

**SUMMARY OF EARTHWORK  
 IN CUBIC YARDS**

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- 13+00.00 LT	-L- 42+00.00 LT	1,790		1,206		584
-L- 13+00.00 RT	-L- 42+00.00 RT	1,843		1,954	111	
-Y1- 14+50.00	-Y1- 14+93.61	32		20		12
-Y2- 10+22.00	-Y2- 13+25.00	447		294		153
-DRW2- 10+18.00	-DRW2- 11+70.00	41		16		25
-Y3- 15+00.00	-Y3- 15+37.16	34		1		33
-Y3- 15+81.16	-Y3- 16+50.00	120		7		113
SUBTOTAL		4,307		3,498	111	920
-L- 42+00.00 LT	-L- 70+50.00 LT	1,613		1,160		453
-L- 42+00.00 RT	-L- 70+50.00 RT	1,568		1,411		157
-Y4- 10+34.00	-Y4- 14+50.00	471		429		42
-Y5- 15+00.00	-Y5- 15+42.30	92				92
-Y6- 14+50.00	-Y6- 14+97.55	53		1		52
-Y6- 15+57.55	-Y6- 16+00.00	6		2		4
-Y7- 11+50.00	-Y7- 15+10.15	167		222	55	
-Y7- 15+59.69	-Y7- 25+82.48	2,634		1,502		1,132
-Y9- 14+00.00	-Y9- 15+15.89	65		16		49
-DRW1- 11+22.11	-DRW1- 11+88.08	2		2		
-DRW3- 10+18.00	-DRW3- 11+06.99	16		147	131	
SUBTOTAL		6,687		4,892	186	1,981
-L- 70+50.00 LT	-L- 82+00.00 LT	17		756	739	
-L- 70+50.00 RT	-L- 82+00.00 RT	377		2,571	2,194	
-Y8- 12+00.00	-Y8- 15+20.84	501		143		358
-Y8- 15+76.51	-Y8- 21+00.00	148		124		24
SUBTOTAL		1,043		3,594	2,933	382
-L- 82+00.00 LT	-L- 91+66.65 LT	694		219		475
-L- 82+00.00 RT	-L- 91+66.65 RT	1,610		328		1,282
SUBTOTAL		2,304		547		1,757

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
TOTAL		14,341		12,531	3,230	5,040
WASTE IN LIEU OF BORROW					-3,230	-3,230
PROJECT TOTAL		14,341		12,531		1,810
GRAND TOTAL		14,341		12,531		1,810
SAY		14,500				

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN ENGINEER. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

ESTIMATED DDE = 670 CY  
 SHOULDER BORROW = 662 CY  
 ESTIMATED PAVEMENT STRUCTURE VOLUME -L- = 735 CY

THE FOLLOWING QUANTITIES ARE PER THE "GEOTECHNICAL REPORT - RECOMMENDATIONS" LETTER REVISED DATED JULY 13, 2018:

EST. SHALLOW UNDERCUT = 100 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 EST. UNDERCUT FOR EMBANKMENT STABILITY = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 EST. GRADE POINT UNDERCUT = 50 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 EST. UNDERCUT FOR SUBGRADE STABILITY = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 EST. CLASS IV SUBGRADE STABILIZATION = 200 TONS (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 EST. SELECT GRANULAR MATERIAL = 400 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER.)

APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, SHOULDER BORROW, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

**ASPHALT PAVEMENT REMOVAL SUMMARY  
 IN SQUARE YARDS**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-/Y2-	30+98.30	10+71.24	RT/LT	419
-Y2-	10+83.81	11+35.82	LT	87
-L-/DRW1-	68+20.86	11+86.96	RT/LT	615
-Y7-	20+75.19	21+47.85	RT	80
-L-/Y7-	69+87.19	14+84.98	LT/RT	39
-Y9-	14+35.00	14+75.26	LT	12
-Y9-	14+36.65	14+94.46	RT	40
-L-	71+47.55	78+00.52	LT	145
-L-/Y8-	81+28.93	14+32.86	LT/RT	82
-Y7-	85+95.65	88+01.87	LT	54
-Y8-	15+65.89	16+53.25	RT	7
TOTAL				1580
SAY				1600

**GUARDRAIL SUMMARY**

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL (LF)	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	CAT-1	GREU TL-3	EA	G	NG				
-L-	37+91.62	41+40.53	RT	356.25'			40+63.00	41+17.00	8'	11'	50'		1'		1	1							
SUBTOTAL (LF)				356.25'								TOTAL ANCHORS (EA)		1									
LESS ANCHORS (LF)				56.25'								ANCHOR UNIT LENGTH (LF)		6.25'				50'					
TOTAL (LF)				300'								DEDUCTION PER TYPE (LF)		6.25'				50'					
SAY (LF)				300'								TOTAL DEDUCTION (LF)		56.25'									

ADDITIONAL GUARDRAIL POSTS: SAY 5 EA