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COMPUTED BY: SGM DATE:5/13/2019
CHECKED BY: JLT DATE: 5/17/2019

PROJECT NO.	SHEET NO.
17BP.14.R.208	3B-1

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 11+80.00	-L- 12+93.70	83	22		61
BRIDGE					
-L- 13+46.30	-L-14+90.00	166	6		160
-Y- 10+11.59	-Y- 11+20.00	115	9		106
TOTALS:		364	37		327
GRAND TOTALS:		364	37		
SAY:		400			

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, and Clearing and Grubbing will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. SHALLOW UNDERCUT = 100 CY

SELECT GRANULAR MATERIAL = 400 CY

GEOTEXTILE FOR SOIL STABILIZATION = 600 SY

CLASS IV SUBGRADE STABILIZATION = 200 TON

PER GEOTECH RECOMMENDATION, ESTIMATED 450 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

"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 TYPE 350

NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

IN FEET

LINE	BEG. STA.	END STA.	LOC.	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH APPR. END	FLAIR LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS III	ANCHORS GREU TL-2	ANCHORS AT-1	ANCHORS III SC	ANCHORS B-83 SC	IMP. ATTEN. TYPE 350 EA	IMP. ATTEN. TYPE 350 G	IMP. ATTEN. TYPE 350 NG	REMOVE EXISTING GUARDRAIL	REMOVE & RESET EXISTING GUARDRAIL	REMARKS
-L-	12+50.77	13+00.77	LT	50.00				13+00.77	2.25'	5.25'		25'		0.5'	1	1									
-L-	12+36.63	12+86.63	RT	50.00			12+86.63		2.25'	5.25'	25'		0.5'		1	1									
-L-	13+53.96	13+91.55	LT		37.5		13+53.96		2.25'	5.25'							1	1							R=25'
-L-	13+39.23	10+50 -Y	RT		31.25			13+39.23	2.25'	5.25'							1		1						R=10'
SUB-TOTALS				100.00	68.75										2	2	2	1	1						
LESS ANCHOR DEDUCTIONS																									
	GREU TL-2	2@25.00 ft		50.00																					
	TYPE III	2@18.75 ft		37.50																					
	TYPE III SC	1@18.75 ft			18.75																				
	B-83 SC	1@25.00 ft			25.00																				
	AT-1	2@6.25 ft			12.50																				
ANCHOR TOTALS				87.50	56.25																				
GRAND-TOTALS				12.50	12.50										2	2	2	1	1						
SAY				18.75	18.75										2	2	2	1	1						
ADDITIONAL GUARDRAIL POSTS = 5 EA																									
TEMPORARY GUARDRAIL																									
-L-	12+65+/-	13+72+/-	RT	100.00												2									Temporary Guardrail and Anchors
-L-	12+73+/-	13+50+/-	RT	68.75	25.00											1	1								Temporary Guardrail and Anchors
SUB-TOTALS				187.50	25.00											3	1								
LESS ANCHOR DEDUCTIONS																									
	TEMP. GREU TL-2	3@25.00 ft		75.00																					
	AT-1	1@6.25 ft			6.25																				
GRAND-TOTALS (TEMP)				112.50	18.75											3	1								
SAY				118.75	18.75											3	1								

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".

COMPUTED BY: Zachary J. Richard, PE DATE: 7/16/2018
CHECKED BY: David B. Petty, PE DATE: 8/9/2018

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

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | C.S. PIPE 12" (.064) | 15" (.064) | 18" (.064) | 24" (.064) | 30" (.079) | 36" (.079) | 42" (.109) | 48" (.109) | R.C. PIPE CLASS III 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | *** R.C. PIPE (CLASS V) | ** RC PIPE CULVERTS, CONTRACTOR DESIGN | ** RC PIPE CULVERTS, CONTRACTOR DESIGN | ** CMC PIPE CULVERTS, CONTRACTOR DESIGN | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (V' THRU S.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION DROP INLET | CATCH BASIN | T.B.D.I STD. 840.35 | FRAME AND NARROW FLAT GRATE STD. 840.29 | PIPE CLEAN OUT (EA) | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
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