



LAND USE COMMISSION  
STATE OF HAWAII

2010 NOV -8 A 7:05

November 3, 2010  
2004-33-8000 / 10P-134

Mr. Orlando Davidson  
Land Use Commission  
Department of Business, Economic  
Development and Tourism  
State of Hawaii  
P.O. Box 2359  
Honolulu, Hawaii 96804-2359

Dear Mr. Davidson:

**Makakilo Quarry Special Use Permit (SUP)  
Grace Pacific Corporation  
Tax Map Keys 9-1-16: 4 and 9-2-03: Portions 74 and 82**

Pursuant to Condition No. 1a of the Decision and Order in Land Use Commission SUP Docket No. SP73-147, we submit for your files a revised site plan with metes and bounds description of the Makakilo Quarry property. A copy of the plan and metes and bounds description has been submitted to the Department of Planning and Permitting, City & County of Honolulu, for review and approval.

Should you have any question regarding the above, please do not hesitate to contact me at 521-5361.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter  
Principal Planner

LWS:jdk  
attachment

cc: Robert Creps, Grace Pacific Corporation  
David Tanoue, Department of Planning and Permitting

APPROVED SPECIAL USE PERMIT AREA 'MAUKA' OF H-1 IS 482.8 ACRES.  
 'MAKAI' OF H-1 IS 54.0 ACRES AND CONVEYOR TUNNEL EASEMENT IS  
 0.1 ACRE THE OVERALL AREA TOTAL IS 536.9 ACRES

DELINITION OF BUFFER AREA 'MAUKA' OF H-1 IS 280.5 ACRES AND  
 'MAKAI' OF H-1 IS 54.0 ACRES. OVERALL AREA TOTAL IS 334.5 ACRES

DELINITION OF BERMING, LANDSCAPING AND  
 GRADING AREA TOTAL IS 103.7 ACRES

DELINITION OF EXISTING QUARRY AND  
 PROCESSING AREA TOTAL IS 75.4 ACRES

DELINITION OF QUARRY EXCAVATION  
 EXPANSION AREA TOTAL IS 20.6 ACRES

DELINITION OF CONVEYOR TUNNEL  
 EASEMENT AREA TOTAL IS 0.1 ACRE

TMK 9-2-03, PARCEL '74'

TMK 9-2-03, PARCEL '82'

DIVISION LINE BETWEEN PARCELS '74' & '82'

TMK 9-1-16, PARCEL '4'  
 FLAG STRIP CONNECTING  
 TO PARCEL '10' AND ROAD  
 REMNANT

Note: The total Special Use Permit Area of  
 541.5 acres, as described in the Land  
 Use Commission, Docket No.  
 SP73-147, Findings of Fact, Conclusions  
 of Law, and Decision and Order,  
 differs from the 536.9 acres provided  
 in this detailed SUP map, because the  
 identified total area is based on metes  
 and bounds descriptions as required by  
 the SUP Decision and Order.



LAND USE COMMISSION  
 STATE OF HAWAII

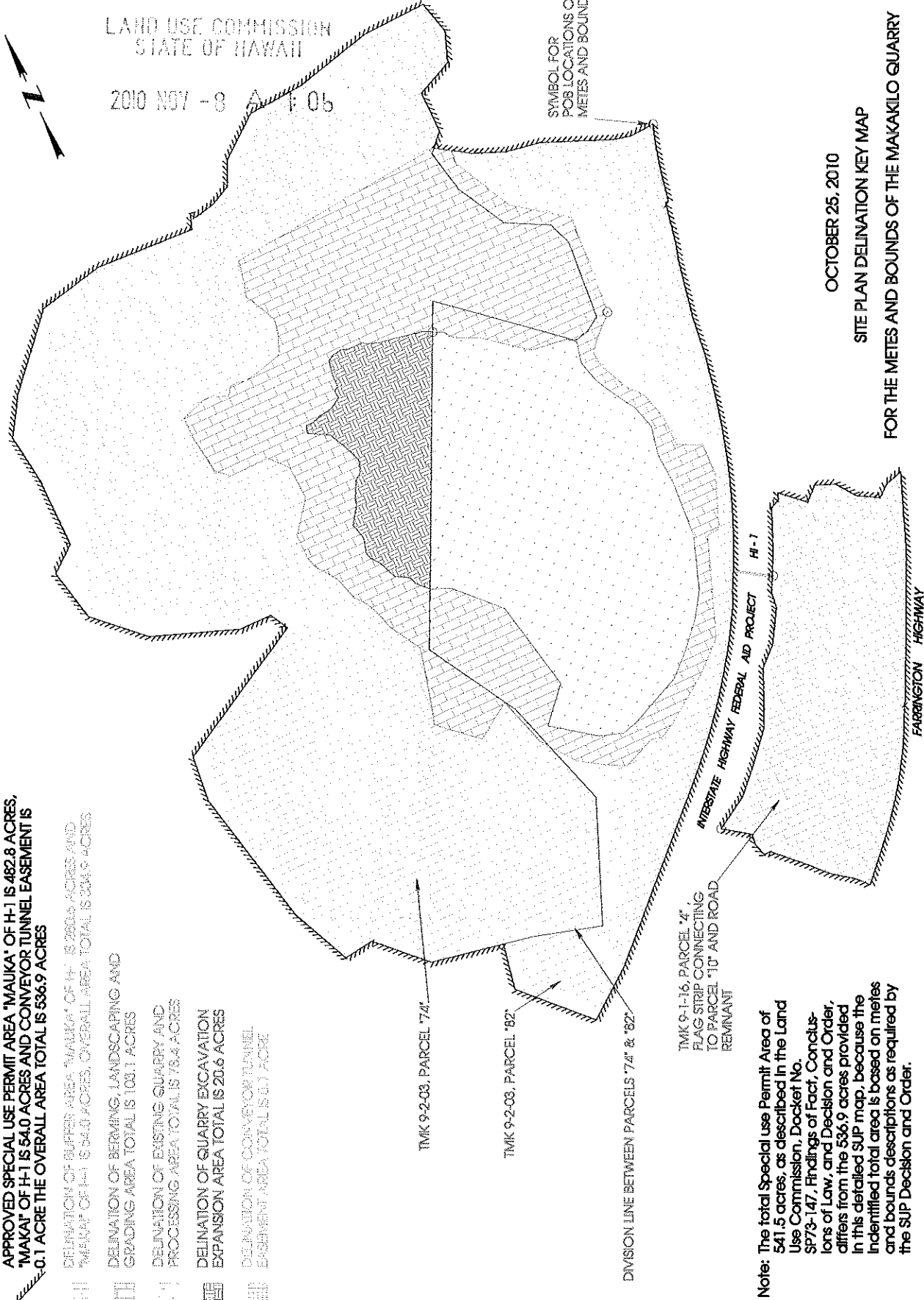
2010 NOV - 8 A 1 06

SYMBOL FOR  
 POB LOCATIONS OF  
 METES AND BOUNDS

OCTOBER 25, 2010

SITE PLAN DELINATION KEY MAP

FOR THE METES AND BOUNDS OF THE MAKAKILO QUARRY



METES AND BOUNDS REPORT

OUTER BOUNDARY AREA MAUKA H - 1

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Description Bearing	Distance	Sta	Northing	Easting
0		0+00.00	-4918.8726	3055.8573
18°37'18"	0.00 ft			
0		0+00.00	-4918.8726	3055.8573
Center Point:		0	-5695.3990	5360.3755
Radius:		2431.83	ft	
Delta:		4°15'28"	Left	
Arc Length:		180.72	ft	
Chord Bearing:		16°29'34"		
Chord Length:		180.67	ft	
Middle Ordinate:		1.68	ft	
External:		1.68	ft	
Deg of Curvature:		2°21'22"	Arc Definition	
Tangent:		90.40	ft	
Curve PI:			-5004.5392	3026.9912
0		1+80.72	-5092.1091	3004.5661
14°21'50"	0.00 ft			
0		1+80.72	-5092.1091	3004.5661
Center Point:		0	-5884.9484	6100.5710
Radius:		3195.91	ft	
Delta:		3°45'00"	Left	
Arc Length:		209.17	ft	
Chord Bearing:		12°29'20"		
Chord Length:		209.13	ft	
Middle Ordinate:		1.71	ft	
External:		1.71	ft	
Deg of Curvature:		1°47'34"	Arc Definition	
Tangent:		104.62	ft	
Curve PI:			-5193.4652	2978.6102
0		3+89.89	-5296.2906	2959.3416
10°36'50"	140.08 ft			
0		5+29.97	-5433.9740	2933.5404
100°36'50"	20.00 ft			
0		5+49.97	-5430.2902	2913.8825
10°36'50"	300.00 ft			
0		8+49.97	-5725.1574	2858.6257
16°19'30"	100.50 ft			
0		9+50.47	-5821.6055	2830.3766
10°36'50"	400.00 ft			
0		13+50.47	-6214.7618	2756.7007
6°02'23"	250.80 ft			
0		16+01.27	-6464.1697	2730.3121
10°36'50"	250.98 ft			
0		18+52.25	-6710.8556	2684.0842
Center Point:		0	-5894.2214	-1673.7191
Radius:		4433.66	ft	
Delta:		17°29'16"	Right	
Arc Length:		1353.24	ft	
Chord Bearing:		19°21'28"		
Chord Length:		1347.99	ft	
Middle Ordinate:		51.53	ft	
External:		52.13	ft	
Deg of Curvature:		1°17'32"	Arc Definition	
Tangent:		681.92	ft	

	Curve PI:		-7381.1166	2558.4793
0		32+05.48	-7982.6399	2237.2714
	90°00'00"	0.00 ft		
0		32+05.48	-7982.6399	2237.2714
	22°49'53"	97.35 ft		
0		33+02.83	-8072.3626	2199.4976
	90°00'00"	0.00 ft		
0		33+02.83	-8072.3626	2199.4976
	Center Point:	0	-5894.2198	-1673.7192
	Radius:	4443.66 ft		
	Delta:	16°00'14" Right		
	Arc Length:	1241.20 ft		
	Chord Bearing:	37°21'13"		
	Chord Length:	1237.17 ft		
	Middle Ordinate:	43.27 ft		
	External:	43.69 ft		
	Deg of Curvature:	1°17'22" Arc Definition		
	Tangent:	624.67 ft		
	Curve PI:		-8616.8474	1893.3030
0		45+44.03	-9055.7966	1448.8664
	90°00'00"	0.00 ft		
0		45+44.03	-9055.7966	1448.8664
	45°21'20"	1319.69 ft		
0		58+63.72	-9983.1496	509.9318
	52°28'50"	403.03 ft		
0		62+66.76	-10228.6072	190.2699
	135°21'00"	583.00 ft		
0		68+49.76	-9813.8534	-219.4475
	190°30'00"	313.39 ft		
0		71+63.15	-9505.7111	-162.3367
	100°30'00"	498.37 ft		
0		76+61.52	-9414.8904	-652.3614
	134°22'00"	421.65 ft		
0		80+83.17	-9120.0527	-953.7904
	82°09'00"	207.27 ft		
0		82+90.45	-9148.3616	-1159.1181
	155°07'00"	446.60 ft		
0		87+37.05	-8743.2211	-1347.0348
	167°12'00"	966.00 ft		
0		97+03.05	-7801.2268	-1561.0507
	185°35'00"	311.00 ft		
0		100+14.05	-7491.7023	-1530.7924
	240°56'00"	1080.00 ft		
0		110+94.05	-6967.0092	-586.8130
	150°56'00"	140.00 ft		
0		112+34.05	-6844.6415	-654.8288
	90°04'00"	222.00 ft		
0		114+56.05	-6844.3832	-876.8286
	110°00'00"	620.00 ft		
0		120+76.05	-6632.3307	-1459.4381
	133°00'00"	430.00 ft		
0		125+06.05	-6339.0714	-1773.9202
	167°09'10"	362.83 ft		
0		128+68.88	-5985.3243	-1854.5962
	230°45'00"	219.99 ft		
0		130+88.87	-5846.1355	-1684.2375
	179°45'00"	465.00 ft		
0		135+53.87	-5381.1399	-1686.2665
	171°55'00"	350.00 ft		
0		139+03.87	-5034.6173	-1735.4811
	211°30'00"	300.00 ft		
0		142+03.87	-4778.8252	-1578.7315
	221°30'00"	598.00 ft		
0		148+01.87	-4330.9497	-1182.4848

257°50'00"	460.00 ft			
0		152+61.87	-4234.0019	-732.8170
272°45'00"	680.01 ft			
0		159+41.88	-4266.6275	-53.5901
200°06'00"	99.98 ft			
0		160+41.86	-4172.7369	-19.2310
329°54'00"	36.68 ft			
0		160+78.54	-4204.4706	-0.8356
257°45'00"	156.00 ft			
0		162+34.54	-4171.3709	151.6125
243°30'00"	150.00 ft			
0		163+84.54	-4104.4412	285.8526
203°45'00"	175.00 ft			
0		165+59.54	-3944.2617	356.3333
231°39'00"	351.91 ft			
0		169+11.45	-3725.9143	632.3135
265°51'00"	386.45 ft			
0		172+97.90	-3697.9478	1017.7503
255°47'00"	548.80 ft			
0		178+46.70	-3563.1683	1549.7427
267°38'00"	439.21 ft			
0		182+85.90	-3545.0314	1988.5780
345°02'00"	234.80 ft			
0		185+20.70	-3771.8661	2049.2168
20°09'00"	208.60 ft			
0		187+29.30	-3967.6986	1977.3585
65°24'00"	270.90 ft			
0		190+00.20	-4080.4690	1731.0464
359°20'00"	282.20 ft			
0		192+82.40	-4362.6499	1734.3299
44°27'00"	119.00 ft			
0		194+01.40	-4447.5995	1650.9958
302°40'00"	261.10 ft			
0		196+62.50	-4588.5284	1870.7963
292°09'00"	226.20 ft			
0		198+88.70	-4673.8132	2080.3027
279°28'00"	235.90 ft			
0		201+24.60	-4712.6125	2312.9901
292°22'00"	495.50 ft			
0		206+20.10	-4901.1664	2771.2124
283°00'00"	119.30 ft			
0		207+39.40	-4928.0030	2887.4548
266°50'00"	168.74 ft			
0		209+08.14	-4918.6817	3055.9371
18°48'19"	0.19 ft			
0		209+08.34	-4918.8616	3055.8759

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Closing latitude = 0.01107  
 Closing departure = 0.01858  
 Closing bearing = 59°12'47"  
 Closing distance = 0.02163  
 Total traverse length = 20898.96 (20908.34)  
 Total error of closure = 1/966397  
 Error of closure in latitude = 1/1888061  
 Error of closure in departure = 1/1124925

**OUTER BOUNDARY AREA MAUKA H - 1 = 482.7874 Acres**

METES AND BOUNDS REPORT

OUTER BOUNDARY AREA MAKAI H - 1

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Bearing	Description Distance	Sta	Northing	Easting
0		0+00.00	-9413.7700	1493.2700
238°45'20"	258.47 ft			
0		2+58.47	-9279.7041	1714.2521
270°00'00"	0.00 ft			
0		2+58.47	-9279.7041	1714.2521
	Center Point:	0	-5891.4553	-1676.7575
	Radius:	4793.66 ft		
	Delta:	5°55'06" Left		
	Arc Length:	495.16 ft		
	Chord Bearing:	222°01'03"		
	Chord Length:	494.94 ft		
	Middle Ordinate:	6.39 ft		
	External:	6.40 ft		
	Deg of Curvature:	1°11'43" Arc Definition		
	Tangent:	247.80 ft		
	Curve PI:		-9104.4124	1889.4017
0		7+53.63	-8911.9932	2045.5439
90°00'00"	0.00 ft			
0		7+53.63	-8911.9932	2045.5439
203°57'00"	380.86 ft			
0		11+34.49	-8563.9252	2200.1499
204°13'00"	19.41 ft			
0		11+53.90	-8546.2233	2208.1117
227°22'20"	158.92 ft			
0		13+12.82	-8438.5974	2325.0401
270°00'00"	0.00 ft			
0		13+12.82	-8438.5974	2325.0401
	Center Point:	0	-5891.4603	-1676.7598
	Radius:	4743.66 ft		
	Delta:	3°07'30" Left		
	Arc Length:	258.73 ft		
	Chord Bearing:	210°54'51"		
	Chord Length:	258.69 ft		
	Middle Ordinate:	1.76 ft		
	External:	1.76 ft		
	Deg of Curvature:	1°12'28" Arc Definition		
	Tangent:	129.40 ft		
	Curve PI:		-8329.4405	2394.5195
0		15+71.54	-8216.6575	2457.9429
90°00'00"	0.00 ft			
0		15+71.54	-8216.6575	2457.9429
187°30'51"	110.54 ft			
0		16+82.08	-8107.0667	2472.3984
90°00'00"	0.00 ft			
0		16+82.08	-8107.0667	2472.3984
	Center Point:	0	-5891.4663	-1676.7620

Radius:	4703.66	ft		
Delta:	6°52'30"	Left		
Arc Length:	564.40	ft		
Chord Bearing:	204°39'51"			
Chord Length:	564.06	ft		
Middle Ordinate:	8.46	ft		
External:	8.48	ft		
Deg of Curvature:	1°13'05"	Arc Definition		
Tangent:	282.54	ft		
Curve PI:			-7857.8345	2605.4872
0			22+46.48	-7594.4663
270°00'00"	0.00	ft		2707.7800
0			22+46.48	-7594.4663
245°00'50"	71.84	ft		2707.7800
0			23+18.32	-7564.1212
270°00'00"	0.00	ft		2772.8965
0			23+18.32	-7564.1212
Center Point:	0		-5891.4562	-1676.7636
Radius:	4753.66	ft		
Delta:	0°34'16"	Left		
Arc Length:	47.38	ft		
Chord Bearing:	200°18'58"			
Chord Length:	47.38	ft		
Middle Ordinate:	0.06	ft		
External:	0.06	ft		
Deg of Curvature:	1°12'19"	Arc Definition		
Tangent:	23.69	ft		
Curve PI:			-7541.9431	2781.2359
0			23+65.71	-7519.6886
90°00'00"	0.00	ft		2789.3468
0			23+65.71	-7519.6886
312°15'00"	210.66	ft		2789.3468
0			25+76.37	-7661.3294
226°46'30"	123.33	ft		2945.2811
0			26+99.70	-7576.8650
291°00'00"	140.00	ft		3035.1480
0			28+39.70	-7627.0365
323°45'00"	160.00	ft		3165.8492
0			29+99.70	-7756.0677
299°45'00"	160.00	ft		3260.4588
0			31+59.70	-7835.4623
229°30'00"	100.00	ft		3399.3706
0			32+59.70	-7770.5175
253°15'00"	125.00	ft		3475.4112
0			33+84.70	-7734.4930
20°35'00"	468.09	ft		3595.1076
0			38+52.79	-8172.7010
Center Point:	0		-7309.5982	1132.2642
Radius:	2455.00	ft		
Delta:	4°45'00"	Right		
Arc Length:	203.53	ft		
Chord Bearing:	22°57'30"			
Chord Length:	203.47	ft		
Middle Ordinate:	2.11	ft		
External:	2.11	ft		
Deg of Curvature:	2°20'02"	Arc Definition		
Tangent:	101.82	ft		

	Curve PI:		-8268.0191	3394.7474
0		40+56.31	-8360.0538	3351.1757
	25°20'00"	883.87 ft		
0		49+40.18	-9158.9254	2972.9821
	115°20'00"	5.00 ft		
0		49+45.18	-9156.7860	2968.4629
	25°20'00"	100.00 ft		
0		50+45.18	-9247.1694	2925.6745
	Center Point:	0	-8034.2087	363.4956
	Radius:	2834.79 ft		
	Delta:	5°22'00" Right		
	Arc Length:	265.52 ft		
	Chord Bearing:	28°01'00"		
	Chord Length:	265.43 ft		
	Middle Ordinate:	3.11 ft		
	External:	3.11 ft		
	Deg of Curvature:	2°01'16" Arc Definition		
	Tangent:	132.86 ft		
	Curve PI:		-9367.2465	2868.8290
0		53+10.71	-9481.4939	2800.9945
	90°00'00"	0.00 ft		
0		53+10.71	-9481.4939	2800.9945
	120°42'00"	0.50 ft		
0		53+11.21	-9481.2386	2800.5646
	90°00'00"	0.00 ft		
0		53+11.21	-9481.2386	2800.5646
	Center Point:	0	-8034.2119	363.4939
	Radius:	2834.29 ft		
	Delta:	11°08'00" Right		
	Arc Length:	550.74 ft		
	Chord Bearing:	36°16'00"		
	Chord Length:	549.87 ft		
	Middle Ordinate:	13.37 ft		
	External:	13.43 ft		
	Deg of Curvature:	2°01'17" Arc Definition		
	Tangent:	276.24 ft		
	Curve PI:		-9718.7555	2659.5363
0		58+61.95	-9924.5837	2475.2922
	41°50'00"	335.57 ft		
0		61+97.52	-10174.6129	2251.4784
	137°01'00"	7.93 ft		
0		62+05.45	-10168.8117	2246.0718
	133°53'00"	25.12 ft		
0		62+30.57	-10151.3987	2227.9665
	223°53'00"	3.50 ft		
0		62+34.07	-10148.8761	2230.3927
	133°53'00"	76.65 ft		
0		63+10.72	-10095.7429	2175.1470
	126°10'00"	152.78 ft		
0		64+63.50	-10005.5819	2051.8071
	133°11'00"	63.16 ft		
0		65+26.66	-9962.3593	2005.7529
	136°19'00"	113.62 ft		
0		66+40.28	-9880.1930	1927.2787
	133°56'00"	270.70 ft		
0		69+10.98	-9692.3756	1732.3348
	88°57'00"	44.21 ft		



0			69+55.19	-9693.1858	1688.1322
	157°28'23"	31.42 ft			
0			69+86.61	-9664.1631	1676.0946
	166°18'00"	61.61 ft			
0			70+48.22	-9604.3060	1661.5030
	187°14'00"	69.55 ft			
0			71+17.77	-9535.3095	1670.2601
	124°27'50"	214.75 ft			
0			73+32.52	-9413.7853	1493.2024

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Closing latitude	=	-0.01534
Closing departure	=	-0.06764
Closing bearing	=	257°13'35"
Closing distance	=	0.06936
Total traverse length	=	7330.90 (7332.52)
Total error of closure	=	1/105695
Error of closure in latitude	=	1/478046
Error of closure in departure	=	1/108378

**OUTER BOUNDARY AREA MAKAI H - 1 = 54.0155 Acres**

**METES AND BOUNDS REPORT**

**BUFFER AREA MAUKA H - 1**

Coordinate values shown are computed based on the rounded bearing and distance, Or chord bearing and chord lengths as indicated herein.

Description	Distance	Sta	Northing	Easting
0		0+00.00	-4918.8726	3055.8573
18°37'18"	0.00 ft			
0		0+00.00	-4918.8726	3055.8573
Center Point:		0	-5695.3990	5360.3754
Radius:		2431.83 ft		
Delta:		4°15'28" Left		
Arc Length:		180.72 ft		
Chord Bearing:		16°29'34"		
Chord Length:		180.67 ft		
Middle Ordinate:		1.68 ft		
External:		1.68 ft		
Deg of Curvature:		2°21'22" Arc Definition		
Tangent:		90.40 ft		
Curve PI:			-5004.5392	3026.9912
0		1+80.72	-5092.1091	3004.5661
14°21'50"	0.00 ft			
0		1+80.72	-5092.1091	3004.5661
Center Point:		0	-5884.9485	6100.5710
Radius:		3195.91 ft		
Delta:		3°45'00" Left		
Arc Length:		209.17 ft		
Chord Bearing:		12°29'20"		
Chord Length:		209.13 ft		
Middle Ordinate:		1.71 ft		
External:		1.71 ft		
Deg of Curvature:		1°47'34" Arc Definition		
Tangent:		104.62 ft		
Curve PI:			-5193.4652	2978.6102
0		3+89.89	-5296.2906	2959.3416
10°36'50"	140.08 ft			
0		5+29.97	-5433.9740	2933.5404
100°36'50"	20.00 ft			
0		5+49.97	-5430.2902	2913.8825
10°36'50"	300.00 ft			
0		8+49.97	-5725.1574	2858.6257
16°19'30"	100.50 ft			
0		9+50.47	-5821.6055	2830.3766
10°36'50"	400.00 ft			
0		13+50.47	-6214.7618	2756.7007
6°02'23"	250.80 ft			
0		16+01.27	-6464.1697	2730.3121
10°36'50"	250.98 ft			
0		18+52.25	-6710.8556	2684.0842
Center Point:		0	-5894.2214	-1673.7192
Radius:		4433.66 ft		
Delta:		17°29'16" Right		
Arc Length:		1353.24 ft		
Chord Bearing:		19°21'28"		
Chord Length:		1347.99 ft		
Middle Ordinate:		51.53 ft		
External:		52.13 ft		
Deg of Curvature:		1°17'32" Arc Definition		
Tangent:		681.92 ft		

	Curve PI:		-7381.1166	2558.4793
0		32+05.48	-7982.6399	2237.2714
	90°00'00"	0.00 ft		
0		32+05.48	-7982.6399	2237.2714
	22°49'53"	97.35 ft		
0		33+02.83	-8072.3626	2199.4976
	90°00'00"	0.00 ft		
0		33+02.83	-8072.3626	2199.4976
	Center Point:	0	-5894.2198	-1673.7192
	Radius:	4443.66 ft		
	Delta:	16°00'14" Right		
	Arc Length:	1241.20 ft		
	Chord Bearing:	37°21'13"		
	Chord Length:	1237.17 ft		
	Middle Ordinate:	43.27 ft		
	External:	43.69 ft		
	Deg of Curvature:	1°17'22" Arc Definition		
	Tangent:	624.67 ft		
	Curve PI:		-8616.8474	1893.3030
0		45+44.03	-9055.7966	1448.8664
	90°00'00"	0.00 ft		
0		45+44.03	-9055.7966	1448.8664
	45°21'20"	1319.69 ft		
0		58+63.72	-9983.1496	509.9318
	52°28'50"	403.03 ft		
0		62+66.76	-10228.6072	190.2699
	135°21'00"	583.00 ft		
0		68+49.76	-9813.8534	-219.4475
	190°30'00"	313.39 ft		
0		71+63.15	-9505.7111	-162.3367
	100°30'00"	498.37 ft		
0		76+61.52	-9414.8904	-652.3614
	134°22'00"	421.65 ft		
0		80+83.17	-9120.0527	-953.7904
	82°09'00"	207.27 ft		
0		82+90.45	-9148.3616	-1159.1181
	155°07'00"	446.60 ft		
0		87+37.05	-8743.2211	-1347.0348
	167°12'00"	966.00 ft		
0		97+03.05	-7801.2268	-1561.0507
	185°35'00"	311.00 ft		
0		100+14.05	-7491.7023	-1530.7924
	240°56'00"	1080.00 ft		
0		110+94.05	-6967.0092	-586.8130
	150°56'00"	140.00 ft		
0		112+34.05	-6844.6415	-654.8288
	90°04'00"	222.00 ft		
0		114+56.05	-6844.3832	-876.8286
	110°00'00"	620.00 ft		
0		120+76.05	-6632.3307	-1459.4381
	133°00'00"	430.00 ft		
0		125+06.05	-6339.0714	-1773.9202
	167°09'10"	362.83 ft		
0		128+68.88	-5985.3243	-1854.5962
	230°45'00"	219.99 ft		
0		130+88.87	-5846.1355	-1684.2375
	179°45'00"	465.00 ft		
0		135+53.87	-5381.1399	-1686.2665
	171°55'00"	350.00 ft		
0		139+03.87	-5034.6173	-1735.4811
	211°30'00"	300.00 ft		
0		142+03.87	-4778.8252	-1578.7316
	221°30'00"	598.00 ft		
0		148+01.87	-4330.9497	-1182.4848

257°50'00"	460.00 ft			
0		152+61.87	-4234.0019	-732.8170
272°45'00"	680.01 ft			
0		159+41.88	-4266.6275	-53.5901
200°06'00"	99.98 ft			
0		160+41.86	-4172.7369	-19.2310
329°54'00"	36.68 ft			
0		160+78.54	-4204.4706	-0.8356
257°45'00"	156.00 ft			
0		162+34.54	-4171.3709	151.6125
243°30'00"	150.00 ft			
0		163+84.54	-4104.4412	285.8526
203°45'00"	175.00 ft			
0		165+59.54	-3944.2617	356.3333
231°39'00"	351.91 ft			
0		169+11.45	-3725.9144	632.3135
265°51'00"	386.45 ft			
0		172+97.90	-3697.9478	1017.7503
255°47'00"	548.80 ft			
0		178+46.70	-3563.1683	1549.7427
267°38'00"	439.21 ft			
0		182+85.90	-3545.0314	1988.5780
345°02'00"	234.80 ft			
0		185+20.70	-3771.8661	2049.2168
20°09'00"	208.60 ft			
0		187+29.30	-3967.6986	1977.3585
65°24'00"	270.90 ft			
0		190+00.20	-4080.4690	1731.0464
359°20'00"	282.20 ft			
0		192+82.40	-4362.6499	1734.3299
44°27'00"	119.00 ft			
0		194+01.40	-4447.5995	1650.9958
84°37'42"	1514.23 ft			
0		209+15.64	-4589.3556	143.4157
10°25'38"	144.47 ft			
0		210+60.10	-4731.4398	117.2686
15°35'28"	103.63 ft			
0		211+63.74	-4831.2567	89.4159
328°10'35"	42.80 ft			
0		212+06.54	-4867.6228	111.9846
334°14'09"	197.46 ft			
0		214+04.00	-5045.4534	197.8141
8°47'46"	86.32 ft			
0		214+90.32	-5130.7582	184.6142
20°39'16"	151.11 ft			
0		216+41.43	-5272.1556	131.3130
73°47'33"	143.91 ft			
0		217+85.34	-5312.3233	-6.8776
78°41'49"	150.25 ft			
0		219+35.59	-5341.7720	-154.2134
104°51'48"	55.34 ft			
0		219+90.93	-5327.5765	-207.7017
85°20'00"	52.06 ft			
0		220+43.00	-5331.8121	-259.5891
34°15'35"	66.60 ft			
0		221+09.59	-5386.8566	-297.0813
110°08'02"	140.92 ft			
0		222+50.51	-5338.3498	-429.3898
90°00'00"	34.05 ft			
0		222+84.56	-5338.3498	-463.4398
71°39'39"	176.99 ft			
0		224+61.55	-5394.0382	-631.4406
359°55'35"	156.37 ft			
0		226+17.92	-5550.4080	-631.2397

351°29'56"	257.61 ft			
0		228+75.53	-5805.1877	-593.1576
309°55'40"	114.57 ft			
0		229+90.10	-5878.7212	-505.2991
268°13'54"	265.60 ft			
0		232+55.69	-5870.5252	-239.8256
316°20'45"	168.28 ft			
0		234+23.97	-5992.2791	-123.6612
356°18'55"	228.26 ft			
0		236+52.24	-6220.0672	-108.9918
37°11'45"	268.72 ft			
0		239+20.95	-6434.1225	-271.4441
358°31'10"	167.48 ft			
0		240+88.44	-6601.5466	-267.1168
342°31'23"	76.19 ft			
0		241+64.63	-6674.2195	-244.2353
324°27'30"	172.08 ft			
0		243+36.70	-6814.2398	-144.2061
343°12'44"	164.52 ft			
0		245+01.22	-6971.7482	-96.6882
320°22'45"	98.71 ft			
0		245+99.93	-7047.7826	-33.7404
335°11'14"	55.68 ft			
0		246+55.61	-7098.3225	-10.3740
337°39'31"	70.91 ft			
0		247+26.52	-7163.9097	16.5806
346°53'01"	78.74 ft			
0		248+05.25	-7240.5954	34.4490
329°36'12"	260.52 ft			
0		250+65.78	-7465.3051	166.2679
13°58'58"	294.54 ft			
0		253+60.32	-7751.1175	95.0981
14°50'28"	170.28 ft			
0		255+30.60	-7915.7169	51.4827
19°16'53"	58.95 ft			
0		255+89.55	-7971.3603	32.0169
311°17'38"	334.74 ft			
0		259+24.28	-8192.2624	283.5187
235°56'09"	288.87 ft			
0		262+13.15	-8030.4603	522.8217
342°08'30"	351.85 ft			
0		265+65.00	-8365.3573	630.7216
323°38'40"	275.20 ft			
0		268+40.21	-8586.9907	793.8586
302°09'30"	226.51 ft			
0		270+66.72	-8707.5531	985.6176
296°49'06"	120.52 ft			
0		271+87.24	-8761.9273	1093.1746
247°12'51"	242.90 ft			
0		274+30.14	-8667.8551	1317.1184
284°37'16"	71.90 ft			
0		275+02.04	-8686.0045	1386.6900
242°24'40"	112.00 ft			
0		276+14.05	-8634.1346	1485.9549
234°34'08"	396.94 ft			
0		280+10.98	-8404.0191	1809.3868
227°06'15"	259.25 ft			
0		282+70.24	-8227.5560	1999.3114
199°53'54"	688.65 ft			
0		289+58.88	-7580.0198	2233.6949
263°07'11"	89.73 ft			
0		290+48.61	-7569.2706	2322.7788
201°00'35"	359.62 ft			
0		294+08.24	-7233.5582	2451.7120

181°21'03"	220.56 ft			
0		296+28.80	-7013.0595	2456.9116
115°35'31"	176.41 ft			
0		298+05.21	-6936.8576	2297.8086
179°01'44"	206.53 ft			
0		300+11.74	-6730.3573	2294.3082
163°29'41"	198.17 ft			
0		302+09.90	-6540.3532	2238.0074
137°47'53"	128.92 ft			
0		303+38.82	-6444.8516	2151.4060
154°57'45"	219.75 ft			
0		305+58.57	-6245.7513	2058.4053
172°08'41"	103.17 ft			
0		306+61.74	-6143.5494	2044.3049
220°43'16"	108.99 ft			
0		307+70.72	-6060.9465	2115.4075
226°45'45"	182.63 ft			
0		309+53.36	-5935.8406	2248.4572
183°35'29"	683.08 ft			
0		316+36.43	-5254.1020	2291.2457
125°23'53"	422.97 ft			
0		320+59.41	-5009.0952	1946.4628
152°56'15"	451.12 ft			
0		325+10.53	-4607.3680	1741.2203
183°20'10"	98.42 ft			
0		326+08.95	-4509.1148	1746.9476
302°40'00"	147.12 ft			
0		327+56.06	-4588.5229	1870.7969
292°09'00"	226.20 ft			
0		329+82.26	-4673.8077	2080.3033
279°28'00"	235.90 ft			
0		332+18.16	-4712.6070	2312.9907
292°22'00"	495.50 ft			
0		337+13.66	-4901.1609	2771.2131
283°00'00"	119.30 ft			
0		338+32.96	-4927.9975	2887.4554
266°50'00"	168.74 ft			
0		340+01.70	-4918.6762	3055.9378
18°48'19"	0.19 ft			
0		340+01.89	-4918.8561	3055.8765

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Closing latitude	= 0.01658
Closing departure	= 0.01923
Closing bearing	= 49°13'39"
Closing distance	= 0.02539
Total traverse length	= 33992.53 (34001.89)
Total error of closure	= 1/1338589
Error of closure in latitude	= 1/2049725
Error of closure in departure	= 1/1767563

**BUFFER AREA MAUKA H - 1 = 280.6447 Acres**

**METES AND BOUNDS REPORT**

**BUFFER AREA MAKAI H - 1**

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Bearing	Description Distance	Sta	Northing	Easting
0		0+00.00	-9413.7700	1493.2700
238°45'20"	258.47 ft			
0		2+58.47	-9279.7041	1714.2521
270°00'00"	0.00 ft			
0		2+58.47	-9279.7041	1714.2521
	Center Point:	0	-5891.4553	-1676.7575
	Radius:	4793.66 ft		
	Delta:	5°55'06" Left		
	Arc Length:	495.16 ft		
	Chord Bearing:	222°01'03"		
	Chord Length:	494.94 ft		
	Middle Ordinate:	6.39 ft		
	External:	6.40 ft		
	Deg of Curvature:	1°11'43" Arc Definition		
	Tangent:	247.80 ft		
	Curve PI:		-9104.4124	1889.4017
0		7+53.63	-8911.9932	2045.5439
90°00'00"	0.00 ft			
0		7+53.63	-8911.9932	2045.5439
203°57'00"	380.86 ft			
0		11+34.49	-8563.9252	2200.1499
204°13'00"	19.41 ft			
0		11+53.90	-8546.2233	2208.1117
227°22'20"	158.92 ft			
0		13+12.82	-8438.5974	2325.0401
270°00'00"	0.00 ft			
0		13+12.82	-8438.5974	2325.0401
	Center Point:	0	-5891.4603	-1676.7598
	Radius:	4743.66 ft		
	Delta:	3°07'30" Left		
	Arc Length:	258.73 ft		
	Chord Bearing:	210°54'51"		
	Chord Length:	258.69 ft		
	Middle Ordinate:	1.76 ft		
	External:	1.76 ft		
	Deg of Curvature:	1°12'28" Arc Definition		
	Tangent:	129.40 ft		
	Curve PI:		-8329.4405	2394.5195
0		15+71.54	-8216.6575	2457.9429
90°00'00"	0.00 ft			
0		15+71.54	-8216.6575	2457.9429
187°30'51"	110.54 ft			
0		16+82.08	-8107.0667	2472.3984
90°00'00"	0.00 ft			
0		16+82.08	-8107.0667	2472.3984

Center Point:	0	-5891.4663	-1676.7620
Radius:	4703.66	ft	
Delta:	6°52'30"	Left	
Arc Length:	564.40	ft	
Chord Bearing:	204°39'51"		
Chord Length:	564.06	ft	
Middle Ordinate:	8.46	ft	
External:	8.48	ft	
Deg of Curvature:	1°13'05"	Arc Definition	
Tangent:	282.54	ft	
Curve PI:		-7857.8345	2605.4872
0		22+46.48	-7594.4663
270°00'00"	0.00	ft	2707.7800
0		22+46.48	-7594.4663
245°00'50"	71.84	ft	2707.7800
0		23+18.32	-7564.1212
270°00'00"	0.00	ft	2772.8965
0		23+18.32	-7564.1212
Center Point:	0	-5891.4562	-1676.7636
Radius:	4753.66	ft	
Delta:	0°34'16"	Left	
Arc Length:	47.38	ft	
Chord Bearing:	200°18'58"		
Chord Length:	47.38	ft	
Middle Ordinate:	0.06	ft	
External:	0.06	ft	
Deg of Curvature:	1°12'19"	Arc Definition	
Tangent:	23.69	ft	
Curve PI:		-7541.9431	2781.2359
0		23+65.71	-7519.6886
90°00'00"	0.00	ft	2789.3468
0		23+65.71	-7519.6886
312°15'00"	210.66	ft	2789.3468
0		25+76.37	-7661.3294
226°46'30"	123.33	ft	2945.2811
0		26+99.70	-7576.8650
291°00'00"	140.00	ft	3035.1480
0		28+39.70	-7627.0365
323°45'00"	160.00	ft	3165.8492
0		29+99.70	-7756.0677
299°45'00"	160.00	ft	3260.4588
0		31+59.70	-7835.4623
229°30'00"	100.00	ft	3399.3706
0		32+59.70	-7770.5175
253°15'00"	125.00	ft	3475.4112
0		33+84.70	-7734.4930
20°35'00"	468.09	ft	3595.1076
0		38+52.79	-8172.7010
Center Point:	0	-7309.5982	3430.5415
Radius:	2455.00	ft	1132.2642
Delta:	4°45'00"	Right	
Arc Length:	203.53	ft	
Chord Bearing:	22°57'30"		
Chord Length:	203.47	ft	
Middle Ordinate:	2.11	ft	
External:	2.11	ft	
Deg of Curvature:	2°20'02"	Arc Definition	



	Tangent:	101.82 ft		
	Curve PI:		-8268.0191	3394.7474
0		40+56.31	-8360.0538	3351.1757
	25°20'00"	883.87 ft		
0		49+40.18	-9158.9254	2972.9821
	115°20'00"	5.00 ft		
0		49+45.18	-9156.7860	2968.4629
	25°20'00"	100.00 ft		
0		50+45.18	-9247.1694	2925.6745
	Center Point:	0	-8034.2087	363.4956
	Radius:	2834.79 ft		
	Delta:	5°22'00" Right		
	Arc Length:	265.52 ft		
	Chord Bearing:	28°01'00"		
	Chord Length:	265.43 ft		
	Middle Ordinate:	3.11 ft		
	External:	3.11 ft		
	Deg of Curvature:	2°01'16" Arc Definition		
	Tangent:	132.86 ft		
	Curve PI:		-9367.2465	2868.8290
0		53+10.71	-9481.4939	2800.9945
	90°00'00"	0.00 ft		
0		53+10.71	-9481.4939	2800.9945
	120°42'00"	0.50 ft		
0		53+11.21	-9481.2386	2800.5646
	90°00'00"	0.00 ft		
0		53+11.21	-9481.2386	2800.5646
	Center Point:	0	-8034.2119	363.4939
	Radius:	2834.29 ft		
	Delta:	11°08'00" Right		
	Arc Length:	550.74 ft		
	Chord Bearing:	36°16'00"		
	Chord Length:	549.87 ft		
	Middle Ordinate:	13.37 ft		
	External:	13.43 ft		
	Deg of Curvature:	2°01'17" Arc Definition		
	Tangent:	276.24 ft		
	Curve PI:		-9718.7555	2659.5363
0		58+61.95	-9924.5837	2475.2922
	41°50'00"	335.57 ft		
0		61+97.52	-10174.6129	2251.4784
	137°01'00"	7.93 ft		
0		62+05.45	-10168.8117	2246.0718
	133°53'00"	25.12 ft		
0		62+30.57	-10151.3987	2227.9665
	223°53'00"	3.50 ft		
0		62+34.07	-10148.8761	2230.3927
	133°53'00"	76.65 ft		
0		63+10.72	-10095.7429	2175.1470
	126°10'00"	152.78 ft		
0		64+63.50	-10005.5819	2051.8071
	133°11'00"	63.16 ft		
0		65+26.66	-9962.3593	2005.7529
	136°19'00"	113.62 ft		
0		66+40.28	-9880.1930	1927.2787
	133°56'00"	270.70 ft		
0		69+10.98	-9692.3756	1732.3348

0	88°57'00"	44.21 ft	69+55.19	-9693.1858	1688.1322
0	157°28'23"	31.42 ft	69+86.61	-9664.1631	1676.0946
0	166°18'00"	61.61 ft	70+48.22	-9604.3060	1661.5030
0	187°14'00"	69.55 ft	71+17.77	-9535.3095	1670.2601
0	124°27'50"	214.75 ft	73+32.52	-9413.7853	1493.2024

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Closing latitude	=	-0.01534
Closing departure	=	-0.06764
Closing bearing	=	257°13'35"
Closing distance	=	0.06936
Total traverse length	=	7330.90 (7332.52)
Total error of closure	=	1/105695
Error of closure in latitude	=	1/478046
Error of closure in departure	=	1/108378

**BUFFER AREA MAKAI H - 1 = 54.0155 Acres**

**METES AND BOUNDS REPORT**

**BERMING, LANDSCAPING AND GRADING AREA**

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Description Bearing	Distance	Sta	Northing	Easting
0		0+00.00	-5935.8570	2248.4464
46°45'45"	182.63 ft			
0		1+82.63	-6060.9629	2115.3967
40°43'16"	108.99 ft			
0		2+91.62	-6143.5658	2044.2941
352°08'41"	103.17 ft			
0		3+94.79	-6245.7677	2058.3944
334°57'45"	219.75 ft			
0		6+14.54	-6444.8680	2151.3951
317°47'53"	128.92 ft			
0		7+43.46	-6540.3696	2237.9966
343°29'41"	198.17 ft			
0		9+41.62	-6730.3737	2294.2974
359°01'44"	206.53 ft			
0		11+48.15	-6936.8741	2297.7977
295°35'31"	176.41 ft			
0		13+24.56	-7013.0760	2456.9007
1°21'03"	220.56 ft			
0		15+45.12	-7233.5747	2451.7012
21°00'35"	359.62 ft			
0		19+04.74	-7569.2870	2322.7679
83°07'11"	89.73 ft			
0		19+94.47	-7580.0362	2233.6841
19°53'54"	688.65 ft			
0		26+83.12	-8227.5724	1999.3006
47°06'15"	259.25 ft			
0		29+42.37	-8404.0355	1809.3760
54°34'08"	396.94 ft			
0		33+39.31	-8634.1510	1485.9441
62°24'40"	112.00 ft			
0		34+51.31	-8686.0209	1386.6792
104°37'16"	71.90 ft			
0		35+23.22	-8667.8715	1317.1076
67°12'51"	242.90 ft			
0		37+66.12	-8761.9437	1093.1638
116°49'06"	120.52 ft			
0		38+86.64	-8707.5695	985.6067
122°09'30"	226.51 ft			
0		41+13.15	-8587.0071	793.8478
143°38'40"	275.20 ft			
0		43+88.35	-8365.3737	630.7108
162°08'30"	351.85 ft			
0		47+40.21	-8030.4767	522.8109
55°56'09"	288.87 ft			
0		50+29.07	-8192.2788	283.5078
131°17'38"	334.74 ft			
0		53+63.81	-7971.3767	32.0061
199°16'53"	58.95 ft			
0		54+22.76	-7915.7333	51.4719
194°50'28"	170.28 ft			
0		55+93.04	-7751.1339	95.0873
193°58'58"	294.54 ft			
0		58+87.58	-7465.3216	166.2571

149°36'12"	260.52 ft			
0		61+48.11	-7240.6118	34.4382
166°53'01"	78.74 ft			
0		62+26.84	-7163.9261	16.5698
157°39'31"	70.91 ft			
0		62+97.75	-7098.3389	-10.3849
155°11'14"	55.68 ft			
0		63+53.43	-7047.7991	-33.7512
140°22'45"	98.71 ft			
0		64+52.14	-6971.7646	-96.6990
163°12'44"	164.52 ft			
0		66+16.66	-6814.2562	-144.2169
144°27'30"	172.08 ft			
0		67+88.73	-6674.2360	-244.2461
162°31'23"	76.19 ft			
0		68+64.92	-6601.5630	-267.1277
178°31'10"	167.48 ft			
0		70+32.40	-6434.1390	-271.4550
217°11'45"	268.72 ft			
0		73+01.12	-6220.0836	-109.0026
176°18'55"	228.26 ft			
0		75+29.38	-5992.2955	-123.6721
136°20'45"	168.28 ft			
0		76+97.66	-5870.5416	-239.8364
88°13'54"	265.60 ft			
0		79+63.26	-5878.7376	-505.3099
129°55'40"	114.57 ft			
0		80+77.83	-5805.2041	-593.1684
171°29'56"	257.61 ft			
0		83+35.44	-5550.4245	-631.2505
179°55'35"	156.37 ft			
0		84+91.81	-5394.0546	-631.4514
251°39'39"	176.99 ft			
0		86+68.80	-5338.3662	-463.4506
270°00'00"	34.05 ft			
0		87+02.84	-5338.3662	-429.4006
290°08'02"	140.92 ft			
0		88+43.76	-5386.8730	-297.0921
214°15'35"	66.60 ft			
0		89+10.36	-5331.8285	-259.6000
265°20'00"	52.06 ft			
0		89+62.42	-5327.5929	-207.7125
284°51'48"	55.34 ft			
0		90+17.76	-5341.7884	-154.2242
258°41'49"	150.25 ft			
0		91+68.01	-5312.3397	-6.8884
253°47'33"	143.91 ft			
0		93+11.93	-5272.1720	131.3022
200°39'16"	151.11 ft			
0		94+63.03	-5130.7746	184.6034
188°47'46"	86.32 ft			
0		95+49.36	-5045.4698	197.8033
154°14'09"	197.46 ft			
0		97+46.81	-4867.6392	111.9738
148°10'35"	42.80 ft			
0		97+89.62	-4831.2731	89.4051
195°35'28"	103.63 ft			
0		98+93.25	-4731.4562	117.2578
190°25'38"	144.47 ft			
0		100+37.72	-4589.3721	143.4049
264°37'42"	1514.23 ft			
0		115+51.95	-4447.6159	1650.9849
302°40'00"	113.98 ft			
0		116+65.94	-4509.1367	1746.9362

0	3°20'10"	98.42 ft	117+64.36	-4607.3899	1741.2088
0	332°56'15"	451.12 ft	122+15.48	-5009.1171	1946.4513
0	305°23'53"	422.97 ft	126+38.45	-5254.1240	2291.2342
0	3°35'29"	683.08 ft	133+21.53	-5935.8625	2248.4457
0	70°21'23"	289.70 ft	136+11.22	-6033.2505	1975.6057
0	136°04'27"	61.60 ft	136+72.82	-5988.8839	1932.8722
0	97°53'50"	262.33 ft	139+35.15	-5952.8406	1673.0301
0	128°23'57"	341.59 ft	142+76.74	-5740.6666	1405.3252
0	115°20'57"	176.75 ft	144+53.49	-5664.9940	1245.5934
0	140°05'23"	85.94 ft	145+39.44	-5599.0738	1190.4554
0	117°17'09"	72.77 ft	146+12.21	-5565.7138	1125.7825
0	117°17'09"	64.34 ft	146+76.55	-5536.2185	1068.6016
0	100°31'50"	255.27 ft	149+31.82	-5489.5653	817.6309
0	97°27'11"	37.72 ft	149+69.53	-5484.6725	780.2296
0	107°44'19"	58.40 ft	150+27.94	-5466.8795	724.6062
0	116°31'11"	69.75 ft	150+97.68	-5435.7357	662.1952
0	89°50'53"	100.20 ft	151+97.88	-5436.0015	561.9956
0	109°42'21"	49.09 ft	152+46.97	-5419.4487	515.7805
0	81°06'24"	64.99 ft	153+11.96	-5429.4959	451.5718
0	57°03'49"	42.63 ft	153+54.58	-5452.6742	415.7935
0	10°08'16"	94.97 ft	154+49.56	-5546.1614	399.0773
0	1°15'54"	89.21 ft	155+38.77	-5635.3497	397.1078
0	61°34'26"	34.87 ft	155+73.64	-5651.9487	366.4420
0	355°24'16"	53.65 ft	156+27.29	-5705.4262	370.7406
0	59°07'30"	83.92 ft	157+11.21	-5748.4912	298.7130
0	79°37'57"	98.95 ft	158+10.16	-5766.2983	201.3784
0	71°26'11"	60.82 ft	158+70.98	-5785.6608	143.7229
0	91°30'09"	46.97 ft	159+17.95	-5784.4292	96.7690
0	18°12'51"	51.27 ft	159+69.22	-5833.1303	80.7436
0	299°29'16"	153.17 ft	161+22.38	-5908.5264	214.0720
0	332°22'57"	120.46 ft	162+42.85	-6015.2614	269.9133
0	338°32'39"	124.93 ft	163+67.78	-6131.5338	315.6107

355°28'44"	25.53 ft			
0		163+93.31	-6156.9843	317.6231
23°01'06"	76.27 ft			
0		164+69.58	-6227.1817	287.7996
54°31'56"	51.21 ft			
0		165+20.79	-6256.8960	246.0920
27°30'16"	115.51 ft			
0		166+36.30	-6359.3505	192.7475
15°02'03"	52.17 ft			
0		166+88.46	-6409.7348	179.2148
34°37'26"	140.21 ft			
0		168+28.68	-6525.1136	99.5493
344°24'33"	110.54 ft			
0		169+39.22	-6631.5863	129.2587
15°18'03"	103.15 ft			
0		170+42.37	-6731.0800	102.0388
343°33'13"	43.02 ft			
0		170+85.39	-6772.3398	114.2185
322°30'06"	75.06 ft			
0		171+60.45	-6831.8903	159.9104
337°24'41"	129.42 ft			
0		172+89.87	-6951.3820	209.6221
322°57'08"	5.48 ft			
0		172+95.34	-6955.7558	212.9237
295°50'03"	60.13 ft			
0		173+55.47	-6981.9585	267.0443
306°37'04"	33.55 ft			
0		173+89.03	-7001.9702	293.9726
313°29'27"	11.05 ft			
0		174+00.08	-7009.5753	301.9892
329°28'05"	9.87 ft			
0		174+09.95	-7018.0767	307.0034
342°19'30"	16.49 ft			
0		174+26.44	-7033.7883	312.0100
342°21'20"	11.97 ft			
0		174+38.41	-7045.1952	315.6382
354°54'36"	8.68 ft			
0		174+47.08	-7053.8410	316.4083
315°29'16"	103.65 ft			
0		175+50.73	-7127.7539	389.0733
315°29'16"	4.25 ft			
0		175+54.98	-7130.7846	392.0528
292°37'10"	140.66 ft			
0		176+95.64	-7184.8836	521.8932
315°32'43"	381.15 ft			
0		180+76.80	-7456.9500	788.8299
347°50'47"	630.47 ft			
0		187+07.27	-8073.2891	921.5649
41°28'26"	299.26 ft			
0		190+06.52	-8297.5119	723.3713
305°49'17"	347.46 ft			
0		193+53.98	-8500.8665	1005.1077
288°01'23"	169.64 ft			
0		195+23.63	-8553.3531	1166.4238
253°07'13"	118.56 ft			
0		196+42.19	-8518.9276	1279.8758
245°28'52"	384.89 ft			
0		200+27.08	-8359.2009	1630.0582
226°48'20"	187.45 ft			
0		202+14.52	-8230.8957	1766.7158
221°14'46"	247.44 ft			
0		204+61.96	-8044.8494	1929.8517
212°46'44"	184.77 ft			
0		206+46.73	-7889.5011	2029.8859

198°41'14"	368.27 ft			
0		210+15.00	-7540.6456	2147.8802
183°29'29"	381.89 ft			
0		213+96.89	-7159.4644	2171.1368
176°02'01"	203.39 ft			
0		216+00.27	-6956.5616	2157.0680
191°21'34"	203.16 ft			
0		218+03.43	-6757.3813	2197.0831
162°47'16"	168.70 ft			
0		219+72.13	-6596.2365	2147.1628
148°19'38"	211.87 ft			
0		221+84.01	-6415.9223	2035.9168
152°34'54"	115.89 ft			
0		222+99.89	-6313.0504	1982.5513
164°58'21"	143.57 ft			
0		224+43.46	-6174.3903	1945.3261
192°06'16"	144.36 ft			
0		225+87.82	-6033.2399	1975.5976
250°21'23"	289.70 ft			
0		228+77.52	-5935.8518	2248.4376

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Closing latitude	=	0.00517
Closing departure	=	-0.00882
Closing bearing	=	300°20'34"
Closing distance	=	0.01023
Total traverse length	=	22877.55 (22877.52)
Total error of closure	=	1/2237390
Error of closure in latitude	=	1/4428960
Error of closure in departure	=	1/2592518

**BERMING, LANDSCAPING AND GRADING AREA = 103.1073 Acres**

**METES AND BOUNDS REPORT**

**QUARRY EXCAVATION EXPANSION AREA**

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Description Bearing	Distance	Sta	Northing	Easting
0		0+00.00	-5565.7072	1125.7842
25°15'00"	1727.05 ft			
0		17+27.05	-7127.7464	389.0787
135°29'16"	103.65 ft			
0		18+30.70	-7053.8335	316.4137
174°54'36"	8.68 ft			
0		18+39.37	-7045.1878	315.6436
162°21'20"	11.97 ft			
0		18+51.34	-7033.7809	312.0153
162°19'30"	16.49 ft			
0		18+67.84	-7018.0693	307.0087
149°28'05"	9.87 ft			
0		18+77.71	-7009.5678	301.9946
133°29'27"	11.05 ft			
0		18+88.75	-7001.9628	293.9779
126°37'04"	33.55 ft			
0		19+22.31	-6981.9511	267.0496
115°50'03"	60.13 ft			
0		19+82.44	-6955.7484	212.9291
142°57'08"	5.48 ft			
0		19+87.92	-6951.3746	209.6275
157°24'41"	129.42 ft			
0		21+17.33	-6831.8828	159.9157
142°30'06"	75.06 ft			
0		21+92.39	-6772.3324	114.2238
163°33'13"	43.02 ft			
0		22+35.41	-6731.0726	102.0441
195°18'03"	103.15 ft			
0		23+38.57	-6631.5789	129.2640
164°24'33"	110.54 ft			
0		24+49.11	-6525.1061	99.5547
214°37'26"	140.21 ft			
0		25+89.32	-6409.7274	179.2202
195°02'03"	52.17 ft			
0		26+41.49	-6359.3431	192.7528
207°30'16"	115.51 ft			
0		27+57.00	-6256.8886	246.0973
234°31'56"	51.21 ft			
0		28+08.21	-6227.1743	287.8049
203°01'06"	76.27 ft			
0		28+84.48	-6156.9769	317.6284
175°28'44"	25.53 ft			
0		29+10.01	-6131.5263	315.6160
158°32'39"	124.93 ft			
0		30+34.93	-6015.2540	269.9186
152°22'57"	120.46 ft			
0		31+55.40	-5908.5190	214.0774
119°29'16"	153.17 ft			
0		33+08.56	-5833.1229	80.7489
198°12'51"	51.27 ft			
0		33+59.83	-5784.4218	96.7744
271°30'09"	46.97 ft			
0		34+06.80	-5785.6534	143.7282



251°26'11"	60.82 ft			
0		34+67.62	-5766.2909	201.3838
259°37'57"	98.95 ft			
0		35+66.57	-5748.4837	298.7183
239°07'30"	83.92 ft			
0		36+50.49	-5705.4188	370.7459
175°24'16"	53.65 ft			
0		37+04.14	-5651.9412	366.4474
241°34'26"	34.87 ft			
0		37+39.01	-5635.3422	397.1132
181°15'54"	89.21 ft			
0		38+28.23	-5546.1540	399.0826
190°08'16"	94.97 ft			
0		39+23.20	-5452.6667	415.7988
237°03'49"	42.63 ft			
0		39+65.82	-5429.4885	451.5771
261°06'24"	64.99 ft			
0		40+30.81	-5419.4413	515.7858
289°42'21"	49.09 ft			
0		40+79.90	-5435.9940	562.0009
269°50'53"	100.20 ft			
0		41+80.10	-5435.7283	662.2006
296°31'11"	69.75 ft			
0		42+49.85	-5466.8721	724.6115
287°44'19"	58.40 ft			
0		43+08.25	-5484.6651	780.2350
277°27'11"	37.72 ft			
0		43+45.96	-5489.5579	817.6363
280°31'50"	255.27 ft			
0		46+01.24	-5536.2110	1068.6069
297°17'09"	64.34 ft			
0		46+65.58	-5565.7064	1125.7879

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Closing latitude	= 0.00079
Closing departure	= 0.00364
Closing bearing	= 77°41'53"
Closing distance	= 0.00372
Total traverse length	= 4665.59 (4665.58)
Total error of closure	= 1/1252900
Error of closure in latitude	= 1/5880376
Error of closure in departure	= 1/1282345

**QUARRY EXCAVATION EXPANSION AREA = 20.5859 Acres**

# METES AND BOUNDS REPORT

## EXISTING QUARRY AND PROCESSING AREA

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Description Bearing	Distance	Sta	Northing	Easting
0		0+00.00	-5565.7072	1125.7842
297°17'09"	72.77 ft			
0		0+72.77	-5599.0671	1190.4571
320°05'23"	85.94 ft			
0		1+58.71	-5664.9874	1245.5951
295°20'57"	176.75 ft			
0		3+35.46	-5740.6600	1405.3269
308°23'57"	341.59 ft			
0		6+77.06	-5952.8340	1673.0318
277°53'50"	262.33 ft			
0		9+39.39	-5988.8772	1932.8739
316°04'27"	61.60 ft			
0		10+00.98	-6033.2439	1975.6075
12°06'16"	144.36 ft			
0		11+45.35	-6174.3943	1945.3360
344°58'21"	143.57 ft			
0		12+88.92	-6313.0545	1982.5612
332°34'54"	115.89 ft			
0		14+04.80	-6415.9263	2035.9266
328°19'38"	211.87 ft			
0		16+16.67	-6596.2405	2147.1727
342°47'16"	168.70 ft			
0		17+85.37	-6757.3853	2197.0930
11°21'34"	203.16 ft			
0		19+88.53	-6956.5656	2157.0779
356°02'01"	203.39 ft			
0		21+91.92	-7159.4685	2171.1466
3°29'29"	381.89 ft			
0		25+73.81	-7540.6496	2147.8901
18°41'14"	368.27 ft			
0		29+42.08	-7889.5051	2029.8958
32°46'44"	184.77 ft			
0		31+26.85	-8044.8535	1929.8616
41°14'46"	247.44 ft			
0		33+74.29	-8230.8998	1766.7257
46°48'20"	187.45 ft			
0		35+61.73	-8359.2049	1630.0681
65°28'52"	384.89 ft			
0		39+46.62	-8518.9316	1279.8857
73°07'13"	118.56 ft			
0		40+65.18	-8553.3571	1166.4337
108°01'23"	169.64 ft			
0		42+34.82	-8500.8706	1005.1176
125°49'17"	347.46 ft			
0		45+82.29	-8297.5160	723.3812
221°28'26"	299.26 ft			
0		48+81.54	-8073.2931	921.5747
167°50'47"	630.47 ft			
0		55+12.01	-7456.9541	788.8398
135°32'43"	381.15 ft			
0		58+93.17	-7184.8876	521.9031
112°37'10"	140.66 ft			
0		60+33.83	-7130.7886	392.0627

135°29'16"	4.25 ft			
0		60+38.07	-7127.7579	389.0832
205°15'00"	1727.05 ft			
0		77+65.12	-5565.7187	1125.7887

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Closing latitude	=	-0.01147
Closing departure	=	0.00453
Closing bearing	=	158°26'34"
Closing distance	=	0.01234
Total traverse length	=	7765.13 (7765.12)
Total error of closure	=	1/629430
Error of closure in latitude	=	1/676770
Error of closure in departure	=	1/1713053

**EXISTING QUARRY AND PROCESSING AREA = 78.4494 Acres**

**METES AND BOUNDS REPORT**

**CONVEYOR TUNNEL EASEMENT AREA**

Coordinate values shown are computed based on the rounded bearing and distance, or chord bearing and chord lengths as indicated herein.

Description Bearing	Distance	Sta	Northing	Easting
0		0+00.00	-8013.7518	2524.7972
90°00'00"	0.00 ft			
0		0+00.00	-8013.7518	2524.7972
Center Point:		0	-5894.0470	-1674.1857
Radius:		4703.68	ft	
Delta:		0°08'49"	Right	
Arc Length:		12.06	ft	
Chord Bearing:		26°51'32"		
Chord Length:		12.06	ft	
Middle Ordinate:		0.00	ft	
External:		0.00	ft	
Deg of Curvature:		1°13'05"	Arc Definition	
Tangent:		6.03	ft	
Curve PI:			-8019.1364	2522.0790
0		0+12.06	-8024.5108	2519.3486
90°00'00"	0.00 ft			
0		0+12.06	-8024.5108	2519.3486
122°44'23"	271.50 ft			
0		2+83.56	-7877.6772	2290.9801
90°00'00"	0.00 ft			
0		2+83.56	-7877.6772	2290.9801
Center Point:		0	-5894.0418	-1674.1847
Radius:		4433.66	ft	
Delta:		0°09'22"	Left	
Arc Length:		12.07	ft	
Chord Bearing:		206°29'57"		
Chord Length:		12.07	ft	
Middle Ordinate:		0.00	ft	
External:		0.00	ft	
Deg of Curvature:		1°17'32"	Arc Definition	
Tangent:		6.04	ft	
Curve PI:			-7872.2831	2293.6802
0		2+95.63	-7866.8753	2296.3656
270°00'00"	0.00 ft			
0		2+95.63	-7866.8753	2296.3656
302°44'23"	271.57 ft			
0		5+67.21	-8013.7467	2524.7929

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Closing latitude = 0.00509  
 Closing departure = -0.00431  
 Closing bearing = 319°42'17"  
 Closing distance = 0.00667  
 Total traverse length = 567.20 (567.21)  
 Total error of closure = 1/85028  
 Error of closure in latitude = 1/111479  
 Error of closure in departure = 1/131474

**CONVEYOR TUNNEL EASEMENT AREA = 0.0748 Acres**