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"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR
NG = NON-GATING IMPACT ATTENUATOR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	3B-3

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR MASH, TL-3			SINGLE FACED CONCRETE BARRIER (LF)	REMOVE AND RESET EXISTING GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	CAT-1	B-77	TES				NO.	PERMITTED G	PERMITTED NG				
L	636+58.75	660+25.00	LT	2400			657+50.00	636+90.00	12'	15'	50.00		1'	N/A	1		1												
L	640+04.35	660+06.25	RT	1987.5			642+80.00	659+75.00	12'	15'	50.00		1'	N/A	1		1												
L	664+88.02	666+70.05	LT/MED	112.5			666+49.05	BRIDGE										2					1		X	50			BRIDGE
L	664+88.02	666+70.05	RT/MED	112.5			665+09.02	BRIDGE										2					1		X	50			BRIDGE
L	666+40.00	671+81.25	RT	550			668+80.00	671+50.00	12'	15'	50.00	N/A	1'		1		1												
L	668+08.75	674+16.07	LT	612.5			671+40.00	668+40.00	12'	15'	50.00	N/A	1'	N/A	1		1												
L	677+11.50	677+29.87	LT	25.0															2										ROAD CLOSURE
L	677+13.49	677+31.86	RT	25.0															2										ROAD CLOSURE
L	680+78.75	689+65.39	LT	887.5			686+90.00	681+10.00	12'	15'	50.00	N/A	1'	N/A	1		1												
L	680+15.00	686+21.25	RT	462.5			682+90.00	685+90.00	12'	15'	50.00	N/A	1'	N/A	1		1												
L	690+92.46	692+74.46	LT/MED	112.5			692+53.47	BRIDGE										2					1		X	50			BRIDGE
L	690+92.46	692+74.46	RT/MED	112.5			691+13.45	BRIDGE										2					1		X	50			BRIDGE
L	711+35.89	723+61.20	RT	1237.5			714+10.00		12'	15'	50.00	N/A	1'	N/A	1		1												
L	713+50.00	747+35.00	LT	762.5			744+60.00		12'	15'	50.00	N/A	1'	N/A	1			1								2611			NOISE WALL
L	738+25.00	745+11.25	RT	712.5			741+00.00		12'	15'	50.00	N/A	1'	N/A	1		1												NOISE WALL
L	755+76.45	757+58.45	LT/MED	112.5			757+37.45	BRIDGE										2					1		X	50			BRIDGE
L	755+76.45	757+58.45	RT/MED	112.5			755+97.45	BRIDGE										2					1		X	50			BRIDGE
L	761+06.00	764+62.42	RT	362.5			761+30.00	764+31.17	12'	15'	50.00	N/A	1'	N/A	1		1												
L	763+08.75	767+46.07	LT	437.5			766+25.00	763+40.00	12'	15'	50.00	N/A	1'	N/A	1		1												
L	772+00.00	798+31.25	RT	2625			774+00.00	798+00.00	12'	15'	50.00	N/A	1'	N/A	1		1												
L	773+78.75	800+76.07	LT	2712.5			798+00.00	773+47.50	12'	15'	50.00	N/A	1'	N/A	1		1												
L	804+08.75	809+41.25	LT	537.5			805+10.00	804+40.00	12'	15'		N/A		N/A			1	1											
L	806+47.18	809+48.17	RT	312.5			807+97.18	BRIDGE	12'	15'	50.00	N/A	1'	N/A	1			1											BRIDGE
L	806+48.19	809+48.17	RT/MED	300			807+98.19	BRIDGE	4'	7'	50.00	N/A	1'	N/A	1			1											BRIDGE
L	810+53.75	816+51.53	RT	600			810+53.75		12'	15'							1	1											OVERHEAD SIGN
L	810+60.83	819+07.50	LT/MED	850			817+57.50		6'	9'	50.00	N/A	1'	N/A	1			1											OVERHEAD SIGN
L	810+60.83	819+56.07	LT	900			816+80.00	BRIDGE	12'	15'	50.00	N/A	1'	N/A	1			1											BRIDGE
L	812+20.00	815+45.00	RT/MED	325			812+20.00		6'	9'	50.00	N/A	1'	N/A	1		1												OVERHEAD SIGN
L	816+60.97	816+78.14	LT	25															2										
L	822+99.00	825+31.00	LT/MED	112.5			825+10.00	BRIDGE										2					1		X	100			BRIDGE
L	822+99.00	825+31.00	RT/MED	112.5			823+20.00	BRIDGE										2					1		X	100			BRIDGE
L	844+39.08	847+40.00	RT/MED	312.5			844+39.08	BRIDGE	6'	9'	50.00	N/A	1'	N/A	1			1										353	BRIDGE
L	844+85.18	847+40.00	LT/MED	262.5			847+40.00		6'	9'							1	1										290	OVERHEAD SIGN
L	844+25.00	847+40.00	RT	325			847+40.00		12'	15'	50.00	N/A	1'	N/A	1			1										79	
L	850+60.00	851+00.00	RT	50			850+55.04	BRIDGE										1											BRIDGE
L	850+60.00	851+00.00	RT/MED	50			850+56.85	BRIDGE										1											BRIDGE
L	850+60.00	851+00.00	LT/MED	50			850+79.73	BRIDGE										1											BRIDGE
L	850+60.00	851+00.00	LT	50			850+79.73	BRIDGE										1											BRIDGE
Y1	13+69.00	18+86.84	LT	525			18+90.96	14+48.60	6'	9'		50.00		1'	1			1											BRIDGE
Y1	14+25.00	18+78.42	RT	462.5			15+00.57	18+82.55	6'	9'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y1	20+76.17	21+70.91	RT	100			20+72.05	21+21.05	6'	9'		50.00		1'	1			1											BRIDGE
Y1	20+84.59	23+15.26	LT	237.5			22+65.62	20+80.47	6'	9'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y2	16+02.25	19+10.66	LT	312.5			19+15.66	16+52.24	8'	11'		50.00		1'	1			1											BRIDGE
Y2	16+21.48	19+22.95	RT	312.5			16+71.47	19+27.94	8'	11'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y2	21+12.50	22+96.17	LT	187.5			22+46.16	21+08.38	8'	11'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y2	21+24.78	22+33.17	RT	112.5			21+20.66	21+83.18	8'	11'		50.00		1'	1			1											BRIDGE
Y2	15+12.85	15+14.48	RT	25															2										ROAD CLOSURE
Y2	18+05.88	18+06.94	RT	25															2										ROAD CLOSURE
Y3	20+00.55	22+34.28	RT	237.5			20+50.89	22+38.30	8'	11'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y3	21+17.02	22+23.73	LT	112.5			22+27.14	21+66.71	8'	11'		50.00		1'	1			1											BRIDGE
Y3	24+41.11	26+75.99	LT	237.5			26+26.01	24+36.88	8'	11'	50.00	N/A	1'	N/A	1			1											BRIDGE
Y3	24+54.58	25+62.41	RT	112.5			24+50.57	25+12.16	8'	11'		50.00		1'	1			1											BRIDGE
SHEET TOTALS				24650											32	0	16	42	10				8			3111		722	

6/16/99
4/19/2023
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G = GATING IMPACT ATTENUATOR
NG = NON-GATING IMPACT ATTENUATOR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	3B-4

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR MASH, TL-3			SINGLE FACED CONCRETE BARRIER	REMOVE AND RESET EXISTING GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	CAT-1	B-77	TES					NO.	PERMITTED G	PERMITTED NG				
Y5WBL	36+83.20	37+00.00	LT																					1		X				
L'RAMP_A	847+40.00	15+25.00	RT	575					12'	15'		N/A		N/A			1	1												OVERHEAD SIGN
RAMP_A	20+83.54	35+73.05	RT	1537.5			23+20.00	35+63.62	12'	15'	50.00	N/A	1'	N/A	1			1												
RAMP_A	33+65.10	35+33.25	LT	162.5				35+33.25	12'	15'		N/A		N/A			1	1												
RAMP_A	37+99.38	39+00.00	RT	112.5				37+99.38	12'	15'		N/A		N/A			1	1												
RAMP_A	37+84.74	40+07.08	LT	225			39+31.89	BRIDGE	12'	15'	50.00	N/A	1'	N/A	1			1												BRIDGE
RAMP_A	46+04.61	47+00.00	RT	100			47+00.00		10.25'	13.25'	50.00	N/A	1'	N/A	1			1									231			INCLUDES BARRIER AT RETAINING WALL WITH MOMENT SLAB
SRVRD_1	15+71.54	19+85.96	LT	400			19+20.00	16+25.00	6'	9'						2														
SRVRD_1	16+29.44	19+48.45	RT	325			16+95.00	18+95.00	6'	9'						2														
SRVRD_3	14+36.55	17+45.95	LT	312.5			16+80.00	14+90.00	6'	9'						2													152	
SRVRD_3	21+60.00	21+80.00	LT	25															2											ROAD CLOSURE
SRVRD_4	16+18.70	17+96.46	LT	187.5			17+30.00	16+70.00	6'	9'						2														
SRVRD_4	16+19.02	18+13.96	RT	187.5			17+00.00	17+60.00	6'	9'						2														
SRVRD_5	17+96.54	20+83.80	LT	300			20+20.00	18+50.00	6'	9'						2														
SRVRD_5	18+71.54	20+31.13	RT	150					6'	9'						2														
SHEET 1 TOTALS				24650											32	0	16	42	10					8			3111		722	
SHEET 2 TOTALS				4600											3	14	3	6	2					1			231		152	
LESS ANCHOR DEDUCTIONS																														
GREU TL-3	35	@ 50	-1750																											
GREU TL-2	14	@ 25	-350																											
CAT-1	19	@ 6.25	-118.75																											
B-77	48	@ 22.875	-1098																											
TES	12	EACH																												
R-2707D TOTALS				25,933.25	0										35	14	19	48	12					9			3,342		874	
R-2707D SAY				25,950	0		ADDITIONAL GUARDRAIL POSTS = 10								35	14	19	48	12					9			3,350		874	
R-2707E SAY				30,000	250		ADDITIONAL GUARDRAIL POSTS = 10								36	8	10	5	0					0			1,400		4,894	
GRAND TOTAL				55,950	250		ADDITIONAL GUARDRAIL POSTS = 20								71	22	29	53	12					9			4,750		5,768	

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		TEMPORARY ANCHORS									IMPACT ATTENUATOR MASH, TL-3						REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	CAT-1	B-77	TES	WTR TO PCB				NO.	PERMITTED G	PERMITTED NG				
L	846+45	847+28	RT	87.5					2'	5'	50.00		1'		1															SEE TMP-24 (TIE TO PROPOSED B-77 STRUCTURE ANCHOR)
RAMP A	9+71	15+25	RT	562.5					2'	5'		6.25		1'			1													SEE TMP-24
Y2	17+50	23+00	LT	550					5'	8'	50.00	50.00	1'	1'	2															SEE TMP-12
L	847+13	847+28	RT																	1										SEE TMP-37 AND SPECIAL DETAIL
L	847+13	847+28	LT																	1										SEE TMP-24 AND SPECIAL DETAIL
L	850+42	850+57	RT																	1										SEE TMP-24 AND SPECIAL DETAIL
L	850+42	850+57	LT																	1										SEE TMP-24 AND SPECIAL DETAIL
TOTALS				1,200											3		1			4										
LESS ANCHOR DEDUCTIONS																														
GREU TL-3	3	@ 50	-150																											
CAT-1	1	@ 6.25	-6.25																											
R-2707D TOTALS				1,043.75											3		1			4										
R-2707D SAY				1,050											3		1			4										
R-2707E SAY				0											0		0			0										
GRAND TOTAL				1,050											3		1			4										

6/16/99
4/19/2023
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BELAM-NEW

COMPUTED BY: DJS **DATE:** 04/19/2023

CHECKED BY: BNE **DATE:** 04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079	R. C. PIPE CLASS III 15	18	24	30	36	42	48
		R2707C 2402	0401																						348				
L 637+50	0 CL	0401		879.6																									
		0401	0403		874.8	865.1	0.9																		348				
L 641+00	80 RT	0402		868.7																									
		0402	0403		865.9	865.6																	80						
L 641+00	0 CL	0403		870.5																									
		0403	0404		864.6	861.6	0.4																			192			
L 642+95	0 CL	0404		866.8																									
		0404	0405		861.6	855.0	0.4																			108			
L 641+74	130 LT	0406		858.0																									
		0406	0407		852.0	848.0																				64			
L 635+52	98 RT	0408		877.0																									
		0408	0409		877.0	870.7																					248		
L 646+75	58 RT	0501		864.3																									
		0501	0502		861.5	861.4																							
L 647+05	58 RT	0502		864.1																									
		0502	0503		861.4	860.0																							
L 647+05	0 CL	0503		862.8																									
		0503	0504		859.8	859.4																							
L 648+32	0 CL	0504		862.5																									
		0504	0505		859.4	857.8																							
L 648+32	80 RT	0505		860.7																									
		0505	0506		857.8	857.0	0.5		32																				
L 651+00	0 CL	0507		863.6																									
		0507	0508		860.9	857.7																							
L 651+00	88 RT	0508		860.5																									
		0508	0509		857.7	851.0	1.2	84																					
L 654+50	58 RT	0510		867.7																									
		0510	0511		864.1	863.6																							
L 656+00	58 RT	0511		868.9																									
		0511	0512		863.6	863.4																	56						
L 656+00	0 CL	0512		867.6																									
		0512	0513		863.2	846.0	3.3													108									
L 656+00	107 LT	0513		850.0																									
		0513	0514		844.3	844.1	0.8																	20					
L 655+58	161 LT	0515		843.0																									
		0515	0516		843.0	842.0																				32			
L 645+04	133 RT	0517		829.0																									
		0517	0518		829.0	809.0																							
L 652+00	122 RT	0519		850.2																									
		0519	0521		850.2	832.0																							
L 655+18	103 RT	0520		858.0																									
		0520	0521		858.0	831.5																							
L 653+44	123 LT	0521		838.0																									
		0521	0522		827.1	827.0																							24
L 647+57	105 RT	0523		856.5																									
		0523	0524		856.5	834.0			100					X															
L 660+50	77 RT	0601		869.9																									
		0601	0602		866.9	866.6																							
L 660+50	0 CL	0602		871.2																									
							SHEET TOTALS	84	132											108			136	20	696	396	248		24

STRUCTURE NUMBER FROM	TO	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
R2707C 2402	0401																									
0401																			1							
0401	0403																									
0402																			1							
0402	0403																									
0403																			1	0.9						
0403	0404																									
0404																			1	0.3						
0404	0405																									
0406																			1	1.0						
0406	0407																									
0408																		3.400								
0408	0409																									
0501																			1							
0501	0502	28																								
0502																			1							
0502	0503	56																								
0503																			1							
0503	0504		124																							
0504																			1							
0504	0505		80																							
0505																			1							
0505	0506																									
0507																			1							
0507	0508	88																								
0508																			1							
0508	0509																									
0510																			1							
0510	0511	148																								
0511																			1	0.3						
0511	0512																									
0512																			1							
0512	0513																									
0513																			1	0.7						
0513	0514																									
0515																		2.300								
0515	0516																									
0517																		6.000								
0517	0518											348														
0519																		3.400								
0519	0521					284																				
0520																		4.500								
0520	0521						288																			
0521																			1	5.0	0.9					
0521	0522																									
0523																		1.000								
0523	0524																									
0601																			1							
0601	0602		76																							
0602																			1							
SHEET TOTALS		320	280			284	288					348						20.600	19	8.2	0.9					

STRUCTURE NUMBER FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
R2707C 2402	0401																																		
0401				1						1																									
0401	0403																																		
0402					1					1																									
0402	0403																																		
0403				1						1																									
0403	0404																																		
0404				1						1																									
0404	0405																																		
0406																																			Dry Det. Basin Outlet Str., See Sheets 2D-3 and 2D-4
0406	0407																																		
0408																																			
0408	0409																																		
0501					1			1																											
0501	0502																																		
0502					1			1																											
0502	0503																																		
0503					1					1																									
0503	0504																																		
0504					1					1																									
0504	0505																																		
0505					1					1																									
0505	0506																																		
0507					1					1																									
0507	0508																																		
0508					1					1																									
0508	0509																																		
0510					1			1																											
0510	0511																																		
0511					1			1																											
0511	0512																																		
0512					1					1																									
0512	0513																																		
0513													1				1																		
0513	0514																																		
0515																											1								
0515	0516																																		
0517																																			
0517	0518																																		
0519																																			
0519	0521																																		
0520																																			
0520	0521																																		
0521													1				1																		
0521	0522																																		
0523																										1									
0523	0524																				2														
0601					1					1																									
0601	0602																																		
0602					1					1																									
SHEET TOTALS				3	13			4		12			2				2				2					1		1								

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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BELAM-NEW

COMPUTED BY: DJS DATE: 04/19/2023

CHECKED BY: BNE DATE: 04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079
		0602	0512		866.6	863.2																
Y1 21+10	16 RT	0603		899.4																		
		0603	0604		896.6	896.5																
Y1 21+10	15 LT	0604		899.4																		
		0604	0605		896.5	881.4		76						X								
L 668+70	58 LT	0606		879.9																		
		0606	0607		877.2	877.1																
L 668+55	58 LT	0607		879.8																		
		0607	0610		877.1	875.1																
L 668+05	58 RT	0608		879.4																		
		0608	0609		876.7	876.5																
L 668+55	58 RT	0609		879.8																		
		0609	0610		876.5	875.1																
L 668+55	0 CL	0610		877.9																		
		0610	0612		874.9	871.5	1.0															
L 667+00	84 RT	0611		874.8																		
		0611	0612		872.1	871.7																
L 667+00	0 CL	0612		876.7																		
		0612	0613		871.0	869.5																
L 667+00	85 LT	0613		874.3																		
		0613	0614		869.5	868.0	0.3			56												
L 668+44	116 LT	0615		870.0																		
		0615	0617		865.0	854.0	0.5															
SRVRD_1 18+71	242 RT	0616		867.0																		
		0616	0617		863.0	852.0																
L 669+85	105 LT	0617		860.0																		
		0617	0619		852.0	847.5	0.4															
Y1 18+55	15 RT	0621		900.2																		
		0621	0622		897.4	897.3																
Y1 18+55	15 LT	0622		900.2																		
		0622	0623		897.3	881.3		48						X								
Y1 16+86	0 CL	0624	0624A		874.0	870.5																
SRVRD_1 14+02	0 CL	0625	0625A		869.9	869.5																
Y1 22+95	0 CL	0626	0626A		890.4	890.0																
L 673+30	80 LT	0701		880.4																		
		0701	0703		877.6	877.3																
L 673+30	58 RT	0702		883.6																		
		0702	0703		880.6	877.1																
L 673+30	0 CL	0703		881.7																		
		0703	0610		877.1	874.9	0.4															
L 677+50	77 LT	0704		883.9																		
		0704	0706		881.2	880.9																
L 677+50	77 RT	0705		883.9																		
		0705	0706		880.9	880.7																
L 677+50	0 CL	0706		885.0																		
		0706	0709		880.7	878.8	0.3															
L 681+05	58 LT	0707		889.7																		
		0707	0708		886.9	886.7																
L 682+00	58 LT	0708		890.2																		
		0708	0709		886.7	885.5																
SHEET TOTALS								124		56												

FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
0602	0512		448																														
0603																										1							
0603	0604								28																								
0604																										1							
0604	0605																																
0606																										1							
0606	0607	12																															
0607																										1							
0607	0610	56																															
0608																										1							
0608	0609	48																															
0609																										1							
0609	0610	56																															
0610																										1							
0610	0612		152																														
0611																										1							
0611	0612	84																															
0612																										1	0.7						
0612	0613			84																													
0613																										1							
0613	0614																																
0615																										1							
0615	0617			140																													
0616																									6.000								
0616	0617														208																		
0617																										1	3.0						
0617	0619														88																		
0621																										1							
0621	0622								28																								
0622																										1							
0622	0623																																
0624	0624A		132																														
0625	0625A										56																						
0626	0626A		80																														
0701																										1							
0701	0703	80																															
0702																										1							
0702	0703									56																							
0703																										1							
0703	0610		472																														
0704																										1							
0704	0706	76																															
0705																										1							
0705	0706		76																														
0706																										1							
0706	0709		448																														
0707																										1							
0707	0708	92																															
0708																										1							
0708	0709	56																															
SHEET TOTALS		560	1808	224					56	56	56				296										6.000	22	3.7						

FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0602	0512																																		
0603												1			1																				
0603	0604																																		
0604												1			1																				
0604	0605																			2															
0606					1			1																											
0606	0607																																		
0607					1			1																											
0607	0610																																		
0608					1			1																											
0608	0609																																		
0609					1			1																											
0609	0610																																		
0610					1					1																									
0610	0612																																		
0611					1					1																									
0611	0612																																		
0612					1					1																									
0612	0613																																		
0613				1						1																									
0613	0614																																		
0615																																			Dry Det. Basin Outlet Str., See Sheets 2D-3 and 2D-4
0615	0617																																		
0616																																			
0616	0617																																		
0617				1						1																									
0617	0619																																		
0621												1			1																				
0621	0622																																		
0622												1			1																				
0622	0623																			2															
0624	0624A																																		
0625	0625A																																		
0626	0626A																																		
0701					1					1																									
0701	0703																																		
0702					1			1																											
0702	0703																																		
0703					1					1																									
0703	0610																																		
0704					1					1																									
0704	0706																																		
0705					1					1																									
0705	0706																																		
0706					1					1																									
0706	0709																																		
0707					1			1																											
0707	0708																																		
0708					1			1																											
0708	0709																																		
SHEET TOTALS				2	15			7		10		4			4					4															

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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BELAM-NEW

COMPUTED BY: DJS DATE: 04/19/2023

CHECKED BY: BNE DATE: 04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 682+00	0	CL	0709		888.3																																											1	4.5										1					1																								
			0709	0711		878.8	878.6																			56																																																															
L 682+15	58	RT	0710		890.2																																											1											1			1																										
			0710	0711		887.5	887.0																	12																																																																	
L 682+00	58	RT	0711		890.2																																											1	5.0	1.6									1			1																										
			0711	0712		878.6	878.0				52																																																																															
L 682+60	118	RT	0713		877.8																																										1.500																																	1										
			0713	0818		877.8	855.6				204				X																																																														2														
SRVRD_1 20+00	25	RT	0714		868.6																																											1											1						1																							
			0714	0715		865.9	865.5																								52																																																											
SRVRD_1 20+00	26	LT	0715		868.3																																											1											1						1																							
			0715	0619		865.5	850.4	0.4	144																																																																		2															
L 674+00	85	RT	0716		889.8																																																																													1							
			0716	0717		889.8	881.1			28					X																																																													1															
L 674+00	58	RT	0717		884.2																																											1											1			1																										
			0717	0702		881.1	880.6																									68																																																									
L 691+10	77	LT	0801		883.0																																											1											1					1																								
			0801	0803		880.3	880.0																	88																																																																	
L 690+65	77	RT	0802		885.1																																											1											1					1																								
			0802	0803		882.4	880.0																	76																																																																	
L 690+65	0	CL	0803		884.7																																											1											1					1																								
			0803	0804		879.7	878.8	0.3																	268																																																															
L 687+95	0	CL	0804		887.3																																											1	3.5										1					1																								
			0804	0805		878.8	878.5	0.5																	56																																																																	
L 687+95	58	LT	0805		889.2																																											1	5.0	0.7									1			1																										
			0805	0806		878.5	878.2	0.5																	44																																																																	
L 687+50	58	LT	0806		889.5																																											1	5.0	1.2									1			1																										
			0806	0807		878.2	874.0	0.7		60																																																																																	
L 686+94	122	LT	0808		874.0																																										1.500																																	1										
			0808	0819		874.0	854.0				204				X																																																															2														
Y2 18+80	19	LT	0809		900.6																																											1											1							1																						
			0809	0810		897.9	897.7																								36																																																											
Y2 18+80	19	RT	0810		900.6																																											1											1							1																						
			0810	0811		897.7	890.6		40						X																																																											2															
L 696+00	132	RT	0812		896.5																																																																														1							
			0812	0813		896.5	872.6	0.7			56				X																																																													1														
L 696+00	77	RT	0813		876.1																																											1											1					1																								
			0813	0815		872.6	870.6																			76																																																																
L 696+00	77	LT	0814		874.5																																											1											1					1																								
			0814	0815		871.8	871.4																	76																																																																		
L 696+00	0	CL	0815		875.7																																											1	0.1									1						1																								
			0815	0903		870.6	860.8	0.4																		448																																																															
L 684+62	135	RT	0816		852.0																																										4.500																																													
			0816	0818		852.0	851.8																						16																																																													
L 685+56	109	RT	0817	0818	885.0	856.1				192					X																																																													2															
L 684+62	122	RT	0818		860.0																																											1	3.2																			1				1																		
			0818	0715		851.8	832.0																																		332																																																				
Y2 17+50	0	CL	0820	0820A		888.8	886.4																		104																																																																		
Y2 15+51	68	RT	0821						96																																																																																		
Y2 15+23	32	LT	0822						32																																																																																				
SHEET TOTALS									312	280	516														252	472	580			16		88	68								332							7.500	18	26.3	3.5								1	16			5		8	2	2	1				1			4	3	5				2		2							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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BELAM-NEW

COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
Y2 23+15	50 RT	0823						24										
Y2 23+46	41 LT	0824						32										
Y2 21+52	0 CL	0825	0825A		899.0	898.5												
L 700+50	77 RT	0901		866.2														
		0901	0903		863.5	861.6												
L 700+50	77 LT	0902		864.7														
		0902	0903		862.0	861.6												
L 700+50	0 CL	0903		865.8														
		0903	0906		860.8	850.9	1.0											
L 705+00	77 RT	0904		856.4														
		0904	0906		853.7	851.7												
L 705+00	77 LT	0905		854.8														
		0905	0906		852.1	851.7												
L 705+00	0 CL	0906		856.0														
		0906	0909		850.4	840.6	0.5											
L 709+50	77 RT	0907		846.5														
		0907	0909		843.8	841.9												
L 709+50	77 LT	0908		845.0														
		0908	0909		842.3	841.9												
L 709+50	0 CL	0909		846.1														
		0909	1001		840.6	833.2	0.7											
L 713+00	0 CL	1001		838.5														
		1001	1002		833.2	832.0	0.8											
L 713+00	77 LT	1002		837.3														
		1002	1003		832.0	819.0	3.4				104			X				
L 718+50	0 CL	1004		826.4														
		1004	1005		823.7	823.4												
L 718+50	58 LT	1005		828.3														
		1005	1006		823.4	794.0	2.0	80						X				
L 722+50	0 CL	1007		818.0														
		1007	1008		815.3	815.0												
L 722+50	58 LT	1008		819.9														
		1008	1009		815.0	786.5	1.3	72						X				
L 722+50	130 LT	1009																
L 722+65	100 RT	1010		802.5														
		1010	1011		802.5	788.1												
L 722+98	112 LT	1011		794.0														
		1011	1012		786.1	786.0												
L 726+50	0 CL	1101		811.5														
		1101	1102		808.8	808.5												
L 726+50	58 LT	1102		813.4														
		1102	1103		808.5	785.0	1.3	64						X				
L 726+50	121 LT	1103																
L 730+50	0 CL	1104		805.1														
		1104	1105		802.4	802.1												
L 730+50	58 LT	1105		807.0														
		1105	1106		802.1	775.8	1.3	76						X				
L 730+50	131 LT	1106																
L 734+50	0 CL	1107		798.7														
		1107	1108		796.0	795.7												
SHEET TOTALS								348			104							

FROM	TO	C. S. PIPE 15 (.064)	C. S. PIPE 18 (.064)	C. S. PIPE 24 (.064)	C. S. PIPE 36 (.079)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48
0823																					
0824																					
0825	0825A						104														
0901																					
0901	0903					76															
0902																					
0902	0903					76															
0903																					
0903	0906							448													
0904																					
0904	0906					76															
0905																					
0905	0906					76															
0906																					
0906	0909								448												
0907																					
0907	0909					76															
0908																					
0908	0909					76															
0909																					
0909	1001								348												
1001																					
1001	1002								76												
1002																					
1002	1003																				
1004																					
1004	1005					56															
1005																					
1005	1006																				
1007																					
1007	1008					56															
1008																					
1008	1009																				
1009																					
1010																					
1010	1011																	216			
1011																					
1011	1012																	16			
1101																					
1101	1102					56															
1102																					
1102	1103																				
1103																					
1104																					
1104	1105					56															
1105																					
1105	1106																				
1106																					
1107																					
1107	1108					56															
SHEET TOTALS						736	104	448	872									232			

FROM	TO	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
0823																	
0824																	
0825	0825A																
0901										1							
0901	0903																
0902										1							
0902	0903																
0903										1							
0903	0906																
0904										1							
0904	0906																
0905										1							
0905	0906																
0906										1	0.6						
0906	0909																
0907										1							
0907	0909																
0908										1							
0908	0909																
0909										1	0.5						
0909	1001																
1001										1	0.3						
1001	1002																
1002										1	0.3						
1002	1003																
1004										1							
1004	1005																
1005										1							
1005	1006																
1007										1							
1007	1008																
1008										1							
1008	1009																
1009																	
1010									4.500								
1010	1011																
1011										1	2.9						
1011	1012																
1101										1							
1101	1102																
1102										1							
1102	1103																
1103																	
1104										1							
1104	1105																
1105										1							
1105	1106																
1106																	
1107										1							
1107	1108																
SHEET TOTALS									4.500	21	4.6						

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
0823												
0824												
0825	0825A											
0901					1					1		
0901	0903											
0902					1					1		
0902	0903											
0903				1						1		
0903	0906											
0904					1					1		
0904	0906											
0905					1					1		
0905	0906											
0906				1						1		
0906	0909											
0907					1					1		
0907	0909											
0908					1					1		
0908	0909											
0909				1						1		
0909	1001											
1001				1						1		
1001	1002											
1002				1						1		
1002	1003											
1004					1					1		
1004	1005											
1005					1			1				
1005	1006											
1007					1					1		
1007	1008											
1008					1			1				
1008	1009											
1009												
1010												
1010	1011											
1011												
1011	1012											
1101					1					1		
1101	1102											
1102					1			1				
1102	1103											
1103												
1104					1					1		
1104	1105											
1105					1			1				
1105	1106											
1106												
1107					1					1		
1107	1108											
SHEET TOTALS				5	15			4		16		

FROM	TO	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0823																								
0824																								
0825	0825A																							
0901																								
0901	0903																							
0902																								
0902	0903																							
0903																								
0903	0906																							
0904																								
0904	0906																							
0905																								
0905	0906																							
0906																								
0906	0909																							
0907																								
0907	0909																							
0908																								
0908	0909																							
0909																								
0909	1001																							
1001																								
1001	1002																							
1002																								
1002	1003											2												
1004																								
1004	1005																							
1005																								
1005	1006								2															
1007																								
1007	1008																							
1008																								
1008	1009								2															
1009																			1					
1010																								
1010	1011																							
1011		1				1																		
1011	1012																							
1101																								
1101	1102																							
1102																								
1102	1103								2															
1103																			1					
1104																								
1104	1105																							
1105																								
1105	1106								2															
1106																			1					
1107																								
1107	1108																							
SHEET TOTALS		1				1			8			2							3					

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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COMPUTED BY:	DJS	DATE:	04/19/2023
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PROJECT NO.	SHEET NO.
R-2707D	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Line & Station	Offset		Structure Number From	To	Top Elevation (FT.)	Invert Elevation (FT.)	Invert Elevation (FT.)	Minimum Required Slope (%)	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	36 (.079)
L 734+50	58	LT	1108		800.5																		
			1108	1109		795.7	768.0	1.3	72						X								
L 734+50	130	LT	1109																				
L 728+50	94	RT	1110		803.0																		
			1110	1111		803.0	778.1																
L 728+50	115	LT	1111		784.0																		
			1111	1112		776.1	776.0																
L 739+00	58	LT	1201		793.8																		
			1201	1202		791.0	789.2																
L 739+00	0	CL	1202		792.0																		
			1202	1203		789.2	788.8	0.4															
L 739+00	79	RT	1203		792.3																		
			1203	1204		788.8	788.5	0.5															
L 742+00	0	CL	1205		791.2																		
			1205	1206		788.5	787.9																
L 741+08	0	CL	1206		791.0																		
			1206	1208		787.9	787.7																
L 741+20	58	LT	1207		792.9																		
			1207	1208		790.1	789.8																
L 741+08	58	LT	1208		792.9																		
			1208	1209		787.7	752.0			92					X								
L 741+08	147	LT	1209																				
L 750+00	105	LT	1210		790.7																		
			1210	1211		787.9	787.4	0.4															
L 750+00	0	CL	1211		796.4																		
			1211	1212		787.4	786.7	0.6															
L 750+00	105	RT	1212		790.7																		
			1212	1213		785.5	783.6																
L 747+00	105	RT	1213		788.8																		
			1213	1214		783.0	782.5																
L 745+50	77	RT	1214		792.7																		
			1214	1215		782.5	782.2																
L 745+50	0	CL	1215		793.5																		
			1215	1216		782.2	781.7																
L 745+00	104	LT	1216		788.0																		
			1216	1217		781.7	753.8						144		X								
L 743+62	148	LT	1217		760.0																		
			1217	1218		753.8	753.7						12										
L 756+00	64	LT	1301		799.4																		
			1301	1302		796.6	795.0																
L 755+50	0	CL	1302		797.8																		
			1302	1305		795.0	794.7																
Y3 25+00	35	LT	1303		838.6																		
			1303	1304		835.8	835.5																
Y3 25+25	34	RT	1304		838.4																		
			1304	1305		835.5	794.7	0.8	120						X								
L 755+50	65	RT	1305		799.5																		
			1305	1212		794.0	786.0																
Y3 21+50	19	RT	1306		813.3																		
			1306	1307		810.6	810.1		16														
SHEET TOTALS									208	92			156										

Line & Station	From	To	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
L 734+50	1108																											1							
	1108	1109																																
L 734+50	1109																																		
L 728+50	1110																									4.500								
	1110	1111													212																			
L 728+50	1111																											1	2.9						
	1111	1112													24																			
L 739+00	1201																											1							
	1201	1202								56																								
L 739+00	1202																											1							
	1202	1203	80																															
L 739+00	1203																											1							
	1203	1204		52																														
L 742+00	1205																											1							
	1205	1206	92																															
L 741+08	1206																											1							
	1206	1208		56																														
L 741+20	1207																											1							
	1207	1208								12																								
L 741+08	1208																											1	0.1						
	1208	1209																																
L 741+08	1209																																		
L 750+00	1210																											1							
	1210	1211	104																															
L 750+00	1211																											1	4.0						
	1211	1212	104																															
L 750+00	1212																											1	0.3						
	1212	1213				296																												
L 747+00	1213																											1	0.8						
	1213	1214					152																											
L 745+50	1214																											1	5.0	0.2					
	1214	1215					76																											
L 745+50	1215																											1	5.0	1.3					
	1215	1216					116																											
L 745+00	1216																											1	1.3						
	1216	1217																																
L 743+62	1217																											1	1.2						
	1217	1218																																
L 756+00	1301																											1							
	1301	1302								80																								
L 755+50	1302																											1							
	1302	1305	64																															
Y3 25+00	1303																											1							
	1303	1304	72																															
Y3 25+25	1304																											1							
	1304	1305																																
L 755+50	1305																											1	0.5						
	1305	1212			548																													
Y3 21+50	1306																											1							
	1306	1307																																
SHEET TOTALS			516	108	548	296	344			148					236											4.500	23	21.1	1.5					

Line & Station	From	To	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 734+50	1108					1			1																											
	1108	1109																			2																
L 734+50	1109																															1					
L 728+50	1110																																				
	1110	1111																																		
L 728+50	1111													1				1																		
	1111	1112																																		
L 739+00	1201					1			1																											
	1201	1202																																		
L 739+00	1202					1					1																									
	1202	1203																																		
L 739+00	1203					1					1																									
	1203	1204																																		
L 742+00	1205					1					1																									
	1205	1206																																		
L 741+08	1206					1					1																									
	1206	1208																																		
L 741+20	1207					1			1																											
	1207	1208																																		
L 741+08	1208					1			1																											
	1208	1209																				2															
L 741+08	1209																															1					
L 750+00	1210					1					1																									
	1210	1211																																		
L 750+00	1211					1					1																									
	1211	1212																																		
L 750+00	1212				1						1																									
	1212	1213																																		
L 747+00	1213				1						1																									
	1213	1214																																		
L 745+50	1214				1						1																									
	1214	1215																																		
L 745+50	1215				1						1																									
	1215	1216																																		
L 745+00	1216				1						1																									
	1216	1217																							2											
L 743+62	1217													1				1																		
	1217	1218																																		
L 756+00	1301					1					1																									
	1301	1302																																		
L 755+50	1302					1					1																									
	1302	1305																																		
Y3 25+00	1303					1						1																								
	1303	1304																																		
Y3 25+25	1304					1						1																								
	1304	1305																			2																
L 755+50	1305				1						1																									
	1305	1212																																		
Y3 21+50	1306					1							1																							
	1306	1307																																		
SHEET TOTALS					6	15			4		14	2	1	2				2			4	2			2						2					

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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BELAM-NEW

COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079
L 759+00	58	RT	1308		798.1																		
			1308	1309		795.3	794.5																
L 760+00	58	RT	1309		797.2																		
			1309	1310		794.5	793.4																
L 761+00	58	RT	1310		796.2																		
			1310	1311		793.4	791.4	0.3															
L 761+00	0	CL	1311		794.2																		
			1311	1314		791.4	785.4	0.5															
L 764+45	58	LT	1312		791.1																		
			1312	1314		786.0	785.4																
L 764+45	58	RT	1313		791.1																		
			1313	1314		788.4	785.4																
L 764+45	0	CL	1314		789.2																		
			1314	1404		785.4	771.5	0.5															
L 762+50	77	LT	1315		791.1																		
			1315	1316		788.4	767.1	1.3	164						X								
L 764+10	120	LT	1316		771.0																		
			1316	1317		767.1	767.0	0.3	16														
L 763+90	108	RT	1318		776.9																		
			1318	1319		776.9	764.6																
PVTENT6 10+32	0	CL	1320						28														
Y3 27+21	32	RT	1321						36														
PVTENT2 10+32	0	CL	1322						24														
L 765+50	58	LT	1401		789.2																		
			1401	1312		786.5	786.0																
L 768+50	58	RT	1402		782.9																		
			1402	1404		780.1	776.9																
L 768+50	106	LT	1403		775.0																		
			1403	1404		772.2	771.7																
L 768+50	0	CL	1404		780.9																		
			1404	1408		771.0	764.2	0.3															
L 771+50	58	RT	1405		774.9																		
			1405	1406		772.1	770.8																
L 771+95	58	RT	1406		773.6																		
			1406	1408		770.8	764.9																
L 772+50	82	LT	1407		767.9																		
			1407	1408		765.2	764.9																
L 772+50	0	CL	1408		769.9																		
			1408	1410		764.2	748.7	0.7															
L 777+50	58	RT	1409		755.4																		
			1409	1410		752.7	749.5																
L 777+50	0	CL	1410		753.5																		
			1410	1501		748.2	732.0	0.3															
L 777+14	140	RT	1412	1413		720.0	711.5						72		X								
L 782+50	0	CL	1501		737.3																		
			1501	1503		732.0	731.7	0.3															
L 782+35	58	RT	1502		739.6																		
			1502	1503		736.9	733.0																
L 782+50	58	RT	1503		739.2																		
			1503	1504		731.7	727.0	0.4				52											
								SHEET TOTALS	268			52	72										

FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
1308																									
1308	1309								96																
1309																									
1309	1310								96																
1310																									
1310	1311								56																
1311																									
1311	1314	344																							
1312																									
1312	1314								56																
1313																									
1313	1314								56																
1314																									
1314	1404									404															
1315																									
1315	1316																								
1316																									
1316	1317																								
1318																									6.000
1318	1319														232										
1320																									
1321																									
1322																									
1401																									
1401	1312								104																
1402																									
1402	1404								56																
1403																									
1403	1404	104																							
1404																									
1404	1408			396																					
1405																									
1405	1406								44																
1406																									
1406	1408								80																
1407																									
1407	1408	84																							
1408																									
1408	1410			496																					
1409																									
1409	1410								56																
1410																									
1410	1501				496																				
1412	1413																								
1501																									
1501	1503				56																				
1502																									
1502	1503								12																
1503																									
1503	1504																								
SHEET TOTALS		532		892	552				712	404					232										6.000

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
1308		1											1			1				
1308	1309																			
1309		1											1			1				
1309	1310																			
1310		1											1			1				
1310	1311																			
1311		1											1					1		
1311	1314																			
1312		1	0.2										1			1				
1312	1314																			
1313		1											1			1				
1313	1314																			
1314		1											1					1		
1314	1404																			
1315		1											1					1		
1315	1316																			
1316		1																		
1316	1317																			
1318																				
1318	1319																			
1320																				
1321																				
1322																				
1401		1											1			1				
1401	1312																			
1402		1											1			1				
1402	1404																			
1403		1											1					1		
1403	1404																			
1404		1	4.9									1						1		
1404	1408																			
1405		1											1			1				
1405	1406																			
1406		1											1			1				
1406	1408																			
1407		1											1					1		
1407	1408																			
1408		1	0.8									1						1		
1408	1410																			
1409		1											1			1				
1409	1410																			
1410		1	0.3									1						1		
1410	1501																			
1412	1413																			
1501		1	0.3									1						1		
1501	1503																			
1502		1											1			1				
1502	1503																			
1503		1	2.4										1			1				
1503	1504																			
SHEET TOTALS		22	8.9									4	17			12		9		

FROM	TO	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1308																								
1308	1309																							
1309																								
1309	1310																							
1310																								
1310	1311																							
1311																								
1311	1314																							
1312																								
1312	1314																							
1313																								
1313	1314																							
1314																								
1314	1404																							
1315																								
1315	1316								2															
1316		1				1																		
1316	1317																							
1318																								
1318	1319																							
1320																								
1321																								
1322																								
1401																								
1401	1312																							
1402																								
1402	1404																							
1403																								
1403	1404																							
1404																								
1404	1408																							
1405																								
1405	1406																							
1406																								
1406	1408																							
1407																								
1407	1408																							
1408																								
1408	1410																							
1409																								
1409	1410																							
1410																								
1410	1501																							
1412	1413												2											
1501																								
1501	1503																							
1502																								
1502	1503																							
1503																								
1503	1504																							
SHEET TOTALS		1				1			2				2											

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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COMPUTED BY: DJS DATE: 04/19/2023

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PROJECT NO.	SHEET NO.
R-2707D	3D-7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48
L 787+50	0 CL	1505		722.0																																		
		1505	1506		719.3	719.1																	56															
L 787+50	58 RT	1506		723.8																																		
		1506	1507		719.1	708.0	0.5	44						X																								
L 792+48	0 CL	1508		716.2																																		
		1508	1610		713.5	712.3																	60															
L 791+85	58 RT	1509		718.2																																		
		1509	1510		715.4	715.1																								60								
L 792+48	58 RT	1510		718.1																																		
		1510	1611		715.1	712.0																								58								
L 780+45	121 RT	1511		730.0																																		
		1511	1512		724.0	723.0																				72												
L 789+50	116 RT	1513		693.0																																		
		1513	1515		693.0	680.1																													320			
L 791+55	7 LT	1514	1515		690.5	681.1																															248	
L 791+50	132 LT	1515		686.0																																		
		1515	1516		678.1	678.0																							16									
L 804+60	58 LT	1601		728.7																																		
		1601	1602		726.0	724.0																	56															
L 804+60	0 CL	1602		726.8																																		
		1602	1604		724.0	720.3																	256															
L 802+00	77 RT	1603		723.3																																		
		1603	1604		720.6	720.3																	76															
L 802+00	0 CL	1604		724.4																																		
		1604	1607		720.3	716.8																	348															
L 798+50	68 LT	1605		721.3																																		
		1605	1607		717.5	716.6																		68														
L 798+50	77 RT	1606		720.0																																		
		1606	1607		717.3	716.8																	76															
L 798+50	0 CL	1607		721.1																																		
		1607	1609		716.1	714.9																			144													
L 797+05	58 LT	1608		721.8																																		
		1608	1609		719.0	715.7																	56															
L 797+05	0 CL	1609		719.7																																		
		1609	1610		714.9	711.5																			392													
L 793+10	0 CL	1610		716.3																																		
		1610	1611		711.0	710.8																				56												
L 793+10	58 RT	1611		718.2																																		
		1611	1612		710.8	687.4					72			X																								
L 805+50	103 RT	1614		733.5																																		
		1614	1615		733.5	723.0	0.8			28				X																								
L 805+50	77 RT	1615		726.5																																		
		1615	1616		723.0	722.7																			76													
L 805+50	0 CL	1616		727.7																																		
		1616	1617		722.7	715.6	0.3																		120													
L 804+65	85 LT	1617		720.0																																		
		1617	1618		713.9	713.8	0.3																		12													
L 799+50	80 LT	1619		720.8																																		
		1619	1605		718.0	717.5																	100															
L 809+05	56 RT	1701		733.0																																		
SHEET TOTALS								44		28	72												1084	68	744	128			16	118					320		248	

LINE & STATION	FROM	TO	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 787+50	1505										1										1						1																								
	1505	1506																																																	
L 787+50	1506										1										1			1																											
	1506	1507																																		2															
L 792+48	1508										1										1						1																								
	1508	1610																																																	
L 791+85	1509										1										1			1																											
	1509	1510																																																	
L 792+48	1510										1										1			1																											
	1510	1611																																																	
L 780+45	1511										1	1.0																																						Dry Det. Basin Outlet Str., See Sheets 2D-3 and 2D-4
	1511	1512																																																	
L 789+50	1513									4.500																																									
	1513	1515																																																	
L 791+55	1514	1515																																																	
L 791+50	1515										1	2.9																		1				1																	
	1515	1516																																																	
L 804+60	1601										1										1			1																											
	1601	1602																																																	
L 804+60	1602										1										1						1																								
	1602	1604																																																	
L 802+00	1603										1										1						1																								
	1603	1604																																																	
L 802+00	1604										1										1						1																								
	1604	1607																																																	
L 798+50	1605										1										1						1																								
	1605	1607																																																	
L 798+50	1606										1										1						1																								
	1606	1607																																																	
L 798+50	1607										1									1							1																								
	1607	1609																																																	
L 797+05	1608										1										1			1																											
	1608	1609																																																	
L 797+05	1609										1									1							1																								
	1609	1610																																																	
L 793+10	1610										1	0.3								1							1																								
	1610	1611																																																	
L 793+10	1611										1	2.4									1			1																											
	1611	1612																																					2												
L 805+50	1614																																												1						
	1614	1615																																				1													
L 805+50	1615										1										1						1																								
	1615	1616																																																	
L 805+50	1616										1									1							1																								
	1616	1617																																																	
L 804+65	1617										1	1.1																		1				1																	
	1617	1618																																																	
L 799+50	1619										1										1						1																								
	1619	1605																																																	
L 809+05	1701										1										1			1																											
SHEET TOTALS										4.500	23	7.7								4	16			7		13			2				2			2		1	2						1						

ABBREVIATIONS

- C.A.A. CORRUGATED ALUMINIUM ALLOY
- C.B. CATCH BASIN
- C.S. CORRUGATED STEEL
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- H.D.P.E. HIGH DENSITY POLYETHYLENE
- J.B. JUNCTION BOX
- M.H. MANHOLE
- N.S. NARROW SLOT
- P.V.C. POLYVINYL CHLORIDE
- R.C. REINFORCED CONCRETE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX
- W.S. WIDE SLOT

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BELAM-NEW

COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
		1701	1702		730.2	725.0												
SRVRD_4 11+75	24 LT	1702		727.8														
		1702	1704		725.0	722.5												
SRVRD_4 12+00	50 RT	1703		734.0														
		1703	1704		734.0	722.3	1.3		28					X				
SRVRD_4 12+00	24 RT	1704		725.3														
		1704	1705		722.3	704.8	0.6											
SRVRD_4 15+03	24 RT	1705		707.0														
		1705	1706		704.3	703.8												
SRVRD_4 15+03	37 LT	1706		707.0														
		1706	1732		703.8	703.0												
L 808+80	56 LT	1708		732.8														
		1708	1709		730.0	723.7		40						X				
L 808+80	97 LT	1709		726.5														
		1709	1710		723.7	696.5	0.5	80						X				
L 817+50	122 RT	1711		734.5														
		1711	1712		731.8	731.1												
L 817+50	0 CL	1712		738.5														
		1712	1717		729.3	727.7												
L 811+00	56 RT	1713		734.8														
		1713	1715		732.0	730.0												
L 811+00	56 LT	1714		734.8														
		1714	1715		732.1	730.0												
L 811+00	0 CL	1715		732.8														
		1715	1717		730.0	729.4												
L 813+00	59 RT	1716		736.6														
		1716	1717		733.8	729.4												
L 813+00	0 CL	1717		734.7														
		1717	1719		727.7	727.3	0.3											
L 813+80	70 LT	1718		737.2														
		1718	1719		734.4	729.1												
L 813+00	66 LT	1719		736.5														
		1719	1720		727.3	715.0	1.4					80		X				
SRVRD_5 10+95	18 LT	1721		713.0														
		1721	1722		710.2	710.0												
SRVRD_5 10+95	20 RT	1722		713.0														
		1722	1706		710.0	704.5												
SRVRD_4 10+32	24 RT	1723						32										
SRVRD_5 16+00	83 RT	1724		712.0														
		1724	1726		712.0	690.7			48					X				
SRVRD_5 16+00	42 LT	1725		693.7														
		1725	1726		693.7	690.7												
SRVRD_5 16+00	37 RT	1726		695.0														
		1726	1727		690.2	689.6												
SRVRD_5 18+00	36 RT	1727		697.6														
		1727	1729		689.6	687.0				140				X				
SRVRD_5 17+85	181 RT	1728		719.0														
		1728	1729		712.0	686.0						140		X				
SRVRD_5 19+13	120 RT	1729		692.0														
		1729	1730		683.1	683.0						8						
							SHEET TOTALS	152	76	140		228						

FROM	TO	C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	36 (.079)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48
1701	1702					100															
1702																					
1702	1704					56															
1703																					
1703	1704																				
1704																					
1704	1705						300														
1705																					
1705	1706							60													
1706																					
1706	1732							220													
1708																					
1708	1709																				
1709																					
1709	1710																				
1711																					
1711	1712					120															
1712																					
1712	1717									448											
1713																					
1713	1715												56								
1714																					
1714	1715												56								
1715																					
1715	1717					196															
1716																					
1716	1717												60								
1717																					
1717	1719									64											
1718																					
1718	1719												80								
1719																					
1719	1720																				
1721																					
1721	1722												36								
1722																					
1722	1706					220															
1723																					
1724																					
1724	1726																				
1725																					
1725	1726						80														
1726																					
1726	1727							196													
1727																					
1727	1729																				
1728																					
1728	1729																				
1729																					
1729	1730																				
SHEET TOTALS						692	380	476		512			288								

FROM	TO	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
1701	1702																
1702										1							
1702	1704																
1703																	
1703	1704																
1704										1							
1704	1705																
1705										1							
1705	1706																
1706										1							
1706	1732																
1708										1							
1708	1709																
1709										1							
1709	1710																
1711										1							
1711	1712																
1712										1	4.2						
1712	1717																
1713										1							
1713	1715																
1714										1							
1714	1715																
1715										1							
1715	1717																
1716										1							
1716	1717																
1717										1	2.0						
1717	1719																
1718										1							
1718	1719																
1719										1	4.1						
1719	1720																
1721										1							
1721	1722																
1722										1							
1722	1706																
1723																	
1724																	
1724	1726																
1725																	
1725	1726																
1726										1							
1726	1727																
1727										1							
1727	1729																
1728										1	2.0						
1728	1729																
1729										1	3.9						
1729	1730																
SHEET TOTALS										21	16.2						

FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1701	1702																																		
1702					1					1																									
1702	1704																																		
1703																												1							
1703	1704																				1														
1704					1					1																									
1704	1705																																		
1705						1				1																									
1705	1706																																		
1706										1																									Min. Depth 2GI-A, See Detail Sheet 2C-7
1706	1732																																		
1708					1			1																											
1708	1709																			2															
1709					1					1																									
1709	1710																			2															
1711					1					1																									
1711	1712																																		
1712				1						1																									
1712	1717																																		
1713					1			1																											
1713	1715																																		
1714					1			1																											
1714	1715																																		
1715					1					1																									
1715	1717																																		
1716					1			1																											
1716	1717																																		
1717				1						1																									
1717	1719																																		
1718					1			1																											
1718	1719																																		
1719					1			1																											
1719	1720																							2											
1721					1						1																								
1721	1722																																		
1722					1						1																								
1722	1706																																		
1723																																			
1724																												1							
1724	1726																				1														
1725																																			
1725	1726																																		
1726				1							1																								
1726	1727																																		
1727				1							1																								
1727	1729																					2													
1728																																			Dry Det. Basin Outlet Str., See Sheets 2D-3 and 2D-4
1728	1729																							2											
1729													1				1																		
1729	1730																																		
SHEET TOTALS				4	13	1		6		9	4		1				1			4	2	2		4				2							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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PROJECT NO.	SHEET NO.
R-2707D	3D-9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	36 (.079)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48
L 815+21	187	RT	1731		717.0																																		
			1731	1732		717.0	705.0	0.9				72			X																								
SRVRD_5A 13+08	0	CL	1736	1736A		695.9	695.3																		64														
SRVRD_5A 10+60	0	CL	1737	1737A		716.0	715.0																									52							
SRVRD_5A	0	CL	1738	1738A		720.0	719.0																									76							
SRVRD_4 19+27	24	LT	1739								32																												
L 816+97	179	LT	1740						32																														
RAMP_A 47+50	19	LT	1801		776.5																																		
			1801	1802		772.8	772.7																	4															
RAMP_A 47+50	23	LT	1802		775.7																																		
			1802	1804		768.5	768.0																			128													
RAMP_A 46+30	102	LT	1803		768.5																																		
			1803	1804		768.5	768.0																			84													
RAMP_A 46+23	21	LT	1804		774.7																																		
			1804	1805		767.5	767.0																				124												
RAMP_A 45+00	19	LT	1805		772.4																																		
			1805	1806		767.0	766.3																				132												
2LOOPA 34+01	22	RT	1806		771.6																																		
			1806	1807		766.3	760.4																				88												
RAMP_A 43+71	67	RT	1807		765.7																																		
			1807	1808		760.4	756.3																				136												
RAMPC 20+50	42	RT	1808		761.6																																		
			1808	1808A		756.3	745.8	0.3																			180												
RAMPC 18+50	42	RT	1808A		751.1																																		
			1808A	1809		745.8	737.1																				156												
RAMPC 16+75	42	RT	1809		742.4																																		
			1809	1810		737.1	736.8	0.3																			72												
RAMPC 16+75	32	LT	1810		744.5																																		
			1810	1814		736.8	732.2	0.4																			84												
L 823+35	89	LT	1811		735.8																																		
			1811	1813		732.8	732.5																		108														
L 822+75	77	RT	1812		736.2																																		
			1812	1813		733.5	732.7																	76															
L 822+75	0	CL	1813		737.7																																		
			1813	1815		732.5	731.9	0.3																	152														
L 821+20	77	RT	1814		737.5																																		
			1814	1815		732.2	730.9	0.4																			76												
L 821+20	0	CL	1815		738.6																																		
			1815	1712		730.4	729.3																					368											
RAMP_A 38+25	23	LT	1816		770.4																																		
			1816	1817		767.6	765.6																								32								
RAMP_A 38+25	57	LT	1817		768.3																																		
			1817	1818		765.6	752.3		84						X																								
L 825+15	140	RT	1819		750.0																																		
			1819	1820		750.0	731.1	0.7		64					X																								
L 825+15	77	RT	1820		734.1																																		
			1820	1821		731.1	726.3																		284														
L 828+00	77	RT	1821		729.3																																		
			1821	1823		726.3	725.8	0.5																	76														
L 828+00	89	LT	1822		729.1																																		
SHEET TOTALS									116	64	32	72												80	684	212	1048	368			32	128							

FROM	TO	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1731																																																			
1731	1732																																				2														
1736	1736A																																																		
1737	1737A																																																		
1738	1738A																																																		
1739																																																			
1740																																																			
1801										1											1			1																											
1801	1802																																																		
1802										1	2.2									1				1																											
1802	1804																																																		
1803																																																			
1803	1804																																																		
1804										1	2.2									1				1																											
1804	1805																																																		
1805										1	0.4									1				1																											
1805	1806																																																		
1806										1	0.3									1				1																											
1806	1807																																																		
1807										1	0.3									1						1																									
1807	1808																																																		
1808										1	0.3									1						1																									
1808	1808A																																																		
1808A										1	0.3									1						1																									
1808A	1809																																																		
1809										1	0.3									1						1																									
1809	1810																																																		
1810										1	2.7									1						1																									
1810	1814																																																		
1811										1											1					1																									
1811	1813																																																		
1812										1											1					1																									
1812	1813																																																		
1813										1	0.2										1					1																									
1813	1815																																																		
1814										1	0.3									1						1																									
1814	1815																																																		
1815										1	3.2									1						1																									
1815	1712																																																		
1816										1											1			1																											
1816	1817																																																		
1817										1											1			1																											
1817	1818																																			2															
1819																																												1							
1819	1820																																				1														
1820										1											1					1																									
1820	1821																																																		
1821										1											1					1																									
1821	1823																																																		
1822										1											1					1																									
SHEET TOTALS										20	12.7									11	9			7		13										2	1		2					1							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

BELAM-NEW

COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

PROJECT NO.	SHEET NO.
R-2707D	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	18 .064	24 .064	36 .079
			1822	1823		726.4	726.1																
L 828+00	0	CL	1823		730.4																		
			1823	1825		725.8	716.2	1.1															
L 832+00	77	RT	1824		719.4																		
			1824	1825		716.7	716.4																
L 832+00	0	CL	1825		720.6																		
			1825	1827		715.7	712.8	0.4															
L 830+50	103	LT	1826		722.0																		
			1826	1827		719.3	713.6																
L 832+00	88	LT	1827		717.6																		
			1827	1828		712.8	712.0	0.6															
RAMP_A 34+00	23	LT	1829		753.9																		
			1829	1830		751.2	749.2																
RAMP_A 34+00	57	LT	1830		751.9																		
			1830	1831		749.2	732.0	1.3	84						X								
RAMP_A 28+50	24	LT	1832		726.6																		
			1832	1833		723.8	722.7																
RAMP_A 28+30	26	LT	1833		725.4																		
			1833	1834		722.7	721.0																
1LOOPA 18+85	17	LT	1834		724.0																		
			1834	1835		721.0	702.2	1.3	104						X								
1LOOPA 15+45	15	LT	1836		715.4																		
			1836	1837		712.4	704.2	0.7	60						X								
RAMP_D 25+30	40	RT	1838		764.5																		
			1838	1839		761.8	760.4																
RAMP_D 25+30	40	LT	1839		763.1																		
			1839	1841		760.4	744.0																
RAMP_D 22+00	40	RT	1840		748.9																		
			1840	1841		746.2	744.0																
RAMP_D 22+00	40	LT	1841		746.7																		
			1841	1843		744.0	726.4	1.0															
RAMP_D 18+50	40	RT	1842		731.4																		
			1842	1843		728.7	726.4																
RAMP_D 18+50	40	LT	1843		729.1																		
			1843	1844		726.1	705.9	1.0															
RAMP_D 14+41	40	LT	1844		708.9																		
			1844	1845		705.4	705.2	0.3															
L 834+50	65	RT	1845		713.2																		
			1845	1847		705.2	704.8	0.4															
L 835+00	77	LT	1846		709.6																		
			1846	1847		706.9	705.5																
L 835+00	0	CL	1847		710.7																		
			1847	1850		704.8	689.2	0.6															
L 839+00	77	LT	1848		693.8																		
			1848	1850		691.1	690.0																
L 839+00	101	RT	1849		693.3																		
			1849	1850		689.8	689.2																
L 839+00	0	CL	1850		694.9																		
			1850	1904		688.7	672.5	0.6															
RAMP_A 17+50	78	LT	1851		691.0																		
SHEET TOTALS									248														

FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 30	48	42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
1822	1823	88																							
1823																									
1823	1825		400																						
1824																									
1824	1825	76																							
1825																									
1825	1827			88																					
1826																									
1826	1827	148																							
1827																									
1827	1828			116																					
1829																									
1829	1830								32																
1830																									
1830	1831																								
1832																									
1832	1833								16																
1833																									
1833	1834								28																
1834																									
1834	1835																								
1836																									
1836	1837																								
1838																									
1838	1839	80																							
1839																									
1839	1841	320																							
1840																									
1840	1841	80																							
1841																									
1841	1843	340																							
1842																									
1842	1843	80																							
1843																									
1843	1844		396																						
1844																									
1844	1845			68																					
1845																									
1845	1847			84																					
1846																									
1846	1847	76																							
1847																									
1847	1850			400																					
1848																									
1848	1850	76																							
1849																									
1849	1850			100																					
1850																									
1850	1904				448																				
1851																									
SHEET TOTALS		1364	796	856	448				76																

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B. w/ MH	ADJUST D.I.	15" SIDE DRAIN PIPE ELBOW	18" SIDE DRAIN PIPE ELBOW	24" SIDE DRAIN PIPE ELBOW	30" SIDE DRAIN PIPE ELBOW	36" SIDE DRAIN PIPE ELBOW	18" SLUICE GATE (25" SIZE SLUICE GATE)	24" SLUICE GATE (32" SIZE SLUICE GATE)	30" SLUICE GATE (38.75" SIZE SLUICE GATE)	BERM DITCH OUTLET STD. 850.10	BERM DITCH OUTLET STD. 850.11	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1822	1823																																									
1823		1										1					1																									
1823	1825																																									
1824		1										1					1																									
1824	1825																																									
1825		1										1					1																									
1825	1827																																									
1826		1										1					1																									
1826	1827																																									
1827		1									1						1																									
1827	1828																																									
1829		1										1			1																											
1829	1830																																									
1830		1										1			1																											
1830	1831																										2															
1832		1										1			1																											
1832	1833																																									
1833		1										1			1																											
1833	1834																																									
1834		1			1		1																																			
1834	1835																										2															
1836		1			1	1																																				
1836	1837																										2															
1838		1										1					1																									
1838	1839																																									
1839		1										1					1																									
1839	1841																																									
1840		1										1					1																									
1840	1841																																									
1841		1										1					1																									
1841	1843																																									
1842		1										1					1																									
1842	1843																																									
1843		1										1					1																									
1843	1844																																									
1844		1										1					1																									
1844	1845																																									
1845		1	3.0								1						1																									
1845	1847																																									
1846		1										1					1																									
1846	1847																																									
1847		1	0.9								1						1																									
1847	1850																																									
1848		1										1					1																									
1848	1850																																									
1849		1										1					1																									
1849	1850																																									
1850		1	1.2								1						1																									
1850	1904																																									
1851																																		1								
SHEET TOTALS		24	5.1		2	1	1				4	18			4		18										6								1							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2707D	3D-11

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15 | 18 | 24 | 30 | 36 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | C. S. PIPE 15 .064 | 18 .064 | 24 .064 | 36 .079 | R. C. PIPE CLASS III 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 30 | 48 | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX STD. 840.41 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING D.I. TO J.B. w/ MH | ADJUST D.I. | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | 18" SLUICE GATE (25" SIZE SLUICE GATE) | 24" SLUICE GATE (32" SIZE SLUICE GATE) | 30" SLUICE GATE (38.75" SIZE SLUICE GATE) | BERM DITCH OUTLET STD. 850.10 | BERM DITCH OUTLET STD. 850.11 | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

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BELAM-NEW

COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2707D	3D-12

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15 | 18 | 24 | 30 | 36 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | C. S. PIPE 15 .064 | 18 .064 | 24 .064 | 36 .079 | R. C. PIPE CLASS III 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 30 | 48 | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX STD. 840.41 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING D.I. TO J.B. w/ MH | ADJUST D.I. | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | 18" SLUICE GATE (25" SIZE SLUICE GATE) | 24" SLUICE GATE (32" SIZE SLUICE GATE) | 30" SLUICE GATE (38.75" SIZE SLUICE GATE) | BERM DITCH OUTLET STD. 850.10 | BERM DITCH OUTLET STD. 850.11 | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

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COMPUTED BY:	DJS	DATE:	04/19/2023
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2707D	3D-13

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15 | 18 | 24 | 30 | 36 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | C. S. PIPE 15 .064 | 18 .064 | 24 .064 | 36 .079 | R. C. PIPE CLASS III 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 30 | 48 | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX STD. 840.41 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING D.I. TO J.B. w/ MH | ADJUST D.I. | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | 18" SLUICE GATE (25" SIZE SLUICE GATE) | 24" SLUICE GATE (32" SIZE SLUICE GATE) | 30" SLUICE GATE (38.75" SIZE SLUICE GATE) | BERM DITCH OUTLET STD. 850.10 | BERM DITCH OUTLET STD. 850.11 | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

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COMPUTED BY:	DJS	DATE:	04/19/2023
CHECKED BY:	BNE	DATE:	04/19/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2707D	3D-14

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15 | 18 | 24 | 30 | 36 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | C. S. PIPE 15 .064 | 18 .064 | 24 .064 | 36 .079 | R. C. PIPE CLASS III 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 30 | 48 | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 30" WELDED STEEL PIPE 0.500" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | 48" WELDED STEEL PIPE 0.688" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL) | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A 5' THRU 10' LIN. FT. | B 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX STD. 840.41 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING D.I. TO J.B. w/ MH | ADJUST D.I. | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | 18" SLUICE GATE (25" SIZE SLUICE GATE) | 24" SLUICE GATE (32" SIZE SLUICE GATE) | 30" SLUICE GATE (38.75" SIZE SLUICE GATE) | BERM DITCH OUTLET STD. 850.10 | BERM DITCH OUTLET STD. 850.11 | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2707D	3D-15

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R. C. PIPE CLASS III 54	60	66	72	78	84	R. C. PIPE CLASS IV 54	60	66	72	78	84	R. C. PIPE CLASS V 54	60	66	72	78	84	STRUCTURAL PLATE PIPE 60	66	72
L 776+72	155 RT	1411		710.5																								
		1411	1413		710.5	709.7		16																				
L 776+79	142 RT	1413		707.0																								
		1413	1414		709.7	690.5																						
SRVRD_1 18+50	50 LT	0619		854.0																								
		0619	0620		844.5	844.4		16																				
SRVRD_4 17+34	41 RT	1707		705.2																								
		1707	1732		705.2	701.5				112																		
L 814+55	161 RT	1732		710.0																								
		1732	1733		701.5	690.0															348							
SRVRD_5 19+49	69 RT	1734		681.0																								
		1734	1735		681.0	675.2										156												
L 843+40	140 LT	1907		660.0																								
		1907	1908		651.1	651.0		32																				
R-2707E PROJECT TOTALS								140		276																		
R-2707D PROJECT TOTALS								64		112						156					348							
PROJECT GRAND TOTALS								204		388						156					348							

LINE & STATION	54" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	60" WELDED STEEL PIPE 0.875" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.4	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.2	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.2	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.4	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41		M.H. FRAME AND COVER STD. 840.54		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 776+72				5.000																																								
					4.037																														1							1						
L 776+79	368																																											
SRVRD_1 18+50					5.194																														1							1						
SRVRD_4 17+34				6.300																																								
L 814+55					5.625															1					1	1																		
SRVRD_5 19+49				6.300																																								
L 843+40					4.826																														1							1						
R-2707E PROJECT TOTALS		228		10.600	18.712															1					2										1							1						
R-2707D PROJECT TOTALS	368			17.600	19.682															1				1	1										3							3						
PROJECT GRAND TOTALS	368	228		28.200	38.394															2				1	3										4							4						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

PREPARED BY: M. J. ALEXANDER DATE: 04/13/2023

(2-3-23)

PROJECT NO.	SHEET NO.
R-2707D	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	753+00	759+00	LT & RT	SD	1200
-L-	766+00	771+00	RT	SD	500
CONTINGENCY				UD	1000
				TOTAL LF:	2700

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Bridge No. 488 on -Y1- over -L- at -L- Sta. 665+78.41	End Bent 1	1
Bridge No. 102 on -L- over Buffalo Creek at -L- Sta. 849+00.00	End Bent 1	3
Bridge No. 102 on -L- over Buffalo Creek at -L- Sta. 849+00.00	End Bent 2	1
Bridge No. 101 on -L- over Buffalo Creek at -L- Sta. 849+00.00	End Bent 1	3
Bridge No. 101 on -L- over Buffalo Creek at -L- Sta. 849+00.00	End Bent 2	1

SUMMARY OF GEOTEXTILE FOR SUBGRADE STABILIZATION

LINE	Station	Station	Geotextile for Subgrade Stabilization SY
-L-	636+50	638+00	1550
-L-	638+00	643+00	2278
-L-	643+00	648+00	6111
-L-	648+00	649+00	656
-L-	651+50	655+50	4978
-L-	655+50	658+00	1611
-L-	668+50	672+00	4122
-L-	681+50	682+50	589
-L-	682+50	687+00	5400
-L-	714+50	719+00	5800
-L-	719+00	722+00	1900
-L-	722+00	730+50	10767
-L-	730+50	732+50	1267
-L-	734+50	741+00	4117
-L-	741+00	745+00	4889
-L-	763+50	765+00	1783
-L-	774+00	782+50	10011
-L-	784+00	798+50	17561
-L-	804+50	805+00	294
-L-	813+00	817+50	6750
-L-	843+00	843+50	611
-L-	845+00	846+50	1167
-L-	846+50	847+50	1722
-L-	850+60	851+00	676
-LOOP_A-	15+00	17+75	1192
-RAMP_A-	16+00	16+50	350
-RAMP_A-	23+50	27+50	2622
-RAMP_A-	27+50	36+00	8500
-SRVRD_1-	17+00	19+50	611
-SRVRD_3-	15+00	17+00	489
-SRVRD_4-	17+00	18+00	244
-Y1-	15+50	19+00	1478
-Y1-	20+80	21+00	87
-Y2-	17+00	19+50	1361
CONTINGENCY			
		TOTAL SY:	113544*

*Total square yards of "Geotextile for Subgrade Stabilization" is only the estimated quantity for subgrades and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			AST					500	
CONTINGENCY			ASU (1)	8	1000	2000	2000		
			TOTAL CY/TONS/SY:		1000	2000**	2000**	500	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
L	1.5:1	787+00	1.5:1	790+00	LT	2620		2620	
SRVRD_3	1.5:1	15+00	1.5:1	15+50	LT	140		140	
					TOTAL SY:	2760	0	2760*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
1	-L- 847+10	80	LT
2	-L- 847+10	CL	LT
3	-L- 847+10	90	RT
	TOTAL GAUGES (EACH):		3

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PROJ. REFERENCE NO.	SHEET NO.
R-2707D	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
001	4	JOHN M. GAMBLE WILLIAM M. BOWEN
002	4,5	WADE HOMESLEY
003	4	NCDOT
006	6,5A	BURNS & SPANGLER, INC.
007	6,21	MICHAEL ROBERT PRICE
008	6,7,21	JAY AND SHERI BONAKDAR
010	6,7,20	NATURE'S CALLING, LLC
012	7	CLEVELAND VOCATIONAL INDUSTRIES
014	7	NOVELLA WEBBER
015	7,8	ZAKARIA ALNIMR
016	8	PEARLIE C. BORDERS
018	23	JEREMY MARK CHAMPION
019	23	PATRICIA B. WEBBER
020	23	CLYDE CUMBERLANDER
021	23	BERTHA PRUITT
022	23	MYRTLE P. DESKIN
023	23	BROAD RIVER HOLDINGS, LLC
024	23	GERALD B. NORMAN
025	23	MICHAEL J. & CONNIE H. NORMAN
026	8,9,23	GERALD B. NORMAN
027	8	RONALD KEITH CHURCH
028	8,22	FRANCES BRENDA MOSES MINTZ
029	22	CHRISTINE L. KEATON
030	22	BEVERLY MURDOCK AND ESTER M. WALLS
031	22	BEVERLY MURDOCK
032	22	BEVERLY MURDOCK, ET AL.
036	10	ANDREW USSERY & WF. SANDRA USSERY
037	10,11	BILLY H. ROBERTS & WF. MARY M. ROBERTS
038	10	JAY J. TEDDY
039	10,11	JAMES W. WHITE JR. AND MARSHA H. WHITE
042	11	DIVERSE SERVICES U.S.A., INC.
043	11	JOE L. MORRIS & WF. CHRISTINE B. MORRIS
045	11	KEITH KEVIN CLARK & WF. MARTHA ROWE CLARK
050	25,12A	LOIS A. ROSS LIFE ESTATE
051	25	JOHN HENRY JOHNSON AND CATHY GRIGG JOHNSON
052	25	EARL G. FULLER, JR & WF. SHARON J. FULLER
053	25	EARNEST J. HOPPER & WF. LATONIA HOPPER
054	13,25	JEFFREY L. KALE & WF. JULIE C. KALE
055	13,25	GREGORY CHARLES KALE
056	13,24	LARRY E. WILEY & WF. KAREN P. WILEY
057	24	PHILLIP R. RUCKER & CAROLYN W. RUCKER
058	13,14,24	THOMAS BAYNE RANDALL & WF. BETTY W. RANDALL
059	14	CHARLES E. AND TAMMY M. HARBISON
060	14,15	WILLIAM G. RUCKER JAMES WEBB RUCKER
061	15,16,17	JOSEPH NEWTON CRAVER II & ADELAIDE AUSTELL CRAVER
062	16,17	NCDOT
064	17	BETTY J. MAYES
066	17	J. HAROLD PARKER & WF. HELEN PARKER
067	17,17A,18	NCDOT
068	18	KENNETH J. STRICKLAND & WF. MARGARET L. STRICKLAND
070	17,26	AIMEE ROGERS THOMAS, LLC
071	18,26	JAMES MARION ROSE & WF. PATRICIA B. ROSE
073	18	J.D. JOHNSON
074	18	JEAN LINEBERGER
076	19	JOHN L. AND BETTINA B. RACHELS
111	17	NATANAEL CARMONA
124	17A	GLOBAL FINANCIAL LLC
156	10,11	OVID ALTON WHITE
163	10	ABIGAIL BROOKS
164	18	HECTOR GARCIA & WF. ANGELICA GARCIA

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
165	17,18	FRED LEWIS
166	17	DENNIS L. HAMRICK
168	17,18	CAROLYN HAMRICK
169	18	GARVIS LEE STRICKLAND & WF. REBA B. STRICKLAND
170	18	GATHER MASK
171	10	THARON K. ALEXANDER & WF. LINDA C. ALEXANDER
172	18	BRENDA HUGHES
600	6	JACQUELINE HARRISON
601	7	JOSEPH DALE SPANGLER
602	13	BILLY S. HOWELL & WF. WILHELMINA J. HOWELL
603MA	13	LLOYD D. CALDWELL & WIFE, JERRALENE CALDWELL
618MA	17	JAMES C. HEAFNER
622	4,5,5A,6	LELIA AND HENRY YARBOROUGH
623	10,11	NORTH CAROLINA STATE HIGHWAY AND PUBLIC WORKS COMMISSION
624	5,6,20	WALKER CASSIDY
625MA	7,7A,8,8A,22	RONALD KEITH CHURCH
626MA	8,9,22	MICHAEL J. & CONNIE H. NORMAN
627	8,23	MAX HUGH CAMP
628	22	EDWIN HARRILL
629	22	THOMAS L. MCCLUNEY & WF. MARGARET P. MCCLUNEY
630	12,13	BOBBY D. FORTENBERRY & WF. EDNA C. FORTENBERRY
631	17,17A	F. DON MELTON & WF. VICKY C. MELTON
632	18,26	RANDOLPH NELSON BIGGERS
633	18,19	THE CAROLINA CONFERENCE ASSOCIATION OF SEVENTH DAY ADVENTIST, INC.
634	19	HAL STAN QUEEN
635	19	WESTLEY M. LAIL
653	18	JOHN LEMUEL RACHELS & WF. BETTINA B. RACHELS
654	11,12,12A,25	CLEVELAND COUNTY
655	18,19	J.A. INJEJIKIAN

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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SUNGATE DESIGN GROUP, P.A.
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TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

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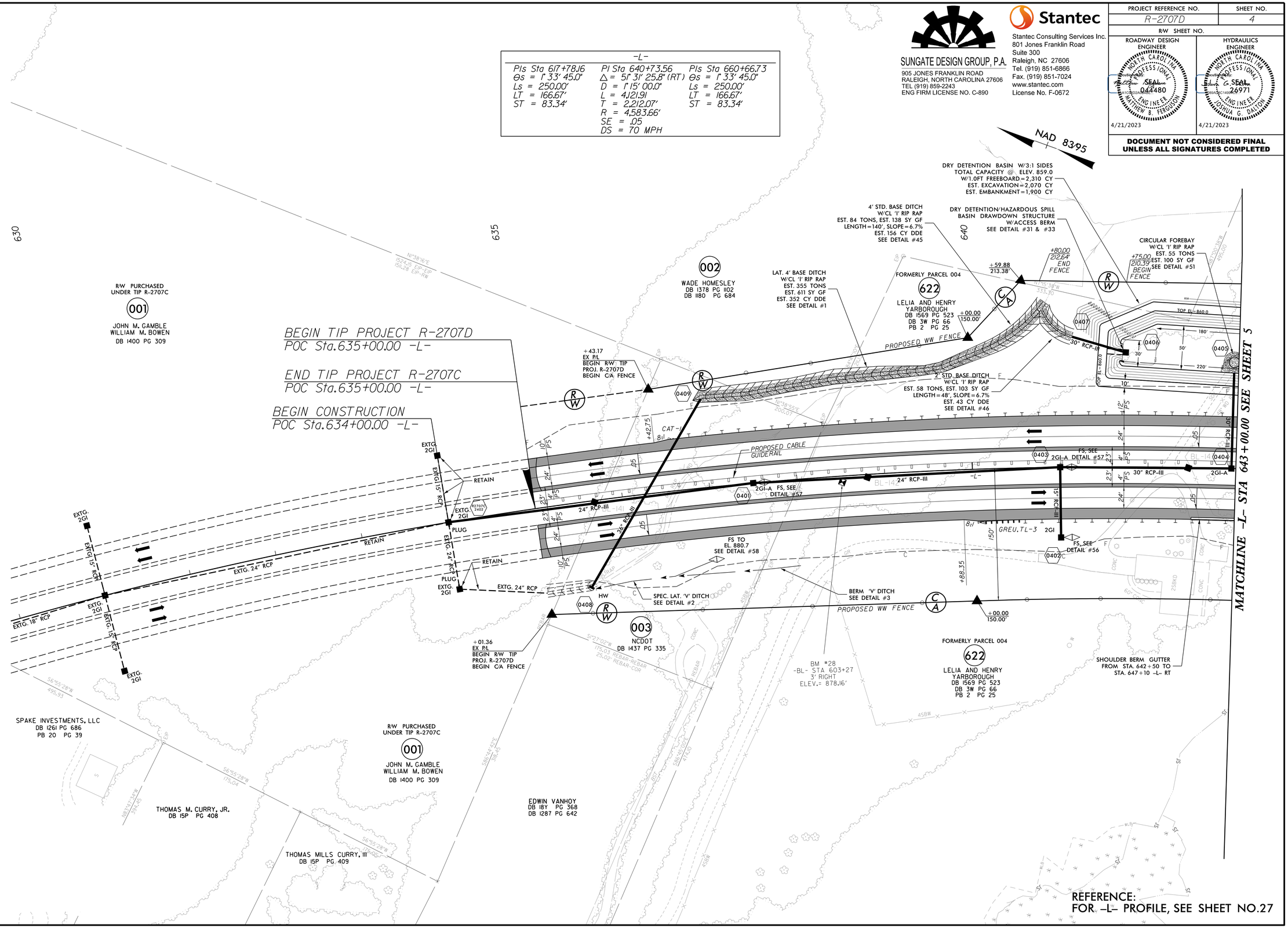
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

-L-		
PIs Sta 617+78.16	PI Sta 640+73.56	PIs Sta 660+66.73
Θs = 1° 33' 45.0"	Δ = 51° 31' 25.8" (RT)	Θs = 1° 33' 45.0"
Ls = 250.00'	D = 1° 15' 00.0"	Ls = 250.00'
LT = 166.67'	L = 4,121.91	LT = 166.67'
ST = 83.34'	T = 2,212.07'	ST = 83.34'
	R = 4,583.66'	
	SE = .05	
	DS = 70 MPH	



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FOR -L- PROFILE, SEE SHEET NO.27

4/6/2023
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-L-		
PIs Sta 617+78.16	PI Sta 640+73.56	PIs Sta 660+66.73
Θs = 1° 33' 45.0"	Δ = 51° 31' 25.8" (RT)	Θs = 1° 33' 45.0"
Ls = 250.00'	D = 1° 15' 00.0"	Ls = 250.00'
LT = 166.67'	L = 4,121.91	LT = 166.67'
ST = 83.34'	T = 2,212.07'	ST = 83.34'
	R = 4,583.66'	
	SE = .05	
	DS = 70 MPH	

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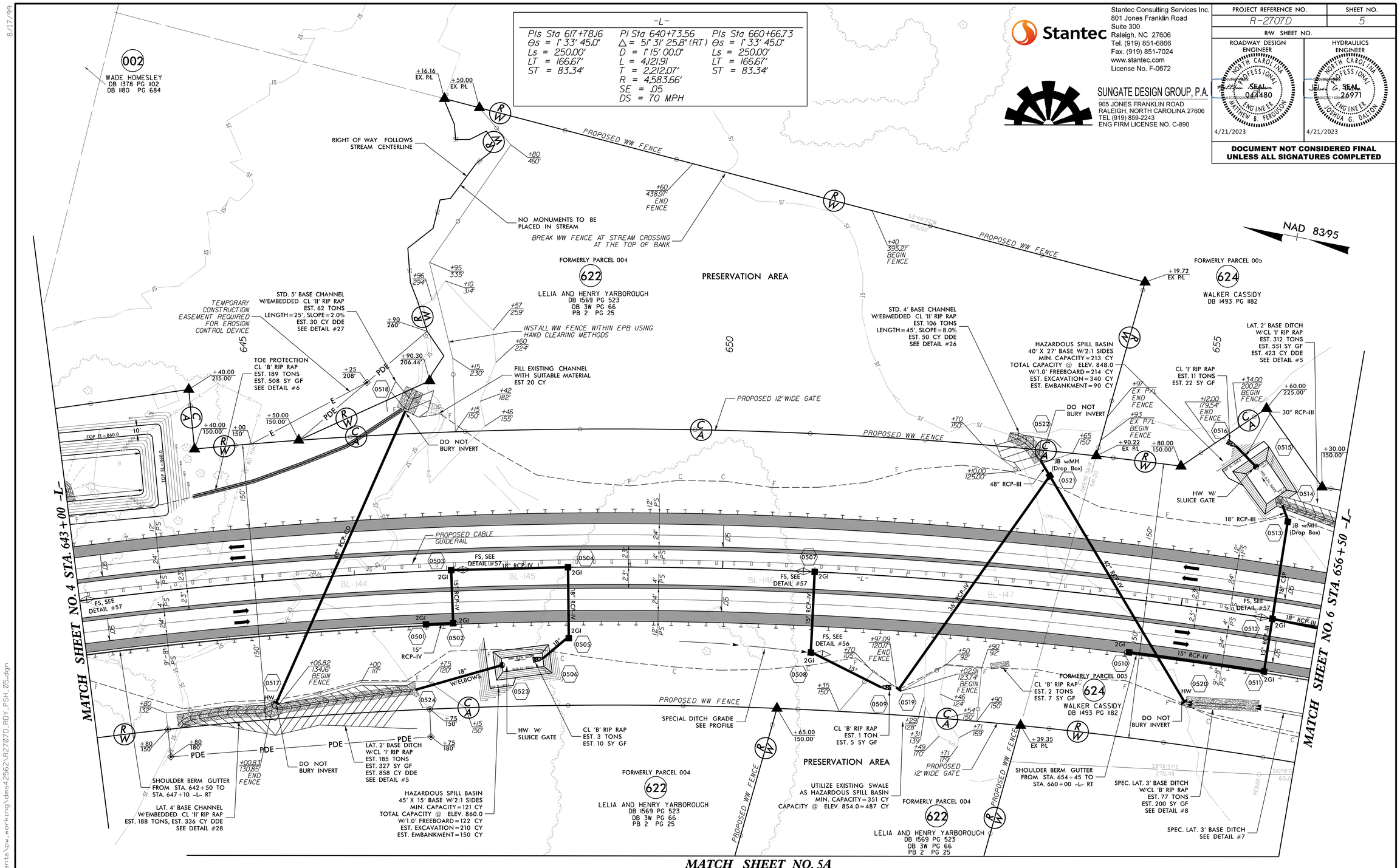
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO.27

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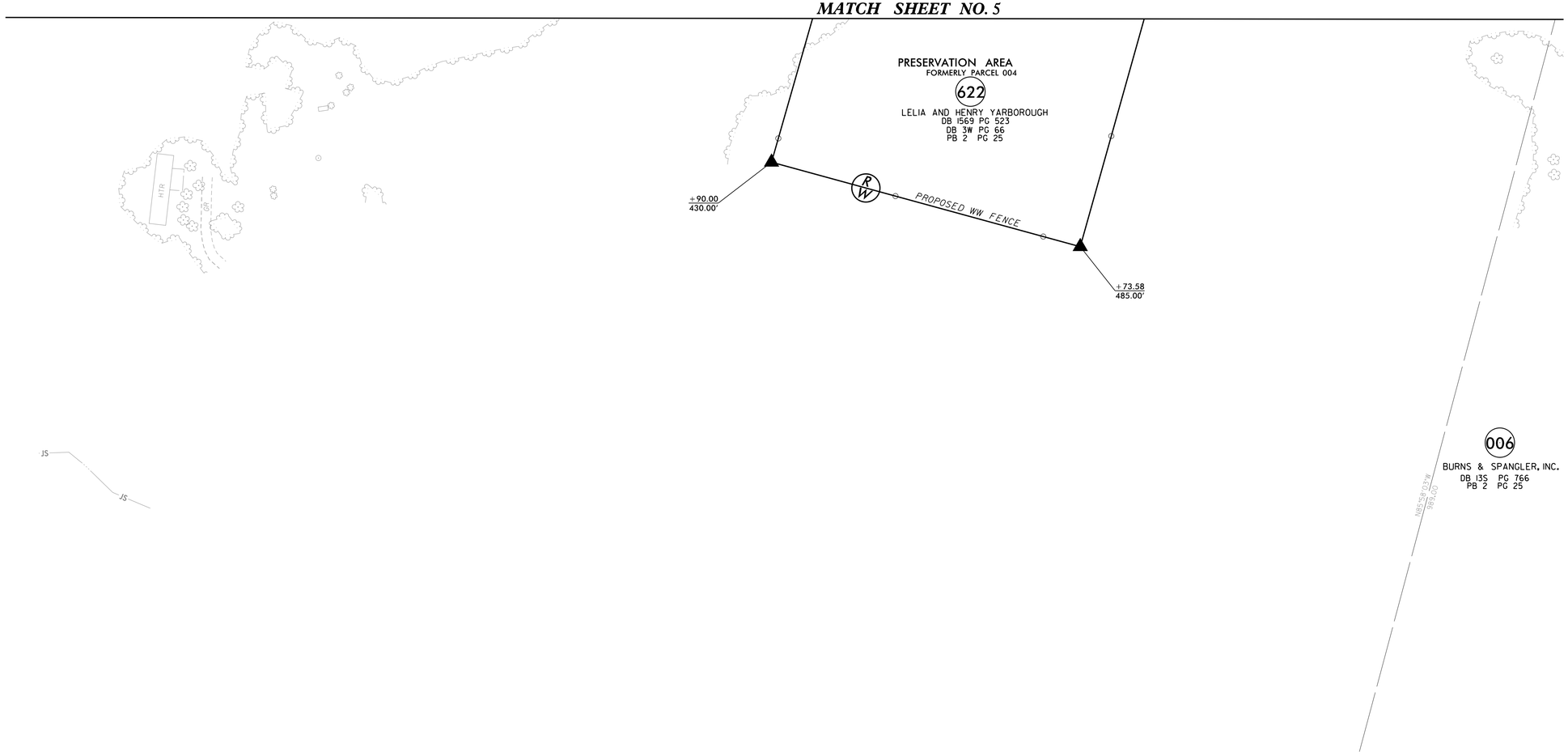
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	5A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Matthew B. Ferguson 044480	DocuSigned by: Joshua G. Dalton 26971
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCH SHEET NO. 5



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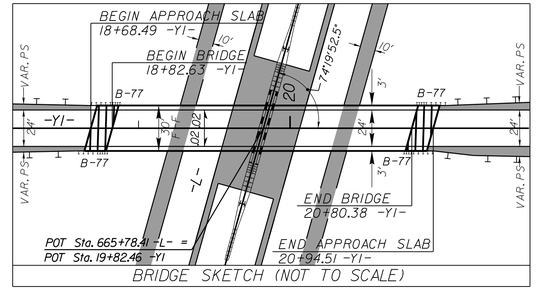
8/17/99

-L-		
PIs Sta 617+78.16	PI Sta 640+73.56	PIs Sta 660+66.73
Θs = 1° 33' 45.0"	Δ = 51° 31' 25.8" (RT)	Θs = 1° 33' 45.0"
Ls = 250.00'	D = 1° 15' 00.0"	Ls = 250.00'
LT = 166.67'	L = 4,121.91	LT = 166.67'
ST = 83.34'	T = 2,212.07'	ST = 83.34'
	R = 4,583.66'	
	SE = .05	
	DS = 70 MPH	

-SRVRD_1-
PI Sta 17+75.32
Δ = 35° 15' 10.8" (LT)
D = 14° 19' 26.2"
L = 246.11'
T = 127.09'
R = 400.00'
SE = .03
RO = 50'
DS= 15 MPH

-Y1-		
PIs Sta 22+89.15	PI Sta 25+22.07	PIs Sta 27+53.96
Θs = 2° 24' 00.0"	Δ = 10° 44' 39.5" (RT)	Θs = 2° 24' 00.0"
Ls = 160.00'	D = 3° 00' 00.0"	Ls = 160.00'
LT = 106.68'	L = 358.14	LT = 106.68'
ST = 53.34'	T = 179.60'	ST = 53.34'
	R = 1,909.86'	
	SE = .04	
	DS = 35 MPH	



BRIDGE SKETCH (NOT TO SCALE)

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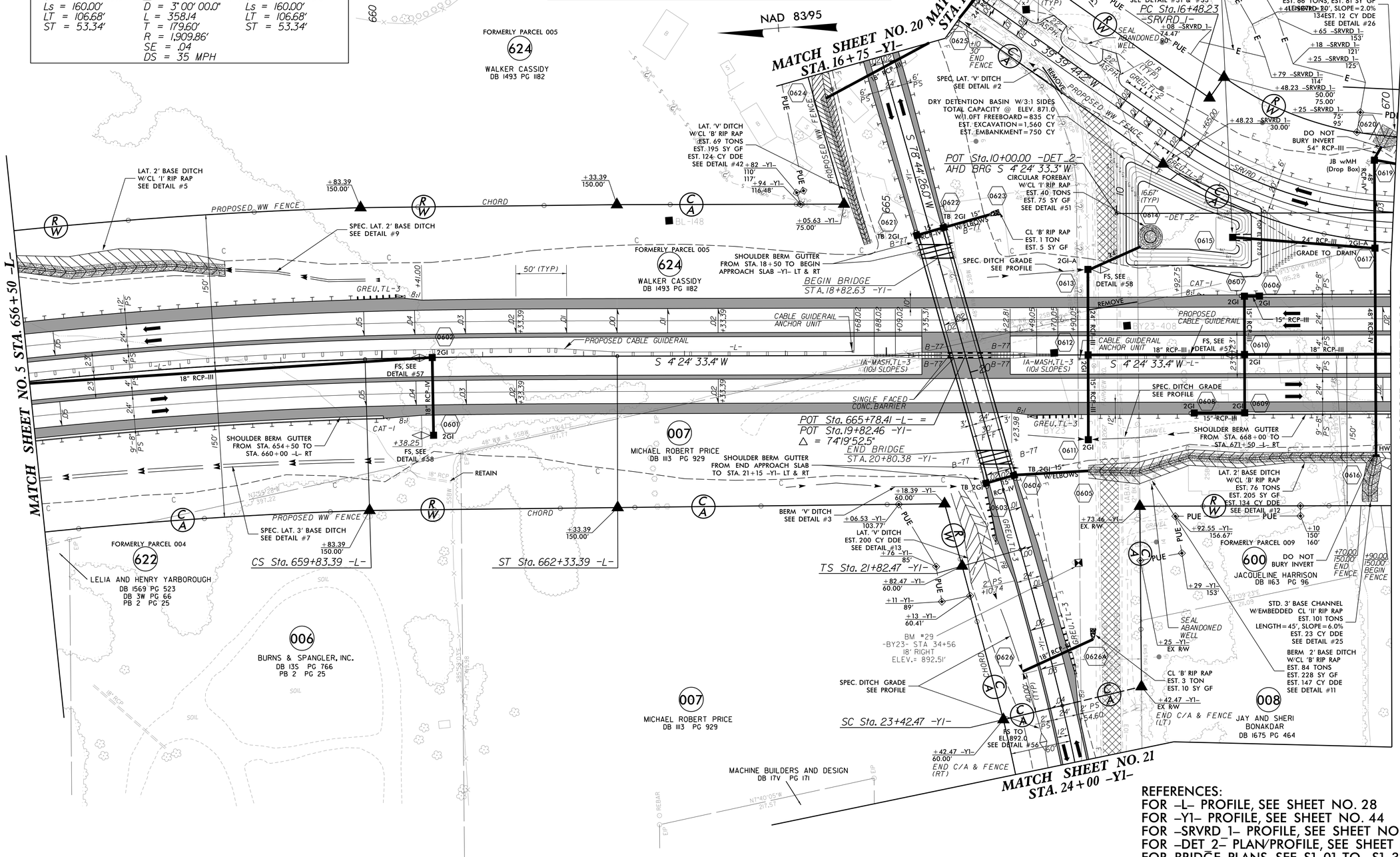
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 044480 ENGINEER MATTHEW B. FERGUSON	SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 28
FOR -Y1- PROFILE, SEE SHEET NO. 44
FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50
FOR -DET_2- PLAN/PROFILE, SEE SHEET NO. 2B-1
FOR BRIDGE PLANS, SEE S1-01 TO S1-32

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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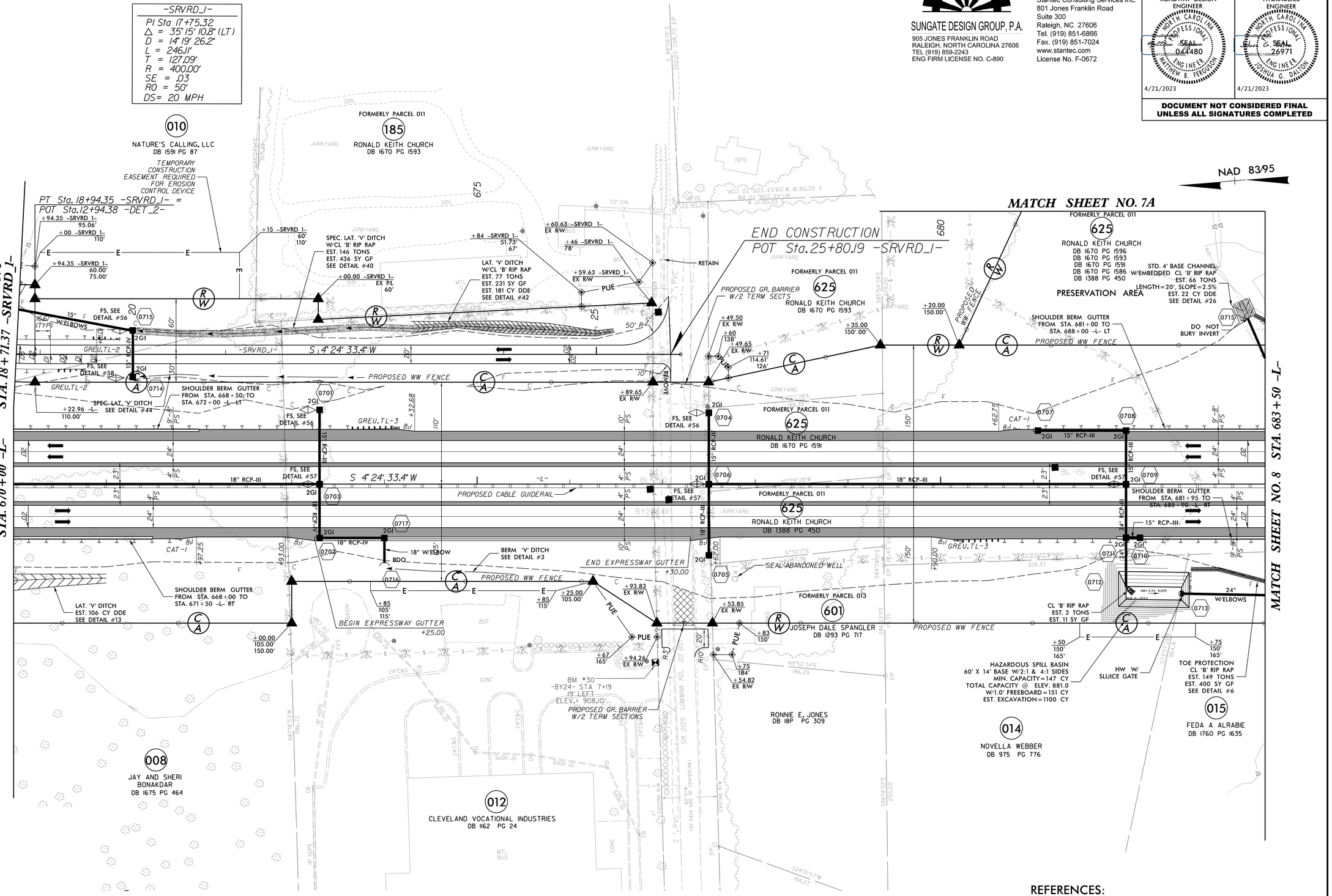

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 28
FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	7A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Matthew B. Ferguson 044480	DocuSigned by: Joshua G. Dalton 26971
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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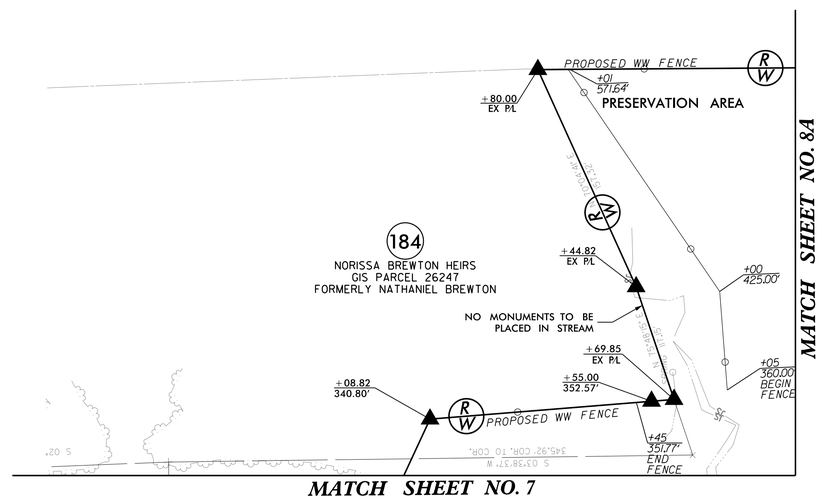

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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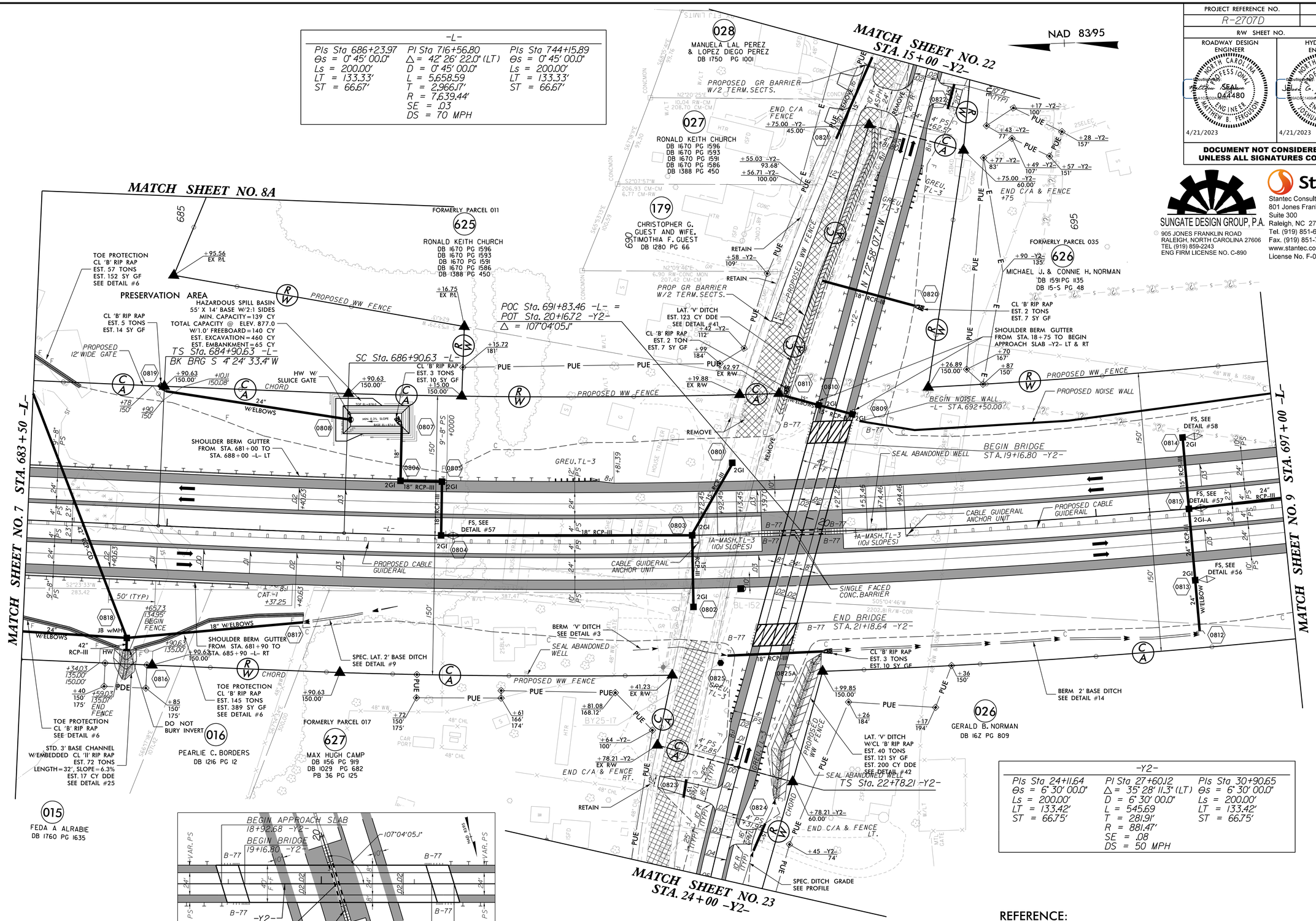
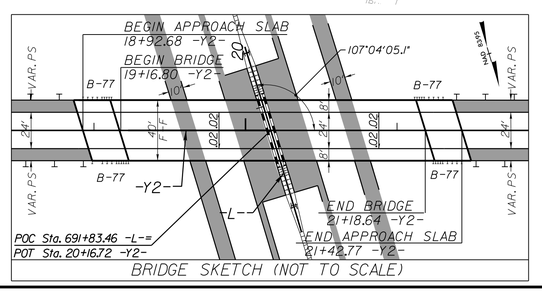
NAD 83/95

-L-		
PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
Θs = 0° 45' 00.0"	Δ = 42° 26' 22.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,658.59	LT = 133.33'
ST = 66.67'	T = 2,966.17'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	





-Y2-		
PIs Sta 24+11.64	PI Sta 27+60.12	PIs Sta 30+90.65
Θs = 6° 30' 00.0"	Δ = 35° 28' 11.3" (LT)	Θs = 6° 30' 00.0"
Ls = 200.00'	D = 6° 30' 00.0"	Ls = 200.00'
LT = 133.42'	L = 545.69	LT = 133.42'
ST = 66.75'	T = 281.91'	ST = 66.75'
	R = 881.47'	
	SE = .08	
	DS = 50 MPH	

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 29
FOR -Y2- PROFILE, SEE SHEET NO. 45
FOR BRIDGE PLANS, SEE SHEET S2-01 TO S2-35
FOR NOISE WALL PLANS, SEE SHEET SW3A-1 TO SW3A-4

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4/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	8A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Matthew B. Ferguson 044480 SEAL	DocuSigned by: Joshua G. Dalton 26971 SEAL
4/21/2023	4/21/2023

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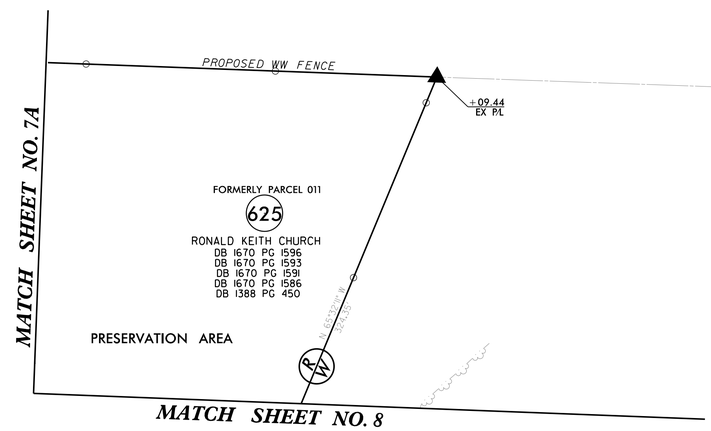

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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-L-		
PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
Θs = 0° 45' 00.0"	Δ = 42° 26' 22.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,658.59	LT = 133.33'
ST = 66.67'	T = 2,966.17'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	

NAD 83/95

MATCH SHEET NO. 8 STA. 697+00 -L-

MATCH SHEET NO. 10 STA. 710+50 -L-

SHELBY ETJ LIMITS

JUNKYARD

700

705

710

FORMERLY PARCEL 035
626
MICHAEL J. & CONNIE H. NORMAN
DB 1591 PG 1135
DB 15-S PG 48

GEORGIA D. KEE
DB 94E PG 68
DB 6Y PG 275
DB 15M PG 738
DB 7-1 PG 518
PB 3 PG 73

CHARLES D. MONTGOMERY & WF.
RUBY P. MONTGOMERY
DB 198 PG 64
PB 3 PG 73

MARGARET MALLOY AND BETTY SMITH
03-E PG 20
PB 3 PG 73

HEIRS OF TONEY GUEST
DB 7P PG 426
DB 6U PG 270
DB 13L PG 646
DB 15S PG 94
PB 3 PG 73

PROPOSED WW FENCE

PROPOSED NOISE WALL

PROPOSED GUIDERAIL CABLE

24" RCP-III

30" RCP-III

15" RCP-III

2GI

2GI-A

FS, SEE DETAIL 58

FS, SEE DETAIL #58

FS, SEE DETAIL #57

FS, SEE DETAIL #56

0901 0902 0903 0904 0905 0906 0907 0908 0909

BL-153

BL-154

026
GERALD B. NORMAN
DB 16Z PG 809

FORMERLY PARCEL 035
626
MICHAEL J. & CONNIE H. NORMAN
DB 1591 PG 1135
DB 15-S PG 48

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 29
FOR NOISE WALL PLANS, SEE SHEET SW3A-1 TO SW3A-4

4/6/2023
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801 Jones Franklin Road
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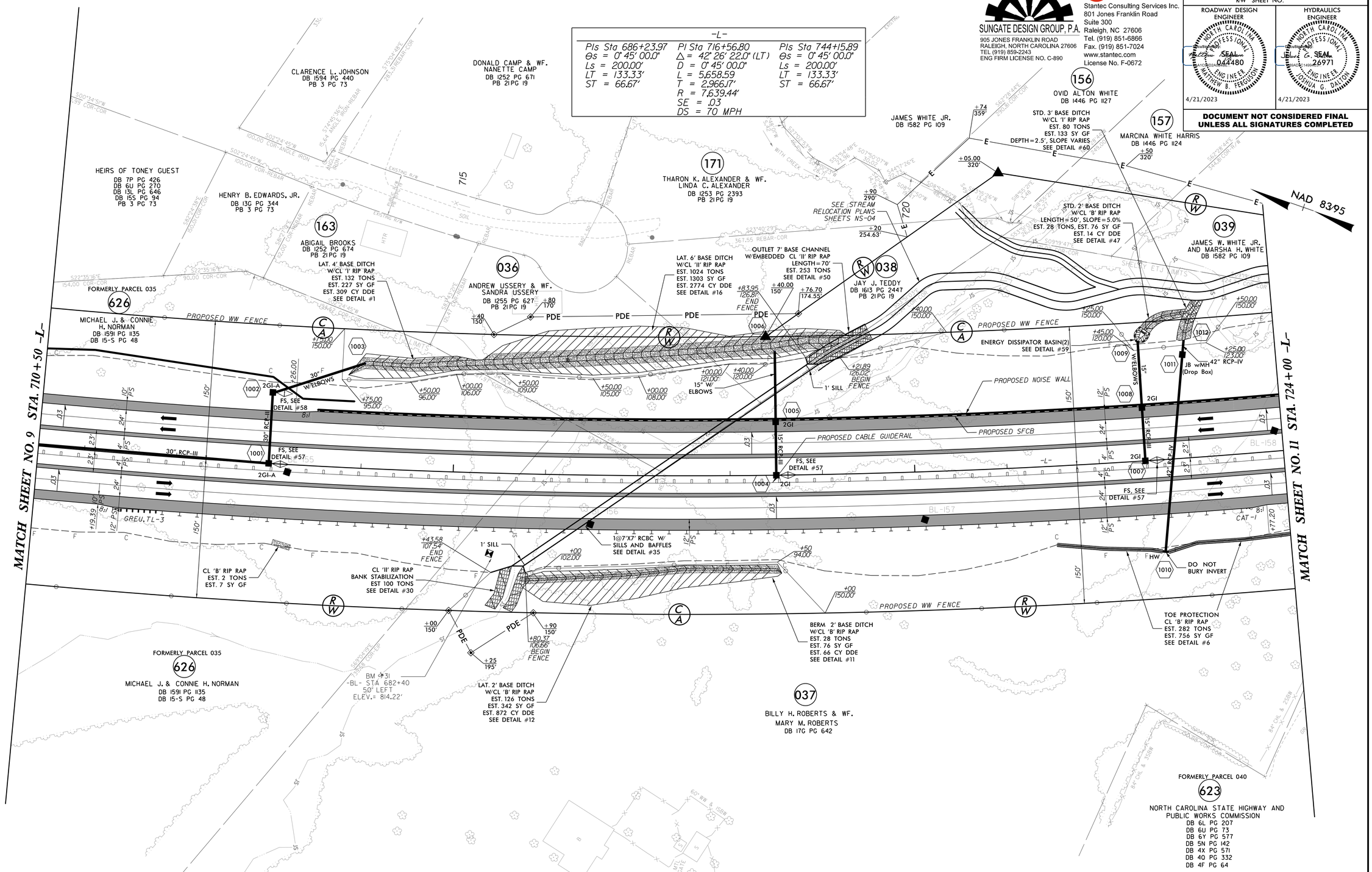
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON	NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
Θs = 0° 45' 00.0"	Δ = 42° 26' 22.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,658.59'	LT = 133.33'
ST = 66.67'	T = 2,966.17'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30
FOR CULVERT PLANS, SEE C1-01 TO C1-05
FOR NOISE WALL PLANS, SEE SHEET SW3A-1 TO SW3A-4

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
Θs = 0° 45' 00.0"	Δ = 42° 26' 22.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,658.59	LT = 133.33'
ST = 66.67'	T = 2,966.17'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	

NAD 83/95

MATCH SHEET NO. 10 STA. 724+00 -L-

MATCH SHEET NO. 12 STA. 737+50 -L-

156 OVID ALTON WHITE DB 1446 PG 1127

039 JAMES W. WHITE JR. AND MARSHA H. WHITE DB 1582 PG 109

041

042 DIVERSE SERVICES U.S.A., INC. DB 1260 PG 1000 PB 8 PG 85

043 JOE L. MORRIS & WF. CHRISTINE B. MORRIS DB 1082 PG 2420 PB 8 PG 85

044

045 KEITH KEVIN CLARK & WF. MARTHA ROWE CLARK DB 1196 PG 600 PB 8 PG 85

654 CLEVELAND COUNTY DB 1107 PG 1795 DB 982 PG 481 DB 982 PG 483 DB K PG 282

037 BILLY H. ROBERTS & WF. MARY M. ROBERTS DB 1170 PG 642

174 CLEVELAND COUNTY BOARD OF EDUCATION DB 1107 PG 1795

623 NORTH CAROLINA STATE HIGHWAY AND PUBLIC WORKS COMMISSION DB 6L PG 207 DB 6U PG 73 DB 6Y PG 577 DB 5N PG 142 DB 4X PG 571 DB 4O PG 332 DB 4F PG 64

CLEVELAND COUNTY BOARD OF EDUCATION DB 1107 PG 1795 DB 982 PG 481 DB 982 PG 483 DB K PG 282

MAGGIE LUCILLE BROWN DB 1811 PG 529 PB 8 PG 85

DIVERSE SERVICES U.S.A., INC. DB 1250 PG 1388 DB 1260 PG 1000 PB 8 PG 85

SILINDA WATTS DB 1263 PG 2225 DB 1257 PG 785 PB 8 PG 85

VINONA MUHAMMAD DB 1257 PG 783 PB 8 PG 85

JOHNNY BROOKS DB 1591 PG 293 PB 8 PG 85

MOAYYAD AL-NASRA DB 1635 PG 924 DB 1580 PG 1341 PB 25 PG 146

FORMERLY PARCEL 040

FORMERLY PARCEL C

PRESERVATION AREA

BM #32 BY27- STA 5+84 31' LEFT ELEV.= 800.60'

PROPOSED WW FENCE

PROPOSED 12' WIDE GATE

INSTALL WW FENCE WITHIN EPB USING HAND CLEARING METHODS

SEE STREAM RELOCATION PLANS SHEETS NS-04

SEE STREAM RELOCATION PLANS SHEETS NS-05

SEE STREAM RELOCATION PLANS SHEETS NS-06

ENERGY DISSIPATOR BASIN(1) SEE DETAIL #34

ENERGY DISSIPATOR BASIN(3) SEE DETAIL #59

ENERGY DISSIPATOR BASIN(4) SEE DETAIL #59

STD. 3' BASE DITCH W/CL '1' RIP RAP EST. 80 TONS EST. 133 SY GF DEPTH=2.0', SLOPE VARIES SEE DETAIL #60

STD. 2' BASE DITCH W/CL '1' RIP RAP EST. 32 TONS, EST. 62 SY GF DEPTH=1.0', SLOPE VARIES SEE DETAIL #60

STD. 2' BASE DITCH W/CL 'B' RIP RAP EST. 38 TONS, EST. 108 SY GF DEPTH=1.0', SLOPE VARIES SEE DETAIL #60

42" RCP-IV

JB w/MH (Drop Box)

15" RCP-III

15" W/ELBOWS

PROPOSED NOISE WALL

PROPOSED SFCB

PROPOSED CABLE GUIDERAIL

FS, SEE DETAIL #57

FS TO EL. 806.6

TOE PROTECTION CL 'B' RIP RAP SEE DETAIL #6

SPEC. LAT. 2' BASE DITCH SEE DETAIL #9

SPEC. LAT. 2' BASE DITCH W/CL 'B' RIP RAP EST. 75 TONS EST. 203 SY GF SEE DETAIL #18

BERM 2' BASE DITCH W/CL 'B' RIP RAP EST. 140 TONS EST. 380 SY GF SEE DETAIL #11

BERM 'V' DITCH W/CL 'B' RIP RAP EST. 115 TONS EST. 324 SY GF SEE DETAIL #17

BERM 2' BASE DITCH W/CL 'B' RIP RAP EST. 280 TONS EST. 759 SY GF SEE DETAIL #11

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30
FOR NOISE WALL PLANS, SEE SHEET SW3A-1 TO SW3A-4

4/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	12
R/W SHEET NO.	

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ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON — 4/21/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON — 4/21/2023

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-L-		
PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
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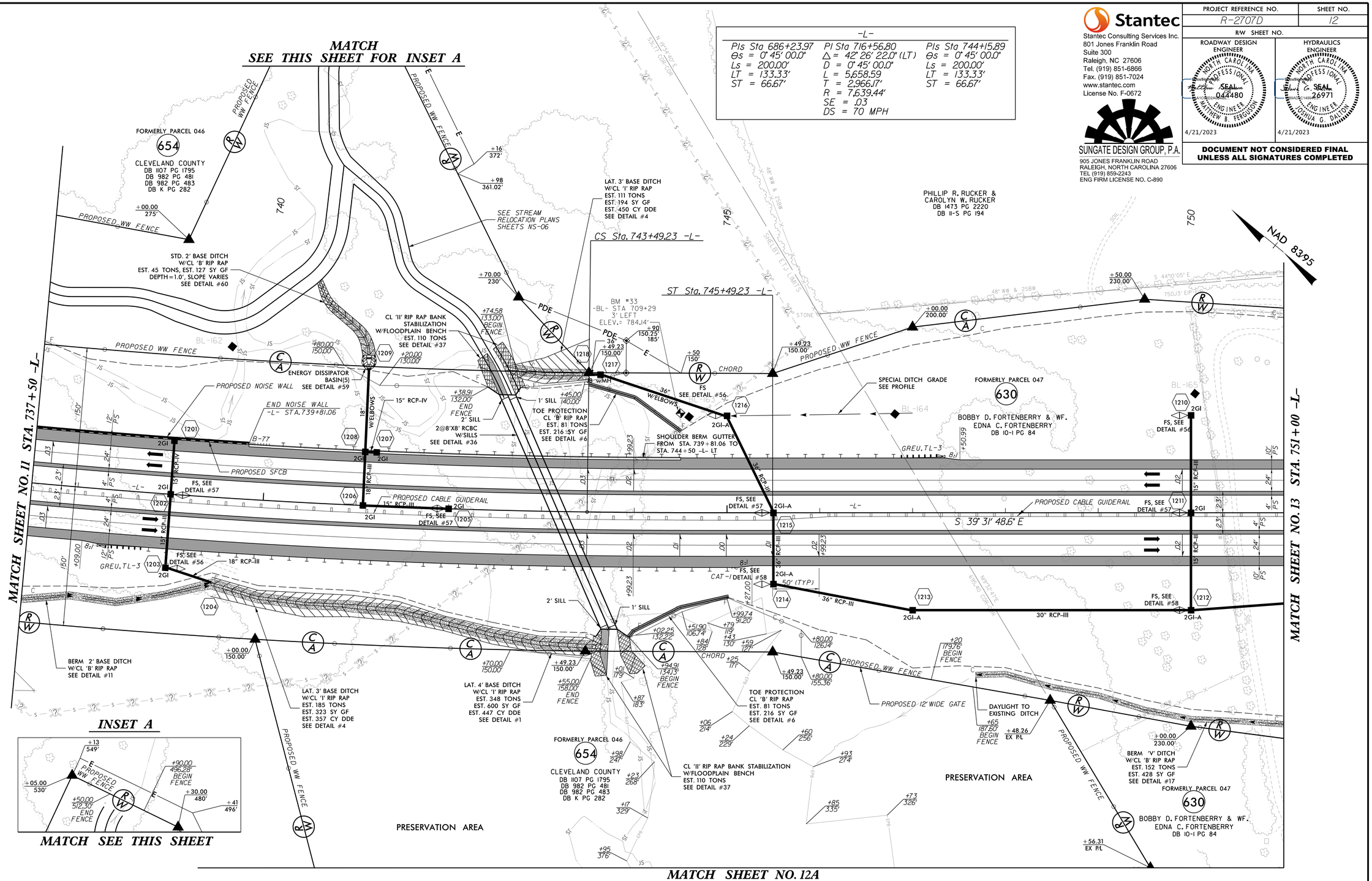
LT = 133.33'	L = 5,658.59	LT = 133.33'
ST = 66.67'	T = 2,966.17'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 31
FOR CULVERT PLANS, SEE C2-01 TO C2-05
FOR NOISE WALL PLANS, SEE SHEET SW3A-1 TO SW3A-4

4/6/2023
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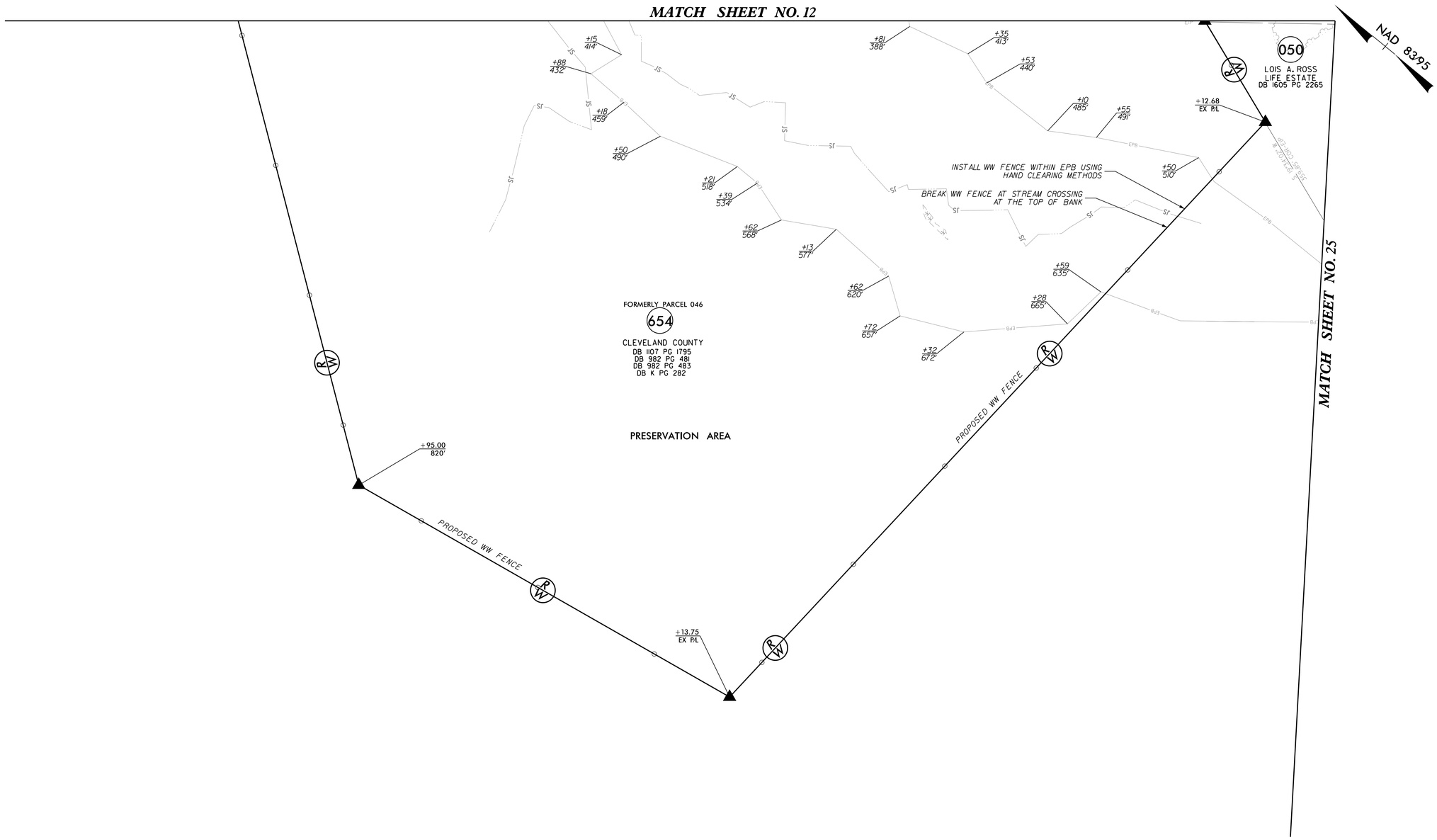
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	12A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Matthew B. Ferguson 044480	DocuSigned by: Joshua G. Dalton 26971
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



4/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON — 4/21/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DAYTON — 4/21/2023

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-PVTENT1-
PI Sta 6+40.93
Δ = 71° 06' 22.1" (LT)
D = 76° 23' 39.7"
L = 93.08'
T = 53.60'
R = 75.00'

-Y3-

PIs Sta 15+95.11	PI Sta 20+76.29	PIs Sta 25+52.55
Θs = 1° 18' 45.0"	Δ = 15° 00' 18.8" (RT)	Θs = 1° 18' 45.0"
Ls = 150.00'	D = 1° 45' 00.0"	Ls = 150.00'
LT = 100.00'	L = 857.44	LT = 100.00'
ST = 50.00'	T = 431.19'	ST = 50.00'
	R = 3,274.04'	
	SE = .04	
	DS = 50 MPH	

-PVTENT6-

PI Sta 11+24.56	PI Sta 12+51.03
Δ = 50° 22' 45.0" (LT)	Δ = 5° 58' 18.1" (LT)
D = 26° 38' 57.1"	D = 19° 05' 54.9"
L = 189.05'	L = 31.27'
T = 101.12'	T = 15.65'
R = 215.00'	R = 300.00'

NAD 83/95

MATCH SHEET NO. 24 STA. 19+00 -Y3-
MATCH SHEET NO. 24 STA. 7+39.96 -PVTENT1-
MATCH SHEET NO. 24
MATCH SHEET NO. 12 STA. 751+00 -L-
MATCH SHEET NO. 14 STA. 765+00 -L-
MATCH SHEET NO. 25 STA. 27+50 -Y3-

056 LARRY E. WILEY & WF. KAREN P. WILEY DB 1145 PG 1785
602 BILLY S. HOWELL & WF. WILHELMINA J. HOWELL DB 12-1 PG 439
630 BOBBY D. FORTENBERRY & WF. EDNA C. FORTENBERRY DB 10-1 PG 84
603 LLOYD D. CALDWELL & WIFE, JERRALENE CALDWELL DB 1619 PG 216
058 BENJAMIN ERNEST DAVIES VICTORIA RANDALL DAVIES DB 1851 PG 380 PB 45 PG 18
055 GREGORY CHARLES KALE DB 1673 PG 1021
058A CHARLES ALTON RANDALL DB 1851 PG 1014
054 JEFFREY L. KALE & WF. JULIE C. KALE DB 1224 PG 1918 PB 17 PG 106
EARL J. LAIL & WF. BARBARA G. LAIL DB 1104 PG 2453 PB 17 PG 106

BEGIN CONSTRUCTION Sta. 5+65.72 -PVTENT1-
PT Sta. 6+80.40 -PVTENT1- AHD BRG N 62° 28' 37.0" E
PC Sta. 5+87.32 -PVTENT1-
POC Sta. 20+50.00 -Y3- = POT Sta. 10+00.00 -PVTENT6- AHD BRG S 27° 52' 38.8" E
POT Sta. 756+67.45 -L- = POC Sta. 23+21.80 -Y3- Δ = 106°24'33.5"
BEGIN BRIDGE STA. 22+28.97 -Y3-
END BRIDGE STA. 24+47.80 -Y3-
CS Sta. 25+02.55 -Y3-
ST Sta. 26+52.55 -Y3-
POT Sta. 27+22.16 -Y3- = POT Sta. 10+00.00 -PVTENT2-
PT Sta. 10+92.92 -PVTENT2- AHD BRG = N 89° 41' 31.0" E
PC Sta. 10+30.38 -PVTENT2- BK BRG = S 18° 38' 42.4" E
PC Sta. 10+23.43 -PVTENT6-
POT Sta. 13+24.46 -PVTENT6- BK BRG S 84° 13' 41.8" E
PT Sta. 12+66.65 -PVTENT6-
END CONSTRUCTION Sta. 12+50.00 -PVTENT6-
PC Sta. 12+35.38 -PVTENT6- BK BRG S 78° 15' 23.8" E
PT Sta. 12+12.48 -PVTENT6-
PT Sta. 13+23.63 -PVTENT2- PC Sta. 13+70.86 -PVTENT2- BK BRG = S 45° 14' 24.7" E
PT Sta. 14+13.65 -PVTENT2-
END CONSTRUCTION POT Sta. 14+20.00 -PVTENT2- POT Sta. 14+66.28 -PVTENT2- BK BRG = S 16° 03' 45.0" W
PC Sta. 12+84.30 -PVTENT2-

-PVTENT2-

PI Sta 10+66.49	PI Sta 13+05.05	PI Sta 13+94.56
Δ = 71° 39' 46.5" (LT)	Δ = 45° 04' 04.2" (RT)	Δ = 61° 18' 09.7" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"	D = 143° 14' 22.0"
L = 62.54'	L = 39.33'	L = 42.80'
T = 36.10'	T = 20.75'	T = 23.70'
R = 50.00'	R = 50.00'	R = 40.00'

STD. 3' BASE CHANNEL W/EMBEDDED CL 'II' RIP RAP EST. 45 TONS LENGTH = 20', SLOPE = 2.0% EST. 10 CY DDE SEE DETAIL #25
PRESERVATION AREA
SHOULDER BERM GUTTER FROM STA. 21+45 TO BEGIN APPROACH SLAB -Y3- RT
SHOULDER BERM GUTTER FROM STA. 763+50 TO STA. 765+55 -L- LT
SHOULDER BERM GUTTER FROM STA. 762+50 TO STA. 764+50 -L- RT
CL 'B' RIP RAP EST. 2 TONS EST. 7 SY GF
CL 'B' RIP RAP EST. 1 TON EST. 5 SY GF
CL 'II' RIP RAP BANK STABILIZATION SEE DETAIL #29 EST. 35 TONS
DO NOT BURY INVERT
INSTALL WW FENCE WITHIN EPB USING HAND CLEARING METHODS
NO MONUMENTS TO BE PLACED IN STREAM
PROPOSED WW FENCE
PROPOSED 12' WIDE GATE
PROPOSED CABLE GUIDERAIL
CABLE GUIDERAIL ANCHOR UNIT
SEAL ABANDONED WELL
BEGIN EXPRESSWAY GUTTER
END EXPRESSWAY GUTTER
TEMPORARY CONSTRUCTION EASEMENT REQUIRED FOR EROSION CONTROL DEVICE
BERM 'V' DITCH SEE DETAIL #3
FS, SEE DETAIL #58
FS, SEE DETAIL #56
FS, SEE DETAIL #57
FS, SEE DETAIL #29

BRIDGE SKETCH (NOT TO SCALE)

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 32
FOR -Y3- PROFILE, SEE SHEET NO. 46
FOR -PVTENT1-, -PVTENT2- & -PVTENT6- PROFILES, SEE SHEET NO. 54
FOR BRIDGE PLANS, SEE S3-01 TO S3-36

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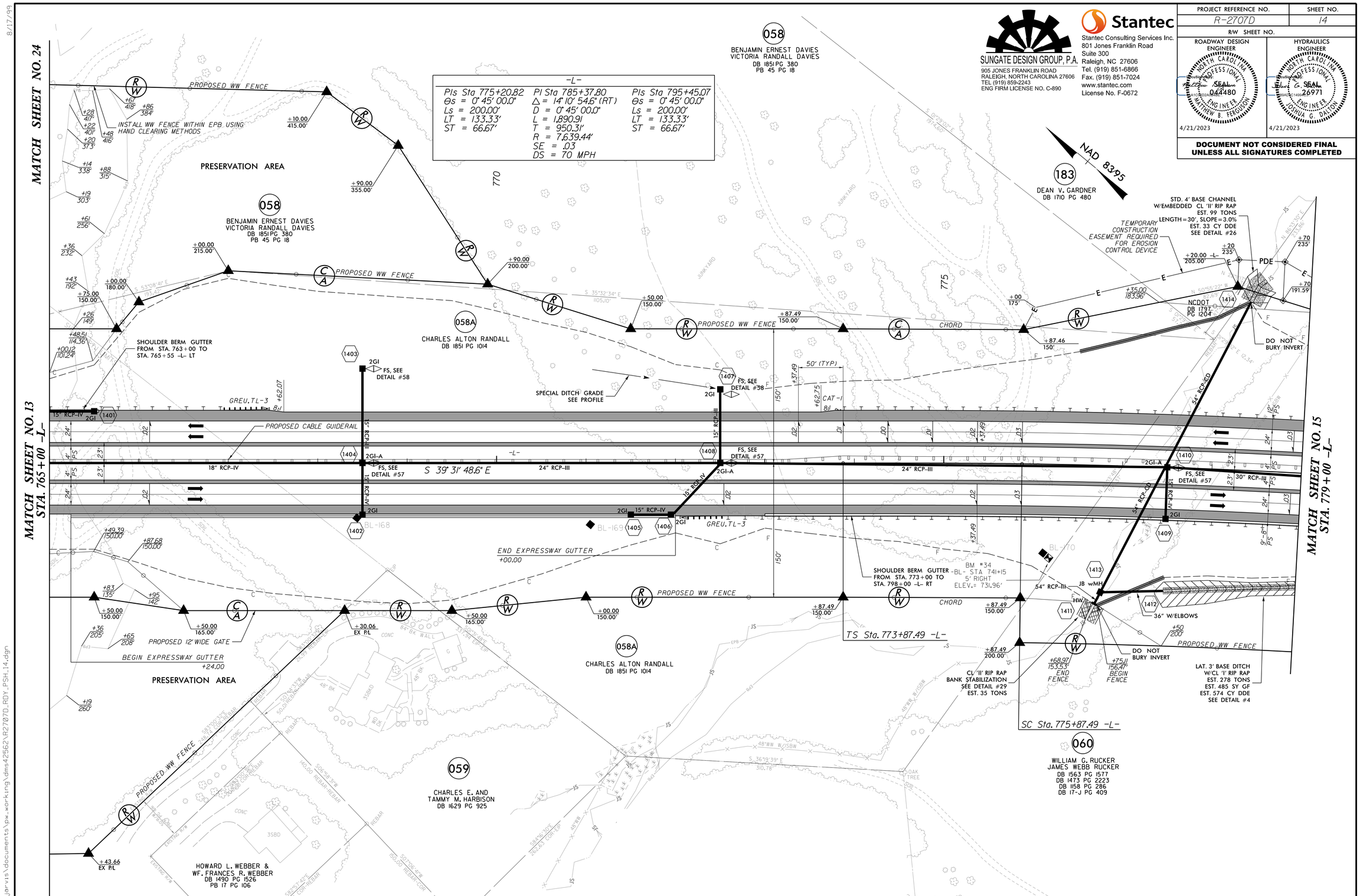

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 33

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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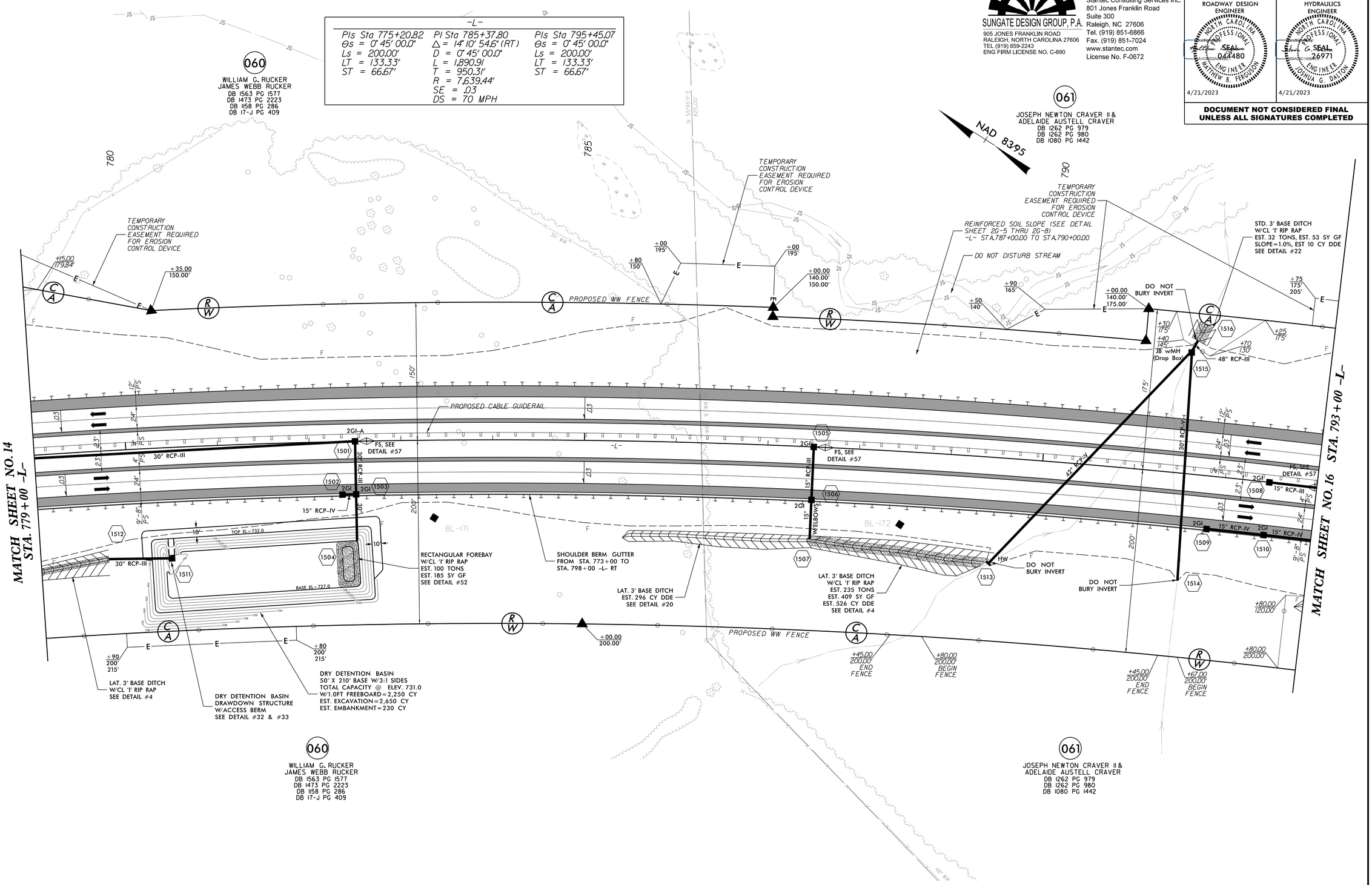
-L-		
PIs Sta 775+20.82	PI Sta 785+37.80	PIs Sta 795+45.07
Θs = 0° 45' 00.0"	Δ = 14° 10' 54.6" (RT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 1,890.91'	LT = 133.33'
ST = 66.67'	T = 950.31'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	



REFERENCE:
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	16
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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NAD 83/95

-L-

PIs Sta 775+20.82	PI Sta 785+37.80	PIs Sta 795+45.07
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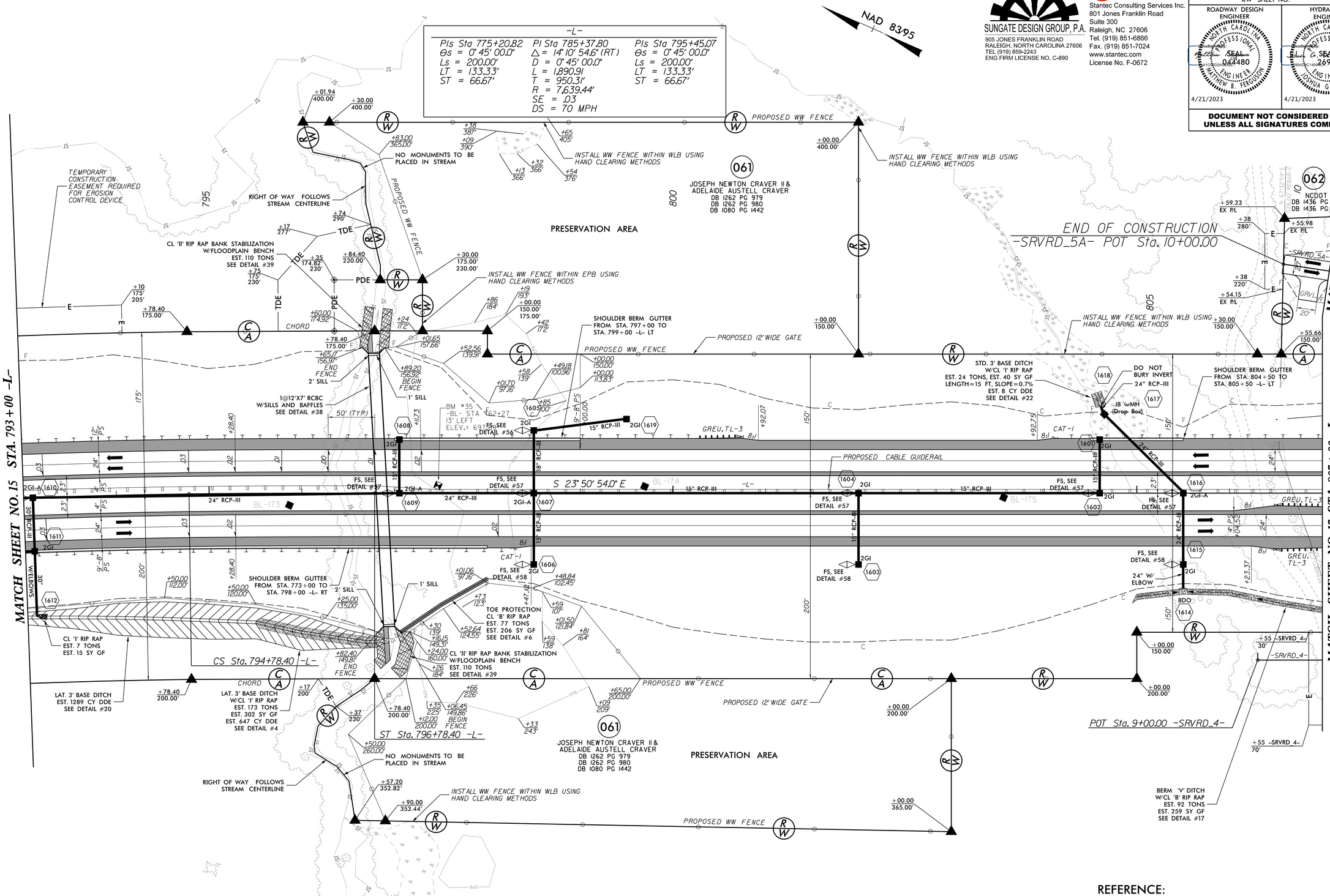
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 1,890.91	LT = 133.33'
ST = 66.67'	T = 950.31'	ST = 66.67'
	R = 7,639.44'	
	SE = .03	
	DS = 70 MPH	



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 34
FOR -SRVRD_5A- PROFILE, SEE SHEET NO. 52
FOR CULVERT PLANS, SEE C3-01 TO C3-05

4/19/2023
C:\Users\mgferguson\documents\pw_working\dms42562\R2707D_RDY_PSH_16.dgn
mgferguson

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
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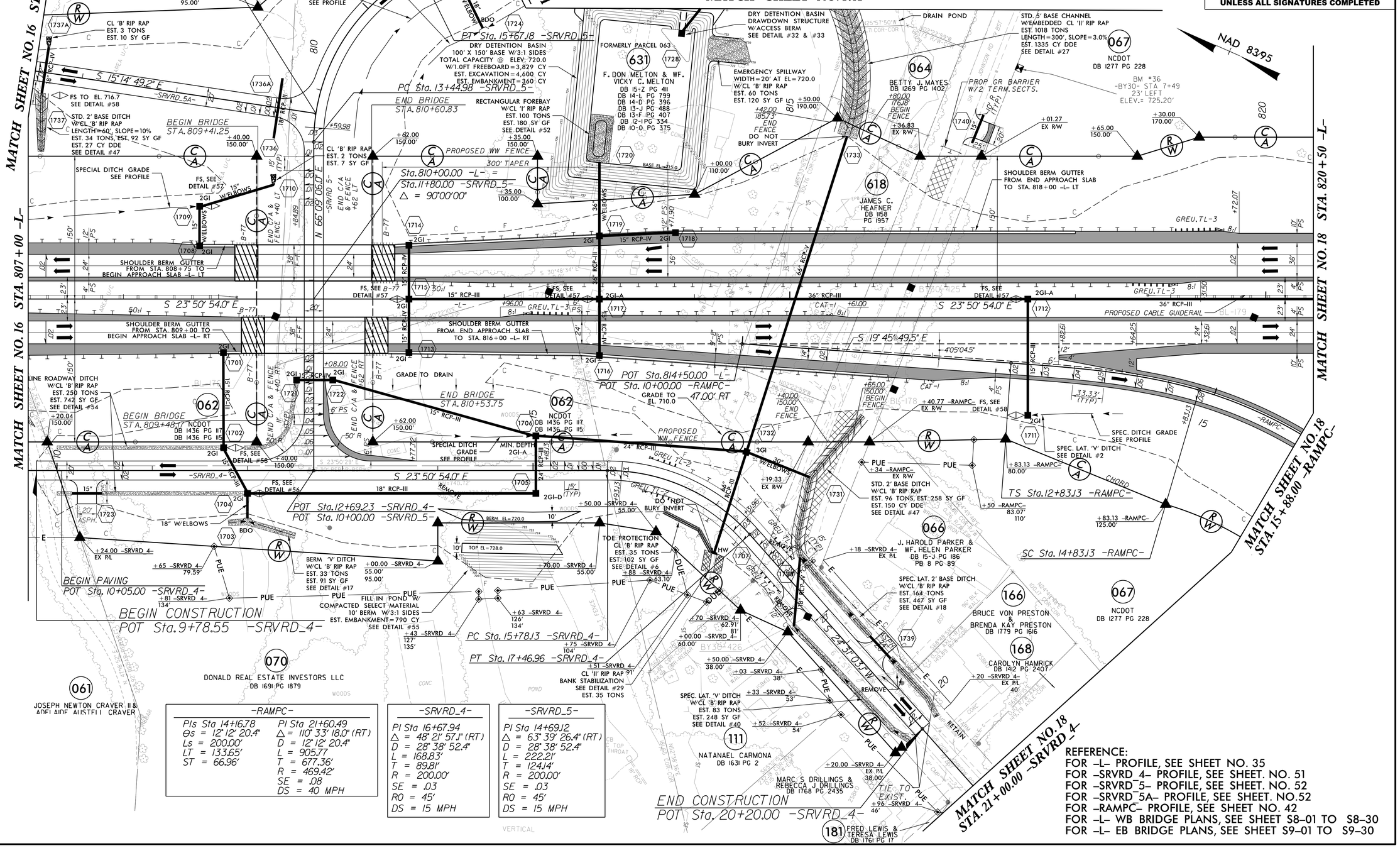
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

BRIDGE SKETCH (NOT TO SCALE)

MATCH SHEET NO. 17A



-RAMPC-	
PIs Sta 14+16.78	PI Sta 21+60.49
Θs = 12°12'20.4"	△ = 110°33'18.0" (RT)
Ls = 200.00'	D = 12°12'20.4"
LT = 133.65'	L = 905.77'
ST = 66.96'	T = 677.36'
	R = 469.42'
	SE = .08
	DS = 40 MPH

-SRVRD_4-
PI Sta 16+67.94
△ = 48°21'57.1" (RT)
D = 28°38'52.4"
L = 168.83'
T = 89.81'
R = 200.00'
SE = .03
R0 = 45'
DS = 15 MPH

-SRVRD_5-
PI Sta 14+69.12
△ = 63°39'26.4" (RT)
D = 28°38'52.4"
L = 222.21'
T = 124.14'
R = 200.00'
SE = .03
R0 = 45'
DS = 15 MPH

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 35
FOR -SRVRD_4- PROFILE, SEE SHEET. NO. 51
FOR -SRVRD_5- PROFILE, SEE SHEET. NO. 52
FOR -SRVRD_5A- PROFILE, SEE SHEET. NO.52
FOR -RAMPC- PROFILE, SEE SHEET NO. 42
FOR -L- WB BRIDGE PLANS, SEE SHEET S8-01 TO S8-30
FOR -L- EB BRIDGE PLANS, SEE SHEET S9-01 TO S9-30

8/17/99

4/6/2023

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	17A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 044480 ENGINEER MATTHEW B. FERGUSON	SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023	4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-SRVRD_5-
PI Sta 20+75.52
△ = 50° 03' 50.7" (RT)
D = 28° 38' 52.4"
L = 174.76'
T = 93.40'
R = 200.00'
SE = .03
RO = 45'
DS = 15 MPH

NAD 83/95

FORMERLY PARCEL 063
631
F. DON MELTON & WF.
VICKY C. MELTON
DB 15-Z PG 411
DB 14-L PG 799
DB 14-D PG 396
DB 13-J PG 488
DB 13-F PG 407
DB 12-I PG 334
DB 10-O PG 375

124
GLOBAL FINANCIAL LLC
DB 1392 PG 361
PB 8 PG 89

PC Sta. 19+82.13 -SRVRD_5-

STD. 5' BASE CHANNEL W/EMBEDDED CL 'II' RIP RAP
EST. 85 TONS
LENGTH=25', SLOPE=3.0%
EST. 39 CY DDE
SEE DETAIL #27

STD. 3' BASE DITCH W/CL 'I' RIP RAP
EST. 61 TONS, EST. 101 SY GF
LENGTH=38 FT, SLOPE=3.5%
EST. 20 CY DDE
SEE DETAIL #22

TEMPORARY CONSTRUCTION EASEMENT REQUIRED FOR EROSION CONTROL DEVICE

+85 -SRVRD_5- 125'
+15 -SRVRD_5- 125'
+25 -SRVRD_5- 93.82' 125'
+65.00 -SRVRD_5- 60.00'
+89.74 -SRVRD_5- 92.17'
+85 -SRVRD_5- 92.82' 120'
+82.13 -SRVRD_5- 60.00'
+30 -SRVRD_5- 60'
+56.88 -SRVRD_5- 60.00'
+79.51 -SRVRD_5- EX R/W

DO NOT BURY INVERT
DO NOT BURY INVERT
TOE PROTECTION CL 'B' RIP RAP
EST. 97 TONS
EST. 260 SY GF
SEE DETAIL #6

PT Sta. 21+56.88 -SRVRD_5-

DUE
PUE
E
R/W
1735
1734
1727
1729
1730
HW
2GI-A
24" RCP-III
24" W/ELBOWS
36" W/ELBOWS
36"
JB w/MH (Drop Box)
15' (TYP)
GREU.TL-2
S 50° 11' 27.61" E -SRVRD 5- RP
S 0° 07' 36.9" E -SRVRD 5- RP
S 34°32'00" E 145.23'
N78°39'35"E 500.11' CURV-CGR
SHELBY E-J LIMITS
REMOVE
DRAIN POND
SPECIAL DITCH GRADE SEE PROFILE
TIE TO EXIST.
END CONSTRUCTION
POT Sta. 22+96.49 -SRVRD_5-
TIE TO EXIST.
RETAIN
STD. 5' BASE CHANNEL W/EMBEDDED CL 'II' RIP RAP
LENGTH=300'
SLOPE=3.0%
SEE DETAIL #27
10'
TOP EL=721.0
067
NCDOT
DB 1277 PG 228

MATCH SHEET NO. 17
STA. 16+50 -SRVRD_5-

MATCH SHEET NO. 17

REFERENCE:
FOR -SRVRD_5- PROFILE, SEE SHEET NO. 52

8/17/99

4/6/2023
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tujarvis