SHEET NUMBER OFFICE 55 291 292 294 297 326 332 336											PAR	RTICIPAT	ION			ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEE NO.			
FICE LCS	55	291	292	294	297	326	332	336	01/NHS/PV	02/NHS/PV	03/ENH/PV	04/ENH/PV	06/ENH/OT	07/ENH/OT	T 08/ENH/OT		EXT.	TOTAL						
																221				ROADWAY	7.5			
	LS								LS	LS						201	11000	LS		CLEARING AND GRUBBING	35			
			9	3					6	4	1	1				202	20010	12	EACH	HEADWALL REMOVED				
		60882							30494	20329	6035	4024				202	23000	60882	SY	PAVEMENT REMOVED				
		27866							16720	11146						202	23001	27866	SY	PAVEMENT REMOVED, AS PER PLAN	39			
		13691							6629	4420	1585	1057				202	30000	13691	SF.	WALK REMOVED	+			
		13031			+	-	_	-	0023	4420	1363	1037				202	30000	13031	35	WALK REMOVED	-			
		_			1	-	_	-										_						
		5							3	2						202	30700	5	FT	CONCRETE BARRIER REMOVED				
		13446							4074	2716	3994	2662	1			202	32000	13446	FT	CURB REMOVED				
		17							10	7						202	32001	17	FT	CURB REMOVED, AS PER PLAN	38			
		1057							524	350	110	73				202	32500	1057	FT	CURB AND GUTTER REMOVED				
_		1001	5174		+	251			2081	1387	1083	722	152			202	35100	5425	FT	PIPE REMOVED, 24" AND UNDER	_			
			3114		1	231	_		2001	1301	1003	122	102			202	33100	3423	r r	FIFE NEMOVED, 24 AND UNDER				
			550	229					415	276	53	35				202	35200	779	FT	PIPE REMOVED, OVER 24"				
		3683							2210	1473						202	38000	3683	FT	GUARDRAIL REMOVED				
			17			11			8	6	4	2	1	7		202	58000	28	EACH	MANHOLE REMOVED				
			106		İ				50	33	14	9				202	58100	106	EACH	CATCH BASIN REMOVED				
			700		1	1			- 00	- 55	1 ''	├ Ŭ				202	00700	1 700	LAON	OATON BASIN NEWOYED				
-			10.7			-	_	+	60	41						CDECIAL	20270000	10.7	CT.	FILL AND BLUG EVICTING CONDUIT 10%	10			
\dashv			103		1	-		1	62	41	ļ		ļ			SPECIAL	20270000	103	FT	FILL AND PLUG EXISTING CONDUIT, 18"	40			
			108						65	43						SPECIAL	20270000	108	FT	FILL AND PLUG EXISTING CONDUIT, 24"	40			
1			94						56	38			<u></u>			SPECIAL	20270000	94	FT	FILL AND PLUG EXISTING CONDUIT, 6' X 3' BOX	40			
\neg		1225							698	466	37	24				202	75000	1225	FT	FENCE REMOVED				
-+		5							.3	2	1					202	75250	5	EACH	GATE REMOVED	1			
-		J		1	+	31		1	2		,	7	17	4	 	202	75610	31		VALVE BOX REMOVED	+			
						31				<u>'</u>	4	3	17	4					EACH					
		8							/	/	4	2				202	98100	8	EACH	REMOVAL MISC.: BOLLARDS REMOVED	36			
						1							1			202	98100	1	EACH	REMOVAL MISC.: BOOSTER STATION REMOVED	36			
													1											
		1									1					202	98100	1	EACH	REMOVAL MISC.: CISTERN REMOVED	36			
						2							2			202	98100	2	EACH	REMOVAL MISC.: FIRE VAULT REMOVED	36			
		1							1							202	98100	1 1	EACH	REMOVAL MISC.: FLAG POLE REMOVED	36			
-+		,			+	-			.3			,						 ' 			_			
		8			1)	2	2					202	98100	8	EACH	REMOVAL MISC.: LIGHT REMOVED	36			
		1							1							202	98100	1	EACH	REMOVAL MISC.: SHED REMOVED	36			
		30							12	8	6	4	1			202	98100	30	EACH	REMOVAL MISC.: SIGN REMOVED	36			
		22							5	4	8	5				202	98100	22	EACH	REMOVAL MISC.: SPRINKLER HEAD REMOVED	36			
		1							1							202	98100	1	EACH	REMOVAL MISC.: SUMP PUMP VAULT REMOVED	36			
	2	6							5	.3						202	98100	8	EACH	REMOVAL MISC.: UTILITY VAULT REMOVED	36			
	4000	-							2400 /	1600						202	98200	4000 ∧	FT	REMOVAL MISC.: DUCT BANK REMOVED	36			
	4000	77			+	+	_	-				-				-					36			
		33		\wedge		$\sqrt{6}$		+	20/6	13						202	98200	33 6	FT	REMOVAL MISC.: WALL REMOVED	36			
				/1				1/1/0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							/	74532 (74532) (27990)			1			
					27990 _	1 1		\longrightarrow	(32275)	21517 \	12444	8296				203	10000 -	2K74532 \	CY	EXCAVATION 20 20 20 20 20 20 20 20 20 20 20 20 20				
					({27990 _	<i>₹</i> 5\		χ	15302	10201	1492	995	1			203	20000	M^ 279902)	CY					
					2433			/5	1460	10201 973						203	20001 /	5 \\\~2433	CY	EMBANKMENT, AS PER PLAN	38			
38	$\sqrt{}$				1	1	7896		8330	5554	10050	6700				204	10000	(30634)	SY	SUBGRADE COMPACTION	++			
ياسان	75				F7.47		7000	1 /5			4									Taylor and the same and the sam	+-			
_					5343				2042	1361	1164	776				204	13000 4	5343	CY		Н			
					5343				2042	1361	1164	776				204	30011	5343	CY		38			
2	5						6		38	25	6	4				204	45000	73	HOUR	PROOF ROLLING	∐			
1					4163				1804	1202	694	463				204	50000	4163	SY	GEOTEXTILE FABRIC				
一丁			l		6776				2077	1384	1989	1326				204	51000	6776	SY	GEOGRID > X+	37			
\sim										~~~										0 .7	П			
0 3				 	1	1			(1734	1156						206	10500	2890	TON	ICEMENT Let 12.5 \ \ \ \ \	11			
32 3			 	 	+	 		1	58309	38873		 				206	11000	97182	3 SY		+			
_	5				1	+		+				-	-							CURING COAT CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP X 12 X X X X X X X X X X X X X	+			
32 }					-	+		<u> </u>	58309	38873	1	-				206	15010	97182) sr	CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP X ON WAY OF THE STABILIZED SUBGRADE SUBGR	+			
\sim							1		<u> </u>								/5	Jum		GUARDRAIL, TYPE MGS GUARDRAIL, TYPE MGS, LONG-SPAN ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016) ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016) ANCHOR ASSEMBLY, MGS TYPE TYPE MGS (MASH 2016)	11			
																					Ш_			
T													l							717.77.77.77.77.77.77.77.77.77.77.77.77.				
		2326							1335	890	61	40				606	15050	2326	FT	GUARDRAIL, TYPE MGS ANCHOR MELIZI				
\neg †		125	1		1					<u> </u>	75	50	1			606	17360	125	FT	GUARDRAIL, TYPE MGS, LONG-SPAN	11			
\dashv		6			1	†		1	4	2	,,,	— • • • • • • • • • • • • • • • • • • •				606	26150	6	EACH	ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)	37			
\dashv			-	-	1	-			<u> </u>				<u> </u>							ANCHON ASSEMBLY, MOS TIFE E (MASTI 2010)	H 3/			
		16							7	5	2	2				606	26550	16	EACH	ANCHOR ASSEMBLY, MGS TYPE T MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 ANCHOR ASSEMBLY ANG STYPE T ANCH ASSEMBLY ANG STYP	4			
		2							1	1						606	35002	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 日日 はおさり 日日	Ш			
П		2							1	1						606	35102	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2				
\neg			1	1	1	1														R TSE	П			
\dashv		1810	1	†	†	1	1		1086	724			1			607	98000	1810	FT	FENCE, MISC.: WOOD FENCE	38			
\dashv		1010		-	1	1			1000	124	 	-				007	30000	1010	FI	I LIYOL, WILDO. HOOD I LIYOL	1 38			
\dashv					1	1									0===		,,,,,			LU CONSETT WAY	1			
								112756	11380	7586	3931	2620			87239	608	10000	112756	SF	4" CONCRETE WALK	Ш			
								1160	262	174	79	53			592	608	13001	1160	SF	6" CONCRETE WALK, AS PER PLAN	37			
_ †				г — —	T .	1		ĸ	r — — —									- / r						
						1	/7	7 2709	28	18	154	102			2407	608	15001	2709 / 1	\ SF	8" CONCRETE WALK, AS PER PLAN	37			

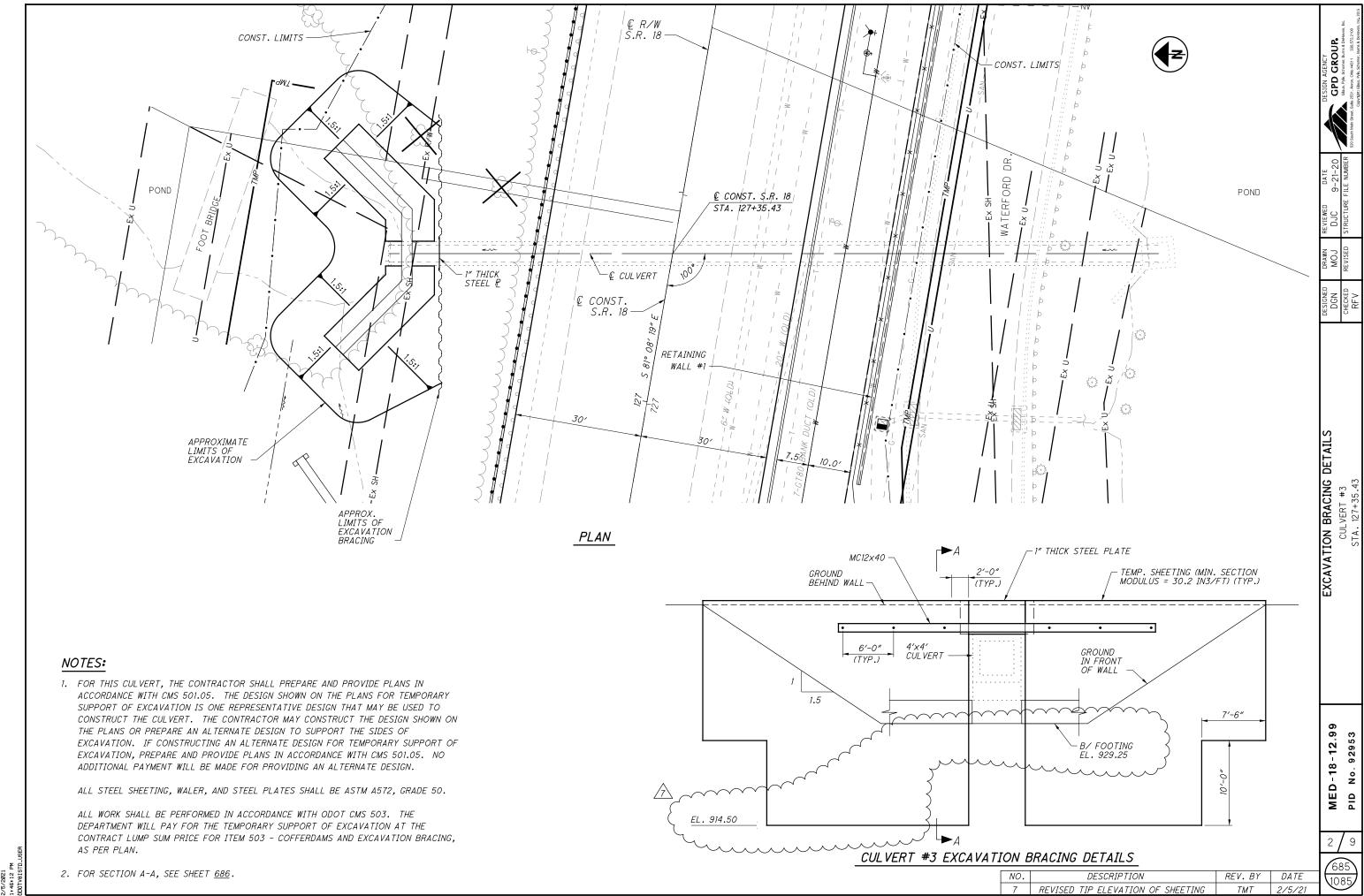
 \bigcirc

					NO				608			608			608			608	
STATION T	SIDE	LENGTH AVERAGE WIDTH			SURFACE AREA A A=LxW	CADD AREAS		4" CONGRETE WALK			6" CONCRETE WALK, AS PER PLAN			8" CONCRETE WALK, AS PER PLAN			CURB RAMP		
FROM	T0				O			SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF
								01/NHS/PV 02/NHS/PV	03/ENH/PV 04/ENH/PV	08/ENH/OT	01/NHS/PV 02/NHS/PV		08/ENH/OT	01/NHS/PV 02/NHS/PV	03/ENH/PV 04/ENH/PV	08/ENH/OT	01/NHS/PV 02/NHS/PV	03/ENH/PV 04/ENH/PV	08/ENH/
	2. 18																		
85+31.78	85+41.78	LT	10.00	4.48	1.0075	45.13		45.13											
85+41.78	86+17.03	LT LT	75.25	5.00	1.0075	379.05		379.05			110.06								
86+17.03 86+38.88	86+38.88 88+31.16	LT	21.85 C	5.00 ADD	1.0075	110.06	969.19	969.19			110.06								
89+09.03	92+68.54	LT	359.51	5.00	1.0075	1810.94	300110	1810.94											
92+68.54	CURB RAMP	LT		ADD			116.92	07.07									116.92		
92+83.41	CURB RAMP	LT		ADD			23.87	23.87 77.69											
93+46.83 93+61.34	CURB RAMP CURB RAMP	LT LT		ADD ADD			77.69 121.27	11.09									121.27		
CURB RAMP	99+35.50	LT		ADD			93.75										93.75		
99+35.50	CURB RAMP	LT		ADD			430.09	430.09											
CURB RAMP	137+29.07	LT		ADD	0.0047	1400 50	250.94	1		1400 50		-			1				250.9
137+29.07 138+81.11	138+81.11 139+63.91	LT LT	152.04	10.00 ADD	0.9843	1496.52	815.05	1		1496.52 815.05									
139+63.91	139+73.92	LT		'ADD			98.65	1		010.00						98.65			
	.55 .502			-			1									1			
CURB RAMP	144+70.26	LT		ADD			140.44										140.44		
144+70.26	147+93.82	LT	323.56	6.00		1941.36		1941.36											
147+93.82	CURB RAMP	LT		ADD			156.79										156.79		
CURB RAMP 148+56.18	148+56.18 148+67.93	LT LT	11.75	6.00		70.50	62.72	70.50									62.72		
110.00.10	110.01.03		77.70	0.00		70.00		70.00											
148+67.93	CURB RAMP	LT	C.	ADD			62.72										62.72		
CURB RAMP	149+25.28	LT		ADD			121.79										121.79		
149+25.28	153+98.07	LT	472.79	6.00		2836.74	140.00	2836.74									140.00		
153+98.07 CURB RAMP	CURB RAMP 154+21.25	LT LT		ADD ADD			148.92 60.84	60.84									148.92		140
COND NAMI	10.11.21.20	21		AUU			00.07	00.07											
154+21.25	CURB RAMP	LT	C.	ADD			141.03										141.03		
CURB RAMP	155+35.14	LT		ADD			140.61										140.61		BY
155+35.14	155+40.76	LT		ADD			40.29	40.29	-								150.07		REV.
CURB RAMP 155+55.63	155+55.63 161+99.85	LT LT		ADD ADD			156.63 3863.26	3863.26									156.63		1 2
100.00.00	101100.00	L I	<i>C</i> ,	7,00			3003.20	3003.20										1	
161+99.85	162+07.21	LT		'ADD			45.58							45.58					
169+65.40	CURB RAMP	LT		ADD			51.81										51.81		
82+83.44	83+06.44	RT	23.00	4.28	0.0005	98.44		98.44											# [
83+06.44 83+08.44	83+08.44 85+39.28	RT RT	2.00 230.84	4.95 5.00	0.9925	9.83 1145.60	-	9.83 1145.60									 		>
00.00.77	00.30.20	11.1	230.07	0.00	0.0020	1170.00		1170.00										1	1011
85+39.28	85+63.79	RT	24.51	5.00	0.9925	121.64					121.64								7
85+63.79	85+69.24	RT	5 .4 5	5.00	0.9925	27.05		27.05											+
85+69.24	85+92.45	RT	23.21	5.00	0.9925	115.19		0010 77			115.19								DESCH
85+92.45	90+43.88	RT PT	451.43	5.00	0.9925	2240.33	247 75	2240.33											
90+43.88	90+93.88	RT	L',	ADD			247.75	247.75											# + 5
90+93.88	92+58.34	RT	164.46	5.00	0.9925	816.17		816.17							1				
92+58.34	CURB RAMP	RT		ADD			194.61										194.61		
CURB RAMP	93+75.65	RT		'ADD			316.87										316.87	\	
CURB RAMP	97+62.03	RT		ADD			3835.59			3835.59							Kuu	¥ / \	
97+62.03	CURB RAMP	RT	С.	ADD			1005.23										1005.23		9 1
								+							1				Š ,
				<u> </u>														L	
																		. /\	

 \bigcirc

STATION TO STATION Side	Г							608		608			608			608			ALCULATED CJC CHECKED			
100 100					LENGTH AVERAGE WIDTH W SURFACE AREA A=LXW CADD AREAS					CONCRETE			6" CONGRETE WALK, AS PER PLAN				CONCRETE WAL AS PER PLAN		CURB RAMP			CALCI C C CHE
## SUBSTALS SHEET 335 Control C		FROM	ТО				S S														SF	1
SUBTOTALS THIS SHEET										02/NHS/PV	04/ENH/PV	08/ENH/OT	02/NHS/PV	04/ENH/PV	08/ENH/OT	02/NHS/PV	04/ENH/PV	08/ENH/OT	02/NHS/PV	04/ENH/PV	08/ENH/01	
SUBTOTALS THIS SHEET	\vdash	FOOT	re en															1				-
Substitute				RT		4 <i>DD</i>			77.41		77.41											
College						+		882.18	77.54		882.18									77.54		
Substitute								+										+				1
# 15 April		12+54.45	14+27.95	RT	173.50	6.00		1041.00			1041.00											1
# 15 April		14+27.95	15+20.98	RT	93.03	6.00	0.9742	543.76			543.76							1				NS N
1.000 1.00		<i>15+20.</i> 98	15+91.49	RT	70.51	6.00					423.06											1 6
1998 1994											343.90								116 01			₽₽
## SUBTOTALS THIS SHEET										764.90								1	110.04			⟨<
9-42-66 9-72-78 FT 2-8-1 C-50] =
SP-27 CMS FAMP FT CMD SP-25	\vdash						1.0258]]
Substitute 2019-11-15 201								113.02	114.96		113.02									114.96		∣ Ճ
2000.00 200.00 FT 40.00 6.00 200.00 2		CURB RAMP	20+39.75		C.	4DD																∢
24-60.00		20+39.75	21+00.00	RT	60.25	6.00		361.50			361.50											၂ ပ
24-60.00		21+00.00	21+40.00	RT	40.00	6.00		240.00			240.00											↓ ⊻
23-46-50 24-66-50 47 22-20 5.00 152-20 33.00 152-20		21+40.00	23+26.67	RT		6.00		1120.02			1120.02										12	
24-93.60																					47E 20.	↓ ⋖
24455.50	\vdash																				2/5,	∤ ≥
24-78-24 24-68-87 87 3-57 6-09 239-22 255-33 239-22 355-33 255-33 239-22 355-33 255-33 239-22 355-33 255-33 239-22 355-33 255-33 239-22 355-33 255-33 239-22 355-33 255-33		27.00.00	21110100	- Au	0.00	0.00		30.00			30.00											1
24-68-82 85-07.8 87 39.37 6.00 20.22 20.22 11.04 1 11.04 1 12.05 6.00 11.94 22.92 22								76.44			76.44										B 7	
22-97.8 22-93.8 77 21.53 6.00 19.54 22.92 19.84 19.84 22.92 19.84 22.92 19.85 22.92						•		230.22	255.53		230.22						255.53	1			E/.	1
25/23/8 25/33/9 N7 3.82 6.00 22.92 22.92 22.92		25+07.19									230.22			131.94								1
SUBTOTALS THIS SHEET 765 6557 SUBTOTALS SHEET 333 7755 6448 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 SUBTOTALS SHEET 335 SUBTOTALS SHEET 335 SUBTOTALS SHEET 336											22.92											1
SUBTOTALS THIS SHEET 765 6557 SUBTOTALS SHEET 333 7755 6448 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 SUBTOTALS SHEET 335 SUBTOTALS SHEET 336		25+33.00	25+53 00	RT	C	<u> </u> 4DD			99 37		99 37											1
SUBTOTALS THIS SHEET 765 6551 SUBTOTALS SHEET 333 1735 6148 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 14129 89 718 23		20.00.00	20.00.00	707					00.57		00.57											1
SUBTOTALS THIS SHEET 765 6551 SUBTOTALS SHEET 333 1735 6148 347 46 99 3033 7 2 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 14129 89 718 23																					NA/	1
SUBTOTALS THIS SHEET 765 6551 SUBTOTALS SHEET 333 7735 6148 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 14129 89 718 23													1								<u> </u>	1
SUBTOTALS THIS SHEET 765 6551 SUBTOTALS SHEET 333 7735 6148 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 14129 89 718 23																					4MP	1
SUBTOTALS THIS SHEET 765 6551 SUBTOTALS SHEET 333 1735 6148 347 SUBTOTALS SHEET 334 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 14129 89 718 23																					SRIP B R	1
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 648 347 66962 592 2308 445 5138 5139 5130 513																					DESC	1
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 66962 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 117 460 256 117 460 257 268 278 288 298 218 218 218 258 258 278 288 298 218 218 218 218 218 21																					1 ISED	ऻ—
SUBTOTALS THIS SHEET 765 6551 132 256 117 460 SUBTOTALS SHEET 333 17135 6148 347 46 99 3033 7 2 SUBTOTALS SHEET 334 66962 592 2308 415 57 SUBTOTALS SHEET 335 1066 14129 89 718 23																						1
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 66962 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 117 460 256 117 460 257 268 278 288 298 218 218 218 258 258 278 288 298 218 218 218 218 218 21																					RE	ெ
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 66962 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 117 460 256 117 460 257 268 278 288 298 218 218 218 258 258 278 288 298 218 218 218 218 218 21	\vdash																					6
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 66962 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 117 460 256 117 460 257 268 278 288 298 218 218 218 258 258 278 288 298 218 218 218 218 218 21																						ได้
SUBTOTALS THIS SHEET SUBTOTALS SHEET 333 17135 66962 SUBTOTALS SHEET 334 SUBTOTALS SHEET 335 1066 117 460 256 117 460 257 268 278 288 298 218 218 218 258 258 278 288 298 218 218 218 218 218 21																					.	│
SUBTOTALS SHEET 333 17/35 6/48 347 46 99 3033 7 2 SUBTOTALS SHEET 334 592 592 592 592 7/8 2308 7/8 2408 7/8 7/8 7/8 7/8 7/8 7/8 7/8 7	\vdash																				8 -	∞
SUBTOTALS SHEET 333 17/35 6/48 347 46 99 3033 7 2 SUBTOTALS SHEET 334 592 592 592 592 7/8 2308 7/8 2408 7/8 7/8 7/8 7/8 7/8 7/8 7/8 7																						₫ 〒
SUBTOTALS SHEET 333 17/35 6/48 347 46 99 3033 7 2 SUBTOTALS SHEET 334 66962 592 2308 4/5 57 SUBTOTALS SHEET 335 1066 1/1/29 89 7/18 23			SUBT	OTALS TH	IS SHEET	•				765	6551			132			256		117	460		
SUBTOTALS SHEET 334 66962 592 2308 415 57 SUBTOTALS SHEET 335 1066 14129 89 718 23			SUBT	17135		6148	347			46		99	{ 3033 }	7	251	⊒ ⊠						
SUBTOTALS SHEET 335 1066 14129 89 718 23	\vdash			1		66962			592			2308	1 3000		5716	1						
	D_USER		1066		14129	89						718		2302								
				18966	6551	87239	436	132	592	46	256	2407	428.3	7 460	8269	33						

 \bigcirc



 \bigcirc

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 632 - SIGNALIZATION, MISC.: SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH)

THIS ITEM SHALL CONSIST OF THE CONTRACTOR INSTALLING A TUNED MASS-SPRING TYPE DAMPER ON A TC-81.21 MAST ARM SIGNAL SUPPORT TO REDUCE THE POSSIBILITY OF HARMONIC VIBRATIONS CAUSED BY WIND LOADS. A MECHANICAL DAMPER SHALL BE APPLIED TO ALL MAST ARMS OVER 59 FEET IN LENGTH. THE INSTALLED DAMPER SHALL BE CAPABLE OF REDUCING THE LOADED MAXIMUM VERTICAL MOVEMENT AT THE TIP OF THE ARM TO 8 INCHES MEASURED FROM THE HIGHEST TO THE LOWEST POINT OF DEFLECTION AT WIND SPEEDS OF 5-20 MPH. THE DAMPER SHALL INCREASE THE INHERENT DAMPING RATIO OF A TYPICAL UNLEADED MAST ARM SUPPORT (Fn=1-2 Hz) BY 0.01. THIS INCREASE SHALL BE DOCUMENTED BY LABORATORY TESTING AVAILABLE FROM THE MANUFACTURER.

ALL ATTACHMENT HARDWARE CONNECTIONS SHALL BE STAINLESS STEEL. THE DAMPER SHALL BE ATTACHED TO THE ARM WITHIN 8 FEET OF MAST ARM TIP. INSTALLATION SHALL BE PER THE MANUFACTURER'S GUIDELINES. STATIC DAMPERS SUCH AS HORIZONTAL FLAT SIGN MOUNTINGS SHALL NOT BE USED. ACCEPTABLE DEVICES INCLUDE THE FOLLOWING OR APPROVED EQUAL:

1. VALMONT STRUCTURES MITIGATOR - MODEL TRI

PAYMENT FOR ITEM 632 - SIGNALIZATION, MISC.: SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH) SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH COMPLETE AND IN PLACE, AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK.

ITEM 809 - ADVANCE RADAR DETECTION. AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

- 1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
- 2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
- 3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
- 4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
- 5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
- 6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
- 7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

ITEM 809 - ADVANCE RADAR DETECTION (CONTINUED)

- 8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO REMOVING THE TEMPORARY DETECTION.
- 9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION.

PAYMENT FOR ITEM 809 - ADVANCE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

ITEM 809 - STOP LINE RADAR DETECTION. AS PER PLAN

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

- 1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
- 2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TSI AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
- 3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
- 4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
- 5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
- 6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
- 7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.
- 3. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO REMOVING THE TEMPORARY DETECTION.
- 9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION.

PAYMENT FOR ITEM 809 - STOP LINE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 - SIGNALIZATION, MISC.: TEST HOLE PERFORMED

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS. IF, AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLAN, AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING HIS EXCAVATION OPERATION, HE WILL BE COMPENSATED FOR THE LABOR AND EQUIPMENT COST ASSOCIATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO HIS BID PRICE.

ITEM 632 - SIGNALIZATION, MISC.: TEST HOLE PERFORMED (CONTINUED)

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, HE SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION. NEW SUPPORT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

THE CONTRACTOR'S WORK UNDER THIS BID ITEM SHALL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO ITS ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 - SIGNALIZATION - MISC.: TEST HOLE PERFORMED. A QUANTITY OF <u>8</u> HAS BEEN CARRIED TO THE SIGNALIZATION GENERAL SUMMARY. TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 632 - POWER SERVICE, AS PER PLAN

12021

NOTE

DETECTION

RADAR

REVISED

_

DA

POWER SERVICE SHALL BE AS PER C&MS ITEM 632 AND SCD TC-83.10 WITH THE FOLLOWING EXCEPTIONS:

- 1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN 5 FEET HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.
- 2. THE CONTRACTOR SHALL SUPPLY THE NECESSARY METER BASES.
- 3. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH CMS ITEM 632, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER.

THE POWER SOURCE LOCATION SHALL BE AS INDICATED IN THE PLANS OR AS DETERMINED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL CONTACT OHIO EDISON FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS OHIO EDISON MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT OHIO EDISON FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO OHIO EDISON'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY THE MAINTAINING AGENCY.

DUE TO THE INTENDED RELOCATION OF EXISTING UTILITY POLES, THE PROPOSED POWER SOURCE LOCATION HAS NOT BEEN IDENTIFIED AT ALL PROJECT INTERSECTIONS. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE POWER SOURCE LOCATION AT ANY INTERSECTION THAT HAS NOT BEEN PREVIOUSLY IDENTIFIED IN THE PLANS. ALL POWER SOURCE LOCATIONS SHALL BE APPROVED BY THE ENGINEER. REGARDLESS OF WHETHER THE POWER SOURCE LOCATION HAS BEEN IDENTIFIED IN THE PLANS OR NOT, ALL ITEMS ASSOCIATED WITH THE POWER SERVICE THAT ARE NECESSARY TO PROVIDE COMPLETE ELECTRICAL SERVICE TO EACH TRAFFIC SIGNAL INSTALLATION, INCLUDING, BUT NOT LIMITED TO CONDUIT RISERS, CONDUIT, TRENCHING, PULL BOXES AND POWER SERVICE CABLE, SHALL BE INCIDENTAL TO AND INCLUDED UNDER ITEM 632 - POWER SERVICE, AS PER PLAN, AS PER C&MS 632.24.

THE COST FOR ALL NECESSARY ITEMS AND ASSOCIATED LABOR SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 632 - POWER SERVICE, AS PER PLAN.

ITEM 632 - SIGNAL SUPPORT, TYPE TC-81.21, DESIGN (), AS PER PLAN

ITEM 632 - SIGNAL SUPPPORT, TYPE TC-12.30, DESIGN (), AS PER PLAN

THIS ITEM SHALL CONFORM TO ITEM 632.15 AND 732.11, EXCEPT THAT POLES SHALL BE TAPERED TUBES OF CONTINUOUS TAPER. POLES CONSISTING OF STRAIGHT SECTIONS WITH A TAPERED EFFECT ACCOMPLISHED BY THE USE OF REDUCERS SHALL NOT BE PERMITTED. POLES SHALL BE ROUND IN SHAPE. OCTAGON SHAPED POLES ARE NOT PERMITTED.

)\92953\SIGNALS\SHEETS\92953CNBB4.DGN

01/2013/2013013/MED/92953/ 2/5/2021 3:59:07 PM

917