

EARTHWORK REPORT

STADIUM TRAIL PHASE 2; 75TH AVENUE TO SKUNK CREEK

PROJECT NO. 0000 MA PEO T0321 01C

FEDERAL AID NO. PEO-0(229)T

FINAL

May 07, 2024

Prepared for:

ADOT

Prepared by:

Jacobs



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EARTHWORK FACTORS

Project Name: Stadium Trail Phase 2; 75th Avenue to Skunk Creek
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Date: 05/07/24
Prepared by: MV
Checked by: JBC

EARTHWORK FACTORS		
Location	Shrink/ Swell	Ground Compaction
Stadium Trail (Project Wide)	10% Shrink	0.10'

EARTHWORK QUANTITIES



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EARTHWORK QUANTITIES	
Roadway Excavation	2,078 CY
10% Shrink	31 CY
Structural Excavation	187 CY
10% Shrink	19 CY
Structure Backfill	50 CY
Embankment (Incl Ground Compaction)	399 CY
Waste	1,766 CY

EARTHWORK CHECK

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PRIMARY CALCULATIONS		
	Exc (+)	Emb (-)
Roadway Excavation	2,078 CY	
10% Shrink		?
Structural Excavation	187 CY	
10% Shrink		19 CY
Structure Backfill		50 CY
Embankment (Incl Ground Compaction)		399 CY
Waste		?
	187 CY	468 CY
		-187 CY
<i>Initial Net Quantity =</i>		281 CY

FINAL CHECK		
	Exc (+)	Emb (-)
Roadway Excavation	2,078 CY	
10% Shrink		31 CY
Structural Excavation	187 CY	
10% Shrink		19 CY
Structure Backfill		50 CY
Embankment (Includes Gnd Comp)		399 CY
Waste		1,766 CY
+ Not Included in Borrow Calculation	2,265 CY	2,265 CY
		-2,265 CY
<i>Final Net Quantity =</i>		0 OK

$1.0 + (-0.1 \text{ for } 10\% \text{ shrink}) = 0.90$ = Calculation Factor
 $\text{Initial Net Quantity} / \text{Calculation Factor} = 312$ = Required Excavation
 $\text{Required Roadway Excavation} * 0.1\% \text{ Shrink} = 31$ = Roadway Excavation Shrink
 $\text{Roadway Excavation} + \text{Roadway Excavation Shrink} = 1,766$ = Waste

GROUND COMPACTION QUANTITIES



Date: 05/07/24

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GROUND COMPACTION CALCULATION TABLE FOR FILL AREAS

Station	Fill Area (ft)	Gnd Compaction Depth (ft)	Gnd Compaction Volume (cu yd)	
10+00.00	0	0.1	0.00	
10+50.00	25	0.1	2.31	
10+80.14	70	0.1	5.30	
11+00.00	0	0.1	2.57	
11+50.00	0	0.1	0.00	
12+00.00	0	0.1	0.00	
12+27.14	27	0.1	1.36	
12+50.00	0	0.1	1.14	
13+00.00	40	0.1	3.70	
13+50.00	25	0.1	6.02	
14+00.00	25	0.1	4.63	
14+50.00	25	0.1	4.63	
15+00.00	25	0.1	4.63	
15+50.00	25	0.1	4.63	
16+00.00	20	0.1	4.17	
16+50.00	20	0.1	3.70	
17+00.00	0	0.1	1.85	
17+50.00	0	0.1	0.00	
18+00.00	0	0.1	0.00	
18+50.00	0	0.1	0.00	
19+00.00	0	0.1	0.00	
19+50.00	0	0.1	0.00	
20+00.00	0	0.1	0.00	
20+50.00	0	0.1	0.00	
21+00.00	0	0.1	0.00	
21+50.00	35	0.1	3.24	
22+00.00	30	0.1	6.02	
22+50.00	25	0.1	5.09	
23+00.00	0	0.1	2.31	
23+50.00	0	0.1	0.00	
24+00.00	0	0.1	0.00	
24+02.22	0	0.1	0.00	
		Total	67	CY

STADIUM TRAIL END AREA VOLUMES



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STATION	CUT ADJUST FACTOR	CUT AREA (S.F.)	CUT VOLUME (C.Y.)	ADJUSTED CUT VOLUME (C.Y.)	ACCUM CUT VOLUME (C.Y.)	FILL ADJUST FACTOR	FILL AREA (S.F.)	FILL VOLUME (C.Y.)	ADJUSTED FILL VOLUME (C.Y.)	ACCUM FILL VOLUME (C.Y.)	MASS HAUL ORDINATE (C.Y.)
10+00.00	1.00	11.1	0.0	0.0	0.0	1.00	0.1	0.0	0.0	0.0	0
10+50.00	1.00	0.0	10.3	10.3	10.3	1.00	14.4	13.4	13.4	13.4	-3
10+80.14	1.00	0.0	0.0	0.0	0.0	1.00	33.4	26.7	26.7	26.7	-30
11+00.00	1.00	0.0	0.0	0.0	0.0	1.00	0.0	12.3	12.3	12.3	-42
11+50.00	1.00	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	-42
12+00.00	1.00	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	-42
12+27.14	1.00	1.6	0.8	0.8	0.8	1.00	1.1	0.6	0.6	0.6	-42
12+50.00	1.00	0.0	0.7	0.7	0.7	1.00	3.6	2.0	2.0	2.0	-43
13+00.00	1.00	0.0	0.0	0.0	0.0	1.00	34.1	34.9	34.9	34.9	-78
13+50.00	1.00	0.0	0.0	0.0	0.0	1.00	22.2	52.2	52.2	52.2	-130
14+00.00	1.00	0.0	0.0	0.0	0.0	1.00	16.3	35.6	35.6	35.6	-166
14+50.00	1.00	0.0	0.0	0.0	0.0	1.00	5.8	20.4	20.4	20.4	-186
15+00.00	1.00	1.5	1.4	1.4	1.4	1.00	1.4	6.6	6.6	6.6	-191
15+50.00	1.00	2.8	4.0	4.0	4.0	1.00	0.4	1.6	1.6	1.6	-189
16+00.00	1.00	1.9	4.4	4.4	4.4	1.00	1.7	1.9	1.9	1.9	-187
16+50.00	1.00	6.7	7.9	7.9	7.9	1.00	1.4	2.9	2.9	2.9	-182
17+00.00	1.00	33.5	37.2	37.2	37.2	1.00	0.0	1.3	1.3	1.3	-146
17+50.00	1.00	110.0	132.9	132.9	132.9	1.00	0.0	0.0	0.0	0.0	-13
18+00.00	1.00	125.8	218.4	218.4	218.4	1.00	0.0	0.0	0.0	0.0	206
18+50.00	1.00	213.2	313.9	313.9	313.9	1.00	0.0	0.0	0.0	0.0	520
19+00.00	1.00	84.2	275.4	275.4	275.4	1.00	0.0	0.0	0.0	0.0	795
19+50.00	1.00	90.5	161.8	161.8	161.8	1.00	0.0	0.0	0.0	0.0	957
20+00.00	1.00	131.1	205.2	205.2	205.2	1.00	0.0	0.0	0.0	0.0	1162
20+50.00	1.00	113.6	226.5	226.5	226.5	1.00	0.0	0.0	0.0	0.0	1388
21+00.00	1.00	34.2	136.8	136.8	136.8	1.00	0.0	0.0	0.0	0.0	1525
21+50.00	1.00	0.0	31.6	31.6	31.6	1.00	27.2	25.1	25.1	25.1	1532
22+00.00	1.00	0.0	0.0	0.0	0.0	1.00	23.8	47.2	47.2	47.2	1485
22+50.00	1.00	0.0	0.0	0.0	0.0	1.00	7.1	28.6	28.6	28.6	1456
23+00.00	1.00	11.8	10.9	10.9	10.9	1.00	0.2	6.8	6.8	6.8	1460
23+50.00	1.00	9.1	19.4	19.4	19.4	1.00	0.0	0.2	0.2	0.2	1479
24+00.00	1.00	5.9	13.9	13.9	13.9	1.00	0.1	0.1	0.1	0.1	1493
24+02.22	1.00	0.0	0.2	0.2	0.2	1.00	0.0	0.0	0.0	0.0	1493
Totals			1,814	1,814				320	320		

MAINTENANCE TURN AROUND END AREA VOLUMES



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30+20.00	1.00	5.6	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0
30+50.00	1.00	18.7	13.5	13.5	13.5	1.00	0.0	0.0	0.0	0.0	14
31+00.00	1.00	0.4	17.7	17.7	17.7	1.00	13.3	12.3	12.3	12.3	19
Totals			31	31				12	12		

MAINTENANCE ACCESS ROAD/ DRIVEWAY END AREA VOLUMES



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STATION	CUT ADJUST FACTOR	CUT AREA (S.F.)	CUT VOLUME (C.Y.)	ADJUSTED CUT VOLUME (C.Y.)	ACCUM CUT VOLUME (C.Y.)	FILL ADJUST FACTOR	FILL AREA (S.F.)	FILL VOLUME (C.Y.)	ADJUSTED FILL VOLUME (C.Y.)	ACCUM FILL VOLUME (C.Y.)	MASS HAUL ORDINATE (C.Y.)
40+80.18	1.00	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0
41+00.00	1.00	28.1	10.3	10.3	10.3	1.00	0.0	0.0	0.0	0.0	10
41+50.00	1.00	95.6	114.5	114.5	114.5	1.00	0.0	0.0	0.0	0.0	125
42+00.00	1.00	17.4	104.6	104.6	104.6	1.00	0.0	0.0	0.0	0.0	229
42+07.00	1.00	10.2	3.6	3.6	118.1	1.00	0.9	0.1	0.1	0.1	233
Totals			233	233				0	0		

STRUCTURAL EXCAVATION AND STRUCTURE BACKFILL QUANTITIES

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Structural Excavation	187	CY
Structure Backfill	50	CY