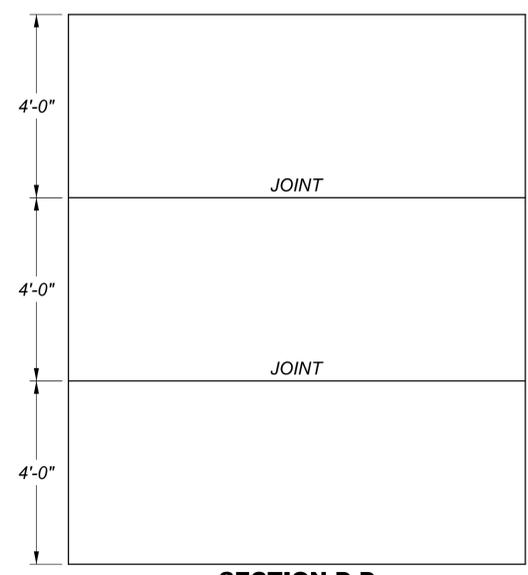
SECTION A-A



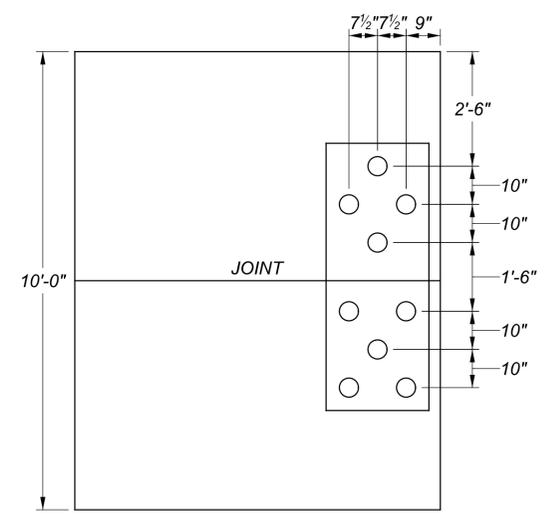
SECTION B-B



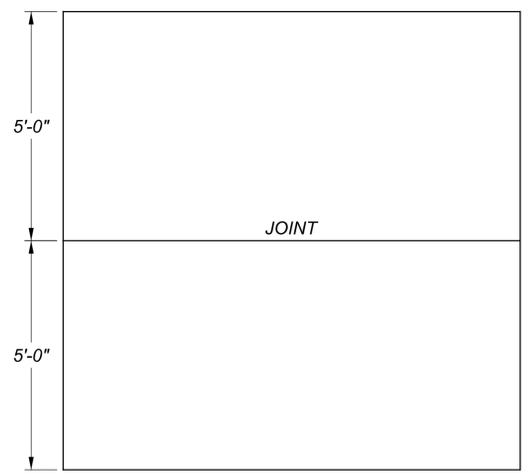
SECTION C-C



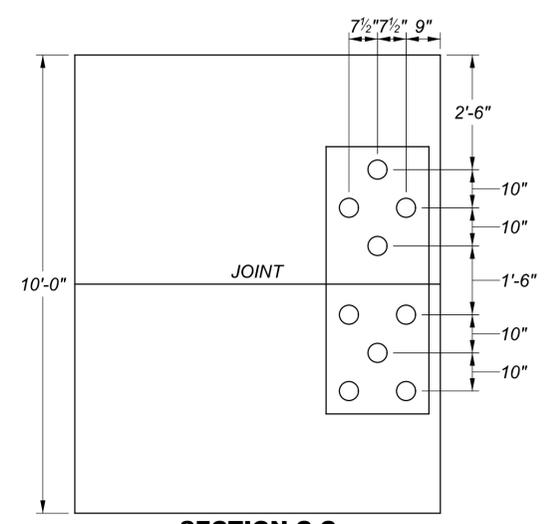
SECTION D-D



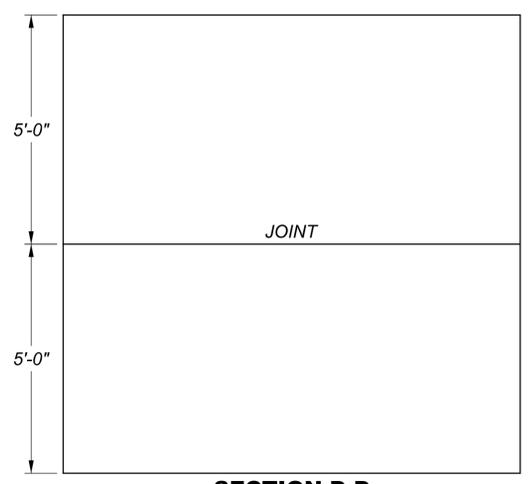
SECTION A-A



SECTION B-B



SECTION C-C

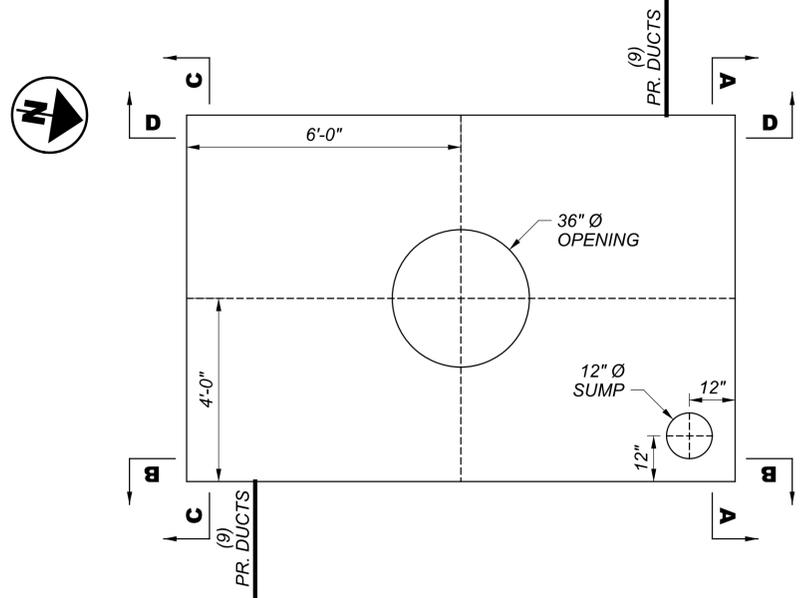


SECTION D-D

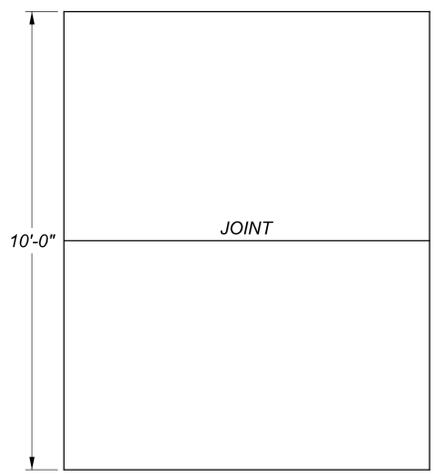
DESIGN AGENCY
Michael Baker INTERNATIONAL
DESIGNER
KJM
REVIEWER
JTH 11/03/25
PROJECT ID
82382
SHEET TOTAL
1796L 2696

9

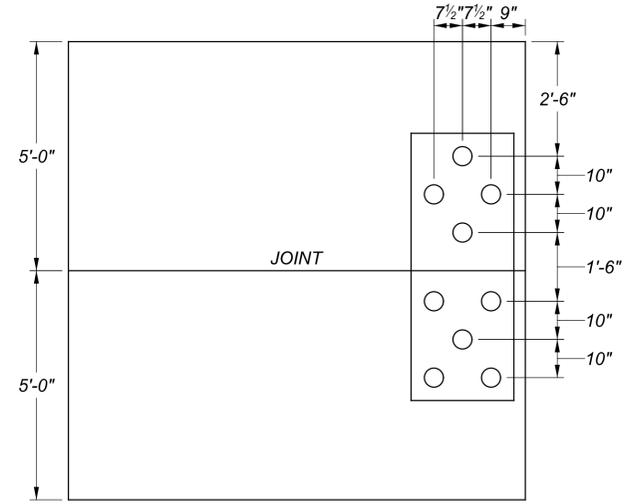
8'-0" WIDE	12'-0" LONG	10'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-45B
LOCATION: MIDTOWN CONNECTOR STA. 505+87.00, 23.00' RT					



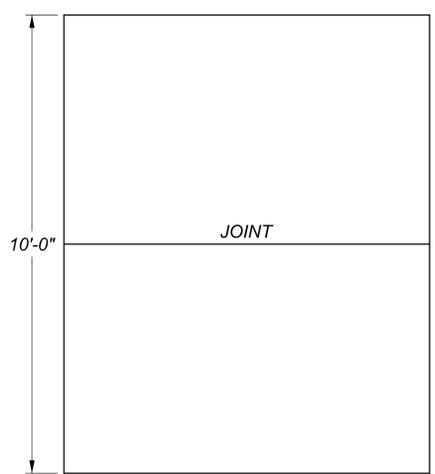
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 18 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



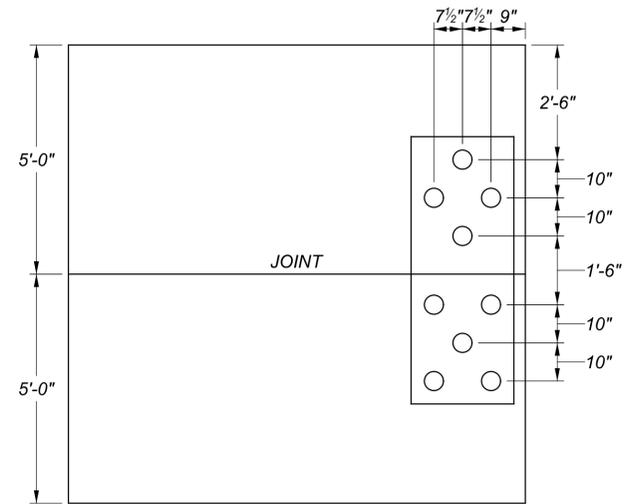
SECTION A-A



SECTION B-B

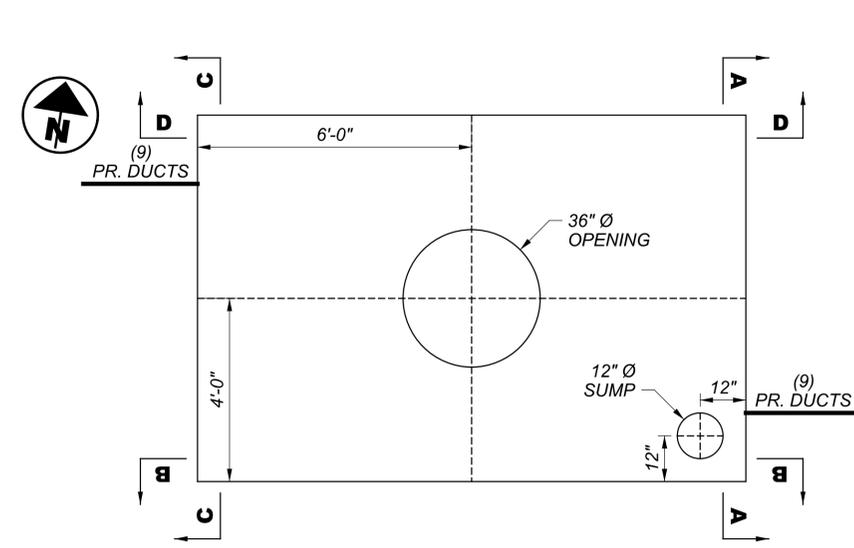


SECTION C-C

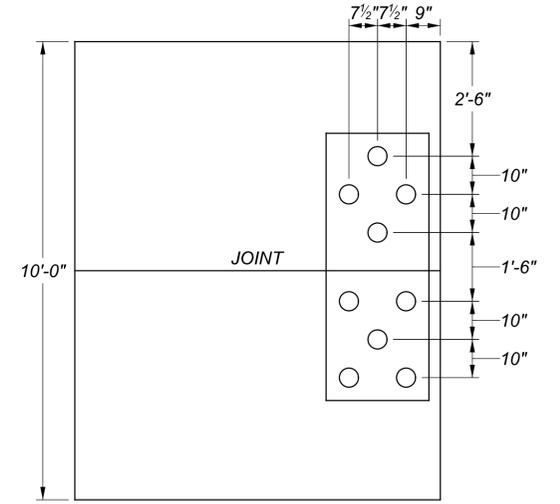


SECTION D-D

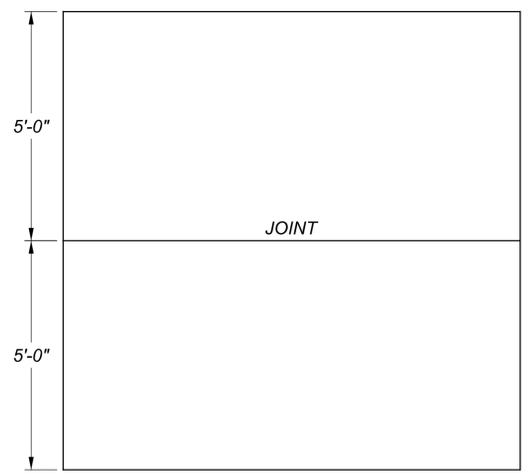
8'-0" WIDE	12'-0" LONG	10'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 80-45C
LOCATION: MIDTOWN CONNECTOR STA. 509+00.00, 25.00' RT					



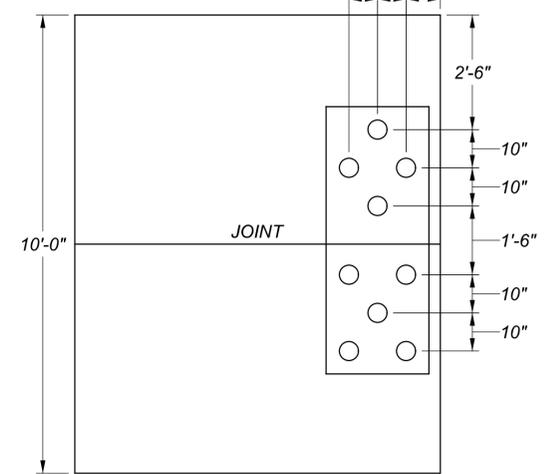
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 18 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING EJIW #1585 W/HOLES



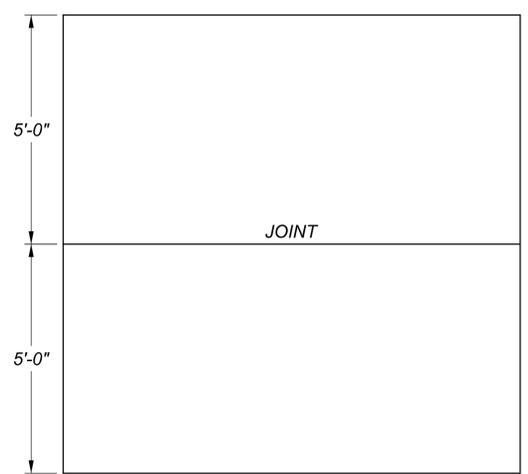
SECTION A-A



SECTION B-B



SECTION C-C

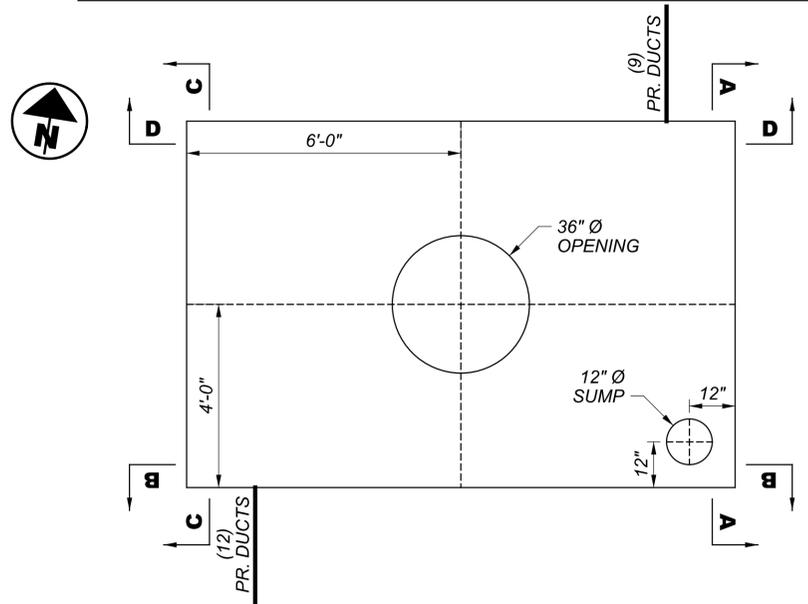


SECTION D-D

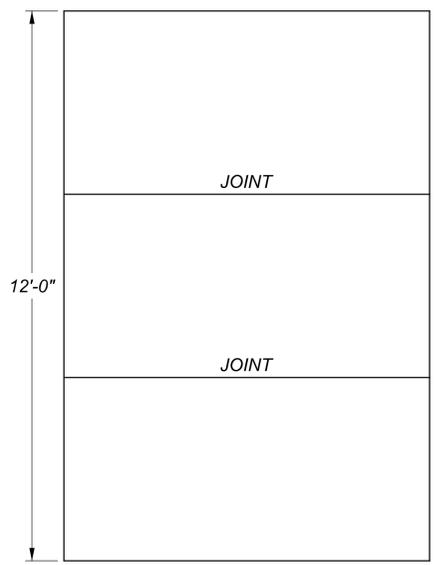
DESIGN AGENCY	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	JTH
PROJECT ID	82382
SHEET	TOTAL
1796M	2696

9

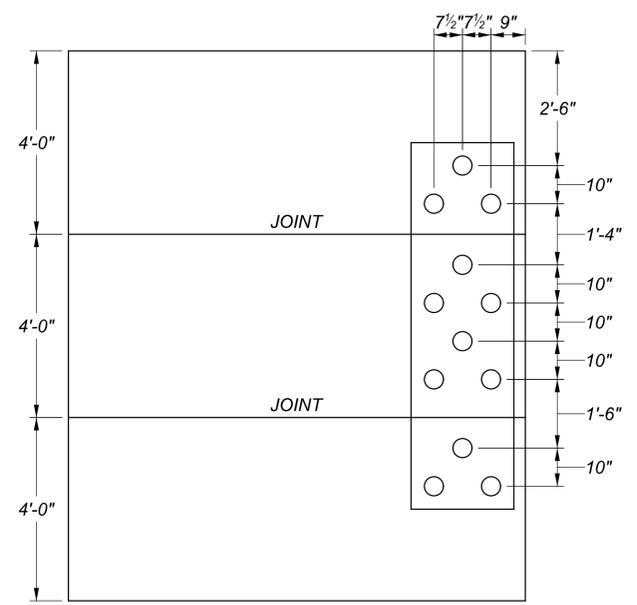
8'-0" WIDE	12'-0" LONG	12'-0" H.R.	NECK: 3'-0"	COVER: AS SHOWN	MH 96-31B
LOCATION: MIDTOWN CONNECTOR STA. 511+16.48, 24.79' RT / CEDAR AVE. STA. 400+22.50, 14.81' RT					



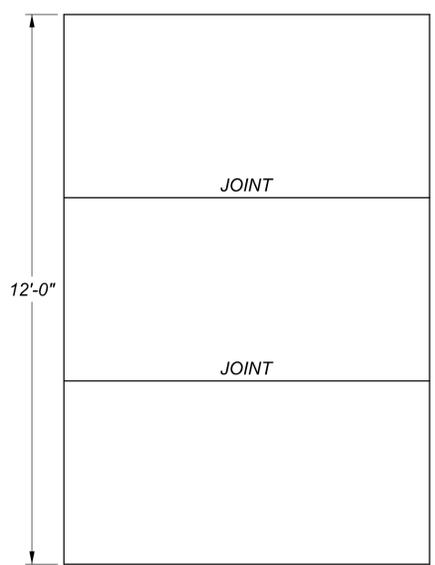
- REQUIREMENTS:
- 2 - WINDOWS
 - 1 - 36" Ø ROOF OPENING
 - 21 - 5" PVC FLARED BELL ENDS
 - 6 - PULLING IRONS
 - 1 - 3" PRECAST CAP RING
 - 2 - 9" PRECAST NECK RING
 - 1 - 12" Ø SUMP HOLE
 - 1 - 36" Ø COVER AND CASTING
 - EJIW #1585 W/HOLES



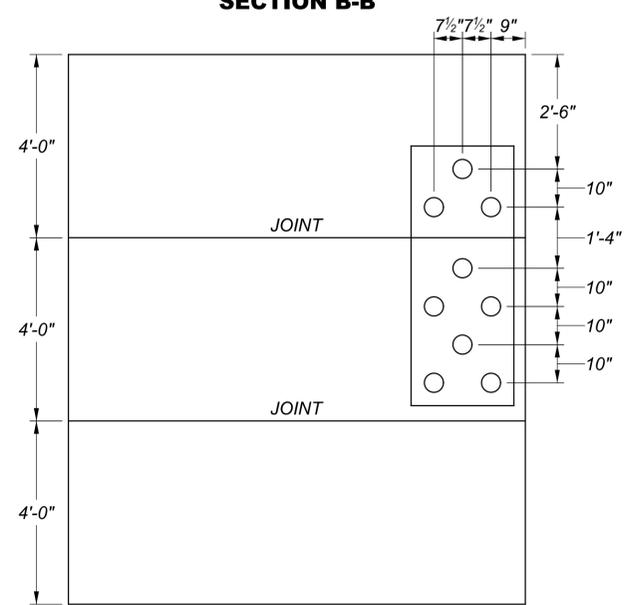
SECTION A-A



SECTION B-B



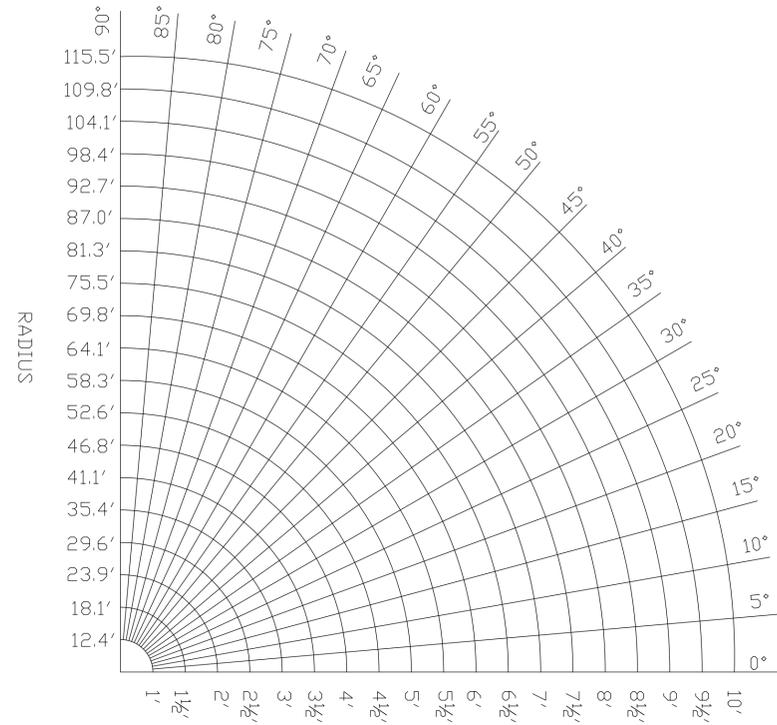
SECTION C-C



SECTION D-D

DESIGN AGENCY	
DESIGNER	Michael Baker INTERNATIONAL
DESIGNER	KJM
REVIEWER	JTH
REVIEWER	11/03/25
PROJECT ID	82382
SHEET	1796N
TOTAL	2696

CONDUIT RADIUS CHART AND CHORD LENGTH DATA

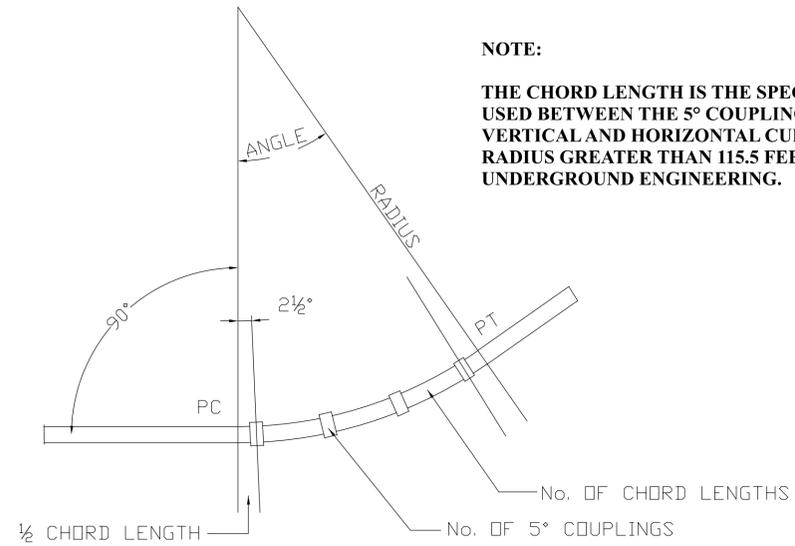


CHORD LENGTH

ANGLE	5° COUPLINGS	No. OF CHORDS
10°	2	1
15°	3	2
20°	4	3
25°	5	4
30°	6	5
35°	7	6
40°	8	7
45°	9	8
50°	10	9
55°	11	10
60°	12	11
65°	13	12
70°	14	13
75°	15	14
80°	16	15
85°	17	16
90°	18	17

MIN. RADIUS	LENGTH OF CHORD
12.4'	1'
18.1'	1½'
23.9'	2'
29.6'	2½'
35.4'	3'
41.1'	3½'
46.8'	4'
52.6'	4½'
58.3'	5'
64.1'	5½'
69.8'	6'
75.5'	6½'
81.3'	7'
87.0'	7½'
95.7'	8'
98.4'	8½'
104.1'	9'
109.8'	9½'
115.5'	10'

TYPICAL CURVE CONSTRUCTION USING 5° COUPLINGS



NOTE:

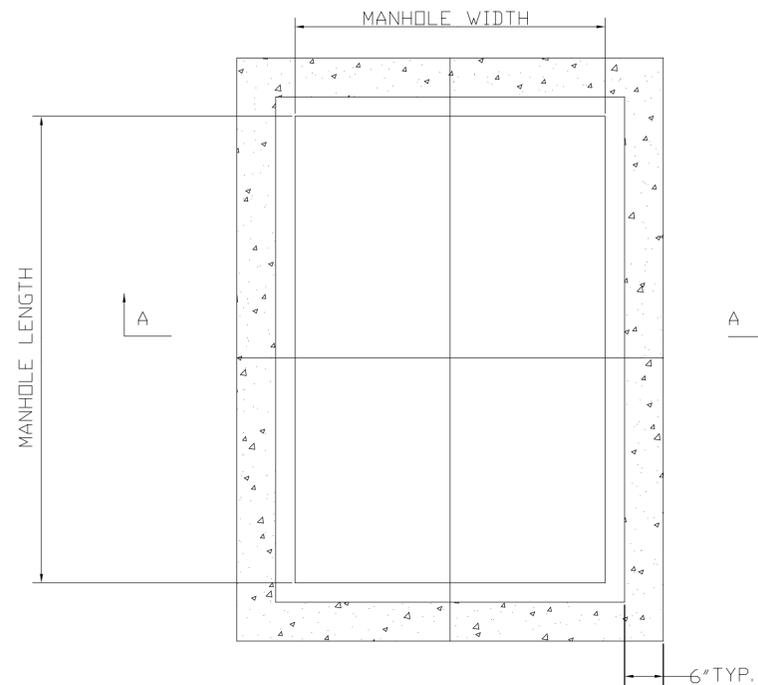
THE CHORD LENGTH IS THE SPECIFIED LENGTH OF DUCT TO BE USED BETWEEN THE 5° COUPLINGS TO CONSTRUCT BOTH VERTICAL AND HORIZONTAL CURVES. FOR CURVES HAVING A RADIUS GREATER THAN 115.5 FEET, PLEASE CONSULT WITH UNDERGROUND ENGINEERING.



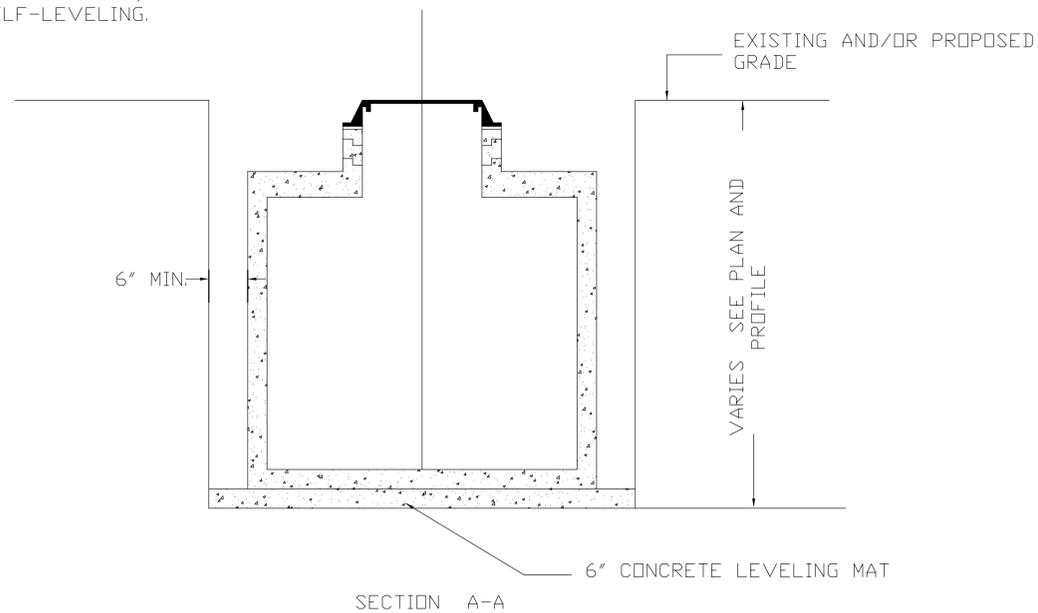
CONDUIT LENGTH	APPROX. OFFSET
1'	0'-1"
5'	0'-5"
10'	0'-10"
15'	1'-4"
20'	1'-9"

NOTE: OFFSET = APPROX. 1" PER CONDUIT FOOT

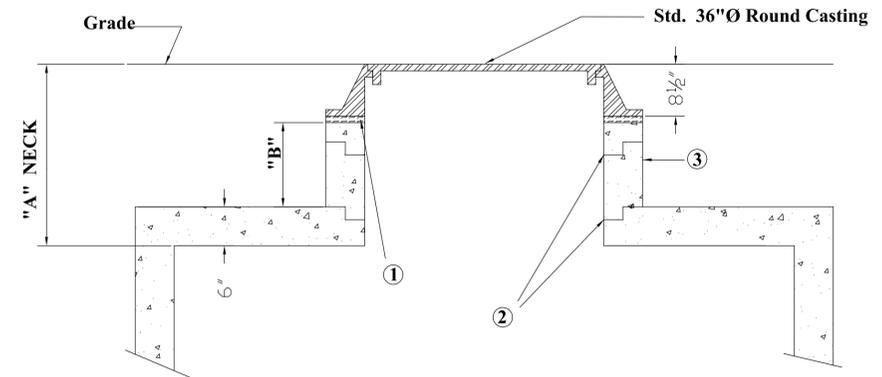
TYPICAL MANHOLE INSTALLATION DETAILS



NOTE: USE 4000 PSI CONCRETE. ADD SUFFICIENT AMOUNT OF WATER; MIX TO BE FLOWABLE AND SELF-LEVELING.



PRECAST NECK RING SCHEDULE



NOTES:

- 1 Bricks or blocks to be flush with inside face of neck rings.
- 2 Place sealant in all neck ring joints before assembly.
- 3 Apply 1/2" thick layer of waterproof mortar to outside surface of neck. Waterproofing additive to be added to mortar per manufacturer's recommendation.

"A" NECK	"B" NECK RING HEIGHT	PREFERRED RING COMBINATION
MINIMUM 2' - 6" *	15"	1 - 3" CAP RING 1 - 12" NECK RING
3' - 0"	21"	1 - 3" CAP RING 2 - 9" NECK RINGS
4' - 0"	33"	1 - 3" CAP RING 1 - 6" NECK RING 2 - 12" NECK RINGS

NOTE:

For intermediate neck heights, please consult with Underground Engineering.

CPP standard round cover and casting --- East Jordan Iron Works No. 1585.

* CPP minimum standard neck.

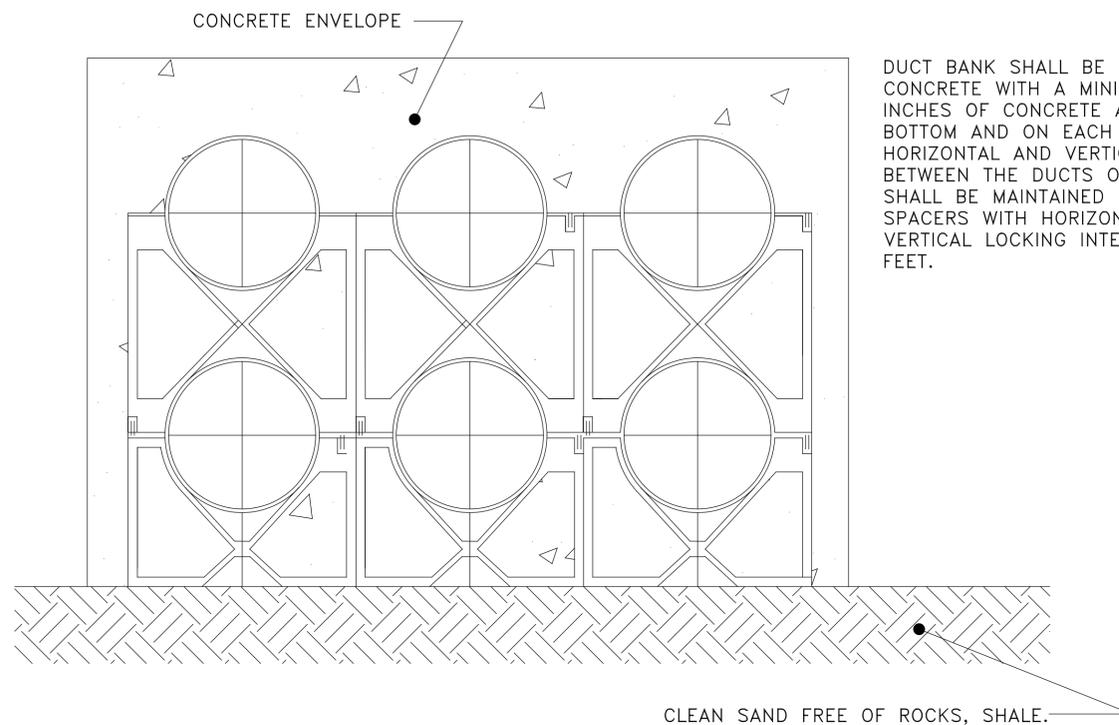
REVISED NECK RING SCHEDULE 7-22-11

RING SIZE (EFFECTIVE HEIGHT)	WEIGHT	NORWALK CONCRETE CATALOG NO.
3"	265#	R-3-37-C
6"	425#	R-6-37-N
9"	635#	R-9-37-N
12"	845#	R-12-37-N

NOTE:

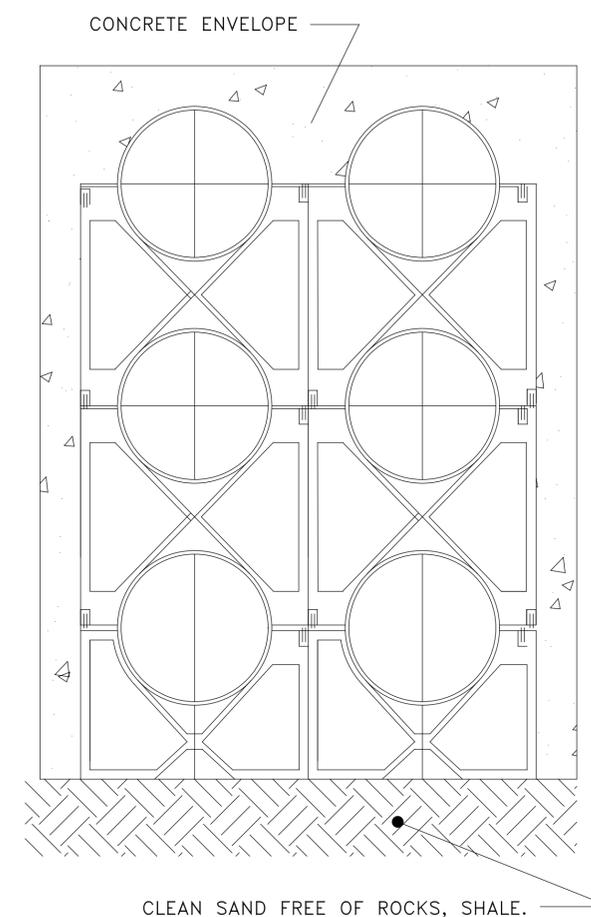
The use of cap rings and neck rings by other manufacturers must be equivalent to those of Norwalk Concrete Industries. See above for Norwalk cataloge numbers.

TYPICAL SNAP-LOC NONMETALLIC SPACER INSTALLATION



DUCT BANK SHALL BE ENCASED IN CONCRETE WITH A MINIMUM OF THREE INCHES OF CONCRETE AT THE TOP AND BOTTOM AND ON EACH SIDE. A HORIZONTAL AND VERTICAL SEPARATION BETWEEN THE DUCTS OF 2 INCHES SHALL BE MAINTAINED BY INSTALLING SPACERS WITH HORIZONTAL AND VERTICAL LOCKING INTERVALS OF 8 FEET.

TYPICAL SNAP-LOC NONMETALLIC SPACER INSTALLATION



DUCT BANK SHALL BE ENCASED IN CONCRETE WITH A MINIMUM OF THREE INCHES OF CONCRETE AT THE TOP AND BOTTOM AND ON EACH SIDE. A HORIZONTAL AND VERTICAL SEPARATION BETWEEN THE DUCTS OF 2 INCHES SHALL BE MAINTAINED BY INSTALLING SPACERS WITH HORIZONTAL AND VERTICAL LOCKING INTERVALS OF 8 FEET.

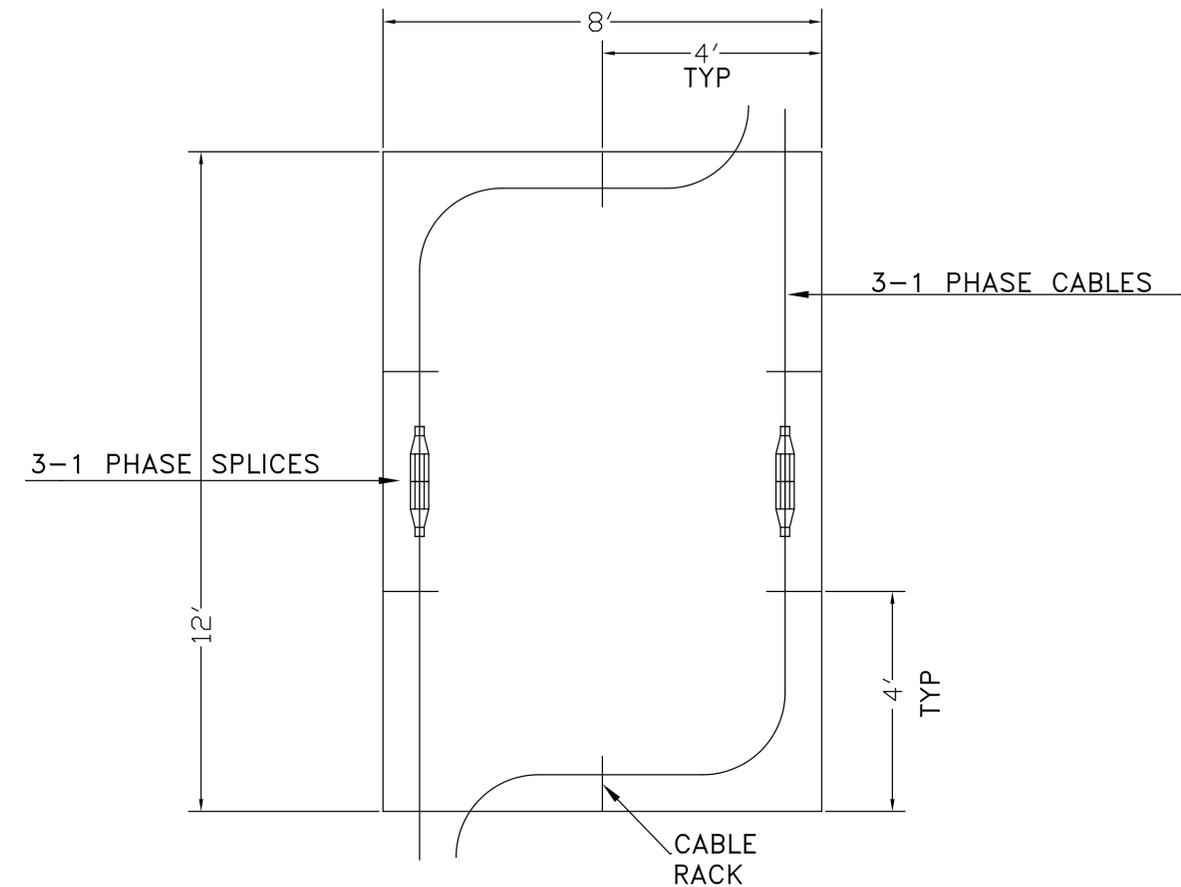
SNAP-LOC SPACERS ARE DESIGNED SPECIFICALLY FOR USE WITH NONMETALLIC DUCT.

THE SPACERS AND REBAR HOLDER ARE DESIGNED WITH A DOVETAIL TONGUE AND GROOVE FEATURE FOR EASY INSTALLATION.

IF REQUIRED TO PERMANENTLY FIX THE POSITION OF A GROUP OF SPACERS AND/OR REBAR HOLDER THE FOLLOWING ARE RECOMMENDED PROCEDURES.

1. USE QUICK-SET CEMENT GLUE DURING ASSEMBLY OR SPOT GLUE AFTER ASSEMBLY TO SECURE
2. DURING ASSEMBLY DEFORM THE EDGE OF THE TONGUE OR GROOVE PORTION OF THE DOVETAIL SLIDE WITH A PAIR OF PLIERS OR SIMILAR TOOL. THIS DEFORMATION WILL CREATE AN INTERFERENCE RESTRICTING MOVEMENT.
3. AN ASSEMBLED SYSTEM MAY BE WIRED TOGETHER FOR ADDITIONAL SUPORT.

NEW CABLE RACKING IN NEW MANHOLES

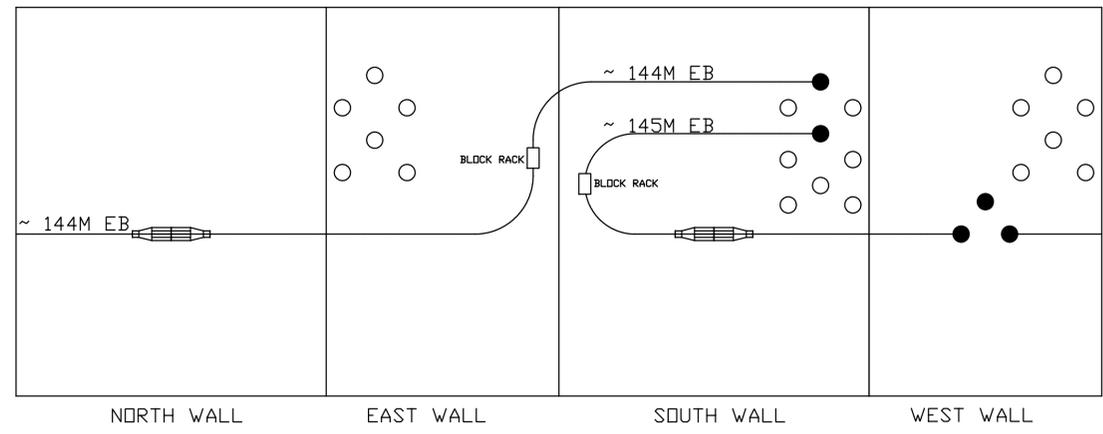


TYPICAL DETAIL OF CABLE RACKING IN NEW MANHOLES (LOOKING DOWN INTO MANHOLE). ALL MEASUREMENTS FROM INSIDE WALLS.

RACKS ARE FASTENED ON WALLS AT 6" FROM CEILING AND 6" ABOVE FLOOR.

NEW CABLE RACKING IN NEW MANHOLES

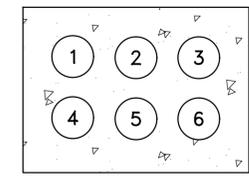
SAMPLE ELEVATION



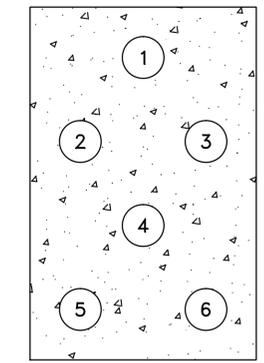
SAMPLE MATERIAL LIST

- 6-750KCMIL-1C-CU-15KV STRAIGHT SPLICES
- 2-8" OFFSET BLOCK RACKS
- 6-6' CABLE RACKS AND ASSOCIATED ARMS

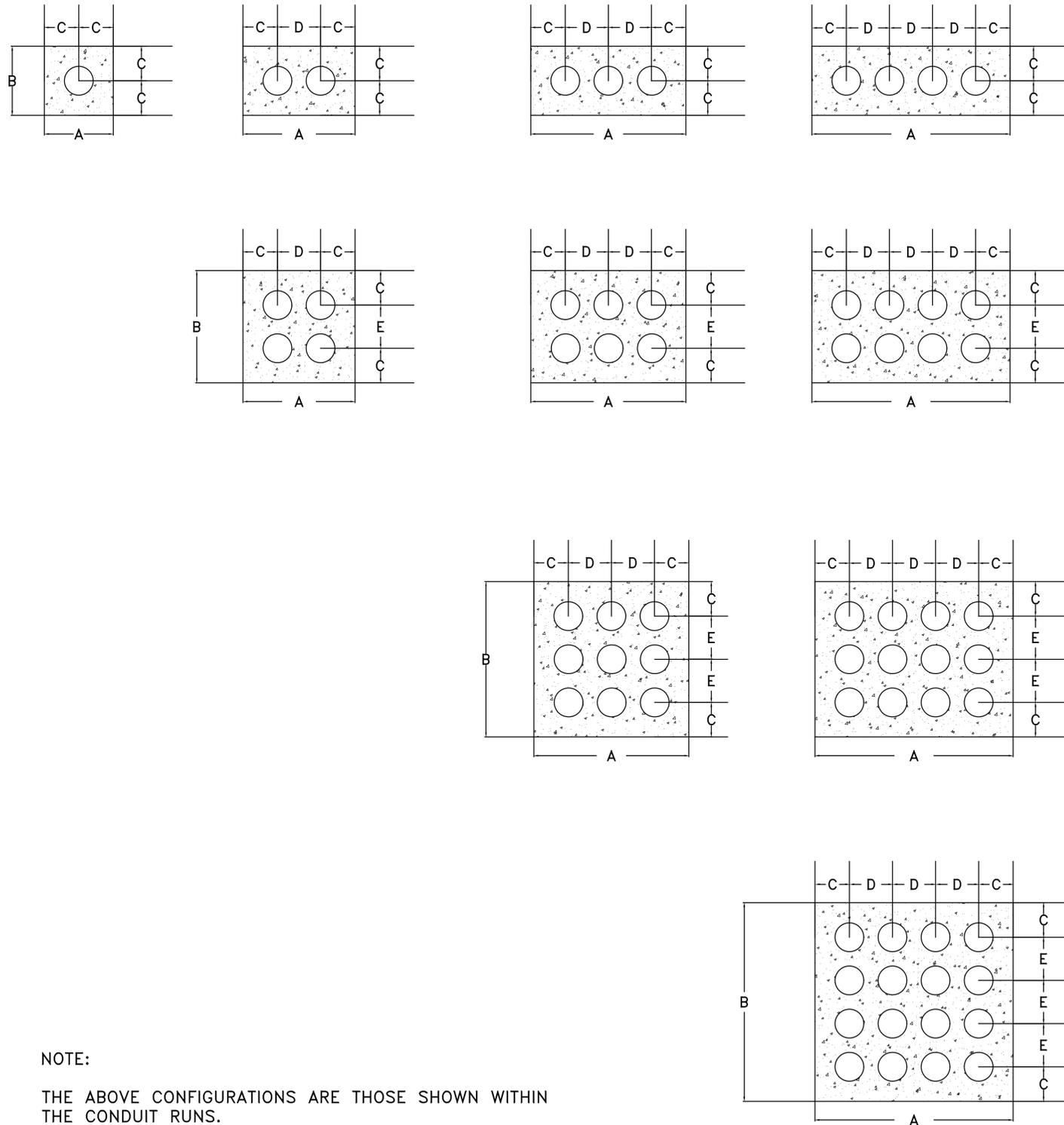
3 OVER 3 TYPICAL CONDUIT NUMBERING DETAIL



DUCT CONFIGURATION



VAULT CONFIGURATION

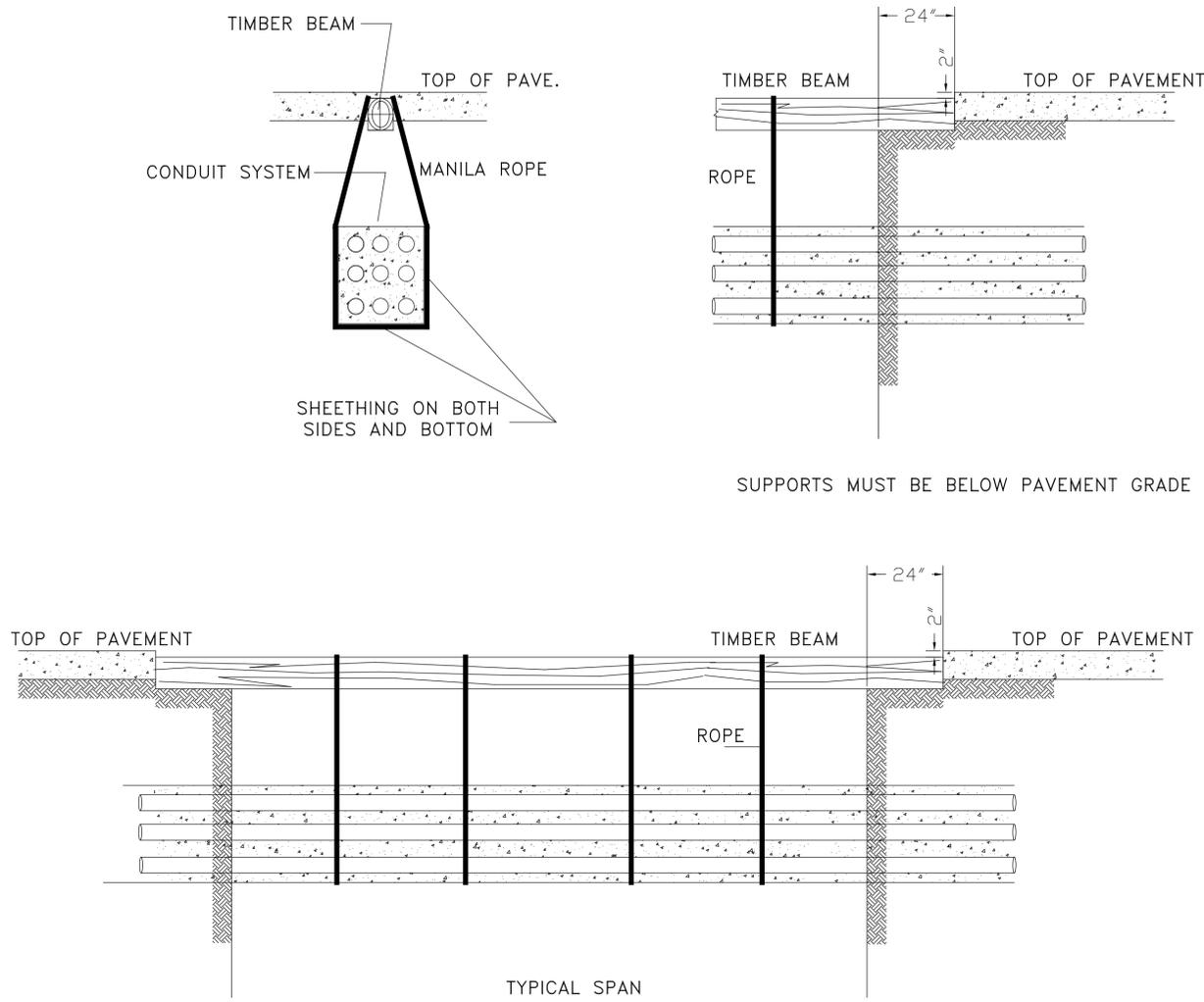


NOTE:
 THE ABOVE CONFIGURATIONS ARE THOSE SHOWN WITHIN THE CONDUIT RUNS.
 DIMENSIONS ARE BASED ON THE USE OF CARLON SNAP-LOC INTERMEDIATE AND BASE SPACERS.
 SEE MANHOLE DETAILS FOR CONDUIT CONFIGURATION AT MANHOLE WALLS
 NO REINFORCEMENT RODS ARE TO BE USED WITHIN THE CONDUIT FORMATIONS

TYPE W x H	4" PVC CONDUITS				
	A	B	C	D	E
1 x 1	10"	10"	5"	-	-
2 x 1	16.75"	10"	5"	6.75"	-
3 x 1	23.5	10"	5"	6.75"	-
4 x 1	30.25"	10"	5"	6.75"	-
2 x 2	16.75"	16.51"	5"	6.75"	6.51"
3 x 2	23.5	16.51"	5"	6.75"	6.51"
4 x 2	30.25"	16.51"	5"	6.75"	6.51"
3 x 3	23.5	23"	5"	6.75"	6.51"
4 x 3	30.25"	23"	5"	6.75"	6.51"
4 x 4	30.25"	29.5"	5"	6.75"	6.51"

TYPE W x H	5" PVC CONDUITS				
	A	B	C	D	E
1 x 1	12"	12"	6"	-	-
2 x 1	19.81"	12"	6"	7.81"	-
3 x 1	27.62"	12"	6"	7.81"	-
4 x 1	35.43"	12"	6"	7.81"	-
2 x 2	19.81"	19.57"	6"	7.81"	7.57"
3 x 2	27.62"	19.57"	6"	7.81"	7.57"
4 x 2	35.43"	19.57"	6"	7.81"	7.57"
3 x 3	27.62"	27.14"	6"	7.81"	7.57"
4 x 3	35.43"	27.14"	6"	7.81"	7.57"
4 x 4	35.43"	34.71"	6"	7.81"	7.57"

TYPE W x H	6" PVC CONDUITS				
	A	B	C	D	E
1 x 1	13"	13"	6.5"	-	-
2 x 1	21.88"	13"	6.5"	8.88"	-
3 x 1	30.76"	13"	6.5"	8.88"	-
4 x 1	38.5"	13"	6.5"	8.88"	-
2 x 2	21.88"	21.64"	6.5"	8.88"	8.64"
3 x 2	30.76"	21.64"	6.5"	8.88"	8.64"
4 x 2	39.64"	21.64"	6.5"	8.88"	8.64"
3 x 3	30.76"	30.28"	6.5"	8.88"	8.64"
4 x 3	39.64"	30.28"	6.5"	8.88"	8.64"
4 x 4	39.64"	38.92"	6.5"	8.88"	8.64"



SUPPORTS MUST BE BELOW PAVEMENT GRADE

NOTES:

THIS APPLICATION IS DESIGNED TO ALLOW THE INSTALLATION OF A STEEL PLATE OVER THE OPENING DURING NON-WORKING HOURS. THE ABOVE CONDITIONS WITH THE STEEL PLATE PLACED ON THE TIMBERS IS NOT DESIGNED TO SUPPORT TRAFFIC CONDITIONS DURING THE WINTER MONTHS.

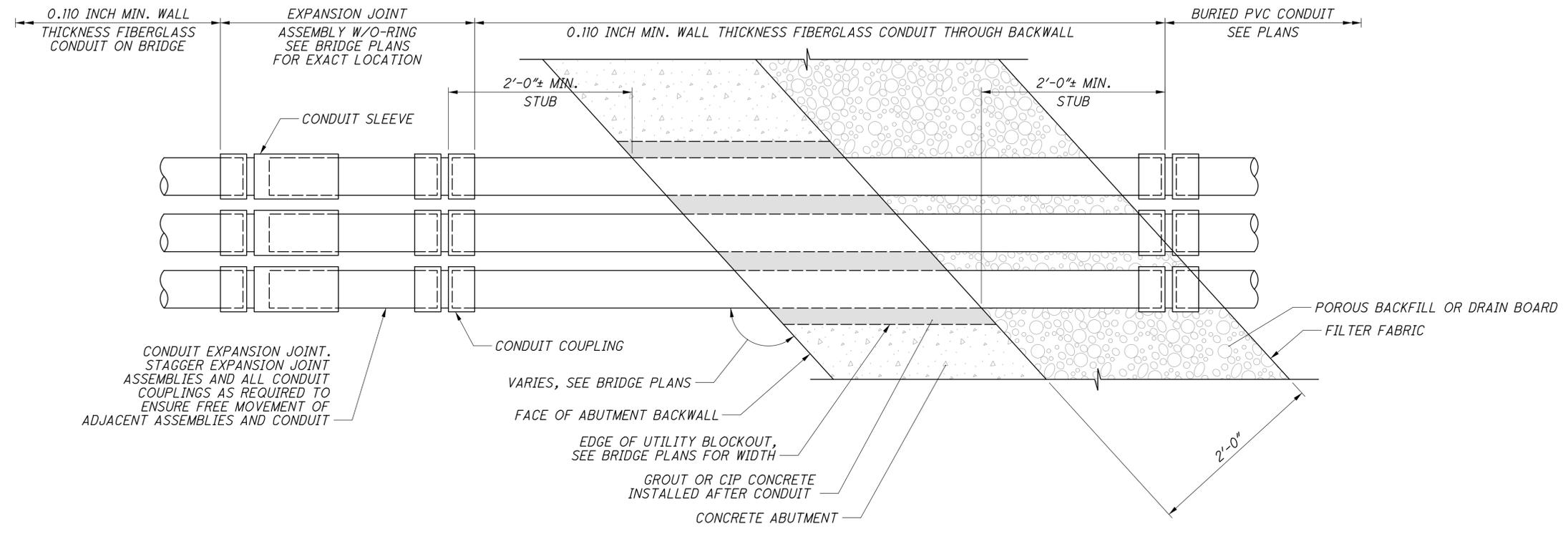
THIS APPLICATION MAY BE USED ON ANY AND ALL CONDUIT FORMATIONS

TIMBERS MUST SPAN OPEN TRENCH AS SHOWN ABOVE. SIZE TIMBER FOR LOAD BEING SUPPORTED.

USE 2" SHEETHING ON BOTH SIDES AND BOTTOM OF CONDUIT SYSTEM.

SIZE ROPE FOR LOAD BEING SUPPORTED.

DESIGN AGENCY
Michael Baker INTERNATIONAL
DESIGNER
KJM
REVIEWER
JTH 11/03/25
PROJECT ID
82382
SHEET
1796T
TOTAL
2696



CPP DUCT AT ABUTMENT BACKWALL
 TYP. FOR BOTH ABUTMENTS

DESIGN AGENCY	
DESIGNER	KJM
REVIEWER	JTH 11/03/25
PROJECT ID	82382
SHEET	1796U
TOTAL	2696

GATEWAY MONUMENT SIGN

THE GATEWAY MONUMENT SIGN (SEE HARDSCAPE PLAN AND DETAILS) IS PAID UNDER THE FOLLOWING ITEMS:

1. ITEM 511 - CONCRETE, MISC.: CLASS QC SCC CONCRETE WITH QC/QA, GATEWAY MONUMENT SIGN, WALL
2. ITEM 511 - CLASS QC1 CONCRETE, MISC.: GATEWAY MONUMENT SIGN, FOUNDATION
3. ITEM 607 - FENCE, MISC.: GATEWAY MONUMENT SIGN SCREEN WALL PANELS
4. ITEM SPECIAL - GATEWAY SIGN ALUMINUM LETTERS
5. MOCK UPS:
 - I. ITEM SPECIAL - GATEWAY MONUMENT SIGN SCREEN WALL MOCK UP
 - II. ITEM SPECIAL - GATEWAY MONUMENT SIGN ARCHITECTURAL CONCRETE MIX MOCK UP

ITEM SPECIAL - GATEWAY SIGN ALUMINUM LETTERS
 CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTALS, AND INSTALLATION NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL GATEWAY SIGN ALUMINUM LETTERS AS SHOWN ON DRAWINGS. THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, TOOLS, SUBMITTALS, INCIDENTALS AND MATERIALS REQUIRED TO CONSTRUCT THIS ITEM AND SHALL BE PAID BY EACH UNDER ITEM SPECIAL - GATEWAY SIGN ALUMINUM LETTERS.

CAST ALUMINUM, DEPTH: 1.5" 9

COLOR: BLACK FOX SW7020, 1/4-20 BOTTOM STUD ON EACH LETTER WITH 1" STANDOFF FROM THE BOTTOM OF THE GATEWAY PARAPET. FONT: FRANKLIN GOTHIC MEDIUM.

REFER TO DETAIL ON SHEET 1854 FOR LOCATION AND SPACING REQUIREMENTS.

ITEM 511 - CONCRETE, MISC.: CLASS QC SCC CONCRETE WITH QC/QA, GATEWAY MONUMENT SIGN, WALL

GENERAL

G-1 THE GATEWAY MONUMENT SIGN VERTICAL WALL AND PILASTERS SHALL RECEIVE A BUFF WASH FINISH WITH CLEAR SEALER (NON-EPOXY) PER THE LANDSCAPE PLANS AND DETAILS.

G-2 THIS ITEM APPLIES TO USE OF SELF-CONSOLIDATING CONCRETE FOR THE GATEWAY MONUMENT SIGN WALL TO IMPROVE CONCRETE CONSOLIDATION AND THE SURFACE FINISH OF ARCHITECTURAL CONCRETE ELEMENTS. USE AN APPROVED CONCRETE MIX DESIGN WITH MAXIMUM SIZE COARSE THAT DOES NOT EXCEED 3/4-INCH NOMINAL.

G-3 PRIOR TO PLACING ANY CONCRETE ELEMENTS UNDER THIS PAY ITEM, INCLUDING ANY VERTICAL PORTION OF THE CONCRETE GATEWAY MONUMENT SIGN WALL, THE CONTRACTOR SHALL CAST CONCRETE SAMPLE PANELS AS REQUIRED IN THE LANDSCAPE PLANS AND MEET THE APPROVAL STANDARDS THEREIN. CONFIRM, AND ADJUST IF NECESSARY, THE MIX DESIGN, PLACEMENT TECHNIQUES, AND BUFF WASH FINISH TO DEMONSTRATE SATISFACTORY RESULTS THROUGH THE SAMPLE PANELS.

G-4 THE FINAL APPROVED SAMPLE PANELS WILL SERVE AS A JOB SITE STANDARD FROM WHICH THE ACCEPTANCE OF ALL OTHER WORK WILL BE DETERMINED. THOSE SAMPLE PANELS DETERMINED BY THE ENGINEER TO BE UNSATISFACTORY IN TERMS OF CONFORMANCE TO THE QUANTITY AND REPRESENTATIVE APPEARANCE OF THE JOB STANDARD SAMPLE PANELS WILL BE REPAIR OR REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE PROJECT.

G-5 IN ADDITION TO THE REQUIREMENTS OF ITEM 499 SELF-CONSOLIDATING CONCRETE (QC -SCC) UNDER THE ITEM 511 WORK FOR STRUCTURAL POUR ELEMENTS REQUIRING ARCHITECTURAL FINISHES, PROVIDE QC PERSONNEL, ACI CERTIFIED IN THE SELF-CONSOLIDATING CONCRETE TESTING, TO PERFORM CONCRETE FIELD TESTS FOR THIS MATERIAL TO ENSURE A QUALITY MIX AND PLACEMENT ON THE SELF-CONSOLIDATING CONCRETE QC/QA WORK.

REINFORCING STEEL PER ODOT CMS 509 AND AS DESCRIBED HEREIN IS INCLUDED WITH ITEM 511 - CONCRETE, MISC.: CLASS QC SCC CONCRETE WITH QC/QA, GATEWAY MONUMENT SIGN, WALL.

REINFORCED CONCRETE

C-1 OPENING IN CONCRETE SLABS AND/OR CONCRETE WALLS MUST HAVE ADDITIONAL REINFORCEMENT. NUMBER AND SIZE OF REINFORCEMENT TO MATCH REINFORCEMENT INTERRUPTED BY OPENING (HALF TO EA SIDE). NO PENETRATIONS ARE PERMITTED THROUGH ANY CONCRETE BEAM, JOIST, COLUMN, PIER OR JAMB WITHOUT THE ENGINEER'S WRITTEN APPROVAL. PENETRATIONS MUST BE RE-ROUTED AS REQUIRED AT THESE LOCATIONS.

C-2 PENETRATIONS THROUGH CONCRETE SLABS AND/OR CONCRETE WALLS MUST BE PLACED DURING CONSTRUCTION OF THE WALL WITH THE APPROPRIATE SLEEVE.

C-3 PROVIDE BLOCK-OUTS FOR ART PANEL ANCHORAGE. FILL WITH CONCRETE ONCE PANEL IS IN PLACE.

C-4 ANCHOR RODS TO BE ASTM F 1554 Fy-36 KS MINIMUM, GALVANIZED, UNLESS NOTED OTHERWISE.

GATEWAY MONUMENT SIGN REINFORCING

STANDARD HOOKS IN TENSION PER (ACI 318-14)	
HOOK DEVELOPMENT LENGTH (REQ'D EMBEDMENT) L _{dh} (INCHES)	
BAR SIZE	f _c (4000 psi)
#3	8
#4	10
#5	12
#6	15
#7	17
#8	19
#9	22
#10	24
#11	27

- NOTES:
1. CONCRETE IS NORMAL WEIGHT CONCRETE.
 2. BAR YIELD STRENGTH, F_y = 60 ksi
 3. REDUCTION FACTORS BASED ON ACI 318 SECTION 25.4.3.2 FOR COVER, STIRRUPS, OR EXCESS REINFORCEMENT HAVE NOT BEEN APPLIED AND ARE ASSUMED TO NOT BE MET.
 4. ANY REDUCTION BASED ON FACTORS FROM ACI 318 SECTION 25.4.3.2 SHALL NOT REDUCE L_{dh} TO LESS THAN 8db OR 6"
 5. DEVELOPMENT LENGTHS LISTED ABOVE ARE TO BE MULTIPLIED BY 1.2 FOR COATED REINFORCEMENT AND/OR MULTIPLIED BY 1.33 FOR LIGHTWEIGHT CONCRETE

CONCRETE COVER SCHEDULE	
MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS (RE: ACI 318-14):	
FOOTINGS (EARTH FORMED)	3"
RETAINING WALLS (NO SURFACES SHALL BE EARTH FORMED) EARTH SIDE AND FRONT (EXPOSED TO WEATHER):	
#5 BAR & SMALLER	1 1/2"
#6 THRU #11 BAR	2"

NOTES:

1. DIMENSIONS FOR BAR PLACEMENT GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE MINIMUM COVER REQUIREMENTS GIVEN HERE.
2. PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN MAINTAIN CONCRETE PROTECTION SPECIFIED.

MINIMUM TENSION DEVELOPMENT LAP SPLICES (CLASS B) OF REINFORCING BARS (PER ACI 318)

BAR DESIGNATION	f _c = 4000 psi			
	TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2
#3	25	37	19	28
#4	33	49	25	37
#5	41	61	31	47
#6	49	73	37	56
#7	71	106	54	81
#8	81	121	62	93
#9	91	136	70	105
#10	102	153	79	118
#11	114	170	87	131

- NOTES:
1. LAP SPlice LENGTH IS IN INCHES
 2. TABULATED VALUES ARE BASED ON A MINIMUM YIELD STRENGTH OF REINFORCEMENT OF F_y = 60 ksi
 3. CONCRETE IS NORMAL WEIGHT
 4. TOP BAR INDICATES HORIZONTAL REINFORCEMENT WHICH IS PLACED ABOVE 12" OR MORE OF FRESH CONCRETE.
 5. UNLESS NOTED OTHERWISE COLUMNS AND PIERS UTILIZE CLASS B LAP SPLICES
 6. DEVELOPMENT LENGTH OF AN UNLAPPED, OR CLASS A SPlice, BAR IS EQUAL TO VALUE FROM TABLE DIVIDED BY 1.3.
 7. FOR SLABS AND WALLS, CONTRACTOR MAY PROVIDED REDUCED SPlice LENGTHS IN ACCORDANCE WITH ACI 318 CHAPTER 25.
 8. FOR EPOXY COATED REINFORCEMENT OR LIGHTWEIGHT CONCRETE REFER TO ACI 318 CHAPTER 25.

	CASES FOR CLASS B LAP SPLICES	
	CASE 1	CASE 2
BEAMS OR COLUMNS	CASE 1	COVER ≥ 1 db AND C-C SPA > 2 db
	CASE 2	COVER < 1 db AND C-C SPA > 2 db
ALL OTHERS	CASE 1	COVER ≥ 1 db AND C-C SPA > 3 db
	CASE 2	COVER < 1 db AND C-C SPA > 3 db

ITEM 511 - CLASS QC1 CONCRETE, MISC.: GATEWAY MONUMENT SIGN, FOUNDATION

DESIGN CRITERIA

DC-1 BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC) 2015, AS AMENDED BY THE 2017 OHIO BUILDING CODE

DC-2 LATERAL LOAD DESIGN CRITERIA

- A. RISK CATEGORY II
- B. WIND DESIGN CRITERIA
1. BASIC DESIGN WIND SPEED (V) 115 MPH
 2. ALLOWABLE DESIGN WIND SPEED (V_{asd}) 90 MPH
 3. EXPOSURE CATEGORY D

C. SEISMIC DESIGN CRITERIA

1. SEISMIC IMPORTANCE FACTOR (I_e) 1.0
2. SITE CLASS D
3. SHORT PERIOD SPECTRAL ACCELERATION (S_s) 0.174g
4. ONE SECOND SPECTRAL ACCELERATION (S₁) 0.058g
5. SHORT PERIOD RESPONSE ACCELERATION (S_{DS}) 0.185g
6. ONE SECOND RESPONSE ACCELERATION (S_{D1}) 0.092g
7. SEISMIC DESIGN CATEGORY B

DC-3 FOUNDATION DESIGN CRITERIA

A. FOUNDATION DESIGN IS BASED UPON THE FOLLOWING SOIL PARAMETERS:

1. ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE:
 - A. SPREAD FOOTINGS 2000 PSF
 - B. CONTINUOUS FOOTINGS 2000 PSF
- B. ASSUMED LATERAL EARTH PRESSURE PARAMETERS:
 1. SOIL DENSITY = 110 PCF
 2. COEFFICIENT OF ACTIVE PRESSURE (K_a) = 0.26
 3. COEFFICIENT OF AT-REST PRESSURE (K_o) = <0.60>
 4. COEFFICIENT OF PASSIVE EARTH PRESSURE (K_p) = <3.00>
 5. ANGLE OF INTERNAL FRICTION (φ) = 36 DEGREES
 6. COEFFICIENT OF FRICTION (u) = 0.4
 7. MODULUS OF SUB-GRADE REACTION (k_s) = 100 PCI
- C. FROST DEPTH: 36 INCHES

GENERAL

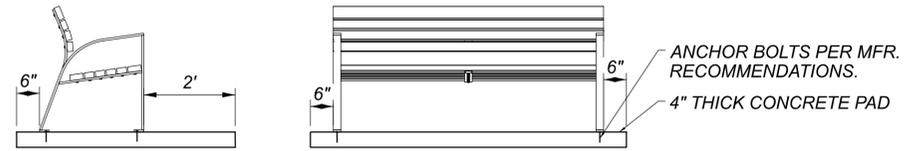
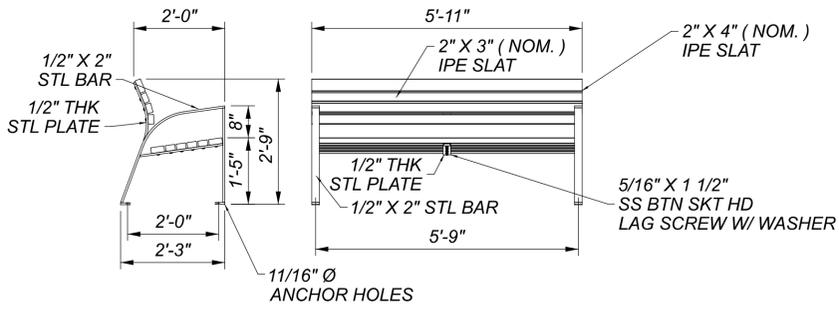
G-1 METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND IMPLEMENTING THE NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT EACH STAGE OF CONSTRUCTION.

G-2 TEMPORARY BRACING, SHEETING, SHORING, ETC, REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY/STABILITY OF THE EXISTING BUILDINGS, SIDEWALKS, UTILITIES, ETC, DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR.

G-3 IMPLEMENTATION OF JOB SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G-4 WHEN NOT SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS, THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING SLEEVE AND BLOCK-OUT REQUIREMENTS FOR PENETRATIONS PRIOR TO FABRICATION OR ERECTION OF THE STRUCTURE. PENETRATIONS OF STRUCTURAL MEMBERS ARE SUBJECT TO APPROVAL BY THE ENGINEER. THE CONTRACTOR IS ALSO RESPONSIBLE FOR DETERMINING ANCHORAGE AND HANGER REQUIREMENTS REQUIRED FOR SUPPORTING EQUIPMENT, FINISHES, UTILITIES ETCETERA NOT INDICATED ON THE STRUCTURAL DRAWINGS.

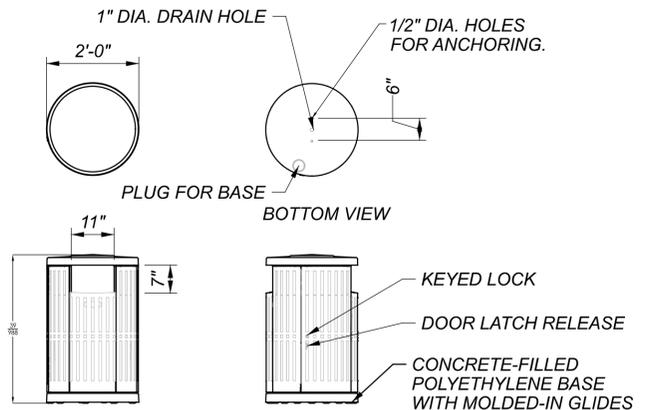
G-5 DO NOT SCALE DRAWINGS.



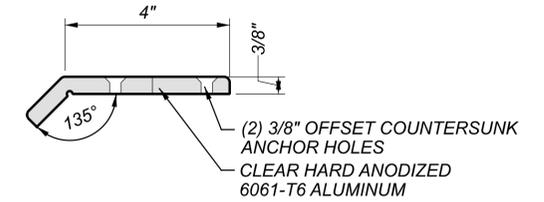
FOR EMBEDMENT INFORMATION, SEE SHEET 1849

ITEM SPECIAL - TRASH RECEPTACLE

SCALE: 1/2" = 1'-0"



FOR EMBEDMENT INFORMATION, SEE SHEET 1849

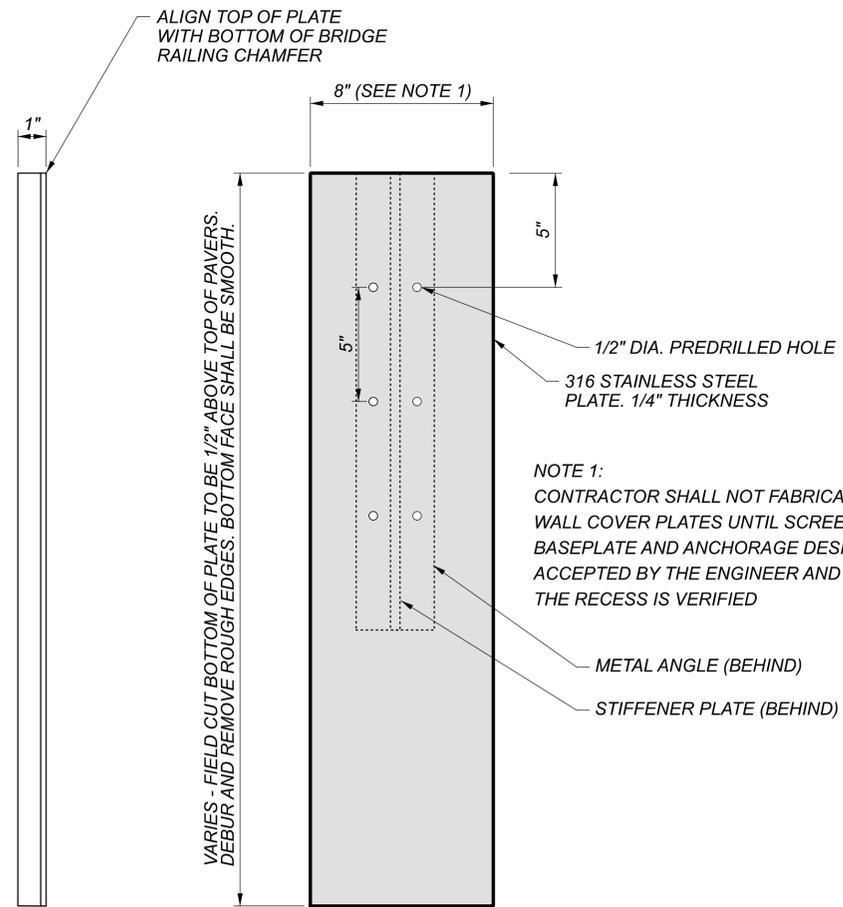


ITEM SPECIAL - SKATE GUARDS

SCALE: 6" = 1'-0"

ITEM SPECIAL - PARK BENCH

SCALE: 1/2" = 1'-0"



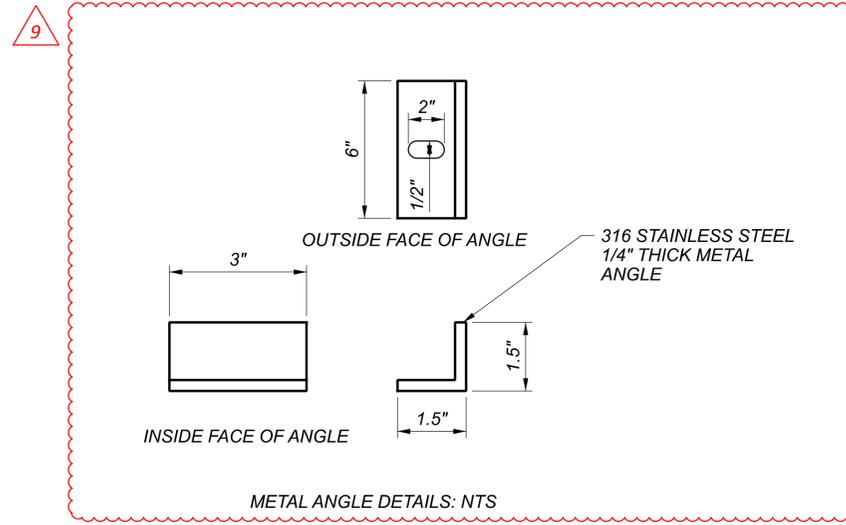
NOTE 1:
 CONTRACTOR SHALL NOT FABRICATE SCREEN WALL COVER PLATES UNTIL SCREENWALL POSTS, BASEPLATE AND ANCHORAGE DESIGNS ARE ACCEPTED BY THE ENGINEER AND THE WIDTH OF THE RECESS IS VERIFIED

COVER PLATE - SIDE VIEW

COVER PLATE - FRONT VIEW

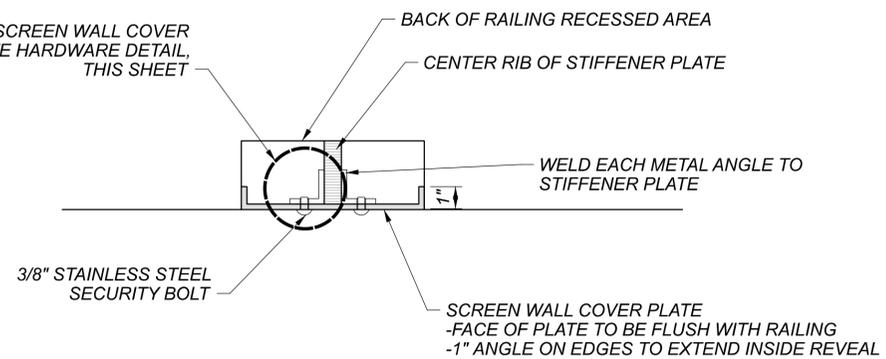
ITEM SPECIAL - SCREEN WALL COVER PLATE

SCALE: 3"=1"



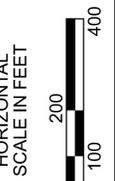
SCREEN WALL HARDWARE

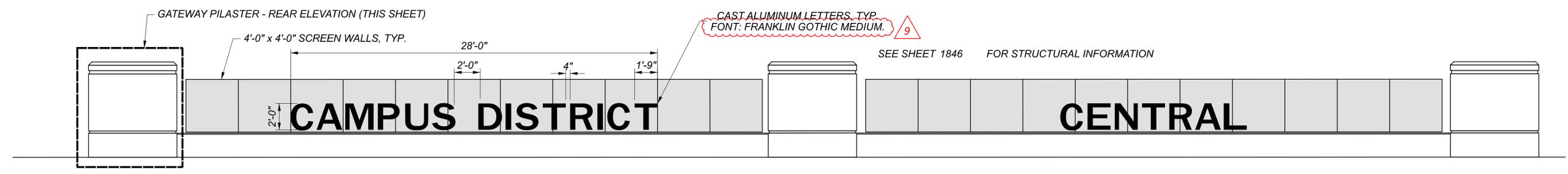
SCALE: NTS



ITEM SPECIAL - SCREEN WALL COVER PLATE

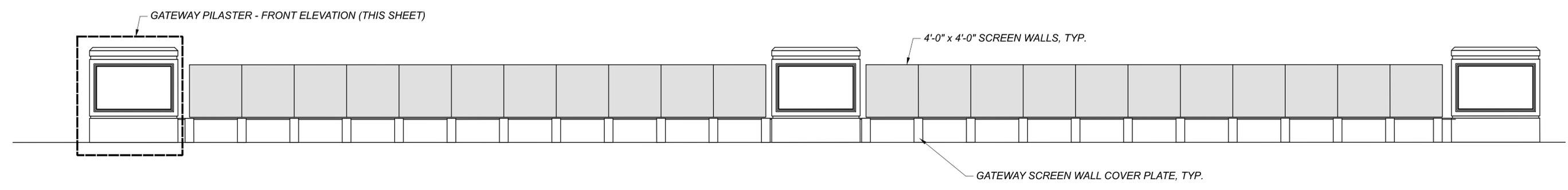
SCALE: 3"=1"





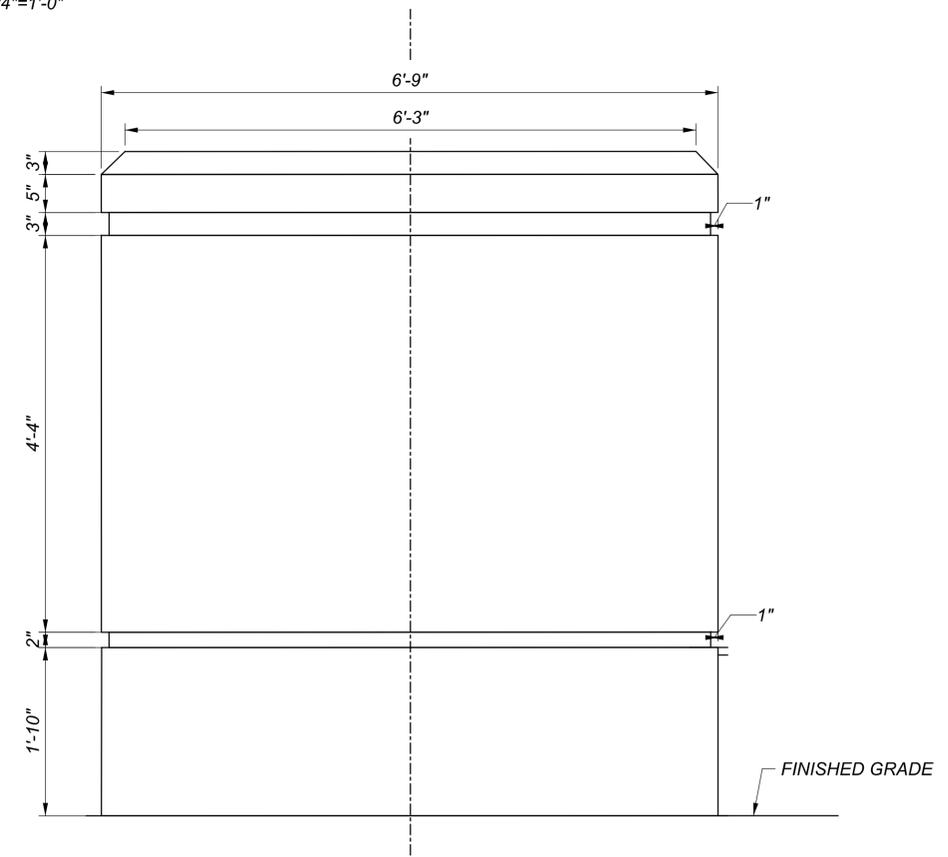
GATEWAY MONUMENT SIGN REAR ELEVATION

SCALE: 1/4"=1'-0"



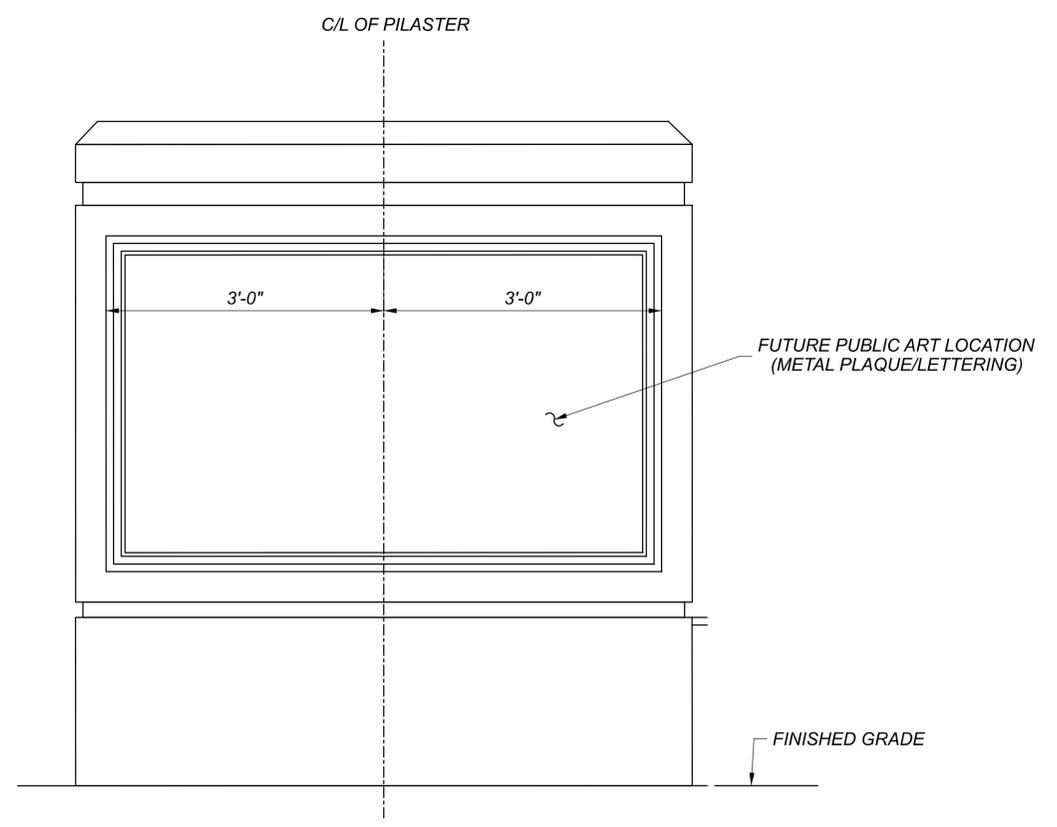
GATEWAY MONUMENT SIGN FRONT ELEVATION

SCALE: 1/4"=1'-0"



GATEWAY PILASTER - REAR ELEVATION

SCALE: 1" = 1'-0"



GATEWAY PILASTER - FRONT ELEVATION

SCALE: 1" = 1'-0"

ITEM 506 - STATIC LOAD TEST, AS PER PLAN

AT THE REAR AND FORWARD ABUTMENTS, PERFORM DYNAMIC TESTING ON THE FIRST TWO PRODUCTION PILES. PERFORM THE STATIC LOAD TEST ON EITHER PILE. ALSO PERFORM DYNAMIC TESTING ON TWO OTHER PILES, TO BE USED AS ANCHOR PILES. DRIVE ALL PILES TO THE FULL ESTIMATED LENGTH FOR THE REAR & FORWARD ABUTMENT SUBSTRUCTURE UNITS (55 FT & 65 FT), IN ACCORDANCE WITH THE PLAN NOTE "PILES DRIVEN TO FULL ESTIMATED LENGTH WITH PILE/SOIL SETUP." OTHER PRODUCTION PILES IN THE SAME SUBSTRUCTURE UNIT MAY BE USED AS ANCHOR PILES. THE STATIC LOAD TEST PILE AND ALL ANCHOR PILES SHALL NOT BE BATTERED. AFTER DRIVING ALL PILES TO THE FULL ESTIMATED LENGTH, CEASE ALL DRIVING OPERATIONS AT THE SUBSTRUCTURE FOR A MINIMUM OF 14 DAYS. AFTER THE WAITING PERIOD, PERFORM THE STATIC LOAD TEST, AND THEN PERFORM PILE RESTRIKES ON THE FOUR DYNAMIC LOAD TEST PILES (TWO RESTRIKE TEST ITEMS). PERFORM A CAPWAP ANALYSIS ON EACH PILE TESTED IN THE SAME SUBSTRUCTURE UNIT FOR EVERY DYNAMIC LOAD TEST AND EVERY RESTRIKE TEST. THE ENGINEER WILL REVIEW THE RESULTS OF THE PILE RESTRIKES AND ESTABLISH THE DRIVING CRITERIA FOR THE PILING IN THE SUBSTRUCTURE IN ACCORDANCE WITH THE PLAN NOTE "PILES DRIVEN TO FULL ESTIMATED LENGTH WITH PILE/SOIL SETUP." SUBMIT ALL TEST RESULTS TO THE OFFICE OF GEOTECHNICAL ENGINEERING.

IF THE RESTRIKE TEST RESULTS INDICATE THAT ANY OF THE PILES DID NOT ACHIEVE THE REQUIRED UBV, DRIVE THE PILE TO THE ESTABLISHED DRIVING CRITERIA IN ACCORDANCE WITH THE PLAN NOTE "PILES DRIVEN TO FULL ESTIMATED LENGTH WITH PILE/SOIL SETUP."

THE CONTRACTOR HAS THREE ALTERNATIVES TO PERFORM THE STATIC LOAD TEST, AS PER PLAN:

1. PERFORM THE STATIC LOAD TEST ON A PRODUCTION PILE IN THE REAR ABUTMENT AND FORWARD ABUTMENT SUBSTRUCTURE UNITS AND USE OTHER PRODUCTION PILES IN THE SAME SUBSTRUCTURE UNIT AS ANCHOR PILES, PER THE NOTE ABOVE.
2. PERFORM THE STATIC LOAD TEST ON A PRODUCTION PILE IN THE REAR ABUTMENT AND FORWARD ABUTMENT SUBSTRUCTURE UNITS AND DRIVE SUPPLEMENTAL PILES FOR ANCHOR PILES. STILL DRIVE ALL PILES TO THE FULL ESTIMATED LENGTH FOR THE ABUTMENT SUBSTRUCTURE UNIT. IN THIS CASE, PERFORM DYNAMIC LOAD TESTING AND RESTRIKE TESTING ON THE STATIC LOAD TEST PILE, ONE OTHER PILE IN THE SAME SUBSTRUCTURE UNIT, AND ON TWO OF THE ANCHOR PILES.
3. PERFORM THE STATIC LOAD TEST OFFLINE, ON A SUPPLEMENTAL TEST PILE WITHIN 50 FEET OF BOTH THE REAR ABUTMENT AND FORWARD ABUTMENT AND DRIVE AN ARRAY OF SUPPLEMENTAL PILES AS ANCHOR PILES. STILL DRIVE ALL PILES TO THE FULL ESTIMATED LENGTH FOR THE ABUTMENT SUBSTRUCTURE UNIT. IN THIS CASE, PERFORM DYNAMIC LOAD TESTING AND RESTRIKE TESTING ON THE STATIC LOAD TEST PILE, ONE OF THE ANCHOR PILES, AND ON TWO PRODUCTION PILES IN THE ABUTMENT SUBSTRUCTURE UNIT, IN ACCORDANCE WITH THE PLAN NOTE "PILES DRIVEN TO FULL ESTIMATED LENGTH WITH PILE/SOIL SETUP."

INCLUDE FOR PAYMENT WITHIN THIS ITEM A QUANTITY OF TWO (2)- ITEM 523 DYNAMIC LOAD TESTING, AS PER PLAN AND TWO (2)- ITEM 523 RESTRIKE, AS PER PLAN, ONE EACH FOR THE REAR AND FORWARD ABUTMENT SUBSTRUCTURE UNITS. EACH OF THESE INCLUDES TESTING ON TWO PILES, IN ACCORDANCE WITH ITEM 523. ANY SUPPLEMENTAL PILES DRIVEN FOR THE STATIC LOAD TEST ARE INCIDENTAL TO ITEM 506 STATIC LOAD TEST, AS PER PLAN.

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

PROVIDE BUFF WASH FINISH ON EDGES AND BOTTOM OF DECK OVERHANGS AS DETAILED IN THE LANDSCAPE PLANS.

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

PLACE CONTROL JOINTS PER THE AESTHETIC ENHANCEMENT PLANS. PROVIDE PEJF AND SEALANT AROUND LUMINAIRES AT SIDEWALK PENETRATIONS AS SHOWN IN THESE PLANS.

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

ALL BRIDGE RAILS (PARAPETS), PILASTERS, AND PLANTERS SHALL RECEIVE A BUFF WASH FINISH WITH CLEAR SEALER (NON-EPOXY) PER THE LANDSCAPE PLANS AND DETAILS. THIS ITEM APPLIES TO USE OF SELF-CONSOLIDATING CONCRETE FOR BRIDGE PARAPETS, PILASTERS, AND WALLS TO IMPROVE CONCRETE CONSOLIDATION AND THE SURFACE FINISH OF ARCHITECTURAL CONCRETE ELEMENTS. USE AN APPROVED CONCRETE MIX DESIGN WITH MAXIMUM SIZE COARSE THAT DOES NOT EXCEED ¾-INCH NOMINAL.

PRIOR TO PLACING ANY CONCRETE ELEMENTS UNDER THIS PAY ITEM, INCLUDING ANY OF THE CONCRETE PARAPET, PILASTERS, AND PLANTERS, THE CONTRACTOR SHALL CAST PARAPET, PILASTER, AND PLANTER CONCRETE SAMPLE PANELS AS REQUIRED IN THE LANDSCAPE PLANS AND MEET THE APPROVAL STANDARDS THEREIN. CONFIRM, AND ADJUST, IF NECESSARY, THE MIX DESIGN, PLACEMENT TECHNIQUES, AND BUFF WASH FINISH TO DEMONSTRATE SATISFACTORY RESULTS THROUGH THE SAMPLE PANELS.

THE FINAL APPROVED SAMPLE PANELS WILL SERVE AS A JOB SITE STANDARD FROM WHICH THE ACCEPTANCE OF ALL OTHER WORK WILL BE DETERMINED. THOSE SAMPLE PANELS DETERMINED BY THE ENGINEER TO BE UNSATISFACTORY IN TERMS OF CONFORMANCE TO THE QUANTITY AND REPRESENTATIVE APPEARANCE OF THE JOB STANDARD SAMPLE PANELS WILL BE REPAIR OR REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE PROJECT.

IN ADDITION TO THE REQUIREMENTS OF ITEM 499 SELF-CONSOLIDATING CONCRETE (QC -SCC) UNDER THE ITEM 511 WORK FOR STRUCTURAL POUR ELEMENTS REQUIRING ARCHITECTURAL FINISHES, PROVIDE QC PERSONNEL, ACI CERTIFIED IN THE SELF-CONSOLIDATING CONCRETE TESTING, TO PERFORM CONCRETE FIELD TESTS FOR THIS MATERIAL TO ENSURE A QUALITY MIX AND PLACEMENT ON THE SELF-CONSOLIDATING CONCRETE QC/QA WORK.

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, ABUTMENT

FORMLINER FIELD PATTERN ON SHEET 1867

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, PIER

FORMLINER FIELD PATTERN ON SHEET 1867

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, PLANTER AESTHETIC TREATMENT

SHEET 1850

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, RAILING LETTERING

SHEET 1850 AND 1851

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)

APPLY A PERMANENT GRAFFITI COATING MEETING THE REQUIREMENTS OF SUPPLEMENT 1083. THE GRAFFITI COATING MUST BE COMPATIBLE WITH THE UNDERLYING CONCRETE SEALER. APPLY THE GRAFFITI COATING ACCORDING TO THE MANUFACTURE'S REQUIREMENTS. THE ADDITIONAL MATERIAL AND LABOR REQUIRED TO SEAL THE FORM LINER RELIEF SHALL BE INCLUDED IN THIS ITEM. TO ACCOUNT FOR THE SURFACE VARIATIONS DUE TO THE FORM LINERS, AN EXTRA 20 PERCENT HAS BEEN ADDED TO THE SEALING QUANTITIES FOR THE PURPOSE OF ESTIMATING. PROVIDE A COATING THAT MEETS THE REQUIREMENTS LISTED BELOW.

THE MATERIAL SHALL BE A SINGLE COMPONENT, RTV (ROOM TEMPERATURE VULCANIZED) NEUTRAL MOISTURE CURE, PERMANENT (NON-SACRIFICIAL), TYPE III (WATER CLEANABLE) POLYSILOXANE (SILICONE) ANTI-GRAFFITI COATING, FREE OF ANY WAXES, EPOXIES OR POLYURETHANE COMPONENTS.

THE COATING SHALL BE A ONE COAT SYSTEM (NO PRIMER) CAPABLE OF BEING SPRAY APPLIED TO A DRY FILM THICKNESS OF 15 MILS (375 MICRONS) WITHOUT RUNS OR SAGS (MULTIPLE COAT APPLICATION ACCEPTABLE FOR BRUSH/ROLLER USAGE AND PRIMER USAGE ACCEPTABLE FOR SPECIALTY SUBSTRATES SUCH AS GALVANIZED METAL).

THE COATING SHALL EMIT LESS THAN 300 G/L (2.5 POUNDS PER GALLON) OF VOLATILE ORGANIC COMPOUNDS (EPA METHOD 24).

THE COATING SHALL MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

CLEANABILITY LEVEL 1 (GRAFFITI COMPLETELY REMOVED WITH COLD WATER POWER WASH) AS PER ASTM D7089 WITH LOW PRESSURE (1200 PSI) COLD WATER WASH AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM D4587.

GRAFFITI RESISTANCE LESS THAN 7.5 AS PER ASTM D6578 AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM D4587.

NO SIGNS OF GRAFFITI OR GRAFFITI STAINING AND MUST BE INTACT AND EXHIBIT NO SIGNS OF STREAKING, CRACKING, PINHOLING, DISCOLORING OR OTHER VISIBLE COATING DEGRADATION UPON CASUAL OBSERVATION WHEN TESTED IN ACCORDANCE WITH TXDOT TEX 890-B, TYPE III METHOD.

BREATHABILITY OF 10 PERMS (+/- 3) PER ASTM D1653 USING "WET CUP METHOD".

ELONGATION AT BREAK GREATER THAN 100% AS PER ASTM D412 (USING DIE "D").

ADHESION RATING OF "8 - DIFFICULT TO REMOVE" AS PER ASTM D6677 (ADHESION BY KNIFE).

FINISH COLORS:

ITEM 514 - FIELD PAINTING OF STURCUTRAL STEEL, FINISH COAT, AS PER PLAN

PAINT COLORS SHALL BE AS FOLLOWS:

BLACK FOX (SW 7020) - FASCIA GIRDERS (OUTER FACE AND BOTTOM FLANGE ONLY)

ALABASTER (SW 7008) - INSIDE GIRDERS, BRACING MEMBERS AND INSIDE FACE OF FASCIA GIRDERS

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN

CONCRETE SEALER COLORS SHALL BE AS FOLLOWS:

BLACK FOX (SW 7020) - STREET NAME LETTERING ON RAILINGS

ALABASTER (SW 7008) - SUBSTRUCTURE - PIERS, ABUTMENTS AND ABUTMENT WALLS

ALPACA (SW 7022) - ABUTMENT AND WINGWALL ACCENTS

ALL COLOR NAME AND NUMBER REFERENCES ARE TAKEN FROM THE SHERWIN WILLIAMS COLOR PALATE. THE CONTRACTOR MAY SUBSTITUTE SIMILAR COLORS FROM ALTERNATIVE SUPPLIER'S COLOR PALATE.

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN

CONSTRUCT REAR APPROACH SLAB AS DETAILED ON SHEET . SEE LANDSCAPING PLANS FOR INTEGRALLY COLORED CONCRETE DETAILS.

ITEM 607, VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC, AS PER PLAN

CANTILEVER FENCE PANELS AT CHEEKWALL LOCATIONS TO ENSURE AN OPENING GREATER THAN OR EQUAL TO 1" AND LESS THAN 4" EXISTS BETWEEN THE FENCE AND THE BACK FACE OF THE PILASTER. FENCE FABRIC SHALL BE BLACK.

ITEM 625, LIGHT POLE ANCHOR BOLTS ON STRUCTURE, AS PER PLAN
ITEM 625, LIGHTING, MISC.: PEDESTRIAN POLE ANCHORAGE

WHEN A LIGHT POLE OR PEDESTRIAN POLE IS MOUNTED ON A STRUCTURE, THE REQUIRED ANCHOR BOLTS MAY DIFFER IN LENGTH AND/OR SHAPE FROM THOSE REQUIRED WHEN THE POLE IS MOUNTED ON A CAST-IN-PLACE DRILLED SHAFT FOUNDATION. THE COST DIFFERENTIAL FOR FURNISHING SUCH BOLTS IS INCLUDED HEREIN.

IN ADDITION, THERE IS NO FOUNDATION CONSTRUCTION ITEM IN WHICH TO INCLUDE THE SETTING OF ANCHOR BOLTS. THUS, THE SETTING OF THE ANCHOR BOLTS INTO THE STRUCTURE IS ALSO PART OF THIS WORK.

PAYMENT SHALL BE AT THE UNIT PRICE FOR THE ITEM INCLUDING PLATE(S), ANCHOR ASSEMBLY, LABOR, EQUIPMENT, CONNECTIONS, INSPECTIONS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

12" GAS LINE INSTALLATION

ENBRIDGE GAS OHIO WILL INSTALL GAS PIPELINE ON BRIDGE AND WILL INSTALL LINK SEALS, SPACERS AND BOOT SEAL WHEN INSTALLING THE PIPELINE.

ITEM 625 - CONDUIT MISC.: AT&T 4" CONDUIT INSTALLATION

THIS ITEM INCLUDES PAYMENT FOR INSTALLATION OF THE AT&T CONDUIT ON THE STRUCTURE, AS SHOWN IN THE PLANS. MATERIALS WILL BE SUPPLIED TO THE GENERAL CONTRACTOR FOR INSTALLATION. AT&T WILL PROVIDE CONDUIT RACKS, FIBERGLASS CONDUITS TO ENDS OF APPROACH SLAB, FITTINGS AND EXPANSION JOINTS. CONTRACTOR TO INSTALL ALL MATERIALS ON BRIDGE. AT&T WILL INSTALL CONDUITS OUTSIDE OF APPROACH SLABS TO MANHOLES. AT&T WILL COMPLETE THE CABLE WORK.

ITEM 625 - CONDUIT, MISC.: CEI 4" CONDUIT INSTALLATION

THIS ITEM INCLUDES INSTALLATION OF THE CONDUIT ON THE STRUCTURE. CEI WILL PROVIDE ALL MATERIALS. CEI PULLS ALL CABLES. CEI CONTRACTOR WILL COMPLETE WORK UP TO THE OUTSIDE EDGE OF THE APPROACH SLABS (ALL CONDUIT OFF THE BRIDGE). CONTRACTOR WILL INSTALL THE CONDUIT BETWEEN THE OUTSIDE EDGES OF APPROACH SLABS (ALL CONDUIT UNDER APPROACH SLABS, ON THE BRIDGE AND THROUGH THE ABUTMENTS).

ITEM 625 - CONDUIT, MISC.: CPP 5" CONDUIT INSTALLATION

THIS ITEM INCLUDES FURNISHING AND INSTALLING THE CPP CONDUIT ON THE STRUCTURE, AS SHOWN IN THE PLANS, AND PULLING THE WIRE. CPP WILL MAKE THE FINAL CONNECTION. CONTRACTOR TO PERFORM INTERMEDIATE (DEAD) SPLICING WITH CPP INSPECTION. CPP WILL COMPLETE CUT OVER SPLICING. CPP WILL REQUIRE NOTIFICATION OF SCHEDULE FOR THE PULLING OF CONDUIT. CPP TO INSPECT ALL WORK BEFORE FINAL CONNECTIONS ARE MADE IN MANHOLES.

ITEM 690 - ROLLER SUPPORTS (GAS LINE)

THIS ITEM INCLUDES FURNISHING AND INSTALLING STEEL ANGLE SUPPORT, ROLLERS AND HANGER ASSEMBLIES OF ALL GAS LINE SUPPORTS ON THE BRIDGE, AS SHOWN IN THE PLANS.

ITEM 690 - UTILITY SUPPORTS (AT&T DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL AT&T DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. AT&T WILL PROVIDE CONDUIT RACKS, FIBERGLASS CONDUITS TO ENDS OF APPROACH SLAB, FITTINGS AND EXPANSION JOINTS. CONTRACTOR TO INSTALL ALL MATERIALS ON BRIDGE.

ITEM 690 - UTILITY SUPPORTS (CEI DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL CEI DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. MATERIAL PROVIDED BY CEI FOR THIS WORK INCLUDES UTILITY HANGERS, CONDUIT RACKS, EXPANSION JOINTS AND SLEEVES. STEEL ANGLE SUPPORTS PROVIDED BY CONTRACTOR. CONTRACTOR TO INSTALL HANGERS AND CONDUIT RACKS. CONTRACTOR TO WORK WITH CEI TO GUARANTEE THAT THERE IS A PROPER ARRANGEMENT FOR THE DELIVERY OF MATERIALS.

ITEM 690 - UTILITY SUPPORTS (CPP DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL CPP DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS.

ITEM 690 - UTILITY SUPPORTS (WATER LINE)

THIS ITEM INCLUDES INSTALLATION OF ALL WATER LINE SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND ELEMENTS SHOWN IN THE PLANS FOR THE WATER LINE.

GENERAL NOTES (3 OF 4)
CUY-90-1678 (BRIDGE 13)
CR-710 (E. 22ND ST.) OVER I.R. 90

SFN	1807839
DESIGN AGENCY	
Michael Baker	INTERNATIONAL
DESIGNER	CHECKER
ZES	KAG
REVIEWER	
CDC	05/10/24
PROJECT ID	82382
SUBSET	TOTAL
5	99
SHEET	TOTAL
2186	2696

ESTIMATED QUANTITIES

CALCULATED BY: ZES DATE: 03/20/24
 CHECKED BY: DAF DATE: 04/12/24

PARTICIPATION	ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTR.	GENERAL	SHEET REF.
02/IMS/10	518	12200	8	EACH	SCUPPERS, INCLUDING SUPPORTS				8	
02/IMS/10	518	21200	1,035	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	1,035				
02/IMS/10	518	40000	697	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	697				
02/IMS/10	518	40011	33	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	33				85
02/IMS/10	518	43301	304	FT	6" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN	66	130	108		85 & 88
02/IMS/10	518	62100	53	FT	STRUCTURE DRAINAGE, MISC.: 4" NON-PERFORATED PVC PIPE, INCLUDING SPECIALS			53		85
02/IMS/10	518	62100	406	FT	STRUCTURE DRAINAGE, MISC.: 4" PERFORATED PVC PIPE			406		85
02/IMS/10	518	62100	390	FT	STRUCTURE DRAINAGE, MISC.: 6" NON-PERFORATED PVC DRAIN PIPE, INCLUDING SPECIALS			390		85
02/IMS/10	523	20001	4	EACH	DYNAMIC LOAD TESTING, AS PER PLAN				4	3
02/IMS/10	523	20501	4	EACH	RESTRIKE, AS PER PLAN				4	3
02/IMS/10	526	30001	394	SY	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN				394	5
02/IMS/10	526	30010	394	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17")				394	
02/IMS/10	526	90010	244	FT	TYPE A INSTALLATION				244	
02/IMS/10	SPECIAL	530E00200	LS		STRUCTURES: PRECONSTRUCTION CONDITION SURVEY				LS	3
02/IMS/10	SPECIAL	530E00400	280	EACH	STRUCTURES: BOLLARD ANCHORAGE				280	86
02/IMS/10	SPECIAL	530E14000	LS		STRUCTURAL SURVEY AND MONITORING OF VIBRATION				LS	3
02/IMS/10	601	21000	1,092	SY	CONCRETE SLOPE PROTECTION				1,092	
02/IMS/10	607	39911	319	FT	VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC, AS PER PLAN				319	5
02/IMS/10	625	10615	28	EACH	LIGHT POLE ANCHOR BOLTS ON STRUCTURE, AS PER PLAN				28	5
02/IMS/10	625	25920	2,144	FT	CONDUIT, MISC.: AT&T 4" CONDUIT INSTALLATION				2,144	5
02/IMS/10	625	25920	3,216	FT	CONDUIT, MISC.: CEI 4" CONDUIT INSTALLATION				3,216	5
02/IMS/10	625	25920	2,412	FT	CONDUIT, MISC.: CPP 5" CONDUIT INSTALLATION				2,412	5
02/IMS/10	625	98000	24	EACH	LIGHTING, MISC.: PEDESTRIAN POLE ANCHORAGE			24		5
02/IMS/10	SPECIAL	690E50600	70	EACH	BOLLARD				70	1826
02/IMS/10	SPECIAL	690E98000	29	EACH	ROLLER SUPPORTS (GAS LINE)			29		5
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (AT&T DUCTS)			29		5
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (CEI DUCTS)			29		5
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (CPP DUCTS)			29		5
02/IMS/10	SPECIAL	690E98000	27	EACH	UTILITY SUPPORTS (WATER LINE)			27		5

ESTIMATED QUANTITIES (2 OF 2)
 CUY-90-1678 (BRIDGE 13)
 CR-710 (E. 22ND ST.) OVER I.R. 90

SFN	1807839
DESIGN AGENCY	
Michael Baker	INTERNATIONAL
DESIGNER	CHECKER
ZES	KAG
REVIEWER	
CDC	05/10/24
PROJECT ID	82382
SUBSET	TOTAL
8	99
SHEET	TOTAL
2189	2696

ITEM SPECIAL - STRUCTURES MISC.: PRECONSTRUCTION/POST CONSTRUCTION CONDITION SURVEY (CONT.)

IF OWNERS, OR OCCUPANTS, FAIL TO ALLOW ACCESS TO THE PROPERTY FOR THE PRECONSTRUCTION CONDITION SURVEY, SEND A CERTIFIED LETTER TO THE OWNER OR OCCUPANT. DOCUMENT THE NOTIFICATION EFFORT AND THE CERTIFIED LETTER IN THE REPORT.

ELECTRONICALLY SUBMIT THE PRE-CONSTRUCTION AND POST-CONSTRUCTION SURVEY TO THE ENGINEER FOR COORDINATION WITH SHPO. SHPO WILL BE PROVIDED A REVIEW OF PRE-CONSTRUCTION AND POST-CONSTRUCTION STRUCTURAL SURVEYS ON THE WALKER WEEKS BUILDING TO DETERMINE IF ANY DAMAGE WAS CAUSED BY CONSTRUCTION.

THE DEPARTMENT WILL PAY FOR THIS ITEM AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - STRUCTURE MISC.: PRECONSTRUCTION/POST CONSTRUCTION CONDITION SURVEY.

DRILLED SHAFT LENGTH

AXIAL RESISTANCE.

THE OVERALL LENGTH OF THE DRILLED SHAFTS IS CONTROLLED BY REQUIRED EMBEDMENT LENGTH TO PROVIDE GEOTECHNICAL

FRICITION DRILLED SHAFTS

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 468 KIPS AT THE REAR ABUTMENT. THE LOAD IS RESISTED BY FRICTIONAL SIDE RESISTANCE ALONG THE LENGTH OF THE DRILLED SHAFT AND BY TIP RESISTANCE. AT THE ABUTMENTS, THE FACTORED SIDE RESISTANCE IS 394 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 64 FEET OF THE DRILLED SHAFT, AND THE FACTORED TIP RESISTANCE IS 81 KIPS. MAXIMUM FACTORED LOAD = MAXIMUM FACTOR LOAD AT TOP OF SHAFT + FACTORED EFFECTIVE SELF-WEIGHT OF THE SHAFT = 422 KIPS + 46 KIPS = 468 KIPS

MAXIMUM FACTORED SIDE RESISTANCE = RESISTANCE FACTOR X GROUP REDUCTION FACTOR X NOMINAL SIDE RESISTANCE = 0.7 X 0.66 X 853 KIPS = 394 KIPS
 MAXIMUM FACTORED TIP RESISTANCE = RESISTANCE FACTOR X GROUP REDUCTION FACTOR X NOMINAL SIDE RESISTANCE = 0.7 X 0.5 X 231 KIPS = 81 KIPS

LATERALLY LOADED DRILLED SHAFTS

THE MAXIMUM FACTORED LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT ARE 95 KIPS, AND 955 KIP- FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 955 KIP- FEET, AND A MAXIMUM FACTORED SHEAR OF 95 KIPS, WITHIN THE DRILLED SHAFT.

ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL DRILLED SHAFTS AS DETAILED IN THE PLANS IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS SECTION 524, AND WITH THE ADDITIONAL REQUIREMENTS DEFINED BELOW.

ANTICIPATED DRILLED SHAFT DEFLECTIONS:

TANGENT DRILLED SHAFTS ("SHAFT", "SHAFTS") ARE INCORPORATED AS WALLS IN VARIOUS STRUCTURAL ELEMENTS FOR THIS BRIDGE. AS DESIGNED AND DETAILED THE SHAFTS ARE EXPECTED TO DEFLECT UNDER THE APPLIED PERMANENT LOADS (DC, DW, EH, WA) AND TRANSIENT LOADS (LL, LS, TU) AT THE SERVICE LIMIT STATE. MEASURES FOR ACCOMMODATING THESE DEFLECTIONS ARE DETAILED BELOW.

THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN BEAM SEAT ELEVATION FOR SHAFTS INCORPORATED IN ABUTMENTS. THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN TOP OF CAP ELEVATION FOR SHAFTS INCORPORATED IN RETAINING WALLS. IN BOTH CASES THE FINISHED TOP OF SHAFT IS LOWER THAN THE SHAFT HEAD ELEVATION.

THE MAXIMUM ANTICIPATED DEFLECTION AT THE SHAFT HEAD ELEVATION RELATIVE TO THE SHAFT TIP ELEVATION DUE TO PERMANENT LOADS AND TRANSIENT LOADS ARE AS FOLLOWS:

REAR ABUTMENT 1¼ INCHES

ANTICIPATED TRANSIENT LOAD DEFLECTIONS ARE ACCOMODATED BY ADDITIONAL MOVEMENT CAPACITY IN THE ABUTMENT EXPANSION JOINTS AND BEARINGS.

DESIGN ASSUMPTIONS:

BEHAVIOR OF THE DRILLED SHAFTS AS DESCRIBED ABOVE IS PREDICATED UPON THE FOLLOWING DESIGN ASSUMPTIONS:

- DESIGN HEIGHT OF DRILLED SHAFT IS THE DISTANCE FROM THE SHAFT HEAD ELEVATION TO THE DREDGE LINE ELEVATION
- PERMANENT LOAD DEFLECTIONS ARE ASSUMED TO OCCUR FOLLOWING REMOVAL OF SOIL IN FRONT OF THE TANGENT SHAFT WALLS
- ADDITIONAL ASSUMPTIONS AND CONSTRAINTS ARE DETAILED IN THE PLANS.

DREDGE LINE ELEVATIONS:

REAR ABUTMENT ELEV. 630.00
 FOR DRAINAGE STRUCTURE EXCAVATION

DRILLED SHAFT LOCATION SURVEY:

THE CORRECT LOCATION OF SHAFT IS CRITICAL TO ESTABLISHING AND MAINTAINING THE STRUCTURE GEOMETRY. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A OHIO REGISTERED PROFESSIONAL SURVEYOR ("THE SURVEYOR") TO ESTABLISH, MAINTAIN AND VERIFY HORIZONTAL AND VERTICAL SHAFT GEOMETRY. THE SURVEYOR SHALL BE READILY AVAILABLE TO ESTABLISH GEOMETRIC CONTROL AND PERFORM THE SURVEYS REQUIRED BELOW.

THE SURVEYOR SHALL ESTABLISH THE LOCATION OF THE CENTER OF EACH DRILLED SHAFT FOR INSTALLATION AND VERIFY PLUMBNESS OF THE DRILLING RIG PRIOR TO COMMENCING DRILLING OPERATIONS. THE SURVEYOR SHALL LOCATE AND ALIGN THE DRILLING TEMPLATES USED TO ENSURE PROPER SHAFT LOCATION AND ALIGNMENT.

THE CONTRACTOR SHALL SURVEY AND DOCUMENT THE AS-INSTALLED LOCATION AND PLUMBNESS (HORIZONTAL AND VERTICAL ALIGNMENT) OF EACH SHAFT IMMEDIATELY FOLLOWING COMPLETION OF THE SHAFT INSTALLATION. THE CONTRACTOR AND SURVEYOR SHALL COMPARE AS-BUILT LOCATION TO PLAN LOCATION SO THAT THE NEED FOR REMIDIAL ACTION CAN BE ASSESSED BY THE ENGINEER. WORK ON ADDITIONAL SHAFTS IN THE INSTALLATION SHALL NOT PROCEED UNTIL THE ENGINEER HAS COMPLETED THIS ASSESSMENT.

THE CONTRACTOR SHALL PERFORM AN INITIAL SHAFT BASELINE SURVEY OF THE AS-INSTALLED LOCATION OF THE SHAFTS IMMEDIATELY FOLLOWING COMPLETION OF ALL SHAFT INSTALLATIONS. THE INITIAL SHAFT BASELINE SURVEY WILL ESTABLISH THE SHAFT LOCATION BASELINE. THE SHAFT LOCATION BASELINE WILL BE ESTABLISHED FOR ALL SHAFTS IDENTIFIED IN THE SUGGESTED SEQUENCE OF OPERATIONS.

THE CONTRACTOR SHALL PERFORM A SECOND SHAFT BASELINE SURVEY AFTER INSTALLATION AND EXCAVATION TO DREDGE LINE ELEVATION TO CONFIRM THAT ANTICIPATED PERMANENT LOAD DEFLECTION HAS OCCURED. A MINIMUM PERIOD OF 30 DAYS MUST ELAPSE BETWEEN THE INITIAL AND FINAL SHAFT BASELINE SURVEY.

THE CONTRACTOR SHALL PROVIDE THE RESULTS OF THE INDIVIDUAL SHAFT LOCATION SURVEY; AND INITIAL AND SECOND SHAFT BASELINE SURVEYS IN REPORT FORM TO THE ENGINEER WITHIN TWO (2) WORKING DAYS OF COMPLETION. EACH SURVEY REPORT SHALL INCLUDE THE FOLLOWING INFORMATION PROVIDED IN ELECTRONIC FORMAT:

- X, Y COORDINATES OF EACH SHAFT IN ODOT STATE PLANE COORDINATE SYSTEM TABULATED IN EXCEL SPREADSHEET
- ALIGNMENT OF SHAFT LOCATION BASELINE ESTABLISHED BETWEEN SHAFTS XX AND YY
- A NARRATIVE COMPARISON OF THE SURVEYED BASELINE TO THE PLAN BASELINE
- LISTING OF ALL SHAFT LOCATION DEVIATIONS FROM BASELINE

THE SECOND SHAFT BASELINE SURVEY SHALL ALSO INCLUDE:

- A NARRATIVE COMPARISON OF THE SECOND SURVEYED SHAFT BASELINE TO THE INITIAL SHAFT BASELINE
- THE CONTRACTOR SHALL IDENTIFY THE POTENTIAL NEED FOR MITIGATION MEASURES TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION

THE ENGINEER WILL REVIEW THE RESULTS OF EACH SURVEY REPORT TO DETERMINE WHAT MITIGATION MEASURES, IF ANY, ARE REQUIRED TO MAINTAIN THE REQUIRED CENTERLINE OF BEARING LOCATIONS.

THE ENGINEER WILL PROVIDE APPROVAL OF THE SURVEYS AND REQUIRED MITIGATION MEASURES WITHIN THREE (3) WORKING DAYS OF RECEIPT OF THE SURVEYS. SURVEYS SHALL BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF OHIO. CONTRACTOR'S SURVEY SUBMITTAL SHALL CONFORM TO THE SUBMITTAL REQUIREMENTS OF C&MS 105.02

CONSTRUCTION TOLERANCES:

DRILLED SHAFTS SHALL BE INSTALLED TO THE TOLERANCES SPECIFIED IN ODOT C&MS SECTION 524.14 EXCEPT AS MODIFIED BELOW. ADDITIONAL CONSTRUCTION TOLERANCE REQUIREMENTS ARE AS FOLLOWS:

POSITION EACH DRILLED SHAFT WITHIN 1" OF THE PLAN LOCATION IN THE HORIZONTAL PLANE AT THE PLAN ELEVATION FOR THE TOP OF SHAFT.

VERTICAL TOLERANCE SHALL CONFORM TO ODOT C&MS SECTION 524.14.

THE USE OF A DRILLING TEMPLATE IS REQUIRED TO ESTABLISH AND MAINTAIN DRILLED SHAFT LOCATIONS. THE CONTRACTOR'S ON-SITE SURVEYOR SHALL BE RESPONSIBLE FOR VERIFYING AND MAINTAINING ADHERENCE TO THE REQUISITE CONSTRUCTION TOLERANCES.

MITIGATION MEASURES:

IN THE EVENT THAT THE SECOND SHAFT BASELINE SURVEY INDICATES THAT THE SHAFTS HAVE NOT DEFLECTED THE ANTICIPATED AMOUNTS, THE ENGINEER WILL PROVIDE RECOMMENDED MITIGATION MEASURES TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION AND LOCATION. IT IS ANTICIPATED THAT THE MITIGATION MEASURES MAY CONSIST OF ADJUSTING THE PLAN DIMENSIONS OF THE ABUTMENT SEAT AND BACKWALL LOCATIONS. THE CONTRACTOR WILL CONSTRUCT THE ABUTMENT SEAT AND BACKWALL IN THE LOCATION AND WITH THE DIMENSIONS NECESSARY TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION AND ALIGNMENT.

ADDITIONAL CONCRETE AND REINFORCING STEEL REQUIRED BY MITIGATION WILL BE PAID FOR VIA CHANGE ORDER AT THE

CONTRACT UNIT PRICE BID FOR THESE ITEMS. ADDITIONAL COMPENSATION WILL NOT BE MADE FOR THESE MITIGATION MEASURES IF THE SHAFTS WERE NOT INSTALLED WITHIN THE REQUIRED CONSTRUCTION TOLERANCES.

CONTRACTOR'S INSTALLATION PLAN:

THE CONTRACTOR SHALL PROVIDE AN INSTALLATION PLAN AS REQUIRED BY ODOT C&MS SECTION 524.03. THE INSTALLATION PLAN SHALL ALSO INCLUDE:

- CONTRACTOR'S PROPOSED METHODS TO MAINTAIN LOCATION AND ALIGNMENT OF SHAFTS
- CONTRACTOR'S PROPOSED METHODS FOR PERFORMING THE DRILLED SHAFT LOCATION SURVEY

MATERIALS:

CONCRETE AND REINFORCING STEEL FOR DRILLED SHAFTS SHALL CONFORM TO ODOT C&MS SECTION 524.02.

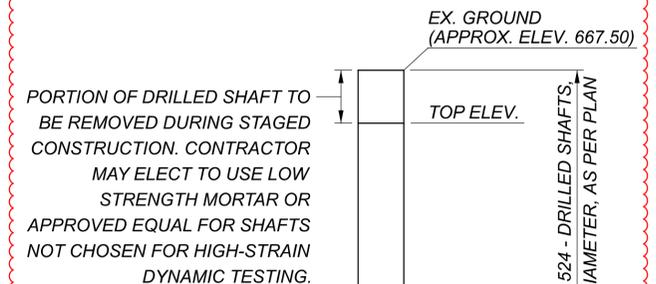
A SELF-CONSOLIDATING CONCRETE MIX SHALL BE INCORPORATED

THE MAXIMUM COARSE AGGREGATE SIZE SHALL BE: ¾"

MEASUREMENT AND PAYMENT:

MEASUREMENT FOR DRILLED SHAFTS INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS WILL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF ODOT C&MS SECTION 524.16, FURTHER CLARIFIED BY MEASUREMENT DIAGRAM BELOW.

PAYMENT FOR DRILLED SHAFTS INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS WILL BE MADE IN ACCORDANCE WITH PROVISIONS OF ODOT C&MS SECTION 524.17.



PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
524	FOOT	DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

SFN	1807898
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
ZES	MKB
REVIEWER	
KAG	12/26/23
PROJECT ID	82382
SUBSET	TOTAL
5	90
SHEET	TOTAL
2285	2696

ITEM SPECIAL - STRUCTURES MISC.: PRECONSTRUCTION/POST CONSTRUCTION CONDITION SURVEY (CONT.)

IF OWNERS, OR OCCUPANTS, FAIL TO ALLOW ACCESS TO THE PROPERTY FOR THE PRECONSTRUCTION CONDITION SURVEY, SEND A CERTIFIED LETTER TO THE OWNER OR OCCUPANT. DOCUMENT THE NOTIFICATION EFFORT AND THE CERTIFIED LETTER IN THE REPORT.

ELECTRONICALLY SUBMIT THE PRE-CONSTRUCTION AND POST-CONSTRUCTION SURVEY TO THE ENGINEER FOR COORDINATION WITH SHPO. SHPO WILL BE PROVIDED A REVIEW OF PRE-CONSTRUCTION AND POST-CONSTRUCTION STRUCTURAL SURVEYS ON THE WALKER WEEKS BUILDING TO DETERMINE IF ANY DAMAGE WAS CAUSED BY CONSTRUCTION.

THE DEPARTMENT WILL PAY FOR THIS ITEM AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - STRUCTURE MISC.: PRECONSTRUCTION/POST CONSTRUCTION CONDITION SURVEY.

DRILLED SHAFT LENGTH

AXIAL RESISTANCE.

THE OVERALL LENGTH OF THE DRILLED SHAFTS IS CONTROLLED BY REQUIRED EMBEDMENT LENGTH TO PROVIDE GEOTECHNICAL

FRICITION DRILLED SHAFTS

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 468 KIPS AT THE REAR ABUTMENT. THE LOAD IS RESISTED BY FRICTIONAL SIDE RESISTANCE ALONG THE LENGTH OF THE DRILLED SHAFT AND BY TIP RESISTANCE. AT THE ABUTMENTS, THE FACTORED SIDE RESISTANCE IS 394 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 64 FEET OF THE DRILLED SHAFT, AND THE FACTORED TIP RESISTANCE IS 81 KIPS. MAXIMUM FACTORED LOAD = MAXIMUM FACTOR LOAD AT TOP OF SHAFT + FACTORED EFFECTIVE SELF-WEIGHT OF THE SHAFT = 422 KIPS + 46 KIPS = 468 KIPS

MAXIMUM FACTORED SIDE RESISTANCE = RESISTANCE FACTOR X GROUP REDUCTION FACTOR X NOMINAL SIDE RESISTANCE = 0.7 X 0.66 X 853 KIPS = 394 KIPS
 MAXIMUM FACTORED TIP RESISTANCE = RESISTANCE FACTOR X GROUP REDUCTION FACTOR X NOMINAL SIDE RESISTANCE = 0.7 X 0.5 X 231 KIPS = 81 KIPS

LATERALLY LOADED DRILLED SHAFTS

THE MAXIMUM FACTORED LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT ARE 95 KIPS, AND 955 KIP- FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 955 KIP- FEET, AND A MAXIMUM FACTORED SHEAR OF 95 KIPS, WITHIN THE DRILLED SHAFT.

ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL DRILLED SHAFTS AS DETAILED IN THE PLANS IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS SECTION 524, AND WITH THE ADDITIONAL REQUIREMENTS DEFINED BELOW.

ANTICIPATED DRILLED SHAFT DEFLECTIONS:

TANGENT DRILLED SHAFTS ("SHAFT", "SHAFTS") ARE INCORPORATED AS WALLS IN VARIOUS STRUCTURAL ELEMENTS FOR THIS BRIDGE. AS DESIGNED AND DETAILED THE SHAFTS ARE EXPECTED TO DEFLECT UNDER THE APPLIED PERMANENT LOADS (DC, DW, EH, WA) AND TRANSIENT LOADS (LL, LS, TU) AT THE SERVICE LIMIT STATE. MEASURES FOR ACCOMMODATING THESE DEFLECTIONS ARE DETAILED BELOW.

THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN BEAM SEAT ELEVATION FOR SHAFTS INCORPORATED IN ABUTMENTS. THE SHAFT HEAD IS CONSIDERED TO BE THE DESIGN TOP OF CAP ELEVATION FOR SHAFTS INCORPORATED IN RETAINING WALLS. IN BOTH CASES THE FINISHED TOP OF SHAFT IS LOWER THAN THE SHAFT HEAD ELEVATION.

THE MAXIMUM ANTICIPATED DEFLECTION AT THE SHAFT HEAD ELEVATION RELATIVE TO THE SHAFT TIP ELEVATION DUE TO PERMANENT LOADS AND TRANSIENT LOADS ARE AS FOLLOWS:

REAR ABUTMENT 1¼ INCHES

ANTICIPATED TRANSIENT LOAD DEFLECTIONS ARE ACCOMODATED BY ADDITIONAL MOVEMENT CAPACITY IN THE ABUTMENT EXPANSION JOINTS AND BEARINGS.

DESIGN ASSUMPTIONS:

BEHAVIOR OF THE DRILLED SHAFTS AS DESCRIBED ABOVE IS PREDICATED UPON THE FOLLOWING DESIGN ASSUMPTIONS:

- DESIGN HEIGHT OF DRILLED SHAFT IS THE DISTANCE FROM THE SHAFT HEAD ELEVATION TO THE DREDGE LINE ELEVATION
- PERMANENT LOAD DEFLECTIONS ARE ASSUMED TO OCCUR FOLLOWING REMOVAL OF SOIL IN FRONT OF THE TANGENT SHAFT WALLS
- ADDITIONAL ASSUMPTIONS AND CONSTRAINTS ARE DETAILED IN THE PLANS.

DREDGE LINE ELEVATIONS:

REAR ABUTMENT ELEV. 630.00
 FOR DRAINAGE STRUCTURE EXCAVATION

DRILLED SHAFT LOCATION SURVEY:

THE CORRECT LOCATION OF SHAFT IS CRITICAL TO ESTABLISHING AND MAINTAINING THE STRUCTURE GEOMETRY. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A OHIO REGISTERED PROFESSIONAL SURVEYOR ("THE SURVEYOR") TO ESTABLISH, MAINTAIN AND VERIFY HORIZONTAL AND VERTICAL SHAFT GEOMETRY. THE SURVEYOR SHALL BE READILY AVAILABLE TO ESTABLISH GEOMETRIC CONTROL AND PERFORM THE SURVEYS REQUIRED BELOW.

THE SURVEYOR SHALL ESTABLISH THE LOCATION OF THE CENTER OF EACH DRILLED SHAFT FOR INSTALLATION AND VERIFY PLUMBNESS OF THE DRILLING RIG PRIOR TO COMMENCING DRILLING OPERATIONS. THE SURVEYOR SHALL LOCATE AND ALIGN THE DRILLING TEMPLATES USED TO ENSURE PROPER SHAFT LOCATION AND ALIGNMENT.

THE CONTRACTOR SHALL SURVEY AND DOCUMENT THE AS-INSTALLED LOCATION AND PLUMBNESS (HORIZONTAL AND VERTICAL ALIGNMENT) OF EACH SHAFT IMMEDIATELY FOLLOWING COMPLETION OF THE SHAFT INSTALLATION. THE CONTRACTOR AND SURVEYOR SHALL COMPARE AS-BUILT LOCATION TO PLAN LOCATION SO THAT THE NEED FOR REMIDIAL ACTION CAN BE ASSESSED BY THE ENGINEER. WORK ON ADDITIONAL SHAFTS IN THE INSTALLATION SHALL NOT PROCEED UNTIL THE ENGINEER HAS COMPLETED THIS ASSESSMENT.

THE CONTRACTOR SHALL PERFORM AN INITIAL SHAFT BASELINE SURVEY OF THE AS-INSTALLED LOCATION OF THE SHAFTS IMMEDIATELY FOLLOWING COMPLETION OF ALL SHAFT INSTALLATIONS. THE INITIAL SHAFT BASELINE SURVEY WILL ESTABLISH THE SHAFT LOCATION BASELINE. THE SHAFT LOCATION BASELINE WILL BE ESTABLISHED FOR ALL SHAFTS IDENTIFIED IN THE SUGGESTED SEQUENCE OF OPERATIONS.

THE CONTRACTOR SHALL PERFORM A SECOND SHAFT BASELINE SURVEY AFTER INSTALLATION AND EXCAVATION TO DREDGE LINE ELEVATION TO CONFIRM THAT ANTICIPATED PERMANENT LOAD DEFLECTION HAS OCCURED. A MINIMUM PERIOD OF 30 DAYS MUST ELAPSE BETWEEN THE INITIAL AND FINAL SHAFT BASELINE SURVEY.

THE CONTRACTOR SHALL PROVIDE THE RESULTS OF THE INDIVIDUAL SHAFT LOCATION SURVEY; AND INITIAL AND SECOND SHAFT BASELINE SURVEYS IN REPORT FORM TO THE ENGINEER WITHIN TWO (2) WORKING DAYS OF COMPLETION. EACH SURVEY REPORT SHALL INCLUDE THE FOLLOWING INFORMATION PROVIDED IN ELECTRONIC FORMAT:

- X, Y COORDINATES OF EACH SHAFT IN ODOT STATE PLANE COORDINATE SYSTEM TABULATED IN EXCEL SPREADSHEET
- ALIGNMENT OF SHAFT LOCATION BASELINE ESTABLISHED BETWEEN SHAFTS XX AND YY
- A NARRATIVE COMPARISON OF THE SURVEYED BASELINE TO THE PLAN BASELINE
- LISTING OF ALL SHAFT LOCATION DEVIATIONS FROM BASELINE

THE SECOND SHAFT BASELINE SURVEY SHALL ALSO INCLUDE:

- A NARRATIVE COMPARISON OF THE SECOND SURVEYED SHAFT BASELINE TO THE INITIAL SHAFT BASELINE
- THE CONTRACTOR SHALL IDENTIFY THE POTENTIAL NEED FOR MITIGATION MEASURES TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION

THE ENGINEER WILL REVIEW THE RESULTS OF EACH SURVEY REPORT TO DETERMINE WHAT MITIGATION MEASURES, IF ANY, ARE REQUIRED TO MAINTAIN THE REQUIRED CENTERLINE OF BEARING LOCATIONS.

THE ENGINEER WILL PROVIDE APPROVAL OF THE SURVEYS AND REQUIRED MITIGATION MEASURES WITHIN THREE (3) WORKING DAYS OF RECEIPT OF THE SURVEYS. SURVEYS SHALL BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF OHIO. CONTRACTOR'S SURVEY SUBMITTAL SHALL CONFORM TO THE SUBMITTAL REQUIREMENTS OF C&MS 105.02

CONSTRUCTION TOLERANCES:

DRILLED SHAFTS SHALL BE INSTALLED TO THE TOLERANCES SPECIFIED IN ODOT C&MS SECTION 524.14 EXCEPT AS MODIFIED BELOW. ADDITIONAL CONSTRUCTION TOLERANCE REQUIREMENTS ARE AS FOLLOWS:

POSITION EACH DRILLED SHAFT WITHIN 1" OF THE PLAN LOCATION IN THE HORIZONTAL PLANE AT THE PLAN ELEVATION FOR THE TOP OF SHAFT.

VERTICAL TOLERANCE SHALL CONFORM TO ODOT C&MS SECTION 524.14.

THE USE OF A DRILLING TEMPLATE IS REQUIRED TO ESTABLISH AND MAINTAIN DRILLED SHAFT LOCATIONS. THE CONTRACTOR'S ON-SITE SURVEYOR SHALL BE RESPONSIBLE FOR VERIFYING AND MAINTAINING ADHERENCE TO THE REQUISITE CONSTRUCTION TOLERANCES.

CONSTRUCTION CONSTRAINTS:

DO NOT EXCAVATE WITHIN THREE DIAMETERS OF DRILLED SHAFTS WITH NEW CONCRETE UNTIL AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.

MITIGATION MEASURES:

IN THE EVENT THAT THE SECOND SHAFT BASELINE SURVEY INDICATES THAT THE SHAFTS HAVE NOT DEFLECTED THE ANTICIPATED AMOUNTS, THE ENGINEER WILL PROVIDE RECOMMENDED MITIGATION MEASURES TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION AND LOCATION. IT IS ANTICIPATED THAT THE MITIGATION MEASURES MAY CONSIST OF ADJUSTING THE PLAN DIMENSIONS OF THE ABUTMENT SEAT AND BACKWALL LOCATIONS. THE CONTRACTOR WILL CONSTRUCT THE ABUTMENT SEAT AND BACKWALL IN THE LOCATION AND WITH THE DIMENSIONS NECESSARY TO MAINTAIN THE PLAN CENTERLINE OF BEARING LOCATION AND ALIGNMENT.

ADDITIONAL CONCRETE AND REINFORCING STEEL REQUIRED BY MITIGATION WILL BE PAID FOR VIA CHANGE ORDER AT THE

CONTRACT UNIT PRICE BID FOR THESE ITEMS. ADDITIONAL COMPENSATION WILL NOT BE MADE FOR THESE MITIGATION MEASURES IF THE SHAFTS WERE NOT INSTALLED WITHIN THE REQUIRED CONSTRUCTION TOLERANCES.

CONTRACTOR'S INSTALLATION PLAN:

THE CONTRACTOR SHALL PROVIDE AN INSTALLATION PLAN AS REQUIRED BY ODOT C&MS SECTION 524.03. THE INSTALLATION PLAN SHALL ALSO INCLUDE:

- CONTRACTOR'S PROPOSED METHODS TO MAINTAIN LOCATION AND ALIGNMENT OF SHAFTS
- CONTRACTOR'S PROPOSED METHODS FOR PERFORMING THE DRILLED SHAFT LOCATION SURVEY

MATERIALS:

CONCRETE AND REINFORCING STEEL FOR DRILLED SHAFTS SHALL CONFORM TO ODOT C&MS SECTION 524.02.

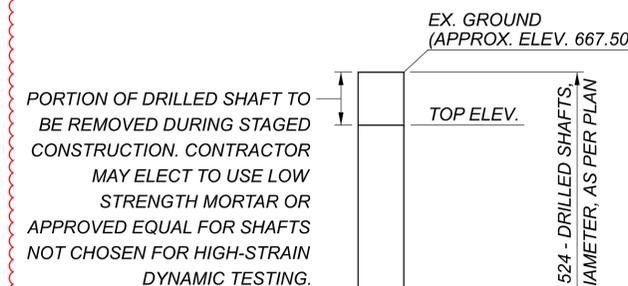
A SELF-CONSOLIDATING CONCRETE MIX SHALL BE INCORPORATED

THE MAXIMUM COARSE AGGREGATE SIZE SHALL BE: ¾"

MEASUREMENT AND PAYMENT:

MEASUREMENT FOR DRILLED SHAFTS INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS WILL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF ODOT C&MS SECTION 524.16, FURTHER CLARIFIED BY MEASUREMENT DIAGRAM BELOW.

PAYMENT FOR DRILLED SHAFTS INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS WILL BE MADE IN ACCORDANCE WITH PROVISIONS OF ODOT C&MS SECTION 524.17.



PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
524	FOOT	DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

SFN	1807898
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
ZES	MKB
REVIEWER	
KAG	12/26/23
PROJECT ID	82382
SUBSET	TOTAL
5	90
SHEET	TOTAL
2285	2696

ITEM 524 - DRILLED SHAFTS, MISC.: 48" DIAMETER, THROUGH OBSTRUCTIONS

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL DRILLED SHAFTS AS DETAILED IN THE PLANS IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS SECTION 524, AND WITH THE ADDITIONAL REQUIREMENTS DEFINED BELOW.

CONSTRUCTION CONSTRAINTS:

THE CONTRACTOR IS ADVISED THAT THE PROPOSED DRILLED SHAFT INSTALLATIONS MAY REQUIRE ADVANCING SHAFTS THROUGH OBSTRUCTIONS SUCH AS EXISTING FOUNDATIONS AND PILES. EXISTING FOUNDATION AND PILE LOCATIONS ARE DEPICTED IN ACCORDANCE WITH AVAILABLE EXISTING PLAN INFORMATION.

THE PROPOSED DRILLED SHAFT ARRANGEMENT WAS DEVELOPED WITH THE INTENT TO ELIMINATE OR MINIMIZE CONFLICTS BETWEEN THE PROPOSED DRILLED SHAFTS AND IDENTIFIED OBSTRUCTIONS. COMPLETE ELIMINATION OF ALL CONFLICTS BETWEEN THE PROPOSED DRILLED SHAFTS AND OBSTRUCTIONS WAS NOT POSSIBLE.

THE CONTRACTOR IS ADVISED THAT THEY MUST ADAPT THEIR PROPOSED MEANS AND METHODS FOR INSTALLING DRILLED SHAFTS IN CONFLICT WITH OBSTRUCTIONS. SUCH MEANS AND METHODS MAY INCLUDE, BUT ARE NOT LIMITED TO, SPECIALIZED CUTTING HEADS, DOWN DRIVE HAMMERS, ETC.

THE INTENT OF THIS PLAN NOTE IS TO IDENTIFY POTENTIAL CONFLICTS WITH DRILLED SHAFT INSTALLATION SO THAT THE IMPACT TO THE PROJECT CAN BE MITIGATED AS MUCH AS POSSIBLE. IF OBSTRUCTIONS SUCH AS EXISTING FOUNDATIONS AND PILES ARE ENCOUNTERED DURING INSTALLATION OF DRILLED SHAFTS, THE CONTRACTOR SHALL FOLLOW THE PROVISIONS IN C&MS 104.02.B. IMMEDIATELY NOTIFY THE ENGINEER OF THE ENCOUNTER SO THAT THE CONDITIONS CAN BE INVESTIGATED AND ANY REQUIRED CONTRACT MODIFICATIONS CAN BE DETERMINED.

CONTRACTOR'S INSTALLATION PLAN:

THE CONTRACTOR SHALL PROVIDE AN INSTALLATION PLAN AS REQUIRED BY ODOT C&MS SECTION 524.03. THE INSTALLATION PLAN SHALL ALSO INCLUDE:

1. CONTRACTOR'S PROPOSED METHODS TO ADVANCE DRILLED SHAFTS THROUGH OBSTRUCTIONS (CONFLICTING PILES, EXISTING FOUNDATIONS, ETC.)

MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC FOR THE STRUCTURE WORK SHALL BE COORDINATED WITH THE OVERALL PROJECT. REFER TO MAINTENANCE OF TRAFFIC NOTES AND DETAILS ELSEWHERE IN PLANS.

UTILITY LINES

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER PARTY WILL BE HELD TO A MINIMUM.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C&MS, SECTIONS 102.05, 105.02, AND 513.04. BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

STRUCTURE GROUNDING

STRUCTURE TO BE GROUNDED AS PER LIGHTING GENERAL NOTES SHEET 1684. QUANTITY CARRIED TO LIGHTING SUBSUMMARY.

ITEM 511 - CLASS QC2 CONCRETE, DECK, AS PER PLAN

LOCATE THE LOWER CONTACT POINT OF THE OVERHANG FALSEWORK A MAXIMUM OF 18 INCHES ± 2 INCHES ABOVE THE TOP OF THE GIRDER'S BOTTOM FLANGE. THE BRACING CONTACT POINT REQUIREMENTS OF C&MS 508 DO NOT APPLY.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

TEMPORARY EXCAVATIONS SHALL MAINTAIN A MINIMUM OF A 2.5:1 SLOPE. REFER TO THE GEOTECHNICAL REPORTS FOR ADDITIONAL DETAILS.

GROUND WATER LEVELS FLUCTUATE SEASONALLY AS A FUNCTION OF THE PRECIPITATION AND OTHER HYDROLOGICAL FACTORS. THEREFORE, THERE MAY BE CONSIDERABLE CHANGE IN THE WATER TABLE OR THE OCCURRENCE OF WATER WHERE NOT PREVIOUSLY ENCOUNTERED. THE CONTRACTOR SHALL DEWATER ALL EXCAVATIONS AS NECESSARY TO PERFORM THE PROPOSED WORK.

DECK PLACEMENT DESIGN ASSUMPTIONS

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.84 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE FINISHING MACHINE OF 103 INCHES.

A MAXIMUM SPACING OF OVERHANG BRACKETS OF 18 INCHES.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 66¼ INCHES.

CONCRETE SHALL BE PLACED PARALLEL ON A SKEW AS INDICATED IN THE PROPOSED DECK PLACEMENT SEQUENCE ON SHEET / AND SHALL BE PLACED AND FINISHED FULL-WIDTH. DO NOT PERMIT A DIFFERENCE OF MORE THAN TEN (10) FEET LONGITUDINALLY IN PLACEMENT OF CONCRETE FROM ONE SIDE OF THE BRIDGE TO THE OTHER AT ANY TIME. FINISHING OF THE CONCRETE SHALL BE PERPENDICULAR TO THE CARNEGIE AVENUE CONSTRUCTION CENTERLINE.

ALLOW 48 HOURS OF PROPER CURING TO ELAPSE FROM THE COMPLETION OF ONE DECK PLACEMENT BEFORE BEGINNING THE NEXT PLACEMENT.

63 90

PLACE CONCRETE IN THE SEQUENCE AND DIRECTIONS INDICATED ON THE PROPOSED DECK PLACEMENT SEQUENCE ON SHEET /

GIRDER ERECTION AND FIT-UP:

GIRDERS, CROSSFRAMES, DIAPHRAGMS AND CONNECTION PLATES SHALL BE DETAILED FOR THE "STEEL DEAD LOAD FIT" (SDLF) OR "ERECTED FIT" CONDITION. GIRDER WEBS SHALL BE PLUMB AFTER ERECTION OF STRUCTURAL STEEL IS COMPLETE. HLMR BEARINGS SHALL BE DESIGNED TO ACCOMMODATE GIRDER ROLL AND LAYOVER DURING THE ERECTION PROCESS AND PLACEMENT OF COMPOSITE DEAD LOADS.-

FINISH COLORS:

63 90

ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN

PAINT COLORS SHALL BE AS FOLLOWS:

BLACK FOX (SW 7020) - FASCIA GIRDERS (OUTER FACE AND BOTTOM FLANGE ONLY)

ALABASTER (SW 7008) - INSIDE GIRDERS, BRACING MEMBERS AND INSIDE FACE OF FASCIA GIRDERS

ITEM - 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN

CONCRETE SEALER COLORS SHALL BE AS FOLLOWS:

ALABASTER (SW 7008) - SUBSTRUCTURE - PIERS, ABUTMENTS AND ABUTMENT WALLS

ALPACA (SW 7022) - ABUTMENT, WINGWALL, AND PARAPETS ACCENTS

ALL COLOR NAME AND NUMBER REFERENCES ARE TAKEN FROM THE SHERWIN WILLIAMS COLOR PALATE. THE CONTRACTOR MAY SUBSTITUTE SIMILAR COLORS FROM ALTERNATIVE SUPPLIER'S COLOR PALATE.

ITEM SPECIAL - PERMANENT SHORING PRECAST CONCRETE LAGGING

THIS WORK CONSISTS OF FURNISHING AND PLACING PRECAST REINFORCED CONCRETE PANELS BETWEEN THE SOLDIER PILES TO FUNCTION AS LAGGING FOR THE RETAINING WALL. PROVIDE PRECAST CONCRETE LAGGING FROM A PRECAST CONCRETE MANUFACTURER CERTIFIED ACCORDING TO SUPPLEMENT 1073. PROVIDE CLASS QC1 CONCRETE ACCORDING TO C&MS

499. PROVIDE EPOXY COATED REINFORCING STEEL ACCORDING TO C&MS 709.00. IN LIEU OF EPOXY COATING, A CORROSION INHIBITING CONCRETE ADMIXTURE MAY BE USED AT THE SPECIFIED DOASAGE RATE. A QUALIFIED PRODUCT LIST OF CORROSION INHIBITING ADMIXTURES IS ON FILE AT THE LABORATORY. MANUFACTURERS SHOULD RECOGNIZE THAT THE CORROSION INHABITOR MAY AFFECT THE STRENGTH, ENTRAINED AIR CONTENT, WORKABILITY, ETC OF THEIR CONCRETE MIXES. THE MANUFACTURER'S CHOICE TO USE ONE OF THESE CORROSION INHIBITORS DOES NOT ALLEVIATE MEETING ALL DESIGN REQUIREMENTS. DO NOT ALLOW THE DIMENSIONS OF THE LAGGING OR LOCATION OF THE REINFORCEMENT STEEL TO VARY BY MORE THAN 1/4-INCH. CAST THREADED INSERTS INTO THE TOP OF EACH PANEL FOR LIFTING AND PLACEMENT.

FINISH THE FACES OF THE PRECAST CONCRETE LAGGING PANELS TO A UNIFORM SURFACE, FREE OF OPEN POCKETS OF AGGREGATE.

PERMANENTLY MARK EACH PRECAST CONCRETE LAGGING PANEL TO INDICATE WHICH FACE WILL BE PLACED AGAINST THE SOIL. PLACE THE PANEL ON THE FRONT COVER PLATES OF THE SOLDIER PILES AND BEARING AGAINST THE FLANGES ON THE EXPOSED SIDE OF THE WALL SO THAT THE SOLDIER PILE FLANGE OVERLAPS THE END OF THE LAGGING BY AT LEAST ONE INCH MORE THAN THE CONCRETE COVER OVER THE REINFORCING STEEL AT BOTH ENDS OF THE LAGGING.

HANDLE, STORE, AND SHIP THE PRECAST CONCRETE LAGGING PANELS TO AVOID CHIPPING CRACKING AND FRACTURING THE PANELS. SUPPORT THE PANELS ON FIRM BLOCKING WHILE STORING AND SHIPPING. DO NOT SHIP PANELS UNTIL CONCRETE HAS ATTAINED THE REQUIRED COMPRESSIVE STRENGTH. SUBMIT SHIPMENT DOCUMENTATION TO THE ENGINEER AS THE PANELS ARE DELIVERED TO THE PROJECT, INCLUDING THE PRECASTER'S RECORD OF INSPECTION, THE MEASUREMENT AND TOLERANCES, STRENGTH, AND DIMENSIONS OF EACH PANEL, ALONG WITH THE TE-24 SHIPPING DOCUMENT.

INSPECT ALL PRECAST CONCRETE PANELS AND REJECT PANELS HAVING ANY OF THE FOLLOWING:

1. DEFECTS THAT INDICATE IMPERFECT MOLDING.
2. DEFECTS THAT INDICATE HONEYCOMB OR OPEN TEXTURE CONCRETE.
3. DEFECTS IN THE PHYSICAL CHARACTERISTICS OF THE CONCRETE, OR DAMAGE TO THE AESTHETIC SURFACE TREATMENT.
4. CONCRETE CHIPS OR SPALLS THAT ARE LARGER THAN 4 INCHES WIDE OR 2 INCHES DEEP. REPAIR ALL CHIPS AND SPALLS THAT ARE SMALLER.
5. STAINED FORM FACES, DUE TO FORM OIL, CURING OR OTHER CONTAMINANTS.
6. SIGNS OF AGGREGATE SEGREGATION.
7. CRACKS WIDER THAN 0.01 INCH OR PENETRATING MORE THAN 1 INCH OR LONGER THAN 20 PERCENT OF THE LENGTH OF THE FACE CONTAINING THE CRACK.
8. PANELS THAT DO NOT MEET THE SPECIFIED DIMENSIONAL TOLERANCES.
9. UNUSABLE LIFTING INSERTS.
10. EXPOSED REINFORCING STEEL.
11. INSUFFICIENT CONCRETE COMPRESSIVE STRENGTH.

EITHER REPLACE DAMAGED PRECAST CONCRETE LAGGING PANELS OR DOCUMENT AND PROPOSE TO THE ENGINEER A REPAIR METHOD FOR THE DAMAGED PANEL. PROVIDE ACCEPTABLE REPLACEMENT PANELS FOR ANY THAT ARE REJECTED.

WHEN INSTALLING THE PRECAST CONCRETE LAGGING PANELS, PLACE HARDWOOD WEDGES NEAR THE TOP AND BOTTOM ON EACH SIDE TO HOLD THE LAGGING PANELS ON THE FRONT COVER PLATES OF THE STEEL PILES.

PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIAL REQUIRED TO FABRICATE, TRANSPORT, AND INSTALL THE PRECAST REINFORCED CONCRETE PANELS SHALL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR ITEM 530-SPECIAL-PERMANENT SHORING, PRECAST CONCRETE LAGGING.

SFN	1807898
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
ZES	MKB
REVIEWER	
KAG	12/26/23
PROJECT ID	
82382	
SUBSET	TOTAL
6	90
SHEET	TOTAL
2286	2696

12" GAS LINE INSTALLATION

ENBRIDGE GAS OHIO WILL FURNISH AND INSTALL GAS PIPELINE ON BRIDGE AND WILL INSTALL LINK SEALS, SPACERS AND BOOT SEAL WHEN INSTALLING THE PIPELINE.

ITEM 625 - CONDUIT, MISC.: AT&T 4" CONDUIT INSTALLATION

THIS ITEM INCLUDES PAYMENT FOR INSTALLATION OF THE AT&T CONDUIT ON THE STRUCTURE, AS SHOWN IN THE PLANS. MATERIALS WILL BE SUPPLIED TO THE GENERAL CONTRACTOR FOR INSTALLATION. AT&T WILL PROVIDE CONDUIT RACKS, FIBERGLASS CONDUITS TO ENDS OF APPROACH SLAB, FITTINGS AND EXPANSION JOINTS. CONTRACTOR TO INSTALL ALL MATERIALS ON BRIDGE. AT&T WILL INSTALL CONDUITS OUTSIDE OF APPROACH SLABS TO MANHOLES. AT&T WILL COMPLETE THE CABLE WORK.

ITEM 625 - CONDUIT, MISC.: CEI 4" CONDUIT INSTALLATION

THIS ITEM INCLUDES INSTALLATION OF THE CONDUIT ON THE STRUCTURE. CEI WILL PROVIDE ALL MATERIALS. CEI PULLS ALL CABLES. CEI CONTRACTOR WILL COMPLETE WORK UP TO THE OUTSIDE EDGE OF THE APPROACH SLABS (ALL CONDUIT OFF THE BRIDGE). CONTRACTOR WILL INSTALL THE CONDUIT BETWEEN THE OUTSIDE EDGES OF APPROACH SLABS (ALL CONDUIT UNDER APPROACH SLABS, ON THE BRIDGE AND THROUGH THE ABUTMENTS).

ITEM 625 - CONDUIT, MISC.: CPP 5" CONDUIT INSTALLATION

THIS ITEM INCLUDES FURNISHING AND INSTALLING THE CPP CONDUIT ON THE STRUCTURE, AS SHOWN IN THE PLANS, AND PULLING THE WIRE. CPP WILL MAKE THE FINAL CONNECTION. CONTRACTOR TO PERFORM INTERMEDIATE (DEAD) SPLICING WITH CPP INSPECTION. CPP WILL COMPLETE CUT OVER SPLICING. CPP WILL REQUIRE NOTIFICATION OF SCHEDULE FOR THE PULLING OF CONDUIT. CPP TO INSPECT ALL WORK BEFORE FINAL CONNECTIONS ARE MADE IN MANHOLES.

ITEM 690 - ROLLER SUPPORTS (GAS LINE)

THIS ITEM INCLUDES FURNISHING AND INSTALLING STEEL ANGLE SUPPORT, ROLLERS AND HANGER ASSEMBLIES OF ALL GAS LINE SUPPORTS ON THE BRIDGE, AS SHOWN IN THE PLANS.

ITEM 690 - UTILITY SUPPORTS (AT&T DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL AT&T DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. AT&T WILL PROVIDE CONDUIT RACKS, FIBERGLASS CONDUITS TO ENDS OF APPROACH SLAB, FITTINGS AND EXPANSION JOINTS. CONTRACTOR TO INSTALL ALL MATERIALS ON BRIDGE.

ITEM 690 - UTILITY SUPPORTS (CEI DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL CEI DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. MATERIAL PROVIDED BY CEI FOR THIS WORK INCLUDES UTILITY HANGERS, CONDUIT RACKS, EXPANSION JOINTS AND SLEEVES. STEEL ANGLE SUPPORTS PROVIDED BY CONTRACTOR. CONTRACTOR TO INSTALL HANGERS AND CONDUIT RACKS. CONTRACTOR TO WORK WITH CEI TO GUARANTEE THAT THERE IS A PROPER ARRANGEMENT FOR THE DELIVERY OF MATERIALS.

ITEM 690 - UTILITY SUPPORTS (CPP DUCTS)

THIS ITEM INCLUDES INSTALLATION OF ALL CPP DUCT SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS.

ITEM 690 - UTILITY SUPPORTS (WATER LINE)

THIS ITEM INCLUDES INSTALLATION OF ALL WATER LINE SUPPORT HANGERS ON THE BRIDGE, AS SHOWN IN THE PLANS. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND ELEMENTS SHOWN IN THE PLANS FOR THE WATER LINE.

ITEM 511 - CLASS QC1 CONCRETE, MISC.: CONCRETE FACING

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, ABUTMENT

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, PIER

ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT, RAILING

FORMLINER FIELD PATTERN ON SHEET 1867

ABBREVIATIONS

- BOT. = BOTTOM
- BRGS. = BEARINGS
- C.J. = CONSTRUCTION JOINT
- CLR. = CLEAR
- CONST. = CONSTRUCTION
- DIA. = DIAMETER
- E.F. = EACH FACE
- ELEV. = ELEVATION
- EX. = EXISTING
- F.A. = FORWARD ABUTMENT
- F.F. = FAR FACE
- HORIZ. = HORIZONTAL
- I.R. = INTERSTATE ROUTE
- L.T. = LEFT
- MAX. = MAXIMUM
- MIN. = MINIMUM
- N.F. = NEAR FACE
- PR. = PROPOSED
- R.A. = REAR ABUTMENT
- RT = RIGHT
- SER. = SERIES
- S.O. = SERIES OF
- SPA. = SPACED / SPACING / SPACES
- S.R. = STATE ROUTE
- TYP. = TYPICAL
- VERT. = VERTICAL
- W.P. = WORK POINT
- W.W. = WING WALL

SECTION / DETAIL / VIEW CALLOUTS



(SEE SECTION A ON SHEET 10)



(SECTION A CUT FROM SHEET 9)

SFN	
1807898	
DESIGN AGENCY	
Michael Baker INTERNATIONAL	
DESIGNER	CHECKER
ZES	MKB
REVIEWER	
KAG 12/26/23	
PROJECT ID	
82382	
SUBSET	TOTAL
9	90
SHEET	TOTAL
2289	2696

ESTIMATED QUANTITIES

CALCULATED BY: ZES DATE: 03/20/24
 CHECKED BY: DAF DATE: 05/15/24

PARTICIPATION	ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTR.	GENERAL	SHEET REF.	
02/IMS/10	518	20000	888	SY	PREFABRICATED GEOCOMPOSITE DRAIN				888		
4	02/IMS/10	518	21101	232	CY	POROUS BACKFILL, AS PER PLAN	5	232	5	30	
02/IMS/10	518	21200	618	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC				618		
02/IMS/10	518	40000	907	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	907					
02/IMS/10	518	40010	658	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	658					
02/IMS/10	518	43300	185	FT	6" PIPE DOWNSPOUT, INCLUDING SPECIALS	101	84				
02/IMS/10	523	20001	4	EACH	DYNAMIC LOAD TESTING, AS PER PLAN				4	4	
02/IMS/10	523	20501	2	EACH	RESTRIKE, AS PER PLAN				2	4	
8	02/IMS/10	524	94803	238	FT	DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN			9	238	8
02/IMS/10	524	94901	5,375	FT	DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN				5,375	5	
02/IMS/10	524	95100	1	EACH	DRILLED SHAFTS, MISC.: BI DIRECTIONAL TESTING OF DRILLED SHAFTS				1	7	
02/IMS/10	524	95100	1	EACH	DRILLED SHAFTS, MISC.: CSL TESTING, 48" DIA. SHAFT				9	1	7
02/IMS/10	524	95100	1	EACH	DRILLED SHAFTS, MISC.: DEMONSTRATION DRILLED SHAFT				1	7	
02/IMS/10	524	95100	3	EACH	DRILLED SHAFTS, MISC.: HIGH STRAIN DYNAMIC TESTING OF DRILLED SHAFTS				3	7	
4	02/IMS/10	526	30011	592	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN			592	8	
02/IMS/10	526	90010	321	FT	TYPE A INSTALLATION				321		
02/IMS/10	SPECIAL	530E00200	LS		STRUCTURES: PRECONSTRUCTION/POST CONSTRUCTION CONDITION SURVEY				LS	4-5	
02/IMS/10	SPECIAL	530E00200	LS		STRUCTURES: VIBRATION MONITORING				LS	4	
02/IMS/10	SPECIAL	530E00600	1,349	SF	STRUCTURES: PERMANENT SHORING PRECAST CONCRETE LAGGING				1,349	6	
02/IMS/10	SPECIAL	530E00600	1,516	SF	STRUCTURES: PERMANENT SHORING TIMBER LAGGING				1,516	7-8	
4	02/IMS/10	607	39910	1,180	FT	VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC			1,180		
02/IMS/10	625	25920	2,863	FT	CONDUIT, MISC.: AT&T 4" CONDUIT INSTALLATION			2,863		9	
02/IMS/10	625	25920	5,726	FT	CONDUIT, MISC.: CEI 4" CONDUIT INSTALLATION			5,726		9	
02/IMS/10	625	25920	5,726	FT	CONDUIT, MISC.: CPR 5" CONDUIT INSTALLATION			5,726		9	
02/IMS/10	SPECIAL	690E98000	36	EACH	ROLLER SUPPORTS (GAS LINE)				36	9	
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (AT&T DUCTS)				29	9	
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (CEI DUCTS)				29	9	
02/IMS/10	SPECIAL	690E98000	29	EACH	UTILITY SUPPORTS (CPP DUCTS)				29	9	
4	02/IMS/10	SPECIAL	690E98000	31	EACH	UTILITY SUPPORTS (WATER LINE)			31	9	
02/IMS/10	846	00110	134	CF	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM				134		
02/IMS/10	866	00101	14	EACH	GROUND ANCHOR, AS PER PLAN, 159 KIP MAX LOAD TEST (SOLIDER PILE AND LAGGING WALL)				14	10	
02/IMS/10	866	00101	100	EACH	GROUND ANCHOR, AS PER PLAN, 159 KIP MAX LOAD TEST (TANGENT WALL)				100	10	
02/IMS/10	866	00400	6	EACH	PERFORMANCE TEST				6		
02/IMS/10	866	00500	6	EACH	EXTENDED CREEP TEST				6		
02/IMS/10	869	00100	30	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS				30		

ESTIMATED QUANTITIES (2 OF 2)
 CUY-90-1696 (BRIDGE 14)
 CR-722 (CARNEGIE AVE.) OVER I.R. 90

SFN
 1807898
 DESIGN AGENCY
Michael Baker
 INTERNATIONAL
 DESIGNER: DBW CHECKER: MKB
 REVIEWER: KAG 12/26/23
 PROJECT ID: 82382
 SUBSET TOTAL: 12 90
 SHEET TOTAL: 2292 2696