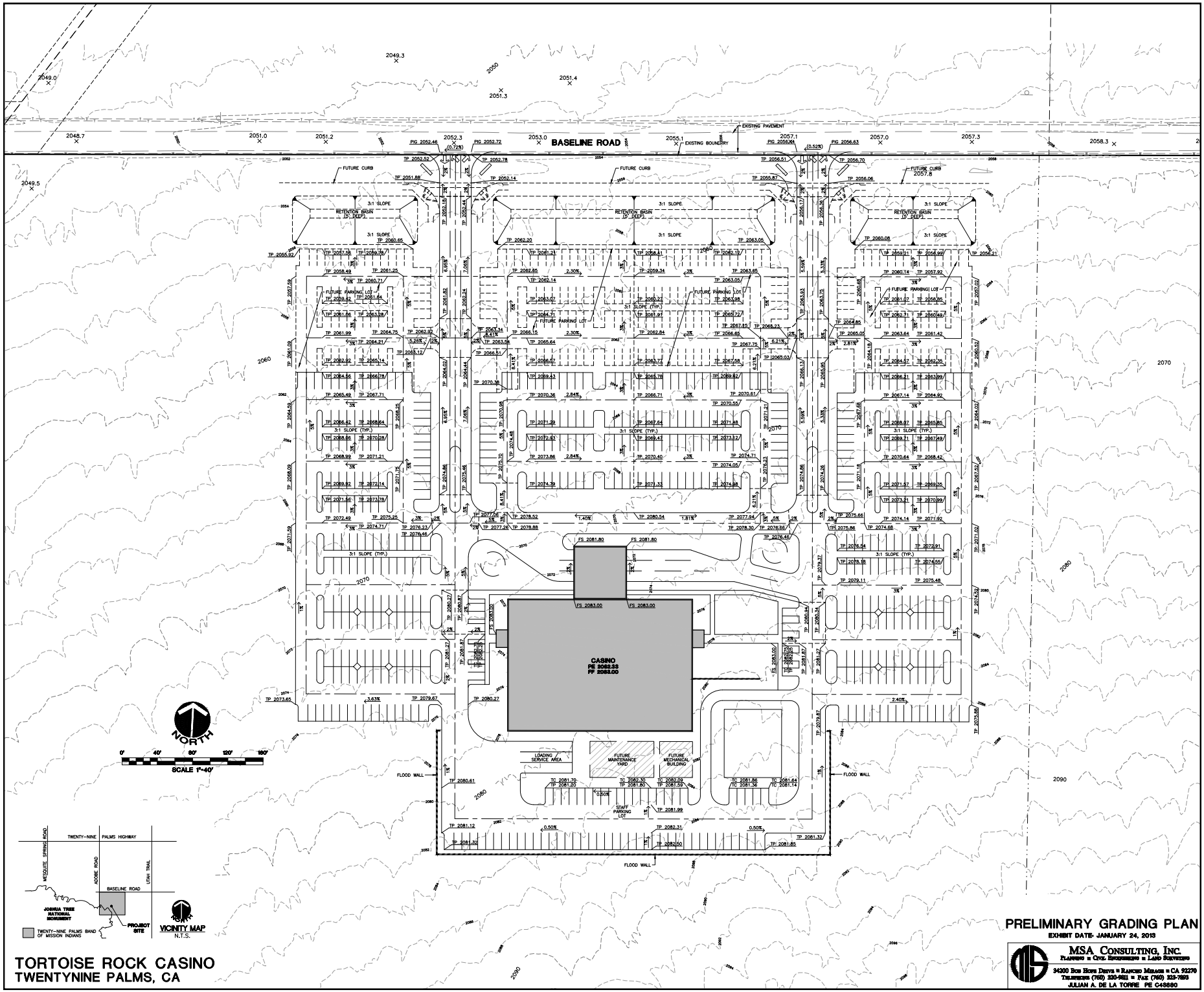
Appendix A
Preliminary Grading Plan

ESA



TORTOISE ROCK CASINO
TWENTYNINE PALMS, CA

PRELIMINARY GRADING PLAN
EXHIBIT DATE- JANUARY 24, 2013

MSA CONSULTING, INC.
PLANNING ▪ CIVIL ENGINEERING ▪ LAND SURVEYING
34200 BOB HOPE DRIVE ▪ RANCHO MIRAGE ▪ CA 92270
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Appendix B
Air Quality Emissions Modeling

ESA

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.52	4.52	2.47	0.01	3.43	0.22	3.66	0.15	0.22	0.37	0.00	499.44	499.44	0.04	0.00	500.24
2013	1.94	1.01	0.91	0.00	0.04	0.07	0.11	0.00	0.07	0.07	0.00	127.96	127.96	0.01	0.00	128.25
Total	**2.46**	**5.53**	**3.38**	**0.01**	**3.47**	**0.29**	**3.77**	**0.15**	**0.29**	**0.44**	**0.00**	**627.40**	**627.40**	**0.05**	**0.00**	**628.49**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.52	4.52	2.47	0.01	3.43	0.22	3.66	0.15	0.22	0.37	0.00	499.44	499.44	0.04	0.00	500.24
2013	1.94	1.01	0.91	0.00	0.04	0.07	0.11	0.00	0.07	0.07	0.00	127.96	127.96	0.01	0.00	128.25
Total	**2.46**	**5.53**	**3.38**	**0.01**	**3.47**	**0.29**	**3.77**	**0.15**	**0.29**	**0.44**	**0.00**	**627.40**	**627.40**	**0.05**	**0.00**	**628.49**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	901.52	901.52	0.03	0.02	907.09
Mobile	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Waste						0.00	0.00		0.00	0.00	72.47	0.00	72.47	4.28	0.00	162.40
Water						0.00	0.00		0.00	0.00	0.00	36.47	36.47	0.28	0.01	44.67
Total	**2.72**	**11.33**	**18.52**	**0.02**	**1.82**	**0.40**	**2.25**	**0.08**	**0.40**	**0.51**	**72.47**	**3,224.88**	**3,297.35**	**4.71**	**0.03**	**3,403.58**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	901.52	901.52	0.03	0.02	907.09
Mobile	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Waste						0.00	0.00		0.00	0.00	72.47	0.00	72.47	4.28	0.00	162.40
Water						0.00	0.00		0.00	0.00	0.00	36.47	36.47	0.28	0.01	44.67
Total	**2.72**	**11.33**	**18.52**	**0.02**	**1.82**	**0.40**	**2.25**	**0.08**	**0.40**	**0.51**	**72.47**	**3,224.88**	**3,297.35**	**4.71**	**0.03**	**3,403.58**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.23	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.44	19.44	0.00	0.00	19.49
Total	**0.03**	**0.23**	**0.13**	**0.00**	**0.07**	**0.01**	**0.08**	**0.04**	**0.01**	**0.05**	**0.00**	**19.44**	**19.44**	**0.00**	**0.00**	**19.49**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	0.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.96**	**0.96**	**0.00**	**0.00**	**0.97**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.23	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.44	19.44	0.00	0.00	19.49
Total	**0.03**	**0.23**	**0.13**	**0.00**	**0.07**	**0.01**	**0.08**	**0.04**	**0.01**	**0.05**	**0.00**	**19.44**	**19.44**	**0.00**	**0.00**	**19.49**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	0.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.96**	**0.96**	**0.00**	**0.00**	**0.97**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.19	0.00	0.19	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.25	2.09	1.11	0.00		0.10	0.10		0.10	0.10	0.00	197.91	197.91	0.02	0.00	198.34
Total	**0.25**	**2.09**	**1.11**	**0.00**	**0.19**	**0.10**	**0.29**	**0.10**	**0.10**	**0.20**	**0.00**	**197.91**	**197.91**	**0.02**	**0.00**	**198.34**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.12	1.50	0.52	0.00	3.13	0.07	3.20	0.01	0.07	0.07	0.00	186.09	186.09	0.00	0.00	186.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.01	0.01	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.05
Total	**0.13**	**1.51**	**0.61**	**0.00**	**3.14**	**0.07**	**3.21**	**0.01**	**0.07**	**0.07**	**0.00**	**194.13**	**194.13**	**0.00**	**0.00**	**194.25**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.19	0.00	0.19	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.25	2.09	1.11	0.00		0.10	0.10		0.10	0.10	0.00	197.91	197.91	0.02	0.00	198.34
Total	**0.25**	**2.09**	**1.11**	**0.00**	**0.19**	**0.10**	**0.29**	**0.10**	**0.10**	**0.20**	**0.00**	**197.91**	**197.91**	**0.02**	**0.00**	**198.34**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.12	1.50	0.52	0.00	3.13	0.07	3.20	0.01	0.07	0.07	0.00	186.09	186.09	0.00	0.00	186.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.01	0.01	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.05
Total	**0.13**	**1.51**	**0.61**	**0.00**	**3.14**	**0.07**	**3.21**	**0.01**	**0.07**	**0.07**	**0.00**	**194.13**	**194.13**	**0.00**	**0.00**	**194.25**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.59	0.38	0.00		0.04	0.04		0.04	0.04	0.00	56.74	56.74	0.01	0.00	56.91
Total	**0.10**	**0.59**	**0.38**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**56.74**	**56.74**	**0.01**	**0.00**	**56.91**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.09	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.12	12.12	0.00	0.00	12.13
Worker	0.01	0.02	0.19	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	18.13	18.13	0.00	0.00	18.16
Total	**0.02**	**0.11**	**0.23**	**0.00**	**0.02**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**30.25**	**30.25**	**0.00**	**0.00**	**30.29**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.59	0.38	0.00		0.04	0.04		0.04	0.04	0.00	56.74	56.74	0.01	0.00	56.91
Total	**0.10**	**0.59**	**0.38**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**56.74**	**56.74**	**0.01**	**0.00**	**56.91**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.09	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.12	12.12	0.00	0.00	12.13
Worker	0.01	0.02	0.19	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	18.13	18.13	0.00	0.00	18.16
Total	**0.02**	**0.11**	**0.23**	**0.00**	**0.02**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**30.25**	**30.25**	**0.00**	**0.00**	**30.29**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.65	0.45	0.00		0.04	0.04		0.04	0.04	0.00	67.82	67.82	0.01	0.00	67.99
Total	**0.10**	**0.65**	**0.45**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**67.82**	**67.82**	**0.01**	**0.00**	**67.99**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.10	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	14.47	14.47	0.00	0.00	14.48
Worker	0.01	0.02	0.21	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	21.18	21.18	0.00	0.00	21.21
Total	**0.02**	**0.12**	**0.25**	**0.00**	**0.03**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**35.65**	**35.65**	**0.00**	**0.00**	**35.69**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.65	0.45	0.00		0.04	0.04		0.04	0.04	0.00	67.82	67.82	0.01	0.00	67.99
Total	**0.10**	**0.65**	**0.45**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**67.82**	**67.82**	**0.01**	**0.00**	**67.99**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.10	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	14.47	14.47	0.00	0.00	14.48
Worker	0.01	0.02	0.21	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	21.18	21.18	0.00	0.00	21.21
Total	**0.02**	**0.12**	**0.25**	**0.00**	**0.03**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**35.65**	**35.65**	**0.00**	**0.00**	**35.69**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.78					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.52	7.52	0.00	0.00	7.55
Total	**1.79**	**0.09**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.52**	**7.52**	**0.00**	**0.00**	**7.55**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.02	5.02	0.00	0.00	5.03
Total	**0.00**	**0.01**	**0.05**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.02**	**5.02**	**0.00**	**0.00**	**5.03**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.78					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.52	7.52	0.00	0.00	7.55
Total	**1.79**	**0.09**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.52**	**7.52**	**0.00**	**0.00**	**7.55**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.02	5.02	0.00	0.00	5.03
Total	**0.00**	**0.01**	**0.05**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.02**	**5.02**	**0.00**	**0.00**	**5.03**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.14	0.08	0.00		0.01	0.01		0.01	0.01	0.00	10.77	10.77	0.00	0.00	10.81
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.14**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**10.77**	**10.77**	**0.00**	**0.00**	**10.81**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18	0.00	0.00	1.18
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.18**	**1.18**	**0.00**	**0.00**	**1.18**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.14	0.08	0.00		0.01	0.01		0.01	0.01	0.00	10.77	10.77	0.00	0.00	10.81
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.14**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**10.77**	**10.77**	**0.00**	**0.00**	**10.81**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18	0.00	0.00	1.18
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.18**	**1.18**	**0.00**	**0.00**	**1.18**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Unmitigated	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	457.25	457.25	0.02	0.01	460.11
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	457.25	457.25	0.02	0.01	460.11
NaturalGas Mitigated	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
NaturalGas Unmitigated	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	8.3253e+006	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total		**0.04**	**0.41**	**0.34**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**444.27**	**444.27**	**0.01**	**0.01**	**446.97**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	8.3253e+006	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total		**0.04**	**0.41**	**0.34**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**444.27**	**444.27**	**0.01**	**0.01**	**446.97**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	1.572e+006					457.25	0.02	0.01	460.11
Total						**457.25**	**0.02**	**0.01**	**460.11**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	1.572e+006					457.25	0.02	0.01	460.11
Total						**457.25**	**0.02**	**0.01**	**460.11**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.18					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.61					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.79**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.18					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.61					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.79**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					36.47	0.28	0.01	44.67
Unmitigated					36.47	0.28	0.01	44.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	9.10601 / 0.581235					36.47	0.28	0.01	44.67
Total						**36.47**	**0.28**	**0.01**	**44.67**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	9.10601 / 0.581235					36.47	0.28	0.01	44.67
Total						**36.47**	**0.28**	**0.01**	**44.67**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					72.47	4.28	0.00	162.40
Unmitigated					72.47	4.28	0.00	162.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	357					72.47	4.28	0.00	162.40
Total						**72.47**	**4.28**	**0.00**	**162.40**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	357					72.47	4.28	0.00	162.40
Total						**72.47**	**4.28**	**0.00**	**162.40**

9.0 Vegetation

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.41	120.11	56.78	0.14	123.35	5.57	128.92	9.94	5.57	12.82	0.00	14,466.14	0.00	0.96	0.00	14,486.23
2013	69.91	57.99	50.68	0.08	2.12	4.27	6.40	0.09	4.27	4.36	0.00	7,499.70	0.00	0.88	0.00	7,518.27
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.41	120.11	56.78	0.14	123.35	5.57	128.92	9.94	5.57	12.82	0.00	14,466.14	0.00	0.96	0.00	14,486.23
2013	69.91	57.99	50.68	0.08	2.12	4.27	6.40	0.09	4.27	4.36	0.00	7,499.70	0.00	0.88	0.00	7,518.27
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**15.96**	**62.92**	**108.20**	**0.14**	**11.15**	**2.16**	**13.47**	**0.47**	**2.16**	**2.79**		**17,433.16**		**0.75**	**0.05**	**17,464.20**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**15.96**	**62.92**	**108.20**	**0.14**	**11.15**	**2.16**	**13.47**	**0.47**	**2.16**	**2.79**		**17,433.16**		**0.75**	**0.05**	**17,464.20**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86		5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**		**5,358.45**		**0.62**		**5,371.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.28	3.08	0.00	0.37	0.01	0.38	0.01	0.01	0.03		300.20		0.02		300.68
Total	**0.20**	**0.28**	**3.08**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**300.20**		**0.02**		**300.68**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86	0.00	5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**	**0.00**	**5,358.45**		**0.62**		**5,371.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.28	3.08	0.00	0.37	0.01	0.38	0.01	0.01	0.03		300.20		0.02		300.68
Total	**0.20**	**0.28**	**3.08**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**300.20**		**0.02**		**300.68**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35		7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**		**7,273.96**		**0.75**		**7,289.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.82	50.18	16.41	0.07	116.57	2.20	118.77	0.23	2.20	2.44		6,858.63		0.18		6,862.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.22	0.31	3.43	0.00	0.41	0.02	0.42	0.02	0.02	0.03		333.56		0.03		334.09
Total	**4.04**	**50.49**	**19.84**	**0.07**	**116.98**	**2.22**	**119.19**	**0.25**	**2.22**	**2.47**		**7,192.19**		**0.21**		**7,196.51**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35	0.00	7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**	**0.00**	**7,273.96**		**0.75**		**7,289.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.82	50.18	16.41	0.07	116.57	2.20	118.77	0.23	2.20	2.44		6,858.63		0.18		6,862.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.22	0.31	3.43	0.00	0.41	0.02	0.42	0.02	0.02	0.03		333.56		0.03		334.09
Total	**4.04**	**50.49**	**19.84**	**0.07**	**116.98**	**2.22**	**119.19**	**0.25**	**2.22**	**2.47**		**7,192.19**		**0.21**		**7,196.51**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01		3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**		**3,052.07**		**0.42**		**3,060.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	4.62	1.80	0.01	0.22	0.15	0.36	0.02	0.15	0.16		654.95		0.02		655.28
Worker	0.72	1.03	11.31	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,100.73		0.08		1,102.51
Total	**1.05**	**5.65**	**13.11**	**0.02**	**1.56**	**0.20**	**1.75**	**0.07**	**0.20**	**0.26**		**1,755.68**		**0.10**		**1,757.79**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01	0.00	3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**	**0.00**	**3,052.07**		**0.42**		**3,060.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	4.62	1.80	0.01	0.22	0.15	0.36	0.02	0.15	0.16		654.95		0.02		655.28
Worker	0.72	1.03	11.31	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,100.73		0.08		1,102.51
Total	**1.05**	**5.65**	**13.11**	**0.02**	**1.56**	**0.20**	**1.75**	**0.07**	**0.20**	**0.26**		**1,755.68**		**0.10**		**1,757.79**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81		3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**		**3,052.07**		**0.38**		**3,060.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	4.21	1.67	0.01	0.22	0.13	0.35	0.02	0.13	0.15		654.27		0.01		654.56
Worker	0.64	0.93	10.15	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,076.38		0.08		1,077.99
Total	**0.94**	**5.14**	**11.82**	**0.02**	**1.56**	**0.18**	**1.74**	**0.07**	**0.18**	**0.25**		**1,730.65**		**0.09**		**1,732.55**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81	0.00	3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**	**0.00**	**3,052.07**		**0.38**		**3,060.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	4.21	1.67	0.01	0.22	0.13	0.35	0.02	0.13	0.15		654.27		0.01		654.56
Worker	0.64	0.93	10.15	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,076.38		0.08		1,077.99
Total	**0.94**	**5.14**	**11.82**	**0.02**	**1.56**	**0.18**	**1.74**	**0.07**	**0.18**	**0.25**		**1,730.65**		**0.09**		**1,732.55**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27		281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**		**281.19**		**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.18	2.00	0.00	0.26	0.01	0.27	0.01	0.01	0.02		212.01		0.02		212.33
Total	**0.13**	**0.18**	**2.00**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**212.01**		**0.02**		**212.33**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27	0.00	281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**281.19**		**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.18	2.00	0.00	0.26	0.01	0.27	0.01	0.01	0.02		212.01		0.02		212.33
Total	**0.13**	**0.18**	**2.00**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**212.01**		**0.02**		**212.33**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99		1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**		**1,979.14**		**0.34**		**1,986.20**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.15	0.21	2.31	0.00	0.30	0.01	0.32	0.01	0.01	0.02		244.63		0.02		245.00
Total	**0.15**	**0.21**	**2.31**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**244.63**		**0.02**		**245.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99	0.00	1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**	**0.00**	**1,979.14**		**0.34**		**1,986.20**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.15	0.21	2.31	0.00	0.30	0.01	0.32	0.01	0.01	0.02		244.63		0.02		245.00
Total	**0.15**	**0.21**	**2.31**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**244.63**		**0.02**		**245.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Unmitigated	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
NaturalGas Unmitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22.809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.49	121.67	57.93	0.14	123.35	5.60	128.95	9.94	5.60	12.82	0.00	14,367.22	0.00	0.96	0.00	14,387.36
2013	69.84	58.13	48.13	0.08	2.12	4.28	6.40	0.09	4.28	4.36	0.00	7,267.35	0.00	0.87	0.00	7,285.70
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.49	121.67	57.93	0.14	123.35	5.60	128.95	9.94	5.60	12.82	0.00	14,367.22	0.00	0.96	0.00	14,387.36
2013	69.84	58.13	48.13	0.08	2.12	4.28	6.40	0.09	4.28	4.36	0.00	7,267.35	0.00	0.87	0.00	7,285.70
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**15.36**	**63.73**	**101.51**	**0.12**	**11.15**	**2.22**	**13.54**	**0.47**	**2.22**	**2.86**		**16,231.07**		**0.75**	**0.05**	**16,262.06**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**15.36**	**63.73**	**101.51**	**0.12**	**11.15**	**2.22**	**13.54**	**0.47**	**2.22**	**2.86**		**16,231.07**		**0.75**	**0.05**	**16,262.06**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86		5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**		**5,358.45**		**0.62**		**5,371.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.18	0.30	2.48	0.00	0.37	0.01	0.38	0.01	0.01	0.03		256.41		0.02		256.84
Total	**0.18**	**0.30**	**2.48**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**256.41**		**0.02**		**256.84**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86	0.00	5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**	**0.00**	**5,358.45**		**0.62**		**5,371.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.18	0.30	2.48	0.00	0.37	0.01	0.38	0.01	0.01	0.03		256.41		0.02		256.84
Total	**0.18**	**0.30**	**2.48**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**256.41**		**0.02**		**256.84**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35		7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**		**7,273.96**		**0.75**		**7,289.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.92	51.73	18.23	0.06	116.57	2.23	118.80	0.23	2.23	2.47		6,808.37		0.19		6,812.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.33	2.75	0.00	0.41	0.02	0.42	0.02	0.02	0.03		284.90		0.02		285.38
Total	**4.12**	**52.06**	**20.98**	**0.06**	**116.98**	**2.25**	**119.22**	**0.25**	**2.25**	**2.50**		**7,093.27**		**0.21**		**7,097.64**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35	0.00	7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**	**0.00**	**7,273.96**		**0.75**		**7,289.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.92	51.73	18.23	0.06	116.57	2.23	118.80	0.23	2.23	2.47		6,808.37		0.19		6,812.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.33	2.75	0.00	0.41	0.02	0.42	0.02	0.02	0.03		284.90		0.02		285.38
Total	**4.12**	**52.06**	**20.98**	**0.06**	**116.98**	**2.25**	**119.22**	**0.25**	**2.25**	**2.50**		**7,093.27**		**0.21**		**7,097.64**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01		3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**		**3,052.07**		**0.42**		**3,060.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.35	4.71	2.10	0.01	0.22	0.15	0.37	0.02	0.15	0.17		647.11		0.02		647.45
Worker	0.65	1.09	9.09	0.01	1.34	0.05	1.39	0.05	0.05	0.10		940.16		0.08		941.76
Total	**1.00**	**5.80**	**11.19**	**0.02**	**1.56**	**0.20**	**1.76**	**0.07**	**0.20**	**0.27**		**1,587.27**		**0.10**		**1,589.21**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01	0.00	3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**	**0.00**	**3,052.07**		**0.42**		**3,060.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.35	4.71	2.10	0.01	0.22	0.15	0.37	0.02	0.15	0.17		647.11		0.02		647.45
Worker	0.65	1.09	9.09	0.01	1.34	0.05	1.39	0.05	0.05	0.10		940.16		0.08		941.76
Total	**1.00**	**5.80**	**11.19**	**0.02**	**1.56**	**0.20**	**1.76**	**0.07**	**0.20**	**0.27**		**1,587.27**		**0.10**		**1,589.21**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81		3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**		**3,052.07**		**0.38**		**3,060.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	4.29	1.97	0.01	0.22	0.14	0.35	0.02	0.14	0.15		646.45		0.01		646.77
Worker	0.58	0.98	8.14	0.01	1.34	0.05	1.39	0.05	0.05	0.10		918.73		0.07		920.18
Total	**0.89**	**5.27**	**10.11**	**0.02**	**1.56**	**0.19**	**1.74**	**0.07**	**0.19**	**0.25**		**1,565.18**		**0.08**		**1,566.95**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81	0.00	3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**	**0.00**	**3,052.07**		**0.38**		**3,060.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	4.29	1.97	0.01	0.22	0.14	0.35	0.02	0.14	0.15		646.45		0.01		646.77
Worker	0.58	0.98	8.14	0.01	1.34	0.05	1.39	0.05	0.05	0.10		918.73		0.07		920.18
Total	**0.89**	**5.27**	**10.11**	**0.02**	**1.56**	**0.19**	**1.74**	**0.07**	**0.19**	**0.25**		**1,565.18**		**0.08**		**1,566.95**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27		281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**		**281.19**		**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.19	1.60	0.00	0.26	0.01	0.27	0.01	0.01	0.02		180.96		0.01		181.25
Total	**0.11**	**0.19**	**1.60**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**180.96**		**0.01**		**181.25**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27	0.00	281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**281.19**		**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.19	1.60	0.00	0.26	0.01	0.27	0.01	0.01	0.02		180.96		0.01		181.25
Total	**0.11**	**0.19**	**1.60**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**180.96**		**0.01**		**181.25**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99		1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**		**1,979.14**		**0.34**		**1,986.20**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.22	1.85	0.00	0.30	0.01	0.32	0.01	0.01	0.02		208.80		0.02		209.13
Total	**0.13**	**0.22**	**1.85**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**208.80**		**0.02**		**209.13**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99	0.00	1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**	**0.00**	**1,979.14**		**0.34**		**1,986.20**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.22	1.85	0.00	0.30	0.01	0.32	0.01	0.01	0.02		208.80		0.02		209.13
Total	**0.13**	**0.22**	**1.85**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**208.80**		**0.02**		**209.13**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Unmitigated	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
NaturalGas Unmitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22.809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.52	4.52	2.47	0.01	3.43	0.22	3.66	0.15	0.22	0.37	0.00	499.44	499.44	0.04	0.00	500.24
2013	1.94	1.01	0.91	0.00	0.04	0.07	0.11	0.00	0.07	0.07	0.00	127.96	127.96	0.01	0.00	128.25
Total	**2.46**	**5.53**	**3.38**	**0.01**	**3.47**	**0.29**	**3.77**	**0.15**	**0.29**	**0.44**	**0.00**	**627.40**	**627.40**	**0.05**	**0.00**	**628.49**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.52	4.52	2.47	0.01	3.43	0.22	3.66	0.15	0.22	0.37	0.00	499.44	499.44	0.04	0.00	500.24
2013	1.94	1.01	0.91	0.00	0.04	0.07	0.11	0.00	0.07	0.07	0.00	127.96	127.96	0.01	0.00	128.25
Total	**2.46**	**5.53**	**3.38**	**0.01**	**3.47**	**0.29**	**3.77**	**0.15**	**0.29**	**0.44**	**0.00**	**627.40**	**627.40**	**0.05**	**0.00**	**628.49**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	901.52	901.52	0.03	0.02	907.09
Mobile	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Waste						0.00	0.00		0.00	0.00	72.47	0.00	72.47	4.28	0.00	162.40
Water						0.00	0.00		0.00	0.00	0.00	36.47	36.47	0.28	0.01	44.67
Total	**2.72**	**11.33**	**18.52**	**0.02**	**1.82**	**0.40**	**2.25**	**0.08**	**0.40**	**0.51**	**72.47**	**3,224.88**	**3,297.35**	**4.71**	**0.03**	**3,403.58**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	901.52	901.52	0.03	0.02	907.09
Mobile	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Waste						0.00	0.00		0.00	0.00	72.47	0.00	72.47	4.28	0.00	162.40
Water						0.00	0.00		0.00	0.00	0.00	36.47	36.47	0.28	0.01	44.67
Total	**2.72**	**11.33**	**18.52**	**0.02**	**1.82**	**0.40**	**2.25**	**0.08**	**0.40**	**0.51**	**72.47**	**3,224.88**	**3,297.35**	**4.71**	**0.03**	**3,403.58**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.23	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.44	19.44	0.00	0.00	19.49
Total	**0.03**	**0.23**	**0.13**	**0.00**	**0.07**	**0.01**	**0.08**	**0.04**	**0.01**	**0.05**	**0.00**	**19.44**	**19.44**	**0.00**	**0.00**	**19.49**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	0.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.96**	**0.96**	**0.00**	**0.00**	**0.97**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.23	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.44	19.44	0.00	0.00	19.49
Total	**0.03**	**0.23**	**0.13**	**0.00**	**0.07**	**0.01**	**0.08**	**0.04**	**0.01**	**0.05**	**0.00**	**19.44**	**19.44**	**0.00**	**0.00**	**19.49**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	0.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.96**	**0.96**	**0.00**	**0.00**	**0.97**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.19	0.00	0.19	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.25	2.09	1.11	0.00		0.10	0.10		0.10	0.10	0.00	197.91	197.91	0.02	0.00	198.34
Total	**0.25**	**2.09**	**1.11**	**0.00**	**0.19**	**0.10**	**0.29**	**0.10**	**0.10**	**0.20**	**0.00**	**197.91**	**197.91**	**0.02**	**0.00**	**198.34**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.12	1.50	0.52	0.00	3.13	0.07	3.20	0.01	0.07	0.07	0.00	186.09	186.09	0.00	0.00	186.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.01	0.01	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.05
Total	**0.13**	**1.51**	**0.61**	**0.00**	**3.14**	**0.07**	**3.21**	**0.01**	**0.07**	**0.07**	**0.00**	**194.13**	**194.13**	**0.00**	**0.00**	**194.25**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.19	0.00	0.19	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.25	2.09	1.11	0.00		0.10	0.10		0.10	0.10	0.00	197.91	197.91	0.02	0.00	198.34
Total	**0.25**	**2.09**	**1.11**	**0.00**	**0.19**	**0.10**	**0.29**	**0.10**	**0.10**	**0.20**	**0.00**	**197.91**	**197.91**	**0.02**	**0.00**	**198.34**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.12	1.50	0.52	0.00	3.13	0.07	3.20	0.01	0.07	0.07	0.00	186.09	186.09	0.00	0.00	186.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.01	0.01	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.05
Total	**0.13**	**1.51**	**0.61**	**0.00**	**3.14**	**0.07**	**3.21**	**0.01**	**0.07**	**0.07**	**0.00**	**194.13**	**194.13**	**0.00**	**0.00**	**194.25**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.59	0.38	0.00		0.04	0.04		0.04	0.04	0.00	56.74	56.74	0.01	0.00	56.91
Total	**0.10**	**0.59**	**0.38**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**56.74**	**56.74**	**0.01**	**0.00**	**56.91**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.09	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.12	12.12	0.00	0.00	12.13
Worker	0.01	0.02	0.19	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	18.13	18.13	0.00	0.00	18.16
Total	**0.02**	**0.11**	**0.23**	**0.00**	**0.02**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**30.25**	**30.25**	**0.00**	**0.00**	**30.29**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.59	0.38	0.00		0.04	0.04		0.04	0.04	0.00	56.74	56.74	0.01	0.00	56.91
Total	**0.10**	**0.59**	**0.38**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**56.74**	**56.74**	**0.01**	**0.00**	**56.91**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.09	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.12	12.12	0.00	0.00	12.13
Worker	0.01	0.02	0.19	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	18.13	18.13	0.00	0.00	18.16
Total	**0.02**	**0.11**	**0.23**	**0.00**	**0.02**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**30.25**	**30.25**	**0.00**	**0.00**	**30.29**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.65	0.45	0.00		0.04	0.04		0.04	0.04	0.00	67.82	67.82	0.01	0.00	67.99
Total	**0.10**	**0.65**	**0.45**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**67.82**	**67.82**	**0.01**	**0.00**	**67.99**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.10	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	14.47	14.47	0.00	0.00	14.48
Worker	0.01	0.02	0.21	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	21.18	21.18	0.00	0.00	21.21
Total	**0.02**	**0.12**	**0.25**	**0.00**	**0.03**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**35.65**	**35.65**	**0.00**	**0.00**	**35.69**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.65	0.45	0.00		0.04	0.04		0.04	0.04	0.00	67.82	67.82	0.01	0.00	67.99
Total	**0.10**	**0.65**	**0.45**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**67.82**	**67.82**	**0.01**	**0.00**	**67.99**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.10	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	14.47	14.47	0.00	0.00	14.48
Worker	0.01	0.02	0.21	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	21.18	21.18	0.00	0.00	21.21
Total	**0.02**	**0.12**	**0.25**	**0.00**	**0.03**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**35.65**	**35.65**	**0.00**	**0.00**	**35.69**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.78					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.52	7.52	0.00	0.00	7.55
Total	**1.79**	**0.09**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.52**	**7.52**	**0.00**	**0.00**	**7.55**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.02	5.02	0.00	0.00	5.03
Total	**0.00**	**0.01**	**0.05**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.02**	**5.02**	**0.00**	**0.00**	**5.03**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.78					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.52	7.52	0.00	0.00	7.55
Total	**1.79**	**0.09**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.52**	**7.52**	**0.00**	**0.00**	**7.55**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.02	5.02	0.00	0.00	5.03
Total	**0.00**	**0.01**	**0.05**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.02**	**5.02**	**0.00**	**0.00**	**5.03**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.14	0.08	0.00		0.01	0.01		0.01	0.01	0.00	10.77	10.77	0.00	0.00	10.81
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.14**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**10.77**	**10.77**	**0.00**	**0.00**	**10.81**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18	0.00	0.00	1.18
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.18**	**1.18**	**0.00**	**0.00**	**1.18**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.14	0.08	0.00		0.01	0.01		0.01	0.01	0.00	10.77	10.77	0.00	0.00	10.81
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.14**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**10.77**	**10.77**	**0.00**	**0.00**	**10.81**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18	0.00	0.00	1.18
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.18**	**1.18**	**0.00**	**0.00**	**1.18**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Unmitigated	1.89	10.92	18.18	0.02	1.82	0.40	2.22	0.08	0.40	0.48	0.00	2,286.89	2,286.89	0.12	0.00	2,289.42
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	457.25	457.25	0.02	0.01	460.11
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	457.25	457.25	0.02	0.01	460.11
NaturalGas Mitigated	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
NaturalGas Unmitigated	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	8.3253e+006	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total		**0.04**	**0.41**	**0.34**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**444.27**	**444.27**	**0.01**	**0.01**	**446.97**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	8.3253e+006	0.04	0.41	0.34	0.00		0.00	0.03		0.00	0.03	0.00	444.27	444.27	0.01	0.01	446.97
Total		**0.04**	**0.41**	**0.34**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**444.27**	**444.27**	**0.01**	**0.01**	**446.97**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	1.572e+006					457.25	0.02	0.01	460.11
Total						**457.25**	**0.02**	**0.01**	**460.11**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	1.572e+006					457.25	0.02	0.01	460.11
Total						**457.25**	**0.02**	**0.01**	**460.11**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.79	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.18					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.61					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.79**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.18					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.61					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.79**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					36.47	0.28	0.01	44.67
Unmitigated					36.47	0.28	0.01	44.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	9.10601 / 0.581235					36.47	0.28	0.01	44.67
Total						**36.47**	**0.28**	**0.01**	**44.67**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	9.10601 / 0.581235					36.47	0.28	0.01	44.67
Total						**36.47**	**0.28**	**0.01**	**44.67**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					72.47	4.28	0.00	162.40
Unmitigated					72.47	4.28	0.00	162.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	357					72.47	4.28	0.00	162.40
Total						**72.47**	**4.28**	**0.00**	**162.40**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
High Turnover (Sit Down Restaurant)	357					72.47	4.28	0.00	162.40
Total						**72.47**	**4.28**	**0.00**	**162.40**

9.0 Vegetation

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.41	120.11	56.78	0.14	123.35	5.57	128.92	9.94	5.57	12.82	0.00	14,466.14	0.00	0.96	0.00	14,486.23
2013	69.91	57.99	50.68	0.08	2.12	4.27	6.40	0.09	4.27	4.36	0.00	7,499.70	0.00	0.88	0.00	7,518.27
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.41	120.11	56.78	0.14	123.35	5.57	128.92	9.94	5.57	12.82	0.00	14,466.14	0.00	0.96	0.00	14,486.23
2013	69.91	57.99	50.68	0.08	2.12	4.27	6.40	0.09	4.27	4.36	0.00	7,499.70	0.00	0.88	0.00	7,518.27
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**15.96**	**62.92**	**108.20**	**0.14**	**11.15**	**2.16**	**13.47**	**0.47**	**2.16**	**2.79**		**17,433.16**		**0.75**	**0.05**	**17,464.20**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**15.96**	**62.92**	**108.20**	**0.14**	**11.15**	**2.16**	**13.47**	**0.47**	**2.16**	**2.79**		**17,433.16**		**0.75**	**0.05**	**17,464.20**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86		5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**		**5,358.45**		**0.62**		**5,371.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.28	3.08	0.00	0.37	0.01	0.38	0.01	0.01	0.03		300.20		0.02		300.68
Total	**0.20**	**0.28**	**3.08**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**300.20**		**0.02**		**300.68**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86	0.00	5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**	**0.00**	**5,358.45**		**0.62**		**5,371.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.28	3.08	0.00	0.37	0.01	0.38	0.01	0.01	0.03		300.20		0.02		300.68
Total	**0.20**	**0.28**	**3.08**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**300.20**		**0.02**		**300.68**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35		7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**		**7,273.96**		**0.75**		**7,289.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.82	50.18	16.41	0.07	116.57	2.20	118.77	0.23	2.20	2.44		6,858.63		0.18		6,862.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.22	0.31	3.43	0.00	0.41	0.02	0.42	0.02	0.02	0.03		333.56		0.03		334.09
Total	**4.04**	**50.49**	**19.84**	**0.07**	**116.98**	**2.22**	**119.19**	**0.25**	**2.22**	**2.47**		**7,192.19**		**0.21**		**7,196.51**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35	0.00	7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**	**0.00**	**7,273.96**		**0.75**		**7,289.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.82	50.18	16.41	0.07	116.57	2.20	118.77	0.23	2.20	2.44		6,858.63		0.18		6,862.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.22	0.31	3.43	0.00	0.41	0.02	0.42	0.02	0.02	0.03		333.56		0.03		334.09
Total	**4.04**	**50.49**	**19.84**	**0.07**	**116.98**	**2.22**	**119.19**	**0.25**	**2.22**	**2.47**		**7,192.19**		**0.21**		**7,196.51**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01		3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**		**3,052.07**		**0.42**		**3,060.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	4.62	1.80	0.01	0.22	0.15	0.36	0.02	0.15	0.16		654.95		0.02		655.28
Worker	0.72	1.03	11.31	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,100.73		0.08		1,102.51
Total	**1.05**	**5.65**	**13.11**	**0.02**	**1.56**	**0.20**	**1.75**	**0.07**	**0.20**	**0.26**		**1,755.68**		**0.10**		**1,757.79**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01	0.00	3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**	**0.00**	**3,052.07**		**0.42**		**3,060.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	4.62	1.80	0.01	0.22	0.15	0.36	0.02	0.15	0.16		654.95		0.02		655.28
Worker	0.72	1.03	11.31	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,100.73		0.08		1,102.51
Total	**1.05**	**5.65**	**13.11**	**0.02**	**1.56**	**0.20**	**1.75**	**0.07**	**0.20**	**0.26**		**1,755.68**		**0.10**		**1,757.79**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81		3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**		**3,052.07**		**0.38**		**3,060.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	4.21	1.67	0.01	0.22	0.13	0.35	0.02	0.13	0.15		654.27		0.01		654.56
Worker	0.64	0.93	10.15	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,076.38		0.08		1,077.99
Total	**0.94**	**5.14**	**11.82**	**0.02**	**1.56**	**0.18**	**1.74**	**0.07**	**0.18**	**0.25**		**1,730.65**		**0.09**		**1,732.55**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81	0.00	3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**	**0.00**	**3,052.07**		**0.38**		**3,060.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	4.21	1.67	0.01	0.22	0.13	0.35	0.02	0.13	0.15		654.27		0.01		654.56
Worker	0.64	0.93	10.15	0.01	1.34	0.05	1.39	0.05	0.05	0.10		1,076.38		0.08		1,077.99
Total	**0.94**	**5.14**	**11.82**	**0.02**	**1.56**	**0.18**	**1.74**	**0.07**	**0.18**	**0.25**		**1,730.65**		**0.09**		**1,732.55**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27		281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**		**281.19**		**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.18	2.00	0.00	0.26	0.01	0.27	0.01	0.01	0.02		212.01		0.02		212.33
Total	**0.13**	**0.18**	**2.00**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**212.01**		**0.02**		**212.33**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27	0.00	281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**281.19**		**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.18	2.00	0.00	0.26	0.01	0.27	0.01	0.01	0.02		212.01		0.02		212.33
Total	**0.13**	**0.18**	**2.00**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**212.01**		**0.02**		**212.33**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99		1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**		**1,979.14**		**0.34**		**1,986.20**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.15	0.21	2.31	0.00	0.30	0.01	0.32	0.01	0.01	0.02		244.63		0.02		245.00
Total	**0.15**	**0.21**	**2.31**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**244.63**		**0.02**		**245.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99	0.00	1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**	**0.00**	**1,979.14**		**0.34**		**1,986.20**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.15	0.21	2.31	0.00	0.30	0.01	0.32	0.01	0.01	0.02		244.63		0.02		245.00
Total	**0.15**	**0.21**	**2.31**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**244.63**		**0.02**		**245.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Unmitigated	11.38	60.68	106.32	0.13	11.15	2.16	13.30	0.47	2.16	2.62		14,749.74		0.70		14,764.45
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
NaturalGas Unmitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22.809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Twentyninepalms Casino

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
	315	
High Turnover (Sit Down Restaurant)	30	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	32		

1.3 User Entered Comments

Project Characteristics -

Land Use - 30,000 Square Foot Casino with Restaurant and Bar - assumed "High Turnover (Sit Down Restaurant)" as surrogate land use
315 surface parking spaces

Construction Phase - Adjusted default days per phase based on 8-month construction period

Grading - Total of 13-acres disturbed

Vehicle Trips - Adjusted trip rate to match traffic section. Also, adjusted trip type %s to substantially Primary Trip based on the project location

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment - updated equipment assumptions with latest load factors

Off-road Equipment -

Off-road Equipment - updated equipment assumptions with latest load factors

Construction Off-road Equipment Mitigation -

Trips and VMT - Assumes 10 CY per haul truck

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.49	121.67	57.93	0.14	123.35	5.60	128.95	9.94	5.60	12.82	0.00	14,367.22	0.00	0.96	0.00	14,387.36
2013	69.84	58.13	48.13	0.08	2.12	4.28	6.40	0.09	4.28	4.36	0.00	7,267.35	0.00	0.87	0.00	7,285.70
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.49	121.67	57.93	0.14	123.35	5.60	128.95	9.94	5.60	12.82	0.00	14,367.22	0.00	0.96	0.00	14,387.36
2013	69.84	58.13	48.13	0.08	2.12	4.28	6.40	0.09	4.28	4.36	0.00	7,267.35	0.00	0.87	0.00	7,285.70
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**15.36**	**63.73**	**101.51**	**0.12**	**11.15**	**2.22**	**13.54**	**0.47**	**2.22**	**2.86**		**16,231.07**		**0.75**	**0.05**	**16,262.06**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Mobile	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**15.36**	**63.73**	**101.51**	**0.12**	**11.15**	**2.22**	**13.54**	**0.47**	**2.22**	**2.86**		**16,231.07**		**0.75**	**0.05**	**16,262.06**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86		5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**		**5,358.45**		**0.62**		**5,371.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.18	0.30	2.48	0.00	0.37	0.01	0.38	0.01	0.01	0.03		256.41		0.02		256.84
Total	**0.18**	**0.30**	**2.48**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**256.41**		**0.02**		**256.84**

3.2 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	6.99	56.76	32.04	0.05		2.86	2.86		2.86	2.86	0.00	5,358.45		0.62		5,371.58
Total	**6.99**	**56.76**	**32.04**	**0.05**	**18.07**	**2.86**	**20.93**	**9.93**	**2.86**	**12.79**	**0.00**	**5,358.45**		**0.62**		**5,371.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.18	0.30	2.48	0.00	0.37	0.01	0.38	0.01	0.01	0.03		256.41		0.02		256.84
Total	**0.18**	**0.30**	**2.48**	**0.00**	**0.37**	**0.01**	**0.38**	**0.01**	**0.01**	**0.03**		**256.41**		**0.02**		**256.84**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35		7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**		**7,273.96**		**0.75**		**7,289.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.92	51.73	18.23	0.06	116.57	2.23	118.80	0.23	2.23	2.47		6,808.37		0.19		6,812.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.33	2.75	0.00	0.41	0.02	0.42	0.02	0.02	0.03		284.90		0.02		285.38
Total	**4.12**	**52.06**	**20.98**	**0.06**	**116.98**	**2.25**	**119.22**	**0.25**	**2.25**	**2.50**		**7,093.27**		**0.21**		**7,097.64**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.37	0.00	6.37	3.33	0.00	3.33						0.00
Off-Road	8.37	69.61	36.94	0.07		3.35	3.35		3.35	3.35	0.00	7,273.96		0.75		7,289.72
Total	**8.37**	**69.61**	**36.94**	**0.07**	**6.37**	**3.35**	**9.72**	**3.33**	**3.35**	**6.68**	**0.00**	**7,273.96**		**0.75**		**7,289.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.92	51.73	18.23	0.06	116.57	2.23	118.80	0.23	2.23	2.47		6,808.37		0.19		6,812.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.33	2.75	0.00	0.41	0.02	0.42	0.02	0.02	0.03		284.90		0.02		285.38
Total	**4.12**	**52.06**	**20.98**	**0.06**	**116.98**	**2.25**	**119.22**	**0.25**	**2.25**	**2.50**		**7,093.27**		**0.21**		**7,097.64**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01		3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**		**3,052.07**		**0.42**		**3,060.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.35	4.71	2.10	0.01	0.22	0.15	0.37	0.02	0.15	0.17		647.11		0.02		647.45
Worker	0.65	1.09	9.09	0.01	1.34	0.05	1.39	0.05	0.05	0.10		940.16		0.08		941.76
Total	**1.00**	**5.80**	**11.19**	**0.02**	**1.56**	**0.20**	**1.76**	**0.07**	**0.20**	**0.27**		**1,587.27**		**0.10**		**1,589.21**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.64	28.56	18.70	0.03		2.01	2.01		2.01	2.01	0.00	3,052.07		0.42		3,060.83
Total	**4.64**	**28.56**	**18.70**	**0.03**		**2.01**	**2.01**		**2.01**	**2.01**	**0.00**	**3,052.07**		**0.42**		**3,060.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.35	4.71	2.10	0.01	0.22	0.15	0.37	0.02	0.15	0.17		647.11		0.02		647.45
Worker	0.65	1.09	9.09	0.01	1.34	0.05	1.39	0.05	0.05	0.10		940.16		0.08		941.76
Total	**1.00**	**5.80**	**11.19**	**0.02**	**1.56**	**0.20**	**1.76**	**0.07**	**0.20**	**0.27**		**1,587.27**		**0.10**		**1,589.21**

3.4 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81		3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**		**3,052.07**		**0.38**		**3,060.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	4.29	1.97	0.01	0.22	0.14	0.35	0.02	0.14	0.15		646.45		0.01		646.77
Worker	0.58	0.98	8.14	0.01	1.34	0.05	1.39	0.05	0.05	0.10		918.73		0.07		920.18
Total	**0.89**	**5.27**	**10.11**	**0.02**	**1.56**	**0.19**	**1.74**	**0.07**	**0.19**	**0.25**		**1,565.18**		**0.08**		**1,566.95**

3.4 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.26	26.56	18.45	0.03		1.81	1.81		1.81	1.81	0.00	3,052.07		0.38		3,060.07
Total	**4.26**	**26.56**	**18.45**	**0.03**		**1.81**	**1.81**		**1.81**	**1.81**	**0.00**	**3,052.07**		**0.38**		**3,060.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	4.29	1.97	0.01	0.22	0.14	0.35	0.02	0.14	0.15		646.45		0.01		646.77
Worker	0.58	0.98	8.14	0.01	1.34	0.05	1.39	0.05	0.05	0.10		918.73		0.07		920.18
Total	**0.89**	**5.27**	**10.11**	**0.02**	**1.56**	**0.19**	**1.74**	**0.07**	**0.19**	**0.25**		**1,565.18**		**0.08**		**1,566.95**

3.5 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27		281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**		**281.19**		**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.19	1.60	0.00	0.26	0.01	0.27	0.01	0.01	0.02		180.96		0.01		181.25
Total	**0.11**	**0.19**	**1.60**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**180.96**		**0.01**		**181.25**

3.5 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	60.20					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27	0.00	281.19		0.04		282.10
Total	**60.69**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**281.19**		**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.19	1.60	0.00	0.26	0.01	0.27	0.01	0.01	0.02		180.96		0.01		181.25
Total	**0.11**	**0.19**	**1.60**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**180.96**		**0.01**		**181.25**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99		1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**		**1,979.14**		**0.34**		**1,986.20**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.22	1.85	0.00	0.30	0.01	0.32	0.01	0.01	0.02		208.80		0.02		209.13
Total	**0.13**	**0.22**	**1.85**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**208.80**		**0.02**		**209.13**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.75	22.93	14.17	0.02		1.99	1.99		1.99	1.99	0.00	1,979.14		0.34		1,986.20
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**3.75**	**22.93**	**14.17**	**0.02**		**1.99**	**1.99**		**1.99**	**1.99**	**0.00**	**1,979.14**		**0.34**		**1,986.20**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.22	1.85	0.00	0.30	0.01	0.32	0.01	0.01	0.02		208.80		0.02		209.13
Total	**0.13**	**0.22**	**1.85**	**0.00**	**0.30**	**0.01**	**0.32**	**0.01**	**0.01**	**0.02**		**208.80**		**0.02**		**209.13**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Unmitigated	10.78	61.49	99.63	0.11	11.15	2.22	13.37	0.47	2.22	2.69		13,547.65		0.70		13,562.31
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	1,362.00	1,362.00	1362.00	3,342,400	3,342,400
	0.00	0.00	0.00		
Total	1,362.00	1,362.00	1,362.00	3,342,400	3,342,400

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
High Turnover (Sit Down Restaurant)	14.70	6.60	6.60	8.50	72.50	19.00
	14.70	6.60	6.60			

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
NaturalGas Unmitigated	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	22.809	0.25	2.24	1.88	0.01		0.00	0.17		0.00	0.17		2,683.42		0.05	0.05	2,699.75
Total		**0.25**	**2.24**	**1.88**	**0.01**		**0.00**	**0.17**		**0.00**	**0.17**		**2,683.42**		**0.05**	**0.05**	**2,699.75**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.33	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.99					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.34					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.33**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix C
Geotechnical Investigation

ESA

Pezonella Associates, Inc.
Geotechnical & Environmental Engineers & Geologists
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December 21, 2012
Project Number 6448.01-A

Twentynine Palms Enterprise Corporation
46200 Harrison Place
Coachella, CA 92236

Attn: Darrel Mike, Chairman

Re: Geotechnical Investigation Clarification, Proposed Tortoise Rock Casino, Adobe Road and Baseline Road, 29 Palms, California

Dear Mr. Mike:

Pezonella Associates prepared a draft geotechnical investigation report for the referenced development. We have been asked by Mr. Todd Pennington to provide additional information concerning our report. Based on our review of this request, we have the following comments:

1. Conversations with the Tewntynine Palms Community Development Department confirm that native soils in the area do not exhibit elevated levels of sulfates. Therefore, Type II portland cement concrete is appropriate for use.

2. Our report states that the potential for liquefaction to occur is very low based on the dense to very dense nature of the native soils and absence of groundwater in the upper 30 feet. In our opinion, the upper 30 feet of supporting soil is not susceptible to liquefaction.

3. The *EPA Map of Radon Zones in California* depicts San Bernardino County as an area with a predicted average indoor radon screening level between 2 and 4 pCi/L, or a "moderate radon potential". Testing to determine the potential presence of radon could be performed prior to development, or a passive radon mitigation system could be incorporated in design. Our office can be of assistance with testing or design of a passive system.

We trust that this provides the information you need. If you have any questions, please contact us.

Respectfully,

PEZONELLA ASSOCIATES, INC.

Chris D. Betts, P.E.
Project Manager

GEOTECHNICAL INVESTIGATION

PROPOSED

TORTOISE ROCK CASINO

Adobe Road and Baseline Road

TWENTYNINE PALMS, CALIFORNIA

Prepared For

Twentynine Palms Enterprise Corporation
46200 Harrison Place
Coachella, CA 92236

Attention: Darrel Mike, Chairman

November 30, 2012

Project Number 6448.01-A

November 30, 2012
Project Number 6448.01-A

Twentynine Palms Enterprise Corporation
46200 Harrison Place
Coachella, CA 92236

Attn: Darrel Mike, Chairman

Re: Geotechnical Investigation, Proposed Tortoise Rock Casino,
Adobe Road and Baseline Road, 29 Palms, California

Dear Mr. Mike:

Pezonella Associates is pleased to present results of the geotechnical investigation our firm performed for design and construction of the above-referenced project. Based on the results of our investigation, knowledge of the area, and understanding of the proposed project, we conclude that the site is suitable for its intended use. The primary concerns to be considered in the design and construction of the project are the relatively **low density states** of the upper native soils, the location of the **floodplain**, the presence of **abundant roots and/or organic matter**, the **clean (little or no binder) nature** of portions of the native soils, and the presence of **oversize aggregate**.

We appreciate having been selected to perform this investigation and trust the results fulfill your needs. If you or your design consultants have questions please contact us.

Respectfully,

PEZONELLA ASSOCIATES, INC.

_____
Chris D. Betts, P.E.
Senior Engineer

_____
Raymond M. Pezonella, P.E.
President

C O N T E N T S

Pezonella Associates, Inc.
520 Edison Way
Reno, Nevada 89502

I INTRODUCTION

This report presents results of the geotechnical investigation our firm performed for design and construction for proposed Tortoise Rock Casino in Twentynine Palms, California. Development will include construction of an isolated building pad for a 30,000 square-foot structures to be serviced by community water and sewer systems, with on-site storm water retention. The structure will have one level will be wood and steel-framed with slab-on-grade floors, and will be supported with shallow conventional spread foundations . Parking areas and accessways will be surfaced with asphaltic concrete.

We understand that typical wall loads are on the order of 6.6 kip per foot (dead plus live load), and that typical column loads are on the order of 92 kips (dead plus live load). For frost protection, perimeter foundations will bottom at least 18 inches below lowest adjacent exterior ground surface. Structural design will follow criteria outlined in the 2010 *California Building Code*.

Based on preliminary information by MSA Consulting, Inc., we understand that earthwork necessary to create a finished pad elevation of 2079.33 will result in fills from about 1 to 9 feet. Depth of utility trench excavation will be less than 5 feet below finished grade. New slopes will be constructed at maximum final inclination of three horizontal to one vertical (3H:1V), or flatter. Shallow site earth retaining walls are proposed. Existing underground utilities in proposed structural areas will be abandoned or relocated.

The purpose of our investigation was to assess the subsurface soil conditions across the site and to provide opinions and recommendations concerning:

1. Potential geological hazards
2. Site preparation and grading
3. Soil engineering criteria for foundation design with estimates of settlement
4. Support of slabs-on-grade and exterior flatwork
5. Design and support of flexible pavement sections

This report is geotechnical in nature and not intended to identify other site constraints such as environmental hazards, wetlands determinations or the potential presence of buried utilities. Recommendations included in this report are specific to development at the site, and are not intended for off-site development.

Proposed development outside the limits of our investigation, or conceptual changes to the project such as the use of alternative foundations or grade changes could require additional drilling, laboratory testing, and engineering analysis.

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II FIELD EXPLORATION AND LABORATORY TESTS

To attain an overview of underlying soil conditions at the site, we reviewed subsurface exploration our firm previously conducted across the site (see Appendix A) Pezonella Associates drilled 15 test borings with a truck-mounted Central Mine Equipment (CME 55) drill rig using 7.125-inch outside diameter hollow-stem augers with AW drill rods. The borings were advanced to depths of 11 to 31 feet below ground. Boring B10 was not drilled due to time constraints and the consistency of materials. Our field engineer logged the visual descriptions of the earth materials. Representative soil samples were collected from the test borings in an 18-inch split-spoon sampler using a 140-pound safety hammer with a 30-inch drop from a cathead release mechanism. The number of blows per foot required to advance the sampler were recorded using methods of the Standard Penetration Test (SPT). A 3-inch outside diameter split-spoon sampler was used in an attempt to obtain relatively undisturbed samples for laboratory tests. The sampling method used with the oversize sampler was similar to the SPT, and the blow counts were converted to the SPT using a correction factor of 0.54. However, blow counts are generally higher due to the larger diameter, and therefore should not be directly correlated to the SPT. The test borings were loosely backfilled with auger cuttings. Logs of the test borings are presented in Plates 2 through 13. The materials encountered were classified in accordance with the Unified Soil Classification System, which is explained on Plate 14 (see Appendix A).

The samples were returned to our laboratory and reviewed by our staff engineer to confirm field classifications, select representative samples for laboratory testing, and to determine engineering design parameters. Results of in-situ dry unit weight and moisture content determinations, particle size analysis, Resistance R-Value tests, compaction test data, and sand equivalent are presented on the logs and on Plates 15 through 24 (see Appendix A).

To supplement our previous work and to assess the Site Classification in accordance with Tables 1613.5.2 (Site Class Definitions) and 1613.5.5 of the 2010 *California Building Code*, we performed six seismic surveys to measure the average soil shear wave velocity. The survey was performed using Refraction Microtremor (ReMi) methods with DAQ link 12-channel seismic acquisition units, and Vscope software. The data were processed using SeisOpt ReMi Version 4 software. The surveys were positioned in the field using the pace and compass method and our understanding of project development. Results are depicted on Plate 1 with respect to a preliminary site plan provided by MSA Consulting. Survey locations are approximate. No greater accuracy is implied. Results of our surveys are presented on Plates 2 through 6.

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Reno, Nevada 89502

III SITE AND SOIL CONDITIONS

The approximately 162.13-acre parcel is the NW¼ of Section 4, T1S, R9E, S.B.B.M, and is located to the southeast of the intersection of Adobe Road and Base Line Road, south of Twentynine Palms, California. The parcel is bordered by Adobe Road and the Joshua Tree National Park on the west, Base Line Road on the north, Desert Knoll Avenue on the east, and Twilight Drive on the south.

The property is currently undeveloped. The surface of most of the site grades moderately to gently downward toward the north (Baseline Road) at a gradient of less than 5 percent, and is moderately well covered with a variety of different cacti, sagebrush, shrubs to 3 ft. in height, and annual grasses and weeds. Abundant angular to subangular rock fragments up to 18-inches in size cover the non-mountainous portion of the site. Evidence of historic and recent flash flooding is obvious from the numerous well-incised channels ranging to as much as 3 feet in depth. The older watercourses have well-rounded sides while the more recent ones have sharper, less eroded, sides. The southwestern corner of the property rises steeply into the eastern end of the Pinto Mountains.

According to mapping by the *Soil Web Survey*, soil data is unavailable for the subject property.

Our investigation was performed to characterize the nature of the soils underlying the entire site (excluding the steep hillside at the southwest corner) with emphasis focused where development is proposed. The underlying soils are silty sand (SM) with gravel and cobbles, poorly graded sand (SP) with gravel, and well-graded sand (SW-SM) with silt and gravel. These soils are loose to medium dense near the surface, becoming medium dense to dense below a depth of 2 to 3 feet. The moisture content of the sands is mostly dry with a few of the silty sands exhibiting slight moisture. The gravel and cobbles are all angular to subangular.

We estimate that the percentage of rock larger than a nominal diameter of 1 foot that may be encountered during excavation is about 10% and larger than 2 feet is about 5%. We do not anticipate a significant amount of rocks larger than 3 feet will be encountered.

Groundwater was not encountered in any of the borings to a maximum depth of 31 feet. The nearby Oasis of Mara, approximately 1 mile northeast of the property, possibly exists due to groundwater reaching the Pinto Mountain fault zone and rising to the surface.

IV. GEOLOGIC AND SEISMIC CONSIDERATIONS

To determine the potential for geologic hazards on the site, our investigation included a review of available geological literature and maps.

A. Geology

The property is located in the southeastern Mojave Desert where moderately rugged mountains form discontinuous northwest-trending ranges up to 50 miles in length (*A geologic reconnaissance in the southeastern Mojave Desert*, California Division of Mines and Geology Special Report 83, 1964). The Bullion Mountains are located to the north, the Sheephole Mountains to the east, and the Pinto Mountains to the south and southwest. The report indicates the area is considered a part of the Basin and Range province characterized by northwest-trending faults. Geologic mapping included in this report shows undifferentiated metamorphic rocks occur as a north-trending flank of the Pinto Mountains extending into the southwestern corner of the property. The age of these rocks is given as Pre-Cenozoic. The mapping also shows the soils at the property are Quaternary alluvium (Qa), consisting of valley fill, alluvial fan deposits, stream gravels, talus, and other modern materials.

B. Faulting and Seismicity

The nearest faults, as shown in the above referenced Special Report and the USGS Earthquake Hazards Program, are the northwest trending Camp Rock Emerson-Copper Mountains fault zone, Copper Mountain section (about 9 miles northwest of the site), an apparent splay of the east-trending Pinto Mountain fault zone (about 0.55 miles north of the site), and the northwest-trending Mesquite Lake fault (about 3 miles northeast of the site), the latter two of which appear to intersect about 3 miles east of the property. The USGS Quaternary Fault and Fold Database (2003) indicate the nearest active fault is associated with the east-trending Holocene-active Pinto Mountain fault zone, a sinistral strike-slip fault that forms the boundary between the Transverse Ranges and the Mojave Desert. The fault zone, including the Morongo Valley fault, extends approximately 55-60 miles from east of Twentynine Palms to the San Andreas fault. The slip-rate is shown to be between 1.0 and 5.0 mm/yr with the most recent prehistoric deformation given as occurring within the last 15,000 years. The Probable Magnitude is given as M_w 6.5 - 7.5. The Geological Society of America *Abstracts with Programs*, Vol. 36, No. 5, p. 137, Ana M. Cadena, et al, suggests that 5 to 6 surface ruptures have occurred on 7 strands of the Pinto Mountain fault zone near the Oasis of Mara over the last 14,000 years with 4 of these events within the past 9,400 years (Holocene, or Recent, activity). The Alquist-Priolo Special Studies Zones Map for the area shows the nearest mapped strand of the Pinto Mountain fault zone occurs about 500 feet NE of the property, at the Oasis of Mara.

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From the USGS Earthquake Hazards Program, 2003 NEHRP Seismic Design Provisions, the interpolated probabilistic ground motion values at the project site for an earthquake of this magnitude (M_w 6.5 - 7.5) include a Peak Ground Acceleration (PGA) of 0.396g with a 10% Probability of Exceedance in 50 years. This PGA has been downgraded to 0.361g in the 2008 NEHRP Seismic Design Provisions.

Interpolated probabilistic ground motion values were calculated for the site using the 2009 International Building Code Standard at the USGS *Earthquake Hazards Program* website. The S_s value for a spectral acceleration period of 0.2 seconds is 1.849*g*. The S_1 value for a spectral acceleration period of 1.0 seconds 0.730*g* (Latitude 34.119192 and Longitude -116.051518).

To assess the Soil Profile Type in accordance with Tables 1613.5.2 (Site Class Definitions) and 1613.5.5 of the 2010 California Building Code, we performed seismic surveys (see Plates 1 through 6) to measure the average soil shear wave velocity. The survey was performed using Refraction Microtremor (ReMi) methods with DAQ link 12-channel seismic acquisition units, Vscope software, and 25-foot channel spacing. The data were processed using SeisOpt ReMi Version 4 software. Based on our survey the subsurface soils to a depth of 100 feet approximate a Site Class of C (*very dense soil and soft rock*).

C. Liquefaction

Liquefaction is the loss of soil shear strength of cohesionless soils undergoing seismic stress when the pore water pressure induced in the soils becomes equal to the overburden pressure. There are a large number of factors that significantly affect the liquefaction characteristics of any given sand. These include: relative density, grain structure or fabric, length of time the sand is subjected to sustained pressure, the value of the lateral earth pressure coefficient, and prior seismic or other shear strains to which the sand may have been subjected. The liquefaction potential is generally considered greatest in saturated, loose, poorly graded fine sands with a mean grain size (D_{50}) in the range of 0.075 to 0.2 mm. Recent studies, by others, have shown that liquefaction may occur under certain conditions in fine-grained soils with a mean grain size (D_{50}) as small as 0.02 mm.

The soils underlying the site are mostly dense to very dense silty sand (SM) with gravel and cobbles with interbeds of poorly graded (SP) and well graded (SW) sand with gravel to the depth investigated. A detailed analysis of the liquefaction potential would require additional drilling to depths of up to 50 feet, or more, plus detailed laboratory testing and engineering analysis. The absence of groundwater in the upper 30 feet and dense nature of the soils suggests that the potential for liquefaction is very low. If future information is requested, our office can be of assistance.

D. Slope Stability

The native soils are non-cohesive, and generally dense to very dense. We understand that development of the property will not occur in the mountainous southwest corner. We anticipate that proposed cut and fill slopes in the alluvial materials will be 3:1, or flatter, and less than 10 feet in height. From this, we believe that the susceptibility of the site to rockfalls or slope failures can be considered low. Shoring will be necessary in trench excavations.

E. Radon

Radon, a colorless, odorless, radioactive gas derived from the natural decay of uranium, is found in nearly all rocks and soils. The Environmental Protection Agency (EPA) suggests that remedial action be taken to reduce radon in any structure with average indoor radon of 4.0 picocuries per liter (pCi/L) or more. Based on review of *EPA Map of Radon Zones in California* (http://www.epa.gov/radon/zonemap/california.htm), San Bernadino county is in an area with a predicted average indoor radon screening level between 2 and 4 pCi/L, or a "moderate radon potential".

F. Flooding

Flood hazard studies completed by the Federal Emergency Management Agency (FEMA), Community Panel Number 06071C8935F, dated March 18, 1996, indicate that the majority of the site is located within Flood Hazard Zone AO (shaded), whereas the southwestern corner of the site is located within Flood Hazard Zone X (unshaded). Flood Hazard Zone X represents areas determined to be outside the 500-year floodplain, while Flood Hazard Zone AO (shaded) represents areas with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities have also been determined. The depth of flow on the property is 1 foot and the velocities range from 4 ft/sec in Joshua Mountain Wash in the northwest corner of the property, to 6 ft/sec, except for a portion along Baseline Road where the velocity is 5 ft/sec.

V CONCLUSIONS

Based on the results of our investigation, knowledge of the area, and understanding of the proposed project, we conclude that the site is suitable for its intended use. The primary concerns to be considered in the design and construction of the project are the relatively **low density states** of the upper native soils, the location of the **floodplain**, the presence of **abundant roots and/or organic matter**, the **clean (little or no binder) nature** of portions of the native soils, and the presence of **oversize aggregate**.

The upper native soils are in a low (i.e. loose) density state. Loose soils can undergo a loss of shear strength, especially when wet, resulting in movement of foundations, slabs-on-grade, exterior flatwork and pavement sections. Wet conditions can occur due to seasonal variations in precipitation, landscape irrigation, broken or leaking water pipes and sewer lines, and/or poor site drainage. To provide for adequate support of proposed improvements, a portion of the loose soils should be up-graded through compaction as recommended.

Experience has shown that movement can be expected even if the recommended removal depth is followed whenever underlying loose soils are allowed to remain. Therefore, the intent of our recommendations is to control movement without exceeding economic feasibility; however, the Owner or Developer should weigh the benefits of deeper up-grading.

Alternatively, to mitigate the potential for movement associated with loose soil, pavement sections can be supported with a geotextile fabric. Our office can be of assistance in the design regarding the use of any of these alternatives if requested.

Consideration should be given to material volume loss (i.e. shrinkage) which will occur during densification of loose soils. Loose soils can also lead to instability in sidewall excavation and increase in lateral excavation dimensions and trench widths due to widening, overbreak, or caving. We anticipate stabilization measures such as installing shoring will be necessary in order to maintain stable excavations and to ensure safety.

The majority of the property is in Flood Hazard Zone AO with a mapped depth of flow of 1 foot during summer thunderstorms, and resultant velocities from 4 to 6 ft/sec. The numerous eroded channels across the property, to 3 feet in depth, are consistent with these velocities. Damage from these flows will need to be mitigated through construction of some form of flood control structures.

Abundant roots and/or organics were noted within the near surface soils. Additionally, consideration should be given to abundant roots that will be associated with the presence of small shrubs. Decomposition of these materials can result in unacceptable movement within development areas and, consequently, the materials are not suitable for reuse as fill in development areas; however, they may be wasted in designated landscape or "non-structural" areas. Consideration should be given to the increased costs associated with clearing and stripping of these materials, and the associated material volume loss.

Our investigation reveals that portions of the underlying materials are relatively clean and loose, and, as such, contain little or no binder. Consideration should be given to the increased difficulty associated with moisture conditioning and attaining specified compaction associated with clean soils. Additionally, consideration should be given to the potential for overbreak of excavation sidewalls and the subsequent lateral increase in the pit dimensions and trench widths due to widening or overbreak.

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Portions of the underlying materials contain oversize material such as gravel, cobbles and possibly boulders. Consideration should be given to the difficulty of earthwork associated with these materials and the fact that excavation depths can be limited. Based on the results of our field exploration, we believe that excavations limited to the upper 15 feet can be excavated, overall, with a 215 track-mounted Caterpillar Backhoe or equivalent earthmoving equipment. We estimate that the percentage of rock larger than a nominal diameter of 1 foot that may be encountered during excavation is about 10% and larger than 2 feet is about 5%. We do not anticipate that very many rocks larger than 3 feet will be encountered.

Resistant areas may be encountered which could require the use of specialty equipment such as a hydraulic rock hammer; however, we do not believe that blasting will be necessary. Where encountered, removal of cobbles or boulders can result in undercutting of excavation sidewalls. The resulting trench width could be increased substantially and overbreak can occur. Additionally, as the presence of oversize material will affect fine grading, a leveling course could be needed to maintain structural sections. Boulders that protrude into foundations will require drilling, and epoxy for reinforcing steel and footings may need to be formed and/or stepped.

Consideration should be given to the subsequent reduction of the quantity of material available for use as fill/backfill as oversize material (over 18 inches in maximum dimension), which will require screening, may be generated during grading operations. Screening of oversize material will reduce the volume of material available for reuse unless sufficiently large equipment designed for compacting rock fill is utilized. Screened rock could require off-hauling, thus requiring import material to balance earthwork quantities or to attain proposed grades. Screened oversize material may be stockpiled for use within landscape areas or possibly as rip rap. Landscaping which incorporates oversize material should be considered.

Studies regarding the presence of radon gas suggest the project site is in an area with a "moderate radon potential". Determinations regarding the potential presence of radon gas should be considered prior to site development.

The liquefaction potential is considered very low, based on the absence of groundwater and the encountered soil conditions.

There are no apparent geologic or geotechnical hazards that would place unusual constraints on the project.

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Reno, Nevada 89502

VI. RECOMMENDATIONS

A. Site Preparation and Grading

Any debris, rubbish or vegetation should be cleared from development areas. These materials should be removed from the site. Subsequently, as directed by the Geotechnical Engineer (or his representative in the field), roots or organic laden soil should be stripped and evenly blended with soil for reuse in landscape areas. Consideration should be given to the complete removal of roots/organics associated with the drainage channels, and shrubs. We estimate that the upper soil of will require minor stripping; however, deeper removal may be necessary where drainage channels and/or shrubs exist. Root systems remaining after stripping can be disked or tilled in-place through the use of a disk harrow or equivalent equipment.

Organic matter and soil to be wasted in landscape or designated "non-structural" areas should be moisture conditioned, placed in 8-inch loose lifts and compacted to provide a surface that is firm. Delineation of any designated “non-structural” area where blended vegetation and organics are placed should be illustrated on the “As-Built” plans in order to assist where future development (i.e. additions, roads, walkways) is proposed.

In development areas, native soils should be compacted using vibratory equipment to provide for at least 24 inches of approved structural fill at least 95 percent relative compaction[1] below planned footing grade, and 12 inches below subgrade to slabs-on-grade, exterior flatwork and pavement sections. Attaining the recommended compaction depths may require removal (over-excavation) depending on the equipment used.

All compacted soil should extend laterally beyond foundations at least 5 feet, and beyond flatwork and pavement edges a distance equivalent to the total depth vertically up-graded.

The surfaces exposed by clearing, stripping, removal or overexcavation should be observed by the Geotechnical Engineer (or his representative in the field) to document that the conditions are as anticipated and that no objectionable materials exist. Approved surfaces should be scarified to a depth of 12 inches, moisture conditioned to near optimum and compacted to at least 95 percent relative compaction[2]. Where compaction is inhibited, such as due to the presence of oversize aggregate, compaction of the exposed surface with sufficiently large and appropriate equipment (approved by the Geotechnical Engineer) may be required. The number of compaction passes will be determined by the Geotechnical Engineer (or his representative in the field) based on the condition of the exposed surface and the equipment used.

[1] Relative compaction refers to the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same soil, as determined by the laboratory procedure ASTM Test Designation: D 1557.

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The Earthwork Contractor is responsible for obtaining approval for each prepared surface prior to proceeding with placement of structural components and/or any new fill and for maintaining the recommended moisture content during construction.

B. Material Quality and Reuse

Where fill is proposed, structural zones are defined as the area 36 inches below and laterally away from foundations and subgrade to slabs-on-grade, and 24 inches below and laterally away from planned subgrade to exterior flatwork and flexible sections. Mass zones are defined as all areas outside the structural zones. In general, only approved structural fill materials may be utilized within structural zones; however, materials which do not meet the requirements for structural fill may be used in mass zones with the prior approval of the Geotechnical Engineer or governing agency.

Imported structural fill should be non-corrosive, free of organic matter and conform, in general, to the following requirements:

Sieve Size	% Passing (by dry weight)
4-inch	100
¾-inch	70 – 100
No. 40	15 – 65
No. 200	5 – 20

Maximum Liquid Limit: 35
Maximum Plasticity Index: 12
Maximum Expansion Index: 20
Minimum Resistance Value: 50

The majority of native soils, once screened of oversize aggregate, may be reused as structural fill in non-dedicated areas; however, portions may not meet requirements for structural fill in dedicated area. Generally, materials which do not meet the requirements for structural fill may be reused as mass fill outside the defined structural zones with approval of the Geotechnical Engineer.

The Earthwork Contractor shall ensure that proposed fills are approved by the Geotechnical Engineer (or his representative in the field). Fill sources shall be identified at least 10 working days prior to use to allow for sampling and testing.

Structural fill material shall be conditioned to near-optimum moisture content and compacted to at least 95 percent relative compaction. Mass fill should be conditioned to a near-optimum moisture content (2 to 4 percent over-optimum if clayey or fine-grained) and compacted to at least 90 percent relative compaction. The thickness of all lifts will be restricted to a maximum of 8 inches (loose), and individually tested, unless the Earthwork Contractor can demonstrate his ability to uniformly achieve the required compaction for the entire layer of material placed. If any surface or layer becomes frozen, earthwork construction cannot proceed until it is allowed to thaw. The Earthwork Contractor shall obtain approval from the Geotechnical Engineer (or his representative in the field) of each lift prior to placement of subsequent fill and for maintaining the recommended moisture content during construction.

The recommendations for structural fill are intended as a guideline and define a readily attainable, acceptable material. Adjustments to the specified gradation limits to address the use of other potentially acceptable materials, such as those containing oversize particles (typically, material retained on the ¾-inch sieve), or which deviate from the classification requirements, may be made provided: 1) the Earthwork Contractor can demonstrate his ability to place and compact the material in substantial conformance with industry standards to achieve an equivalent finished product as that specified; 2) the Geotechnical Engineer gives his written approval (requires a minimum of 5 working days from request); 3) the Geotechnical Engineer (or his representative) directly observes and approves the placement method; and 4) all parties understand that the Standard ASTM Compaction Test procedures are invalid when the oversize fraction retained on the ¾-inch sieve is 30 percent or more, or the oversize fraction retained on the No. 4 sieve is 40 percent or more. Where select fill containing oversize particles is allowed, compaction approval will be based on other criteria such as a performance specification with sufficient on-site observation. This will result in substantial increase of Technician time and the subsequent cost of inspection services.

C. Site Drainage and Landscape

The ground surface shall be permanently sloped (at least ½-percent for concrete, 1 percent for bituminous concrete, and 2 to 5 percent for soil) to drain away from any structure or improvement for at least 10 feet, so that water is not allowed to pond against perimeter walls, and to restrict infiltration within exterior flatwork and pavement areas. Gutters, with downspouts connected to solid pipe, shall be used to contain storm water and direct it away from any structure. Landscaping adjacent to structures should be limited and irrigation should be drip-type.

To mitigate the potential for water to collect within the structural section and to prevent the potential buildup of hydrostatic pressure, a provision such as a gravity outlet with positive drainage, French drain or sump pump, which can convey any collected water to a disposal area outside the building should be considered.

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To control water migration, an impermeable membrane, such as 10-mil plastic sheeting, should be placed between foundations or grade beams and backfill and extend a sufficient distance to effectively cover all placed backfill (see Plate 25). Backfill around foundations or grade beams should be moisture conditioned to near optimum, and compacted to at least 88 percent relative compaction.

D. Foundation Support and Lateral Resistance

Conventional spread or slab foundations can gain adequate support on specified minimum 24-inch section of approved compacted structural fill material (see Subsections A and B). In preparation for foundation construction, the Earthwork Contractor shall ensure that field density tests have been performed to document the relative compaction of the upper 6 inches of exposed materials and all new fill, and shall be responsible for maintaining the recommended moisture content during construction. Preparation of these materials shall be documented prior to placement of structural components.

For frost protection, foundations must bottom at least 18 inches below lowest adjacent exterior ground surface as required by the local governing agency. For conventional spread or slab foundations so supported, we recommend the use of an allowable dead plus long-term live load bearing capacity of 3,000 pounds per square foot (psf). The allowable pressure can be increased by 1/3 for total load including wind or seismic forces. Resistance to lateral loads can be obtained from passive earth pressure and soil friction. For design, we recommend a passive earth resistance of 250 pounds per cubic foot (equivalent fluid) per foot of depth and a friction factor of 0.40.

For foundations constructed as recommended, we judge that total post-construction movement associated with foundation loads will be approximately 1-inch and total post-construction differential movement will be about ½-inch.

As previously discussed, based on our survey the subsurface soils to a depth of 100 feet approximate a Site Class of C (*very dense soil and soft rock*).

For design of retaining walls founded on, and supporting native soil, the following values may be used:

Dry Unit Weight	125 pcf
Friction Angle	34 degrees
Cohesion	0 psf
Coefficient of Soil Friction	0.40
Active Soil Pressure	30 pcf (unrestrained)
Active Soil Pressure	60 psf (at rest, or restrained)

Adequate corrosion potential mitigation can be obtained by using properly prepared and placed Type II portland cement concrete, by maintaining a minimum (3-inch) concrete cover where reinforcing steel or other metal is in close proximity to native soils and, at the direction of the Manufacturer, by using special coating on reinforcing steel and metal.

E. Slab-on-Grade Support

Slabs-on-grade and exterior flatwork such as walkways, can gain adequate support on the previously specified minimum 12-inch section of approved compacted (with vibratory equipment) structural fill material (see Subsections A and B). In preparation for slab and flatwork construction, the Earthwork Contractor shall ensure that field density tests have been performed to document the relative compaction of the upper 6 inches of exposed materials and all new fill, and shall be responsible for maintaining the recommended moisture content during construction. Preparation of these materials shall be documented prior to placement of crushed gravel, aggregate base and/or structural components.

To provide uniform slab section support, all subgrade surfaces (below the aggregate base layer) including utility trenches should be scarified; moisture conditioned, and compacted with **vibratory equipment** to at least 95 percent relative compaction. The resulting surface should be smooth, firm and non-yielding.

For slab-on-grade design, a Modulus of Subgrade Reaction (k) of 200 pounds per square inch per inch may be used for materials exhibiting a minimum Resistance R-Value of 50.

All dedicated exterior flatwork should conform to standards provided by the governing agency including section composition, supporting materials and reinforcement.

Slabs-on-grade or exterior flatwork should be underlain by at least 6 inches of clean, free draining, ¾-inch crushed gravel or drain rock (compacted with a vibratory plate) or approved Type 2 Aggregate Base (3/4-inch maximum) - *State of California Department of Transportation Standard Specifications*, dated May, 2006, compacted to at least 95 percent relative compaction. Where lightly loaded slabs-on-grade (as determined by the Structural Engineer) or exterior flatwork are proposed, the thickness of gravel or base may be reduced to 4 inches.

The Structural Engineer should provide recommendations for slab thickness and concrete type for interior slabs-on-grade. Lightly loaded exterior flatwork such as walkways should consist of at least 4 inches of Type II portland cement concrete with a minimum 28-day compressive strength of 4,000 pounds per square inch (psi) with 4 to 7 percent entrained air, and should include reinforcement.

Concrete mix proportions and construction techniques, including the addition of water and improper curing, can adversely affect the finished quality of the concrete and result in cracking and spalling of the slabs. We recommend that all placement and curing be performed in accordance with procedures outlined by the Portland Cement Association and American Concrete Institute. Special consideration should be given to concrete placed and cured during hot or cold weather conditions. Control joints and reinforcing steel should be provided to minimize damage resulting from shrinkage.

Due to the potential for vapor migration associated with the differences between the building interior and exterior ambient conditions, a vapor barrier (i.e. Stego Wrap 15-mil or equal) should be considered where moisture sensitive floor coverings are proposed. The vapor barrier shall be placed below on a compacted, smooth subbase and covered with crushed gravel/aggregate base layer (see Plate 25).

F. Utilities, Trench Excavation, and Backfilling

We believe that earthwork limited to the upper 15 feet can be excavated with a Caterpillar 215 series excavator or equivalent earthmoving equipment. For safety, the sides of trenches should be sloped, or shoring should be used. The Earthwork Contractor must comply with the *Safety and Health Regulations for Construction* as directed by the Occupational Safety and Health Act (OSHA Standards, Volume 11, Part 1926, Subpart P) while excavating and backfilling. The Earthwork Contractor is also responsible for providing a competent person, as defined by the OSHA standards, to ensure excavation safety.

Pipe bedding should be moisture conditioned to near optimum, placed in thin lifts, and compacted to at least 95 percent relative compaction. To reduce water migration, trench backfill should include fine-grained particles, should be moisture conditioned to near optimum, placed in 8-inch maximum loose lifts, and compacted to at least 90 percent relative compaction.

At the direction of the Manufacturer, special coverings should be provided where uncoated steel or metal is proposed.

G. Permanent Cut and Fill Slopes

All permanent cut and fill slopes shall be constructed with maximum inclinations of two horizontal to one vertical (2:1). Where fill is to be placed on natural slopes of 5:1 or steeper, keying and benching shall be provided along the fill/native soil interface. A keyway, located at the base of the slope, shall be at least 2 feet in depth (or into competent material) and 10 feet in width.

A perforated pipe should be installed within the keyway area to allow for drainage of any migrating water (seepage). The pipe should extend the length of the keyway and daylight at a suitable low point to allow for drainage discharge. The pipe should be completely encapsulated with crushed, 3/4-inch gravel and a filter fabric (i.e. Mirafi 140 N or equal) material should be placed above the gravel layer prior to placing fill material (see Plate 26). In general, a rock lined drainage swale with positive drainage sufficient to divert runoff and suspended material down and away from the slope should be considered at the top of any slope in excess of 10 feet in height.

The Contractor shall overfill and trim the face of all fill slopes or compact them to provide a firm surface, free of loose soil that would be subject to erosion and sloughing. To further minimize erosion potential and future maintenance, upon completion of grading, all two to one (2:1) and steeper slopes should be protected, in general, with a layer of riprap stabilization. Riprap material should generally consist of 8- to 12-inch angular rock fragments from an approved source (the existing rock fragments on the site are acceptable), exhibit a minimum specific gravity of at least 2.5 and an absorption of less than 4 percent. Where slopes flatter than two to one (2:1) are proposed, the face of the slope should be planted with dense-rooted, rapid growing vegetation.

All slopes should be evaluated by the Geotechnical Engineer in the field to document that the conditions are as anticipated and that our recommendations concerning bench height and width are appropriate.

H. Pavement Sections

The previously specified minimum 12-inch section of approved, compacted native soil (see Subsection A and B) will provide adequate support for flexible pavement sections. In addition to meeting the fill requirements, the upper 6 inches of subgrade/subbase should exhibit a minimum R-Value of at least 50.

All dedicated sections (public) should conform to standards provided by the governing agency including section composition, supporting material thickness and any requirements for reinforcing steel.

We believe that the structural pavement section for the parking areas should be a minimum of 3 inches AC over 6 inches of Type 2 Aggregate Base (3/4-inch maximum) - *State of California Department of Transportation Standard Specifications*, dated May, 2006; for the parking and drive lanes. The structural pavement section should be increased to 8-inches of aggregate base for accessways, and delivery or emergency vehicle access.

In preparation for placement of the pavement sections, the Earthwork Contractor shall ensure that proposed subgrade materials have been observed and/or tested by the Geotechnical Engineer (or his representative in the field) to document conformance with the R-Value requirements. Generally, at least the upper 6 inches of subgrade beneath pavement should be scarified, moisture conditioned and compacted to at least 95 percent relative compaction. Subsequently, aggregate base materials should be placed in thin lifts and compacted to at least 95 percent relative compaction. All subgrade and final grades should be rolled to provide a uniform surface that is smooth, firm, and non-yielding.

The paved areas in the loading vicinity of “dumpster” type garbage containers experience increased stresses from the dynamic effect of trash hauling vehicles. We recommend the use of a 6-inch thick reinforced portland cement concrete slab with a minimum 28-day compressive strength of 4000 pounds per square inch (psi) with entrained air over 6 inches of aggregate base material in the loading vicinity of a dumpster. Portland cement concrete with a lesser compressive strength may be used; however, the Owner should weigh the benefits associated with more durable concrete. For slab-on-grade design, a Modulus of Subgrade Reaction (k) of 200 pci may be used for the native soils. If the Owner/Developer elects to utilize bituminous concrete in these areas, to minimize the damage, we recommend the use of at least 4 inches of bituminous concrete over 8 inches of aggregate base.

A bituminous concrete mix design should be submitted to the Geotechnical Engineer for approval prior to paving. During paving, the bituminous mixture should be sampled and tested by the Geotechnical Engineer to ensure materials quality and compaction.

Periodic crack sealing and surface sealing must be implemented to increase service life of the pavement.

I. Additional Geotechnical Engineering Services

This report is geotechnical in nature and not intended to identify other site constraints such as environmental hazards, wetlands determinations and/or the potential presence of buried utilities. We can assist in evaluating these considerations should further information be requested. Consideration should be given to review of all plans and specifications for conformance with this geotechnical report and approval by the Geotechnical Engineer prior to submitting to the governing agency.

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Reno, Nevada 89502

The recommendations presented in this report are based on our understanding of project development. Should conditions change from our understanding, we must be notified to determine if our recommendations are appropriate for design and construction. Recommendations included in this report are also based on the assumption that sufficient field inspection and construction review will be provided during all phases of construction. Prior to construction, a pre-job conference should be scheduled to include, but not be limited to, the Owner, Architect, Civil Engineer, General Contractor, Earthwork and Materials Sub-Contractors, Building Official and Geotechnical Engineer. The recommendations presented in this report should be reviewed by all parties to discuss applicable specifications and testing requirements. At this time, any applicable material quality and mix design reports should be submitted for approval by the Geotechnical Engineer.

Pezonella Associates has prepared this report based on certain assumptions concerning subsurface conditions at the Property. Pezonella Associates should also provide on-site observations and testing during site preparation and grading, excavation, fill placement, foundation installation and paving. These observations would allow us to document that the soil conditions are as anticipated, and that the Contractor's work is in conformance with the intent of our recommendations and the approved plans and specifications. Our conclusions and recommendations may be invalidated, partially or in whole, by changes outside our control and by subsequent acts occurring on the site after field reconnaissance. This report may be subject to review and revision at any time. Opinions about the condition of the Property do not constitute a warranty of any kind.

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VII GLOSSARY OF TEST PROCEDURES

ASTM Test Designation: C 136: *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*

ASTM Test Designation: D 420: *Standard Guide to Site Characterization for Engineering, Design, and Construction Purposes.*

ASTM Test Designation: D 1557: T*est Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 KN-m/m^3)).*

ASTM Test Designation: D 1586: *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.*

ASTM Test Designation: D 2216: *Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock.*

ASTM Test Designation: D 2419: *Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.*

ASTM Test Designation: D 2487: *Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).*

ASTM Test Designation: D 2844: *Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils.*

ASTM Test Designation: D 3550: *Standard Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils*

VIII DISTRIBUTION

One unbound wet stamped original and one bound copy to:

Twentynine Palms Enterprise Corporation
46200 Harrison Place
Coachella, CA 92236
Attention: Darrel Mike, Chairman
Telephone: (760) 755-5566

One .pdf copy to:

Pennington & Company, LLC
33 Gray Stone Way
Laguna Niguel, California
Attention: Todd Pennington, CEO
Telephone: (949) 637-6210
Facsimile: (949) 234-0050
toddcpennington@gmail.com

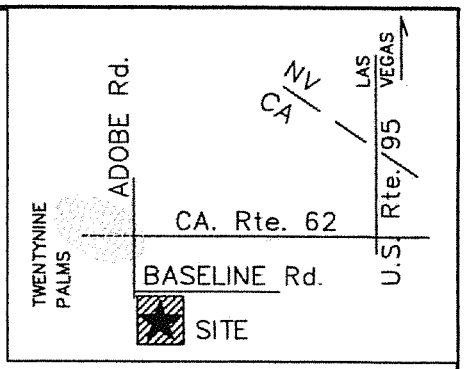
JMA Nevada
10150 Covington Cross Drive
Las Vegas, Nevada 89144
Attention: Sylvia Kim, AIA
Telephone: (702) 731-2033
Facsimile: (702) 731-2039
skim@jmaarch.com

RBF Consulting
14725 Alton Parkway
Irvine, California 92618
Attention: Christopher Cho, P.E.
Telephone: (949) 855-7071
Facsimile: (940) 855-7070
ccho@rbf.com

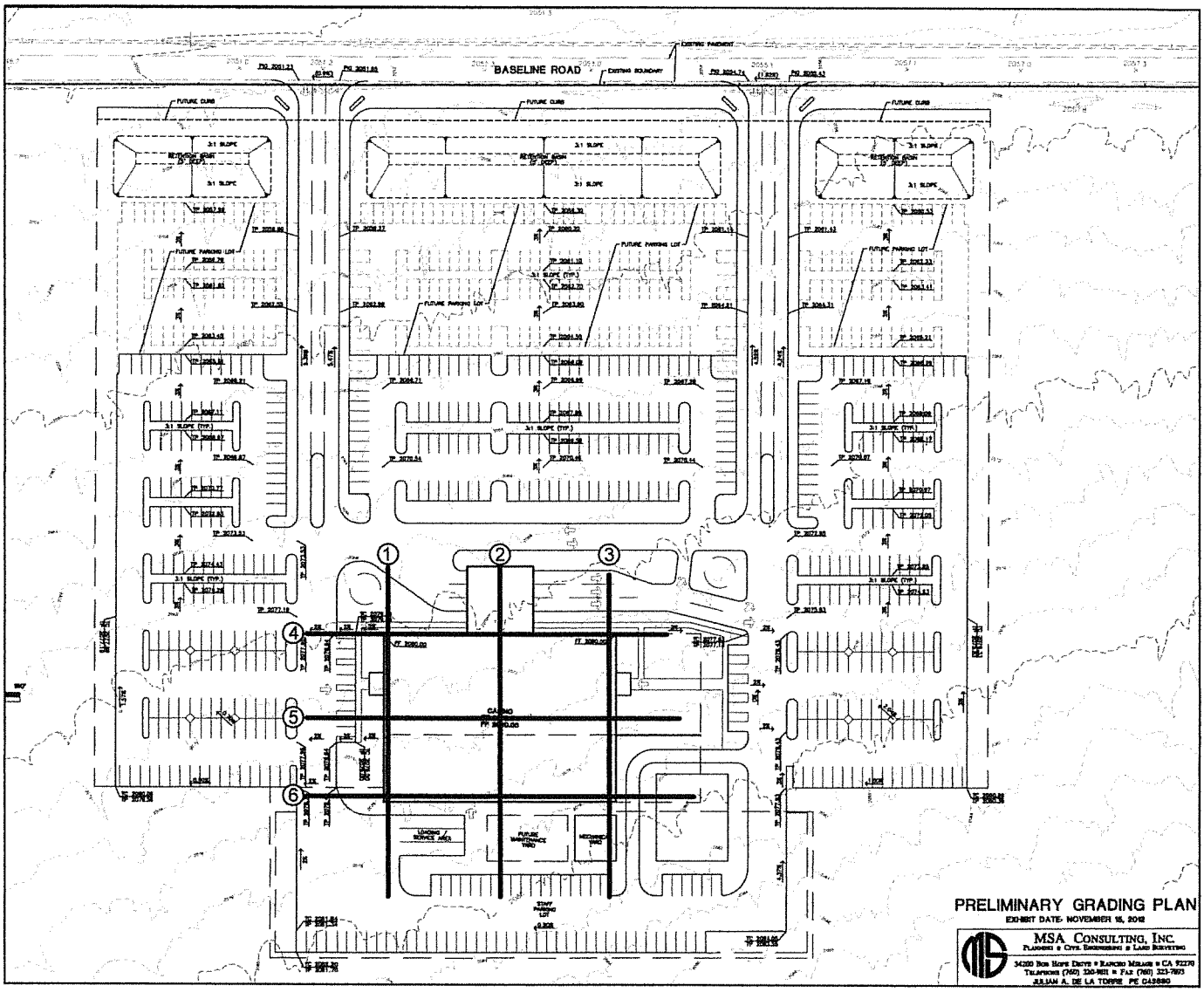
MSA Consulting, Inc.
34200 Bob Hope Drive
Rancho Mirage, CA 92270
Attention: Julian De La Torre
Telephone: (760) 320-9811
Facsimile: (760 323-7893
jdelatorre@msaconsultinginc.com

Pezonella Associates, Inc.
520 Edison Way
Reno, Nevada 89502

IX LIST OF ILLUSTRATIONS



VICINITY MAP

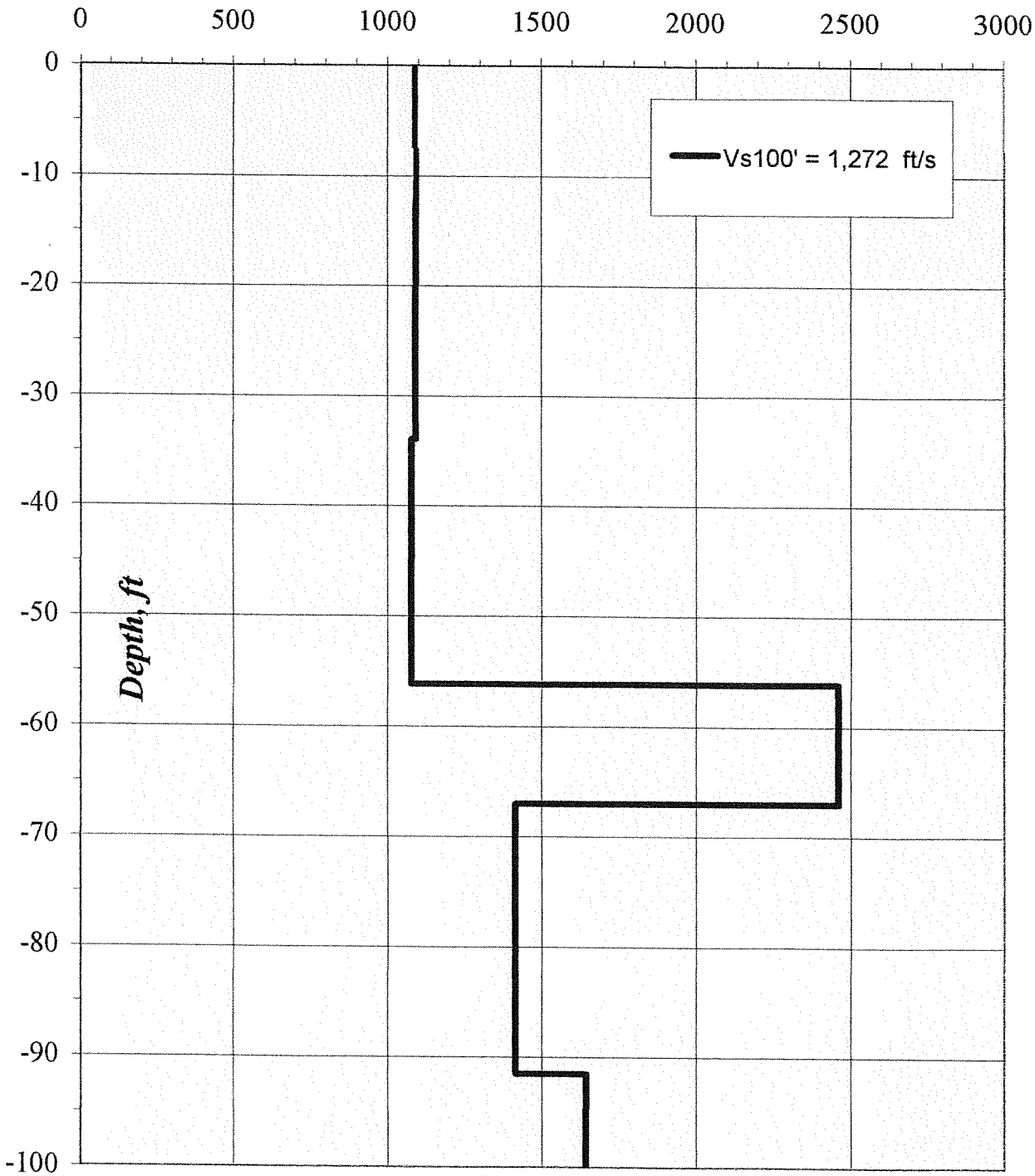


Remarks: Not To Scale

Site Plan by
MSA Consulting, Inc.

= ReMi Line
(Approximate Location)

Job No. 6448.01-A	SITE AND EXPLORATION PLAN	/appr./10-25-12
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 1



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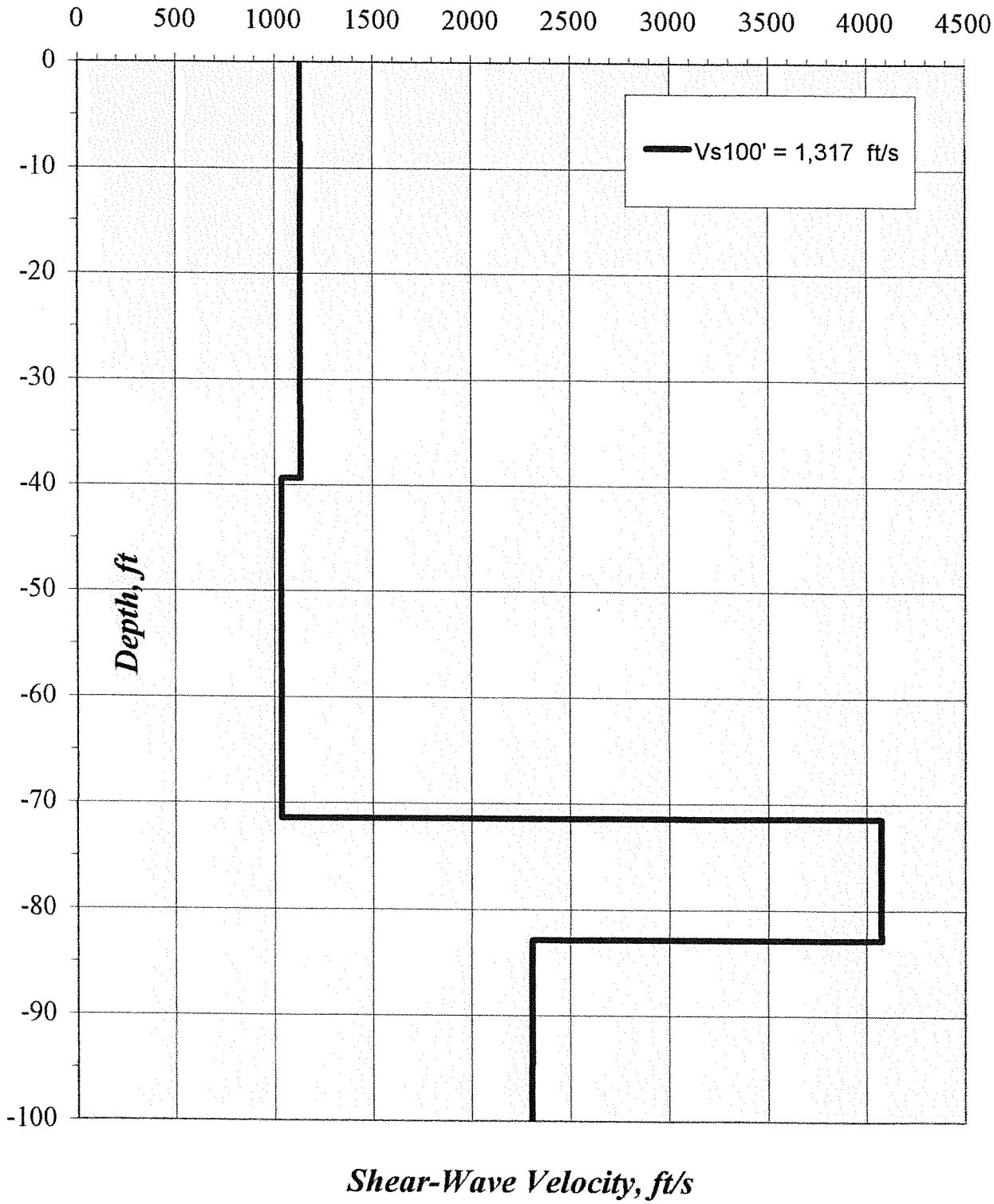
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 2



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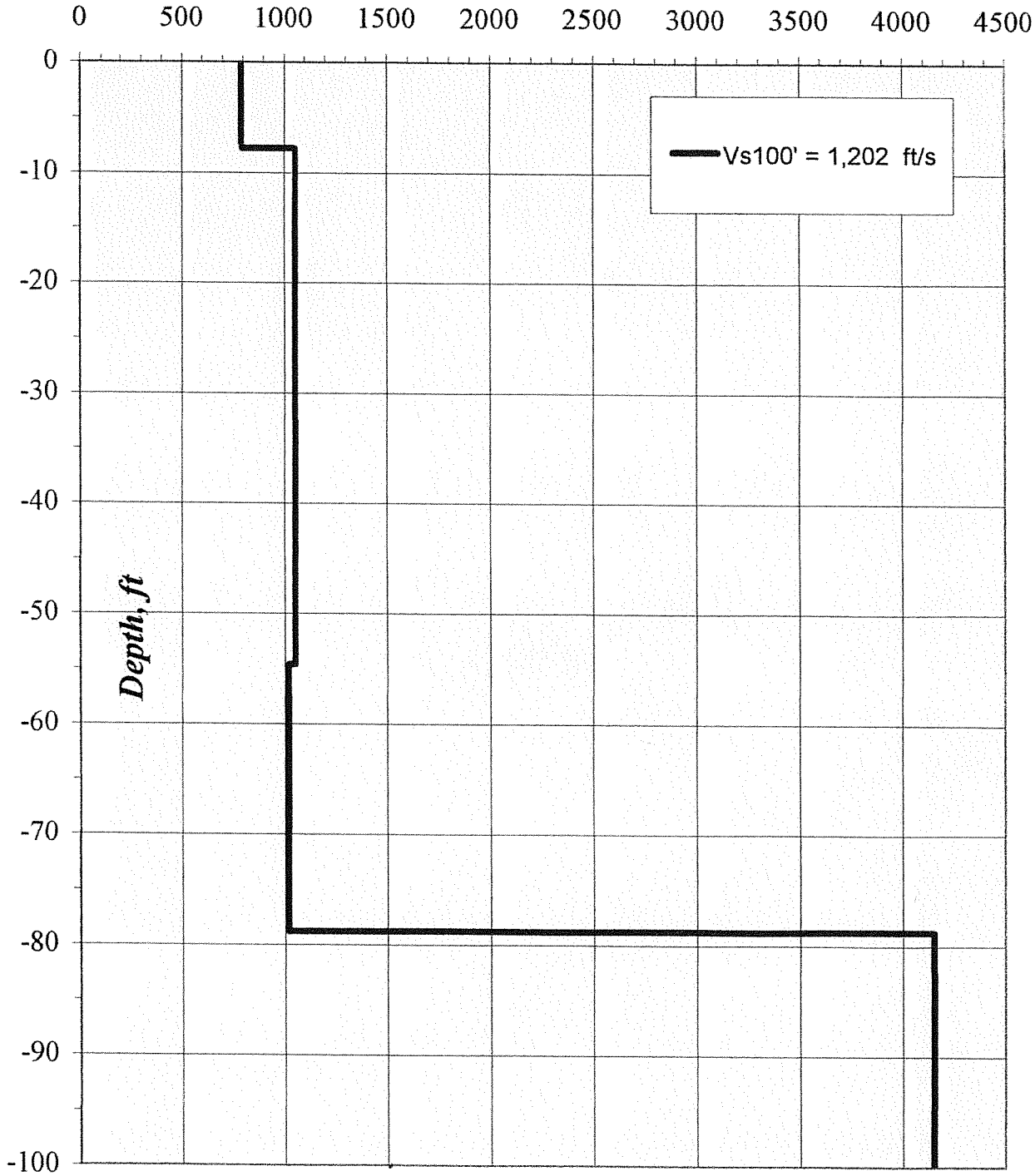
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-5042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 3



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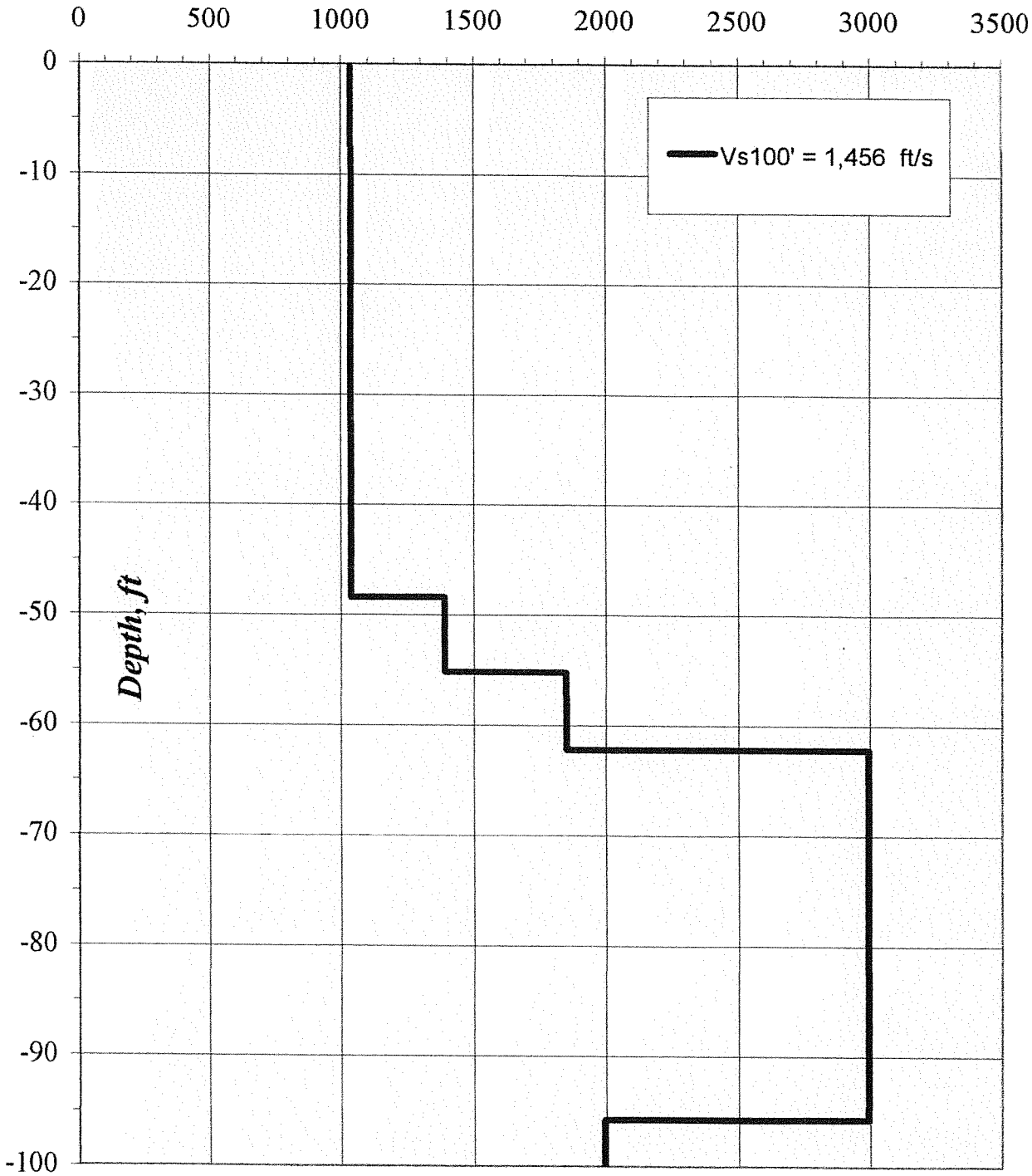
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 4



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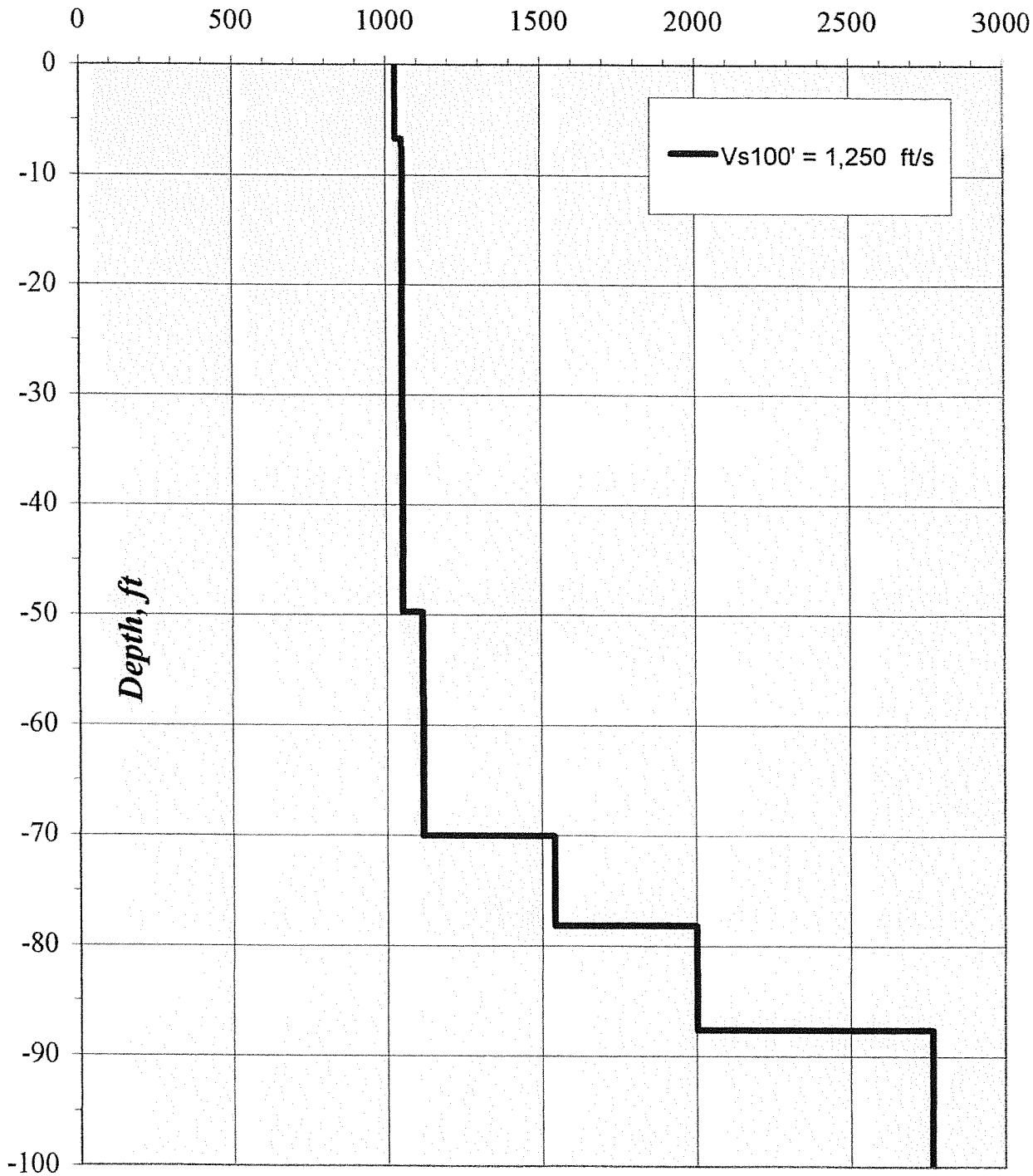
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 5



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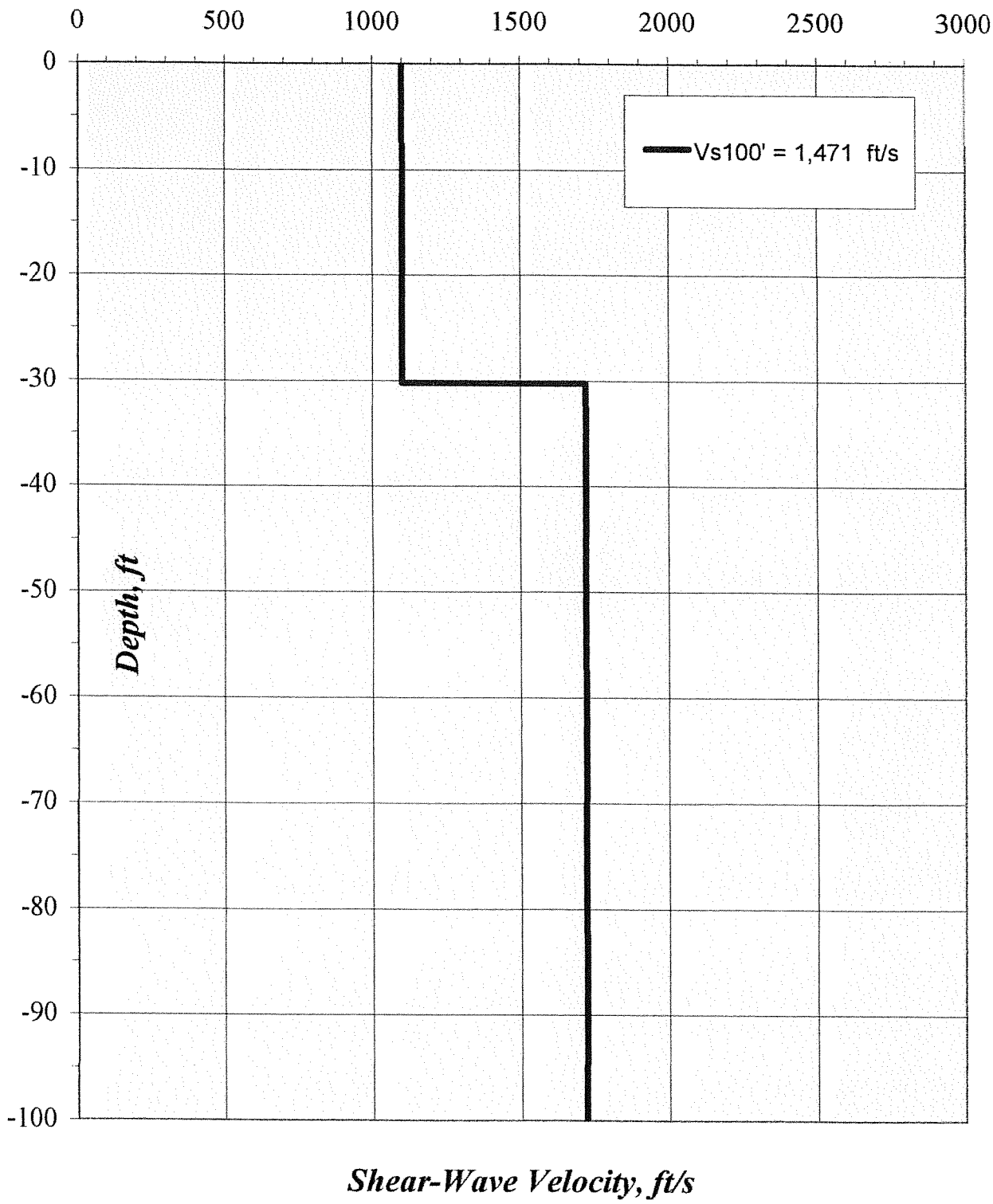
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 6

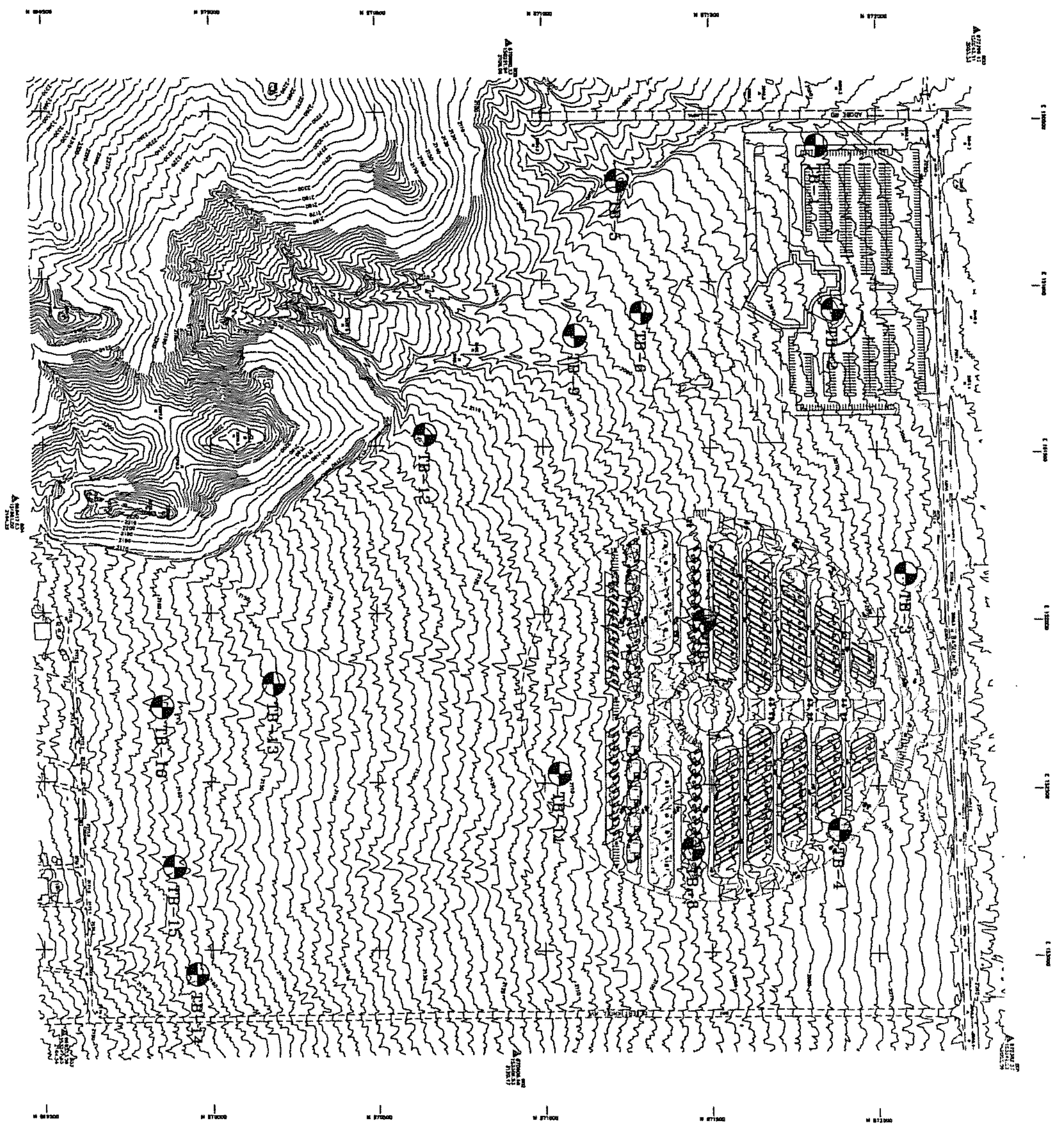


Job No. 6448.01-A	ReMi Line No. 6	/appr./10-25-12
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TORTOISE ROCK CASINO TWENTY-NINE PALMS CALIFORNIA	Plate No. 7

APPENDIX A

(Previous Subsurface Exploration and Laboratory Tests – Plates 1 through 26)

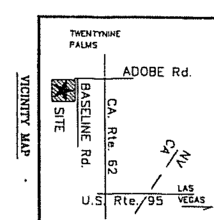
JOSHUA TREE NATIONAL PARK



Borings located from field measurements

Layout from topographical data furnished by HUNSAKER & ASSOCIATES

= Boring Location



RTS	
5510.01-A	
OCT 27, 2005	PLATE 1
NOT TO SCALE	

Pezonella Associates, Inc

Consulting Engineers
520 Edison Way Reno, Nevada 89502
PHONE (775) 856-5566 FAX (775) 856-6042

SITE AND EXPLORATION PLAN

PROPOSED TWENTYNINE PALMS RV PARK AND COMMUNITY CENTER

LOG OF BORING 1

Equipment CME 55 Hollow Stem Auger

Elevation 2059 Date 09-07-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
** Compaction Test Data (See Plate 21) * Particle Size Distribution Report (See Plate 15)	4	2.7	116	** * 1 2 3 4 5	**LIGHT BROWN SILTY SAND (SM) with gravel and occasional surface cobbles** loose, dry sand and gravel angular to subangular cobbles up to 6 inches diameter color change to reddish-brown below 5.0 feet occasional calcitic zones. no apparent veining or caliche - but white powder in sample driller reports cobbly drilling 6 to 9 feet
	14	5.1	110	6 7 8 9 10	
	18			11 12 13 14 15	color change to light yellowish brown below 10.0 feet occasional zones of cementation
	>50			16 17 18 19 20	**LIGHT REDDISH BROWN POORLY GRADED SAND (SP) with gravel** medium dense to dense, dry sand fine to coarse-grained, predominantly medium grained angular to subangular gravel 2 to 8 mm diameter, predominantly 4 mm diameter, angular to subangular
	41			21 22 23 24 25	
	25			26 27 28 29 30	
	33			31	**E.O.B.**

No Free Water Encountered

Elevation Reference:

Elevations taken from topographical information furnished by HUNSAKER & ASSOCIATES

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 2

LOG OF BORING 2

Equipment CME 55 Hollow Stem Auger

Elevation 2063 Date 09-06-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
* R-Value Test Report (See Plate 20) Compaction Test Data (See Plate 22) Sand Equivalent = 60	4			1–5	**LIGHT BROWN POORLY GRADED SAND (SP) with cobbles** loose, dry sand and gravel angular to subangular sand fine to medium grained gravel 2 to 16 mm diameter cobbles up to 6 inches diameter driller reports cobbly drilling 0.0 to 5.0 feet
	17	5.1	119	6–9	**REDDISH BROWN SILTY SAND (SM) with gravel** medium dense, moist sand and gravel angular to subangular gravel 2 to 16 mm diameter sand fine to coarse grained, predominantly fine grained
	>50	2.7	126	10–13	increased gravel content from 10.0 to 11.0 feet
	33			14–19	**LIGHT BROWN POORLY GRADED SAND (SP) with gravel** dense, dry, predominantly fine grained sand subangular gravel 4 to 8 mm diameter, angular to subangular driller reports cobbly drilling 16 to 30 feet
	>50			20–24	
	>50			25–29	occasional zones up to 6 inches thick with cementation
	49/10"			30–31	**E.O.B.** No Free Water Encountered

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 3

LOG OF BORING 3

Equipment CME 55 Hollow Stem Auger

Elevation 2064 Date 09-06-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
** R Value Test Report (See Plate 20) * Particle Size Distribution Report (See Plate 16)	8	1.0	122	** * 1 2 3 4 5	**LIGHT BROWN WELL GRADED SAND (SW-SM) with silt and gravel** loose to medium dense, dry fine to medium grained sand angular to subangular gravel angular to subangular gravel 2 to 16 mm diameter cobbles up to 6 inches diameter driller reports cobbly drilling 0.0 to 5.0 feet occasional calcitic-appearing zones to 3 inches thick not caliche, no veining apparent but white caliche-looking is present
	12	1.3	131	6 7 8 9 10	driller reports no significant cobbles below 5.0 feet color change to reddish brown sand predominantly fine grained sand and gravel angular to subangular gravel generally 2 to 8 mm diameter
	9			11 12 13 14 15	trace silt
	29			16 17 18	occasional cobbles
	22			19 20 21 22	**LIGHT BROWN SILTY SAND (SM) with gravel** medium dense, dry gravel 2 to 16 mm predominantly 4mm diameter sand fine to medium grained predominantly fine grained sand and gravel angular to subangular
	35			23 24 25 26 27 28 29 30	**LIGHT BROWN POORLY GRADED SAND (SP) with gravel** medium dense to dense, dry sand and gravel angular to subangular sand fine to medium grained gravel 2 to 16 mm predominantly 8 to 16mm diameter trace silt driller reports cobbly 26 to 28 feet becoming sandy gravel
	32			31	**E.O.B.**

No Free Water Encountered

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 4

LOG OF BORING 4

Equipment CME 55 Hollow Stem Auger

Elevation 2075 Date 09-06-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	7			1	**LIGHT REDDISH BROWN WELL GRADED SAND (SW-SM) with silt and gravel; cobbles on surface**
				2	medium dense, dry to slightly moist
				3	fine to medium grained angular sand; angular gravel
				4	gravel 2 to 16 mm diameter
				5	
	12	13.2	100	*6	
* Particle Size Distribution Report (See Plate 17)				7	color change to reddish brown below 7.0 feet
				8	
				9	
	5			10	**REDDISH BROWN POORLY GRADED SAND (SP) with gravel**
				11	medium dense, dry
				12	sand and gravel are angular to subangular
				13	sand predominantly fine grained
				14	gravel size range the same, but less larger gravel, more smaller gravel
	9			15	
				16	**E.O.B.**

No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

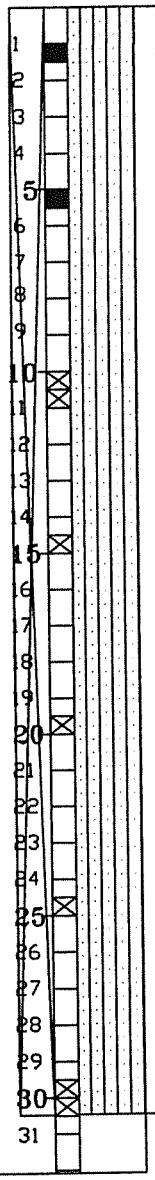
Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 5

LOG OF BORING 5

Equipment CME 55 Hollow Stem Auger

Elevation 2076 Date 09-07-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample
	33	2.1	137	
	39	1.5	133	
	22			
	50/6"			
	50/6"			
	50/6"			
	50/6"			



REDDISH BROWN SILTY SAND (SM) with gravel and cobbles
medium dense, dry
sand, gravel and cobbles angular to subangular
sand fine to medium grained
driller reports cobbly drilling 0.0 to 30.5 feet
color change to light brown below 4.5 feet

gravel 2 to 32 mm diameter

occasional sand layers
sand layers are medium to coarse grained with gravel - no silt

color change to light reddish brown below 29.5 feet

E.O.B.

No Free Water Encountered

Elevation Reference:

See log of Boring 1

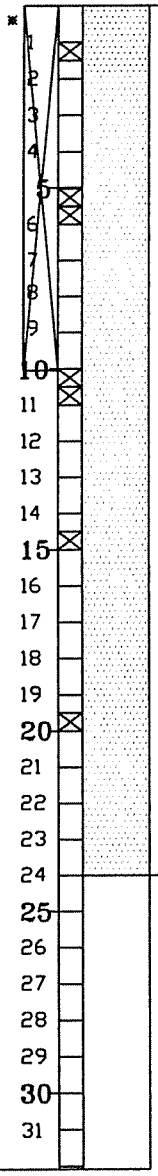
Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 6

LOG OF BORING 6

Equipment CME 55 Hollow Stem Auger

Elevation 2084 Date 09-06-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample
* Compaction Test Data (See Plate 23)	7			
	10			
	27			
	50/2"			
	>50/6"			



LIGHT BROWN POORLY GRADED SAND (SP) with gravel
loose, dry
occasional surface cobbles
sand and gravel angular to subangular
sand fine to medium grained
gravel 2 to 16 mm diameter
trace silt
color change to light reddish brown below 4.5 feet
sand predominantly medium grained with some zones up tp 6 inches thick of coarse-grained

driller reports cobbly drilling to 24.0 feet

increasing silt content
sampler refusal at 20.5 feet (on cobble?)

auger refusal at 24.0 feet (on boulder?)

No Free Water Encountered

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 7

LOG OF BORING 7

Equipment CME 55 Hollow Stem Auger

Elevation 2092 Date 09-07-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
* Particle Size Distribution Report (See Plate 18)	8	1.8	112	1	**LIGHT BROWN WELL GRADED SAND (SW-SM) with silt and gravel** loose to medium dense, dry sand fine to medium grained angular to subangular gravel angular, 2 to 30 mm diameter
	19	4.4	131	5	**REDDISH BROWN SILTY SAND (SM) with gravel** dense, moist sand angular to subangular gravel angular to subangular 2 to 8 mm diameter fine to medium gravel driller reports cobbly drilling 6.0 to 10.0 feet
	22			10	**LIGHT BROWN POORLY GRADED SAND (SP) with gravel** medium dense to dense, dry to slightly moist sand predominantly fine grained with occasional zones of coarse-grained sand 6 inches thick gravel angular to subangular
				12	color change reddish brown, sand fine to medium grained
	21			15	
				17	color change light reddish brown, sand predominantly fine grained
	25			20	
	50/6"			25	**REDDISH BROWN SILTY SAND (SM) with gravel** dense, moist sand fine to medium grained, predominantly fine grained gravel angular to subangular, 2 to 30 mm diameter
	46			30	**LIGHT REDDISH BROWN POORLY GRADED GRAVEL (GP) with sand** dense, dry gravel subangular ranges in size from 8 to 32 mm diameter predominantly 16 mm diameter
					E.O.B.

No Free Water Encountered

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 8

LOG OF BORING 8

Equipment CME 55 Hollow Stem Auger

Elevation 2093 Date 09-08-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	4			1	**LIGHT BROWN POORLY GRADED SAND (SP) with gravel** loose, dry sand and gravel angular to subangular sand fine to coarse grained gravel 2 to 16 mm diameter surface cobbles to 6 inches diameter
				2	
				3	
				4	
	6			5	color change to brown below 5.0 feet slight increase in moisture content
				6	
				7	
				8	
				9	**REDDISH BROWN SILTY SAND (SM) with gravel** medium dense, dry sand and gravel angular to subangular sand fine to medium grained gravel 2 to 8 mm diameter
				10	
				11	
				12	
				13	
				14	sand predominantly fine grained
	15			15	
				16	**E.O.B.**
				17	
				18	No Free Water Encountered
				19	
				20	
				21	
				22	
				23	
				24	
				25	
				26	
				27	
				28	
				29	
				30	
	45			31	

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 9

LOG OF BORING 9

Equipment CME 55 Hollow Stem Auger

Elevation 2092 Date 09-08-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	5			1–4	Few surface cobbles to 4 inches diameter **BROWN SILTY SAND (SM) with gravel** loose, dry sand predominantly fine to medium grained angular to subangular gravel 2 to 16 mm diameter angular to subangular driller reports cobbly drilling 3.0 to 20.0 feet
	20	2.9	125	5–9	**REDDISH BROWN POORLY GRADED SAND (SP) with silt and gravel** medium dense, moist sand predominantly medium to coarse grained angular to subangular gravel 2 to 32 mm diameter angular to subangular
no recovery	17			10–14	
	>50/6"			15	color change to light brown below 14.0 feet sampler refusal (cobble?)
	>50/6"			16–20	sampler refusal (cobble?)
				21–31	No Free Water Encountered

Elevation Reference:

See log of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 10

LOG OF BORING 11

Equipment CME 55 Hollow Stem Auger

Elevation 2112 Date 09-08-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
no recovery	5			1–5	**BROWN POORLY GRADED SAND (SP) with gravel** loose, dry sand fine to coarse grained, angular to subangular surface cobbles to 6 nch diameter
	13	3.7	123.7	6–9	**REDDISH BROWN SILTY SAND (SM) with gravel** medium dense, moist driller reports cobbly drilling 6.0 to 16.0 feet
	37			10–14	increasing cobbles below 10.0 feet sand predominantly medium to coarse grained color change to light reddish brown below 12.0 feet sand predominantly fine to medium grained
	26			15–16	**LIGHT REDDISH BROWN POORLY GRADED SAND (SP) with gravel** medium dense, dry

E.O.B.

No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

LOG OF BORING 12

Equipment CME 55 Hollow Stem Auger

Elevation 2119 Date 09-08-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
* Compaction Test Data (See Plate 24) Sand Equivalent = 58	6			* 1–4	Surface cobbles to 12 inches driller reports cobbly drilling from surface **BROWN POORLY GRADED SAND (SP) with gravel and cobbles** loose, dry sand, gravel and cobbles angular to subangular sand fine to medium grained
	7			5–9	color change to reddish brown with increase in moisture below 5.0 feet sand predominantly medium to coarse grained no apparent cobbles from 7.0 to 9.0 feet driller reports cobbly drilling from 9.0 to 13.0 feet
	33			10–13	auger refusal at 13.0 feet (boulder?)

No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 11

LOG OF BORING 13

Equipment CME 55 Hollow Stem Auger

Elevation 2148 Date 09-08-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	6			1–4	Occasional surface cobbles up to 10 inches diameter **BROWN POORLY GRADED SAND (SP) with gravel** loose, moist sand angular to subangular sand fine to coarse grained driller reports cobbly drilling from 4.0 to 7.0 feet
	24			5–9	**REDDISH BROWN SILTY SAND (SM) with gravel and cobbles** medium dense, moist sand fine to coarse grained, predominantly coarse
	50/6"			10–13	driller reports cobbly drilling from 10.0 to 14.0 feet
				14	auger refusal on boulder at 14 feet (boulder?)
				15–16	No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

LOG OF BORING 14

Equipment CME 55 Hollow Stem Auger

Elevation 2161 Date 09-07-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	5			1–4	Surface cobbles to 6 inches diameter **BROWN WELL GRADED SAND (SW-SM) with silt and gravel** loose, dry fine to coarse grained sand is angular to subangular
* Particle Size Distribution Report (See Plate 19)	12	3.0	120	5–*6	occasional zones of calcitic powder
	50/4"			7–10	increasing silt and gravel below 9.5 feet
				11–14	**REDDISH BROWN SILTY SAND (SP) with gravel** dense, moist color change to light brown and becoming dense, dry below 13.5 feet
	50/5"			15	
				16	**E.O.B.** No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

Job No. 5510.01-A | BORING LOG | 10-27-05

Pezonella Associates, Inc
Consulting Engineers
520 Edison Way Reno, Nevada 89502
PHONE (775) 856-5566 FAX (775) 856-6042

TWENTYNINE PALMS
SAN BERNARDINO COUNTY, CALIFORNIA

Plate No. 12

LOG OF BORING 15

Equipment CME 55 Hollow Stem Auger

Elevation 2161 Date 09-07-05

Laboratory Tests and (Other Information)	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
	4	1.2	120	1	Surface cobbles to 8 inches diameter **LIGHT BROWN POORLY GRADED SAND (SP) with gravel** loose, dry sand fine to medium grained, angular to subangular gravel 2 to 16 mm diameter, angular to subangular
				2	
				3	
				4	
	24			5	**REDDISH BROWN SILTY SAND (SM) with gravel** medium dense, moist trace of clay
				6	
				7	
				8	color change to light reddish brown below 8.0 feet no clay apparent
				9	
	50/6"			10	auger refusal at 11.0 feet (boulder?)
				11	
				12	No Free Water Encountered
				13	
				14	
				15	
				16	

Elevation Reference:

See Log Of Boring 1

LOG OF BORING 16

Equipment CME 55 Hollow Stem Auger

Elevation 2163 Date 09-07-05

	10			1	**LIGHT BROWN POORLY GRADED SAND (SP) with gravel** medium dense, dry sand fine to coarse grained, angular to subangular gravel 2 to 16 mm diameter, angular to subangular
				2	
				3	
				4	
	5			5	
				6	color change to reddish brown and becoming loose and moist below 5.0 feet
				7	
				8	driller reports occasional cobbles from 5.0 to 10.0 feet
				9	
	20			10	increasing silt content below 9.5 feet
				11	
				12	increasing cobble content below 11.5 feet
				13	
				14	auger refusal on cobbles at 14.0 feet
				15	
				16	No Free Water Encountered

Elevation Reference:

See Log Of Boring 1

Job No. 5510.01-A	BORING LOG	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 13

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS (MORE THAN HALF COURSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS (MORE THAN HALF COURSE FRACTION IS SMALLER THAN No. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAY (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS SILTY CLAYS, LEAN CLAYS
			OL	INORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

SAMPLE DESIGN

■ "Undisturbed" Sample

☒ Bulk or Classification Sample

STRENGTH TESTS

VANE SHEAR TEST
F = Field
L = Laboratory

UNCONFINED COMPRESSION TEST

1000 DIRECT SHEAR TEST
CD = Consolidated Drain

Stress Normal to Shear Plane (psf)

1000 TRIAXIAL COMPRESSION TEST
UU = Unconsolidated - Undrained
CU = Consolidated - Undrained
CD = Consolidated - Drained

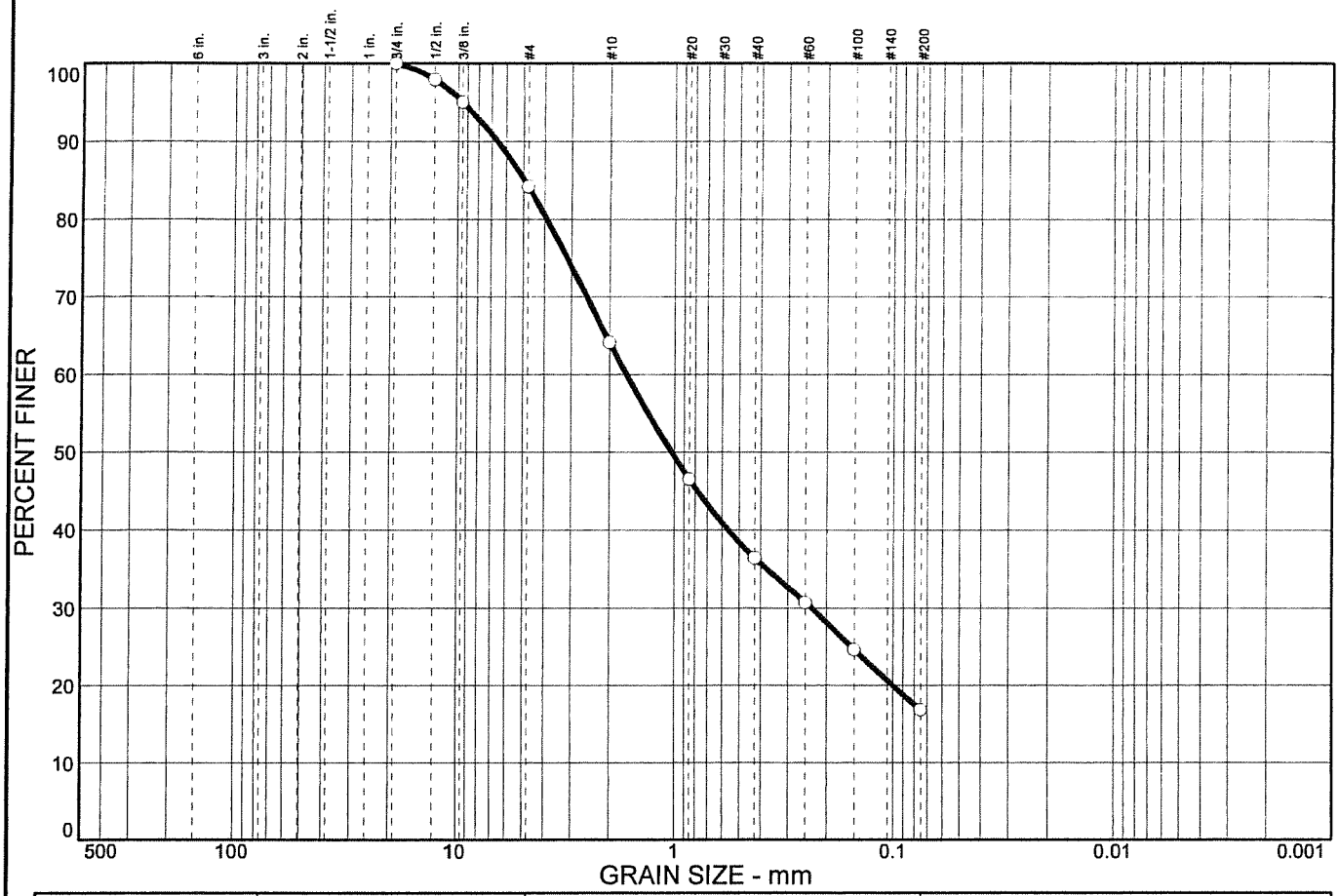
1/2 Deviator Stress

Confining Stress

KEY TO TEST DATA

Job No. 5510.01-A	TWENTYNINE PALMS	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	SOIL CLASSIFICATION CHART AND KEY TO TEST DATA	Plate No. 14

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	15.8	20.1	27.7	19.6	16.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	97.9		
3/8 in.	95.0		
#4	84.2		
#10	64.1		
#20	46.5		
#40	36.4		
#60	30.7		
#100	24.6		
#200	16.8		

* (no specification provided)

Material Description

Light brown silty sand (SM) with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.95 D_{60}= 1.67 D_{50}= 1.03
D_{30}= 0.235 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= (SM) AASHTO=

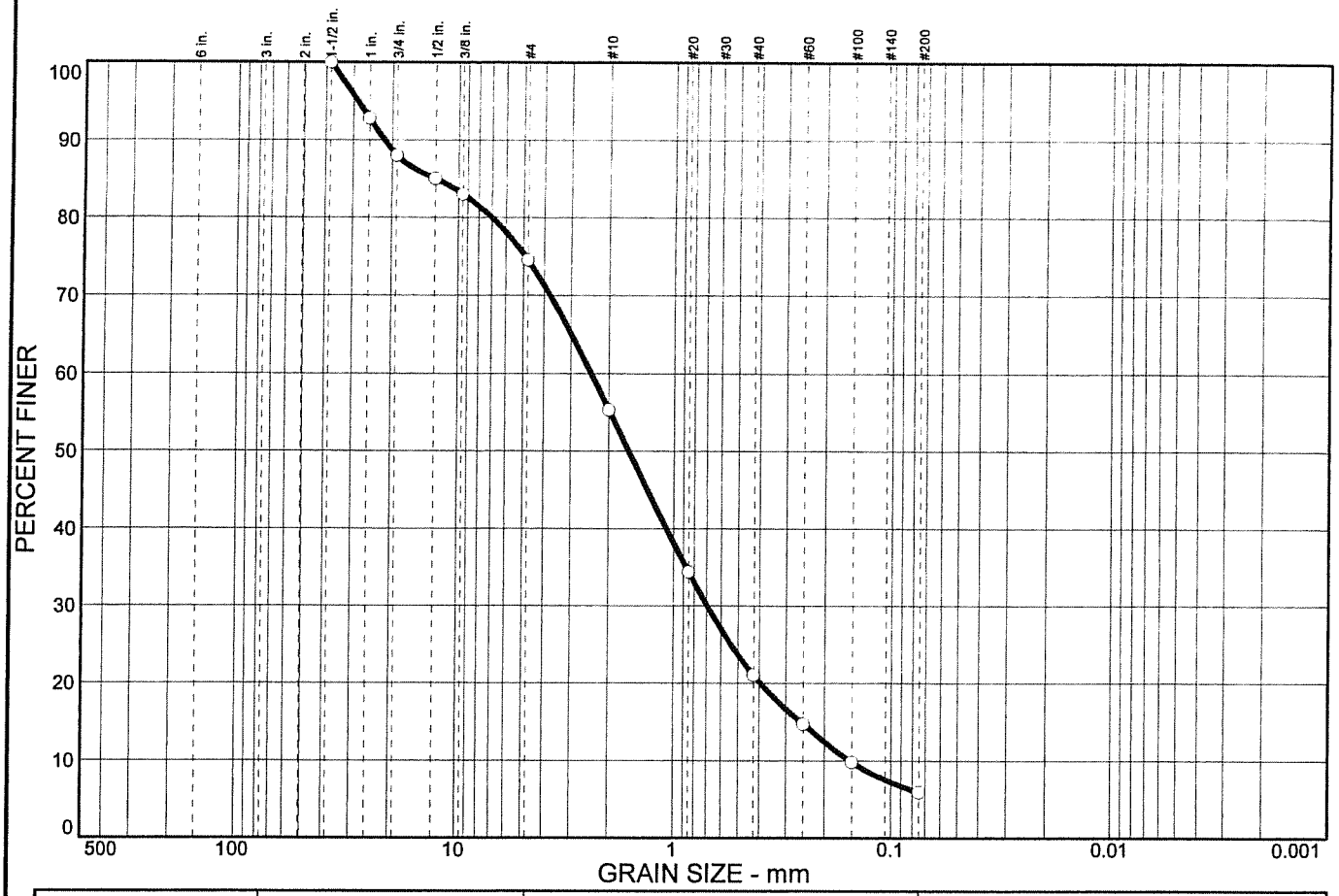
Remarks

Sample No.: **Source of Sample:** TB-1 **Date:** 09-23-05
Location: **Elev./Depth:** 1.0 to 1.5 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Client:
Project: Twentynine Palms
Site Investigation
Project No: 5510.01-A **Plate** 15

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	12.0	13.5	19.2	34.3	15.1	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2 in.	100.0		
1 in.	92.8		
3/4 in.	88.0		
1/2 in.	85.0		
3/8 in.	83.0		
#4	74.5		
#10	55.3		
#20	34.4		
#40	21.0		
#60	14.7		
#100	9.8		
#200	5.9		

* (no specification provided)

Material Description

Light brown well graded sand (SW-SM) with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 12.7 D_{60}= 2.42 D_{50}= 1.62
D_{30}= 0.696 D_{15}= 0.257 D_{10}= 0.154
C_u= 15.72 C_c= 1.30

Classification

USCS= (SW-SM) AASHTO=

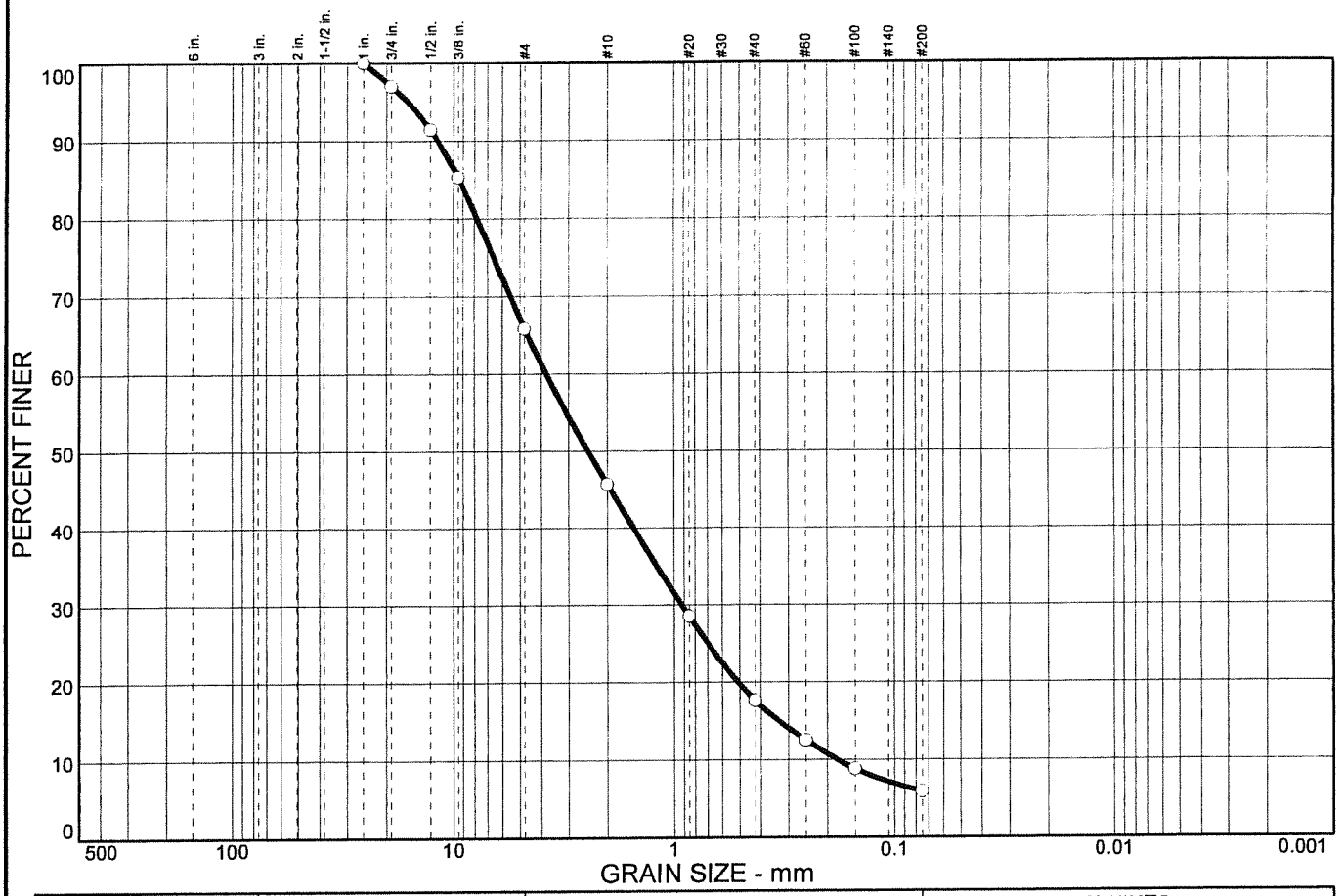
Remarks

Sample No.: **Source of Sample:** TB-3 **Date:** 09-23-05
Location: **Elev./Depth:** 1.0 to 1.5 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Client:
Project: Twentynine Palms Site Investigation
Project No: 5510.01-A **Plate** 16

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	3.0	31.2	20.1	28.1	11.7	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	97.0		
1/2 in.	91.4		
3/8 in.	85.3		
#4	65.8		
#10	45.7		
#20	28.5		
#40	17.6		
#60	12.5		
#100	8.8		
#200	5.9		

* (no specification provided)

Material Description

Light reddish brown well graded sand (SW-SM) with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 9.41 D_{60}= 3.80 D_{50}= 2.45
D_{30}= 0.921 D_{15}= 0.333 D_{10}= 0.181
C_u= 21.03 C_c= 1.24

Classification

USCS= (SW-SM) AASHTO=

Remarks

Sample No.:
Location:

Source of Sample: TB-4

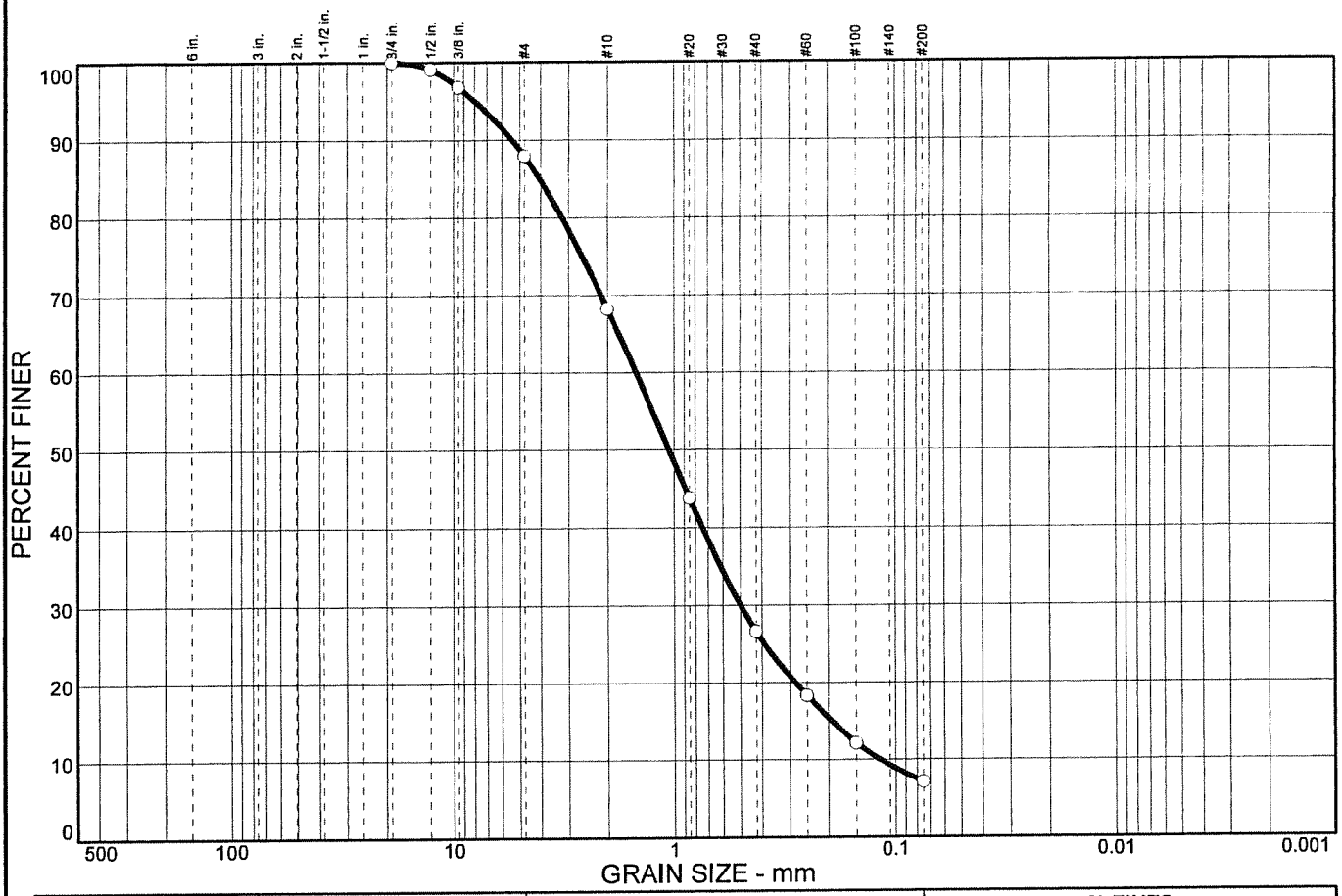
Date: 09-23-05
Elev./Depth: 5.5 to 6.0 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Client:
Project: Twentynine Palms Site Investigation
Project No: 5510.01-A

Plate 17

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	12.1	19.7	41.6	19.5	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	99.1		
3/8 in.	96.8		
#4	87.9		
#10	68.2		
#20	43.8		
#40	26.6		
#60	18.3		
#100	12.1		
#200	7.1		

* (no specification provided)

Material Description

Light brown well graded sand (SW-SM) with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.06 D_{60}= 1.49 D_{50}= 1.06
D_{30}= 0.499 D_{15}= 0.194 D_{10}= 0.118
C_u= 12.67 C_c= 1.42

Classification

USCS= (SW-SM) AASHTO=

Remarks

Sample No.:
Location:

Source of Sample: TB-7

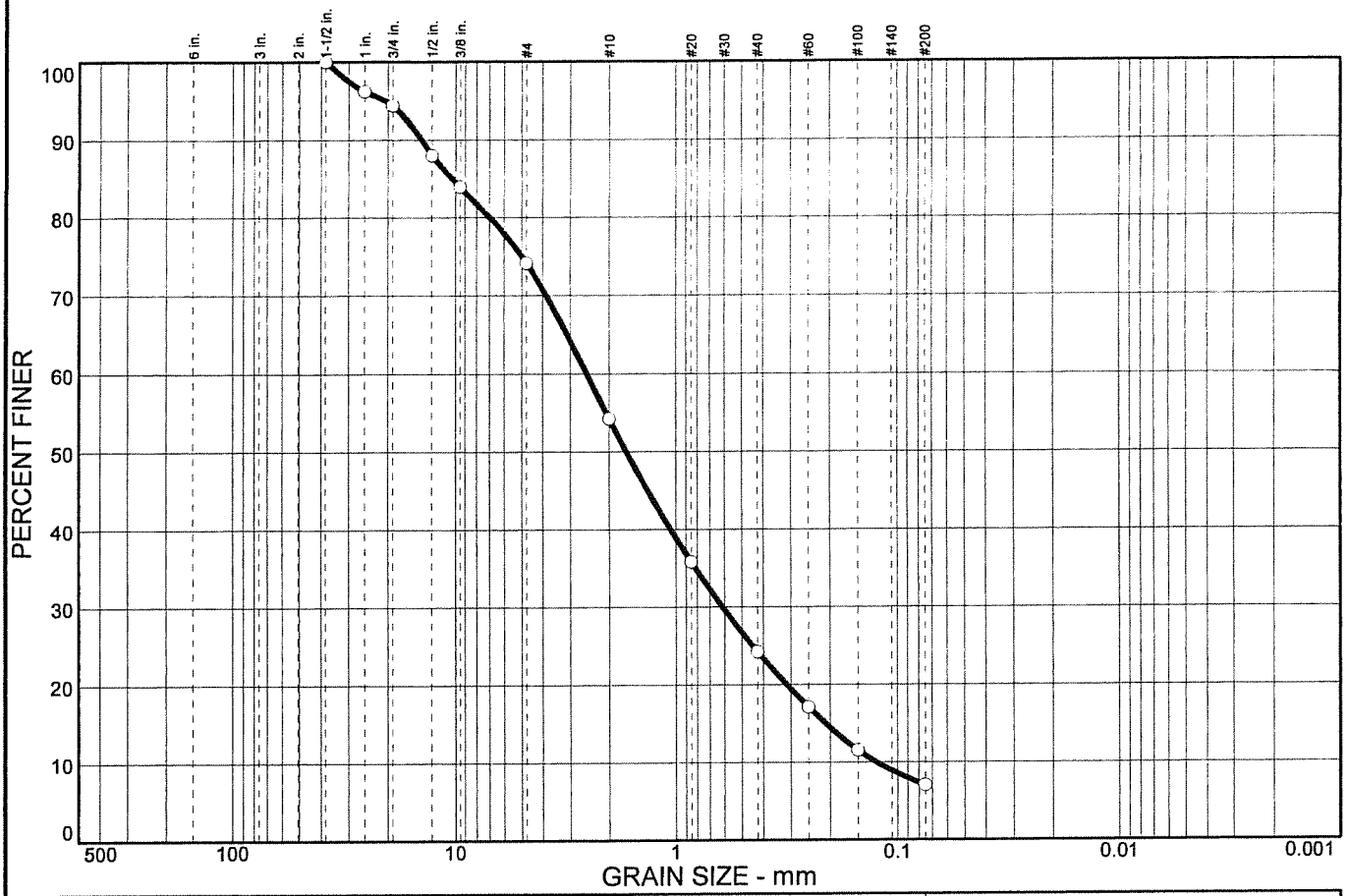
Date: 09-23-05
Elev./Depth: 1.0 to 1.5 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Client:
Project: Twentynine Palms Site Investigation
Project No: 5510.01-A

Plate 18

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	5.6	20.3	19.9	30.0	17.2	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2 in.	100.0		
1 in.	96.2		
3/4 in.	94.4		
1/2 in.	88.0		
3/8 in.	83.9		
#4	74.1		
#10	54.2		
#20	35.8		
#40	24.2		
#60	17.1		
#100	11.5		
#200	7.0		

* (no specification provided)

Material Description

Brown well graded sand (SW-SM)
with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 10.4 D_{60}= 2.53 D_{50}= 1.67
D_{30}= 0.614 D_{15}= 0.210 D_{10}= 0.124
C_u= 20.35 C_c= 1.20

Classification

USCS= (SW-SM) AASHTO=

Remarks

Sample No.:
Location:

Source of Sample: TB-14

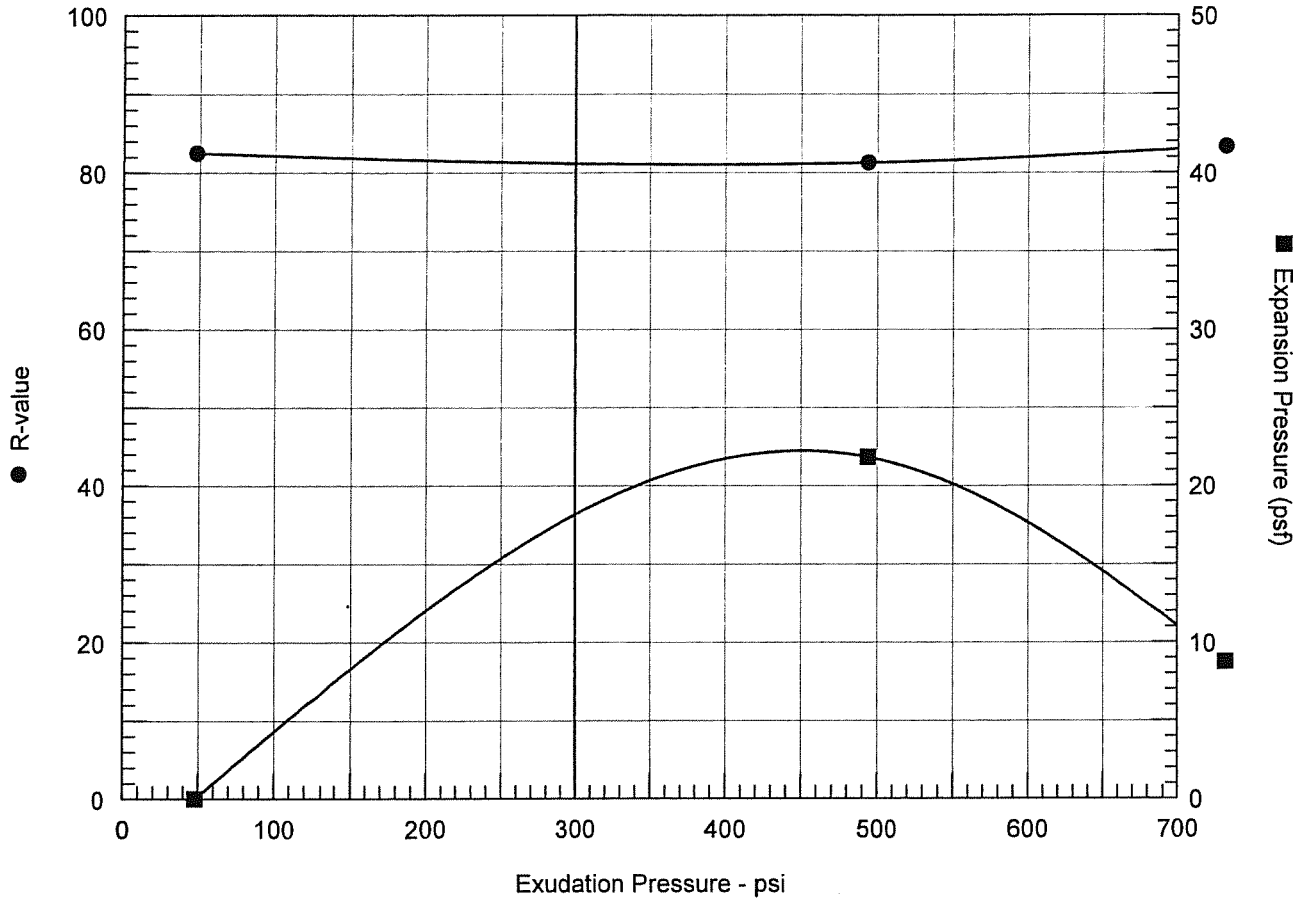
Date: 09-23-05
Elev./Depth: 5.5 to 6.0 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Client:
Project: Twentynine Palms
Site Investigation
Project No: 5510.01-A

Plate 19

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	300	130.6	6.8	9	15	2.54	732	83	83
2	300	133.2	8.5	0	15	2.37	48	84	82
3	300	122.7	7.5	22	17	2.53	494	81	81

Test Results	Material Description
R-value at 300 psi exudation pressure = 81 **Exp. pressure at 300 psi exudation pressure =** 18 psf	Light brown poorly graded sand (SP) with cobbles

Project No.: 5510.01-A
Project: Twentynine Palms
Source of Sample: TB-2 **Depth:** 0.0 to 10.0 feet
Sample Number: 616
Date: 10/18/2005

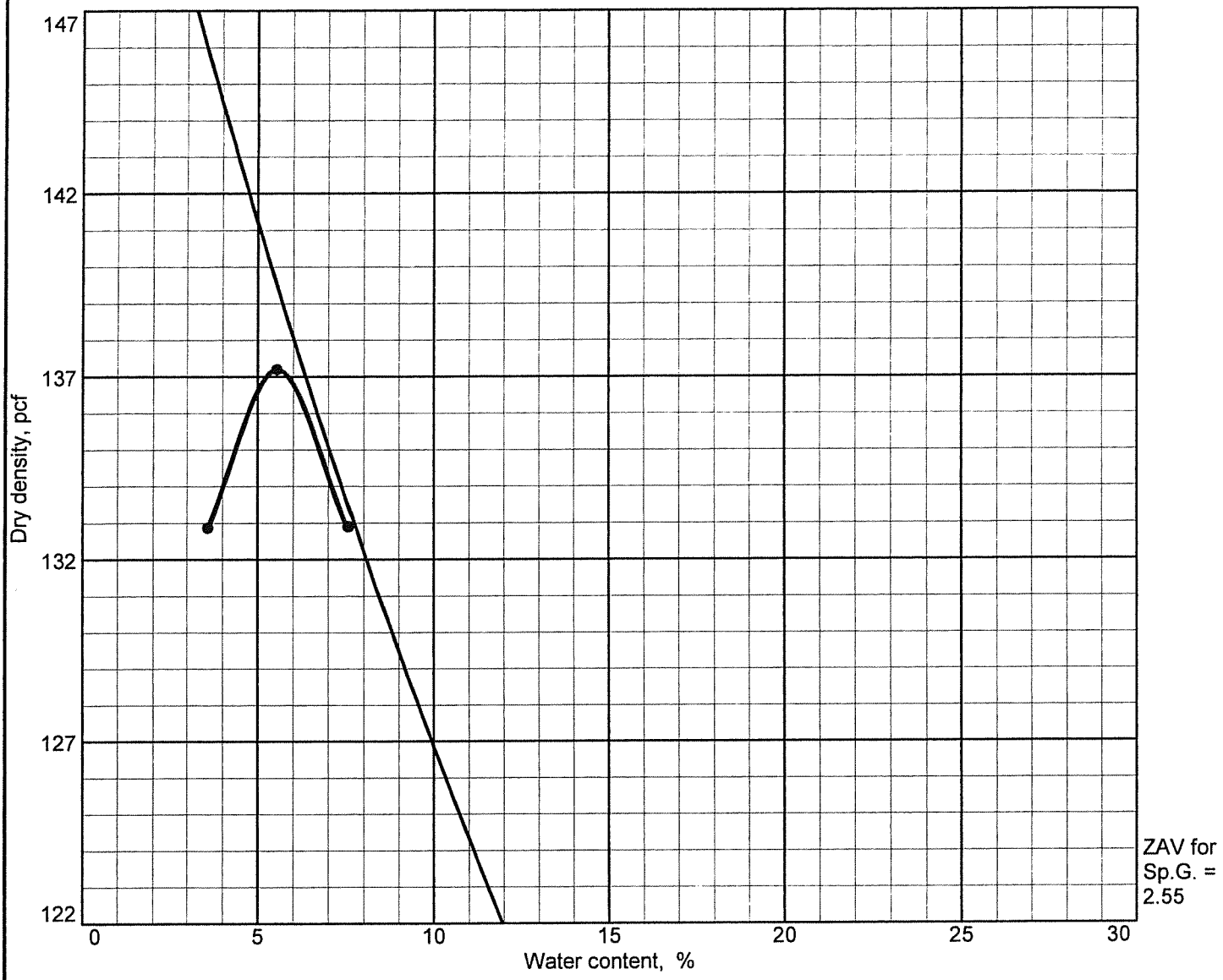
Tested by:
Checked by:
Remarks:

R-VALUE TEST REPORT

PEZONELLA ASSOCIATES, INC.

Plate 20

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0.0 to 10.0 feet	(SM)							16.8

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 137.2 pcf Optimum moisture = 5.6 %	Light brown silty sand (SM) with gravel

Project No. 5510.01-A **Client:**

Project: Twentynine Palms
Site Investigation

● **Source:** TB-1 **Sample No.:** 618 **Elev./Depth:** 0.0 to 10.0 feet

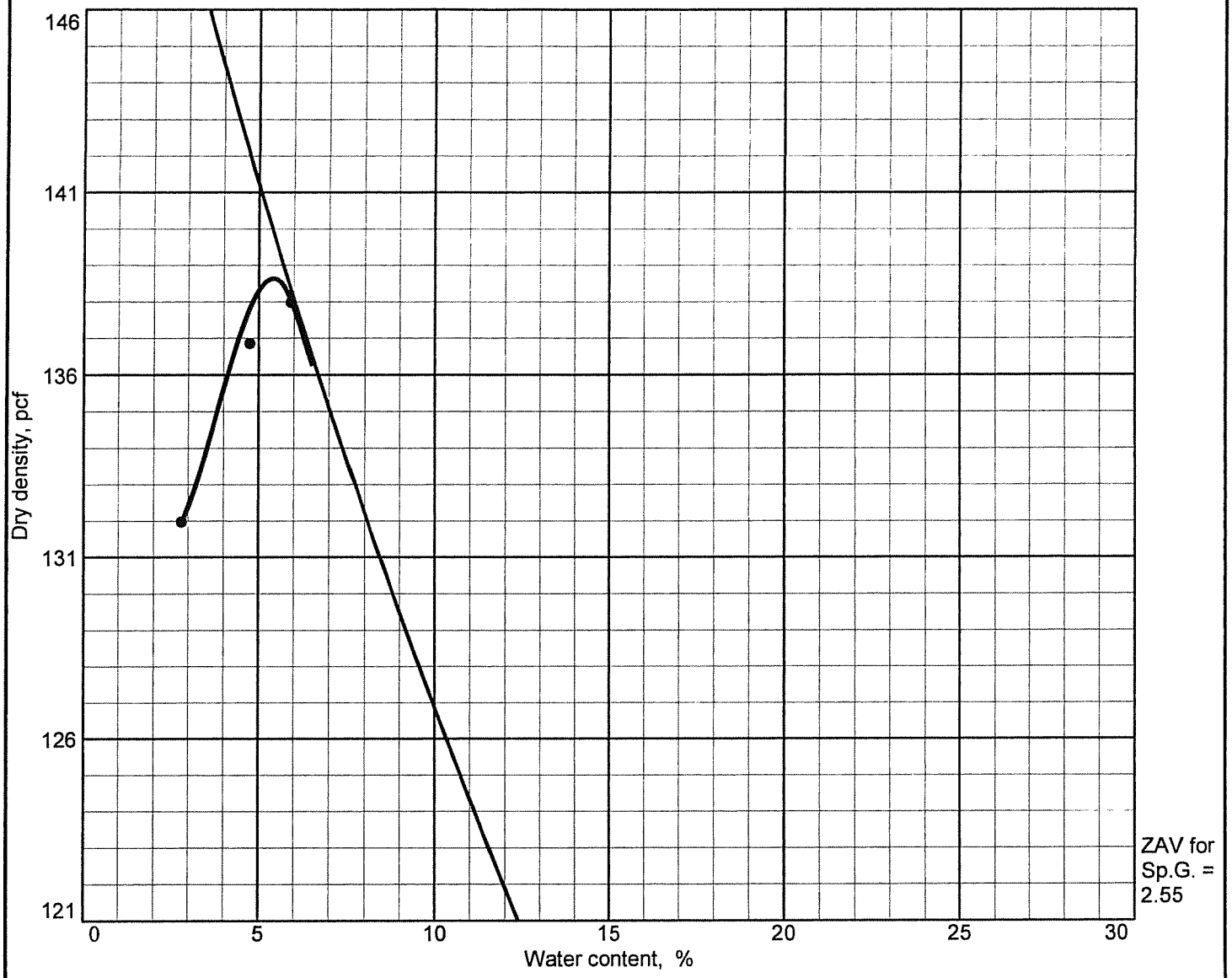
Remarks:

PEZONELLA ASSOCIATES, INC.

Reno, Nevada

Plate 21

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0.0 to 10.0 feet	(SP)							

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 138.6 pcf Optimum moisture = 5.4 %	Light brown poorly graded sand (SP) with cobbles

Project No. 5510.01-A **Client:**

Project: Twentynine Palms

Site Investigation

● **Source:** TB-2 **Sample No.:** 616 **Elev./Depth:** 0.0 to 10.0 feet

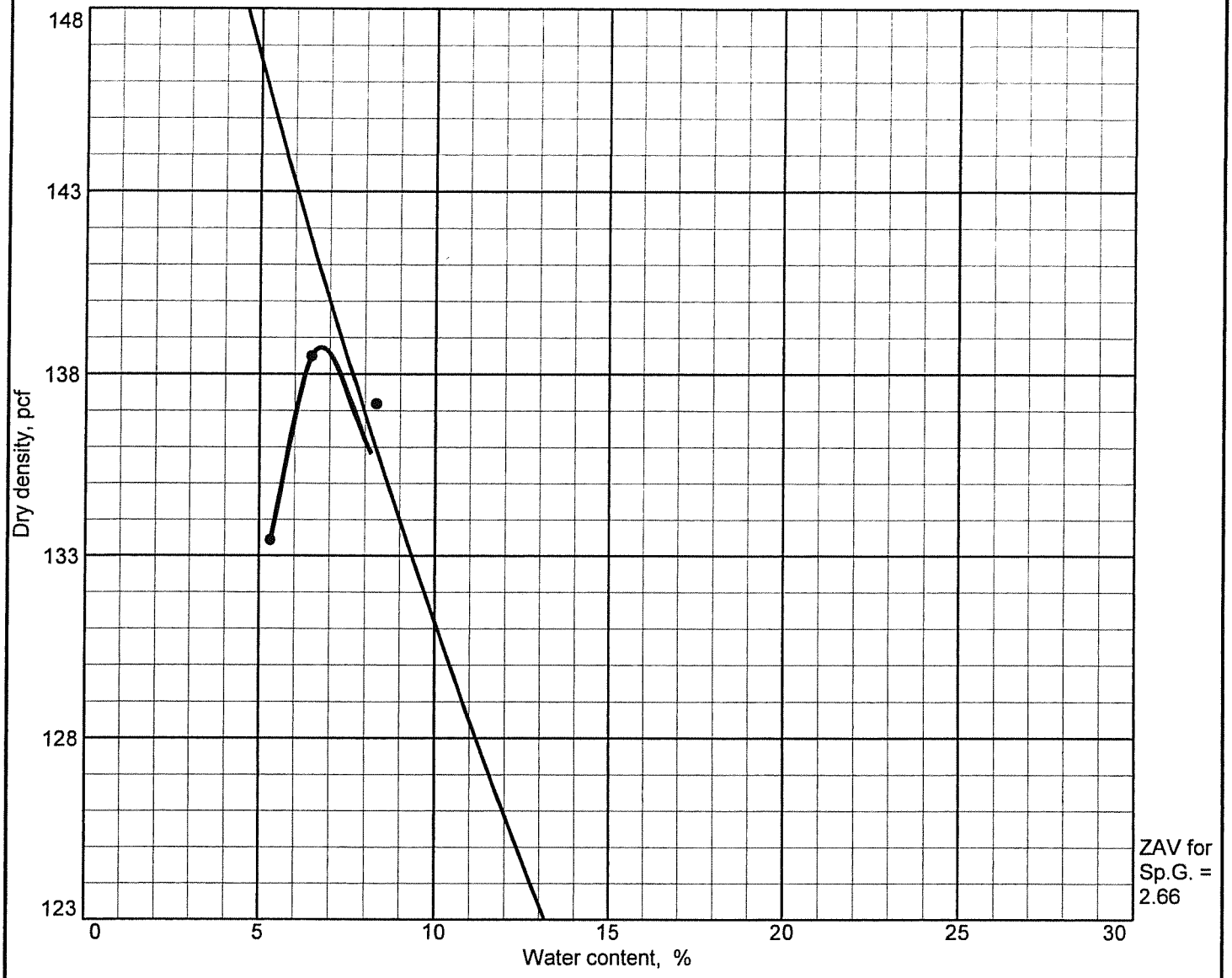
Remarks:

PEZONELLA ASSOCIATES, INC.

Reno, Nevada

Plate 22

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0.0 to 10.0 feet	(SP)							

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 138.7 pcf Optimum moisture = 6.8 %	Light brown poorly graded sand (SP) with gravel

Project No. 5510.01-A **Client:**

Project: Twentynine Palms Site Investigation

● **Source:** TB-6 **Sample No.:** 621 **Elev./Depth:** 0.0 to 10.0 feet

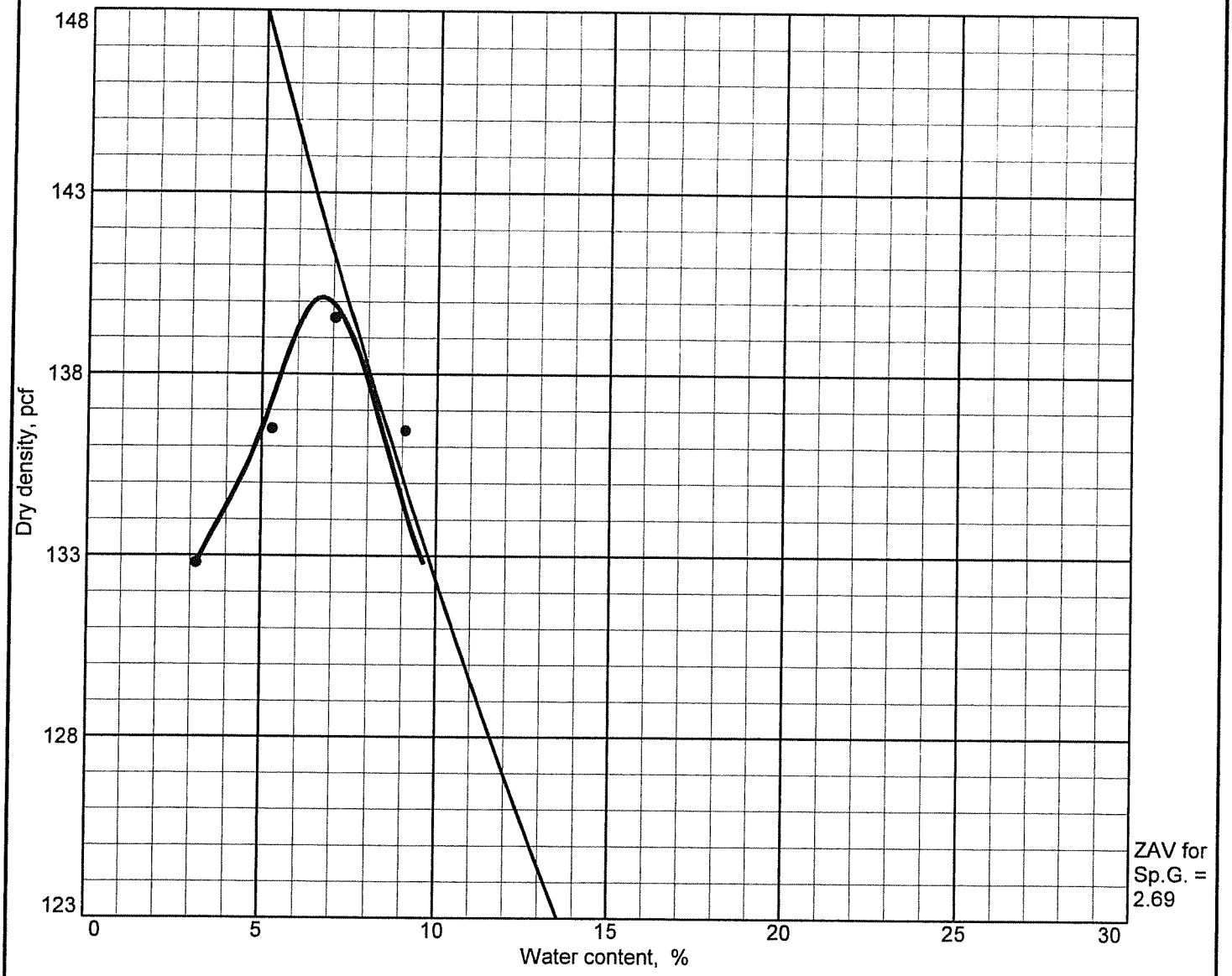
Remarks:

PEZONELLA ASSOCIATES, INC.

Reno, Nevada

Plate 23

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
0.0 to 10.0 feet	(SP)							

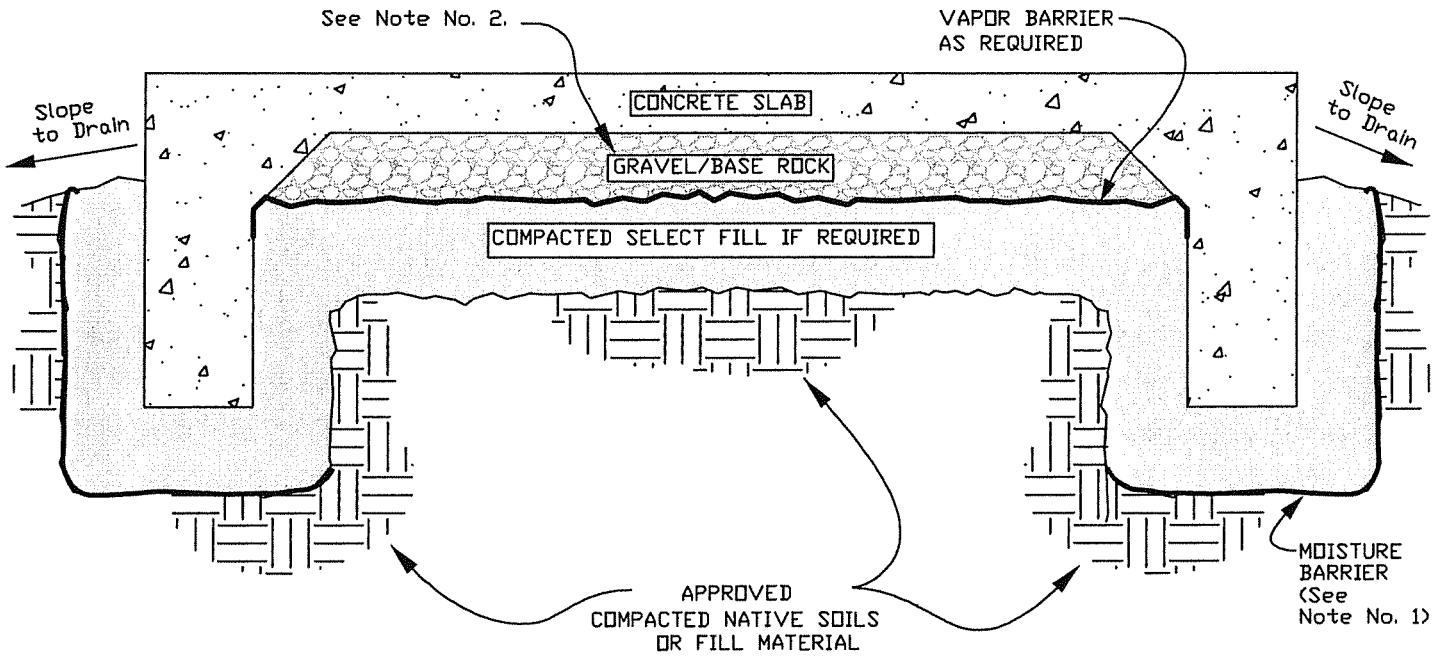
TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 140.1 pcf Optimum moisture = 6.7 %	Poorly graded sand (SP) with gravel and cobbles

Project No. 5510.01-A **Client:**
Project: Twentynine Palms
Site Investigation
● **Source:** TB-12 **Sample No.:** 619 **Elev./Depth:** 0.0 to 10.0 feet

PEZONELLA ASSOCIATES, INC.
Reno, Nevada

Remarks:

Plate 24



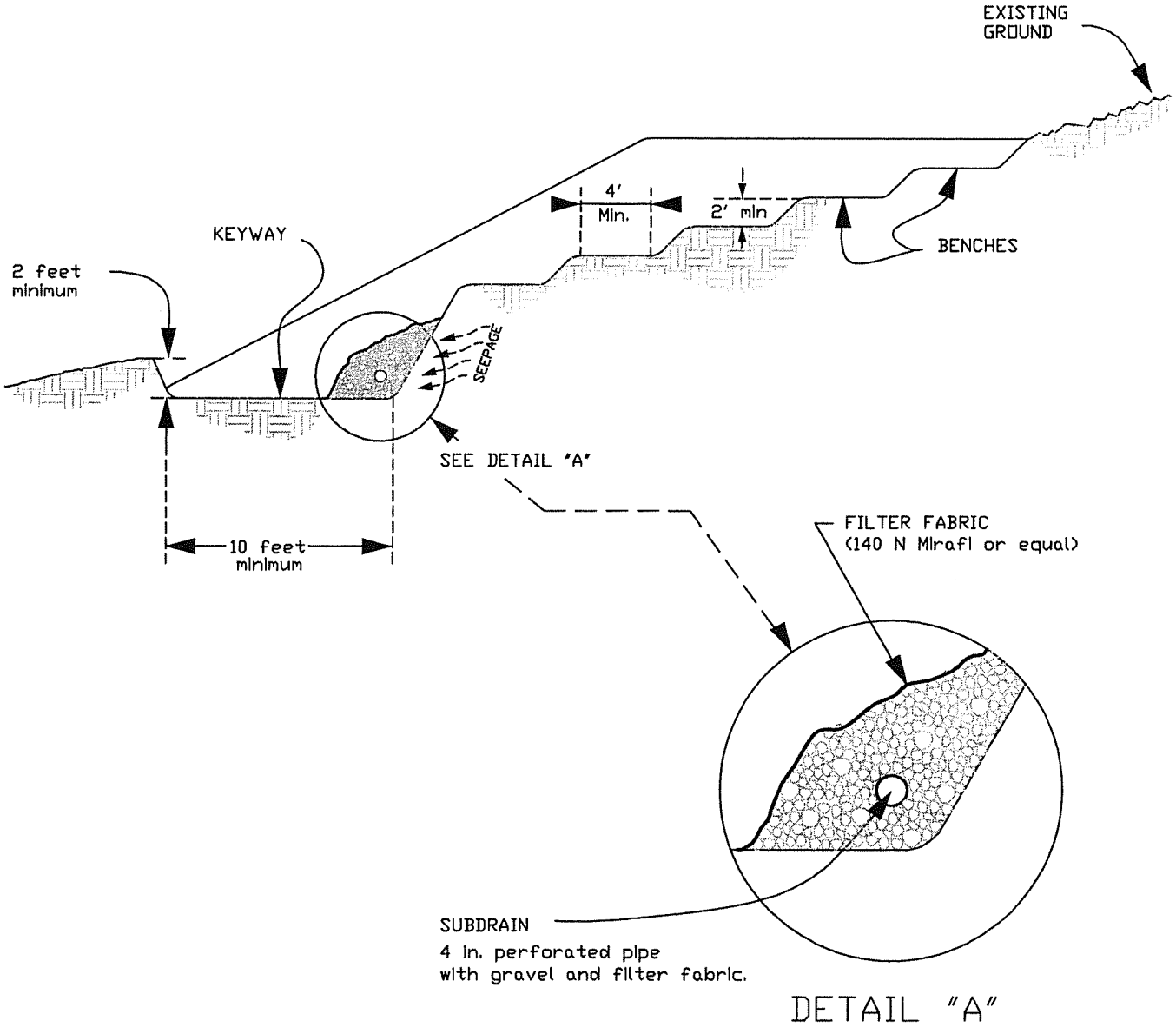
NOTES:

1.) A moisture barrier shall be provided.

2.) Thickness of gravel/base rock shall be 4 inches or as determined by a structural engineer.

Not to Scale

Job No. 5510.01-A	SLAB-ON-GRADE AND BACKFILL DETAIL	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 25



DETAIL "A"

NOTE: This detail applies when existing ground slopes are 5:1 and steeper.

Not to Scale

Job No. 5510.01-A	DETAIL FOR FILLING ON SLOPES	10-27-05
Pezonella Associates, Inc Consulting Engineers 520 Edison Way Reno, Nevada 89502 PHONE (775) 856-5566 FAX (775) 856-6042	TWENTYNINE PALMS SAN BERNARDINO COUNTY, CALIFORNIA	Plate No. 26

Appendix D
Desert Tortoise Biological Studies

ESA

Desert Tortoise Clearance Survey
Twentynine Palms Indian Reservation
Twentynine Palms, CA

(Northwest Quarter, Section 4, T1S, R9E, Queen Mountain Quadrangle, 7.5 Minute Series, USGS)

Prepared for:

Pennington & Company, LLC

And

Twentynine Palms Band of Mission Indians

By

Arthur Davenport
Davenport Biological Services
P.O. Box 1692
Barstow, California 92312
619-729-4242

January 14, 2013

EXECUTIVE SUMMARY

During five days, between January 7-11, 2013, a clearance level survey was completed for the desert tortoise (*Gopherus agassizii*) on the Twentynine Palms Indian Reservation, Twentynine Palms, California. This survey focused on the approximate northern third of the northwest quarter of Section 4 (T1S, R9E, USGS Queen Mountain 7.5 Minute Quadrangle), and was completed by two biologists. Although no desert tortoises were directly observed during this survey, 2 active desert tortoise burrows, 7 pallets (4 of which showed sign of recent occupation), 3 skeletal-shell remains, and 3 scats (2 of which were from the 2012 activity season for this species) were observed within the survey area. The reason for the lack of direct observation of desert tortoise is likely due to the winter timing of this survey.

INTRODUCTION

Davenport Biological Services was hired by Pennington & Company, LLC, on behalf of the Twentynine Palms Band of Mission Indians (Tribe), to conduct a desert tortoise (*Gopherus agassizii*) clearance survey on lands belonging to the Tribe. The land is located on the Twentynine Palms Indian Reservation located in Twentynine Palms, California. The study area coincides with the approximate northern third of the northwest quarter of Section 4 (Section 4, T1S, R9E, USGS, Queen Mountain 7.5 Minute Quadrangle)(Figure 1).

Because of the Tribe's current interest in developing a portion of their lands in Twentynine Palms, CA, and their interest in avoiding take (e.g., harm or harassment) of the desert tortoise and the subsequent need for an incidental take permit per the Endangered Species Act of 1973 as amended (ESA), a general area that had been previously surveyed for desert tortoises was chosen for determining the location of a construction project. Due to the dated results of the previous surveys (Sundance 2008, Davenport 2009), a more intensive desert tortoise clearance level survey was completed on a subset of the lands previously surveyed. The location of the construction project will be guided by the results of the clearance survey as well as previously collected data (Sundance 2008, Davenport 2009). The ultimate location of the project will be based on the absence of desert tortoise burrows within the area that would be directly degraded by the project (e.g., areas that would be graded or otherwise physically disturbed).

Two presence/absence protocol surveys have been completed on this site. The first survey of the northwest quarter (i.e., the reservation) as well as the remaining three quarter sections of Section 4 was completed by five biologists from May 25 – 29, 2008 (Sundance 2008). During that survey, three desert tortoises, as well as sign (e.g., burrows, pallets, scat and skeletal remains) were observed within the northwest quarter section and additional desert tortoises and sign were observed within the other three quarter sections of Section 4. The second survey of the reservation was completed by one biologist in September of 2009, and documented additional desert tortoise burrows and sign (Davenport 2009).

As previously indicated, the survey covered in this report coincided with the approximate northern third of the northwest quarter of Section 4, an area of approximately 67 acres (27 hectares). The topography within the survey area coincided with the gently sloping alluvial fan of Queen Mountain. Elevation within the study area was approximately 2,050 feet (625 meters) above sea level.

The plant community within the study area is best described as Mojave creosote bush scrub (Holland 1986). The creosote bush (*Larrea tridentata*), and burro-weed (*Ambrosia dumosa*), occurred throughout the site. Numerous succulents such as California barrel cactus (*Ferocactus cylindraceus*), Pencil cactus (*Opuntia ramosissima*), silver cholla (*Opuntia echinocarpa*), and foxtail cactus (*Escobaria vivipara* var. *alversonii*), also occurred throughout the area. Botanical common and taxonomic names follow Hickman (1993).

The Mojave population of desert tortoise was listed as a federally threatened species on April 2, 1990 (USFWS 1990). Critical habitat was designated for the Mojave population of desert tortoise on February 8, 1994 (USFWS 1994). The study area is not located in designated critical habitat.

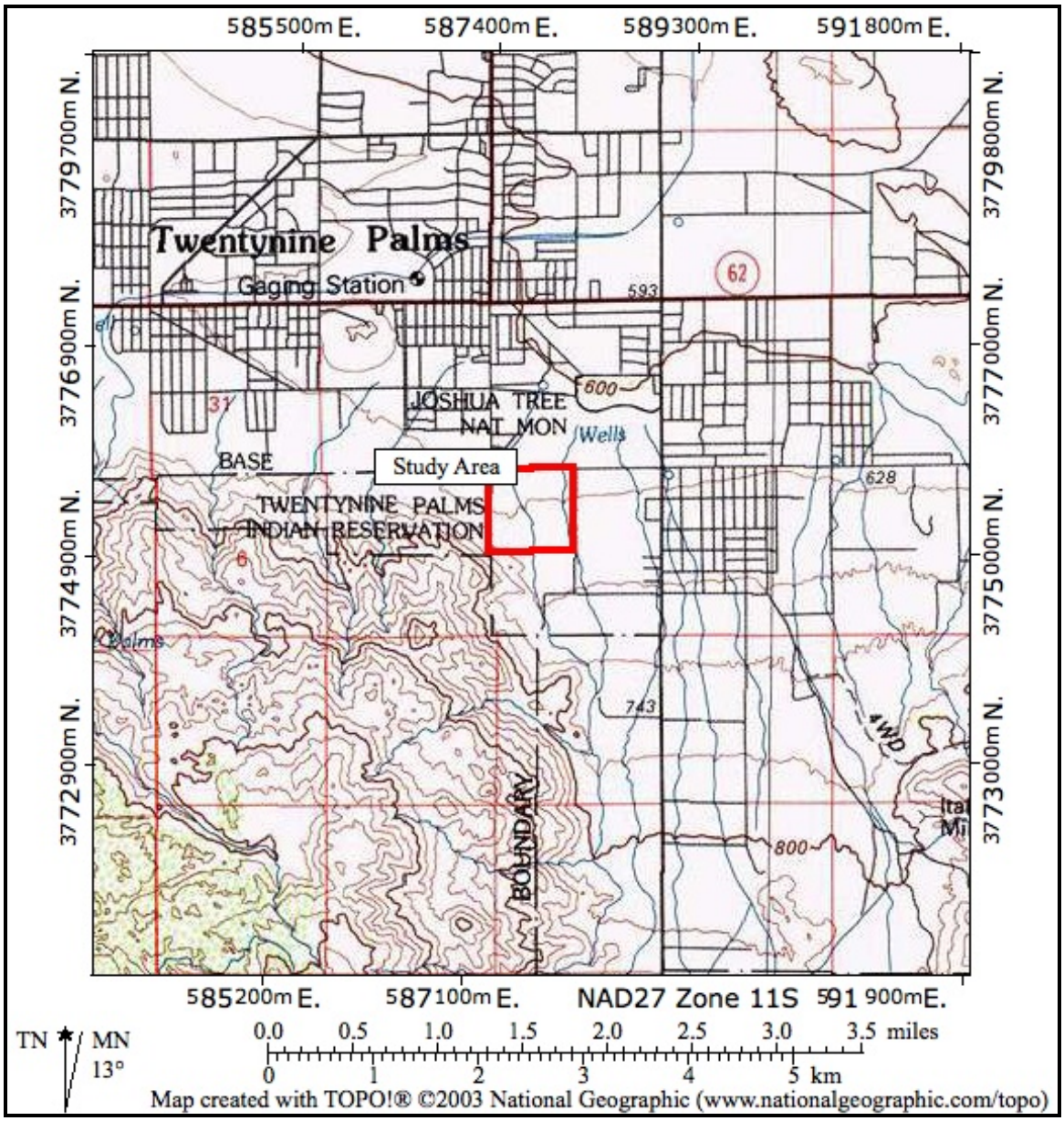


Figure 1. Shows general location of study area.

METHODS

The approximate northern third of the parcel was surveyed thoroughly for desert tortoises and their sign (e.g., burrows, pallets, scat, skeletal remains) using two sets of transects; one set was oriented north-south and the other set oriented east-west. The transects were spaced approximately 16 feet (5 meters) apart. Transect spacing was maintained using a Garmin GPSmap 60 CSx global positioning unit. The location of all desert tortoise sign was determined using a Garmin, GPSmap 60 CSx, and recorded. The survey was conducted on five days between January 7 and 11, 2013. Aside from not excavating burrows and the winter period of this survey, the survey methods followed the survey guidelines provided by the U.S. Fish and Wildlife Service (USFWS 1992 and 2009).

RESULTS

No desert tortoises were directly observed during this survey. However, active desert tortoise burrows, pallets, and new and old scat were observed. Based on the green color of the vegetation within the scat, and surface sheen, the new scat appeared to be from the spring and summer of 2012. The old remains of several desert tortoises (i.e., shell and skeletal fragments) were also observed in the study area. In total, 17 observations of sign were recorded during this survey. The results of this survey are provided (Table 1). The location of an adult female desert tortoise observed in the spring of 2009 as well as the results of this survey and surveys completed in 2008 and 2009 are also provided (Figure 2).

Table 1. Location data of desert tortoise sign from this survey (UTM NAD 83).

Date	Sign	Easting	Northing	Comments
7-Jan-13	Skeletal	587261	3775904	2 femurs, 1 humerus, 1 rib and shell fragment
8-Jan-13	Pallet	587525	3775808	Adult; Active in 2012
8-Jan-13	Pallet	587530	3775680	Adult; Active in 2012
8-Jan-13	Pallet-Old	587667	3775834	Adult; Old; Caving In;Not Active in 2012
8-Jan-13	Pallet-Old	587700	3775690	Plant Pallet; Under pencil cholla; old scat
8-Jan-13	Scat	587715	3775719	From 2012 active season
8-Jan-13	Pallet	587725	3775747	Adult; Active in 2012
8-Jan-13	Pallet-Old	587735	3775697	Adult; Old; Caving In;Not Active in 2012
8-Jan-13	Burrow	587747	3775816	Adult; Active; appears to have plug
8-Jan-13	Skeletal	587780	3775906	Adult; > 10 years; plastron fragment
9-Jan-13	Burrow	587820	3775649	Small Adult; Active in 2012
9-Jan-13	Burrow	587825	3775826	Adult; Active; recorded in 2008 and 2009
9-Jan-13	Pallet	587855	3775832	Adult; Active; recorded in 2008 and 2009
9-Jan-13	Skeletal	587823	3775965	Shell fragments; adult; 5 marginals
9-Jan-13	Scat	587683	3775884	Scat; 2012 active season
9-Jan-13	Scat-Old	587807	3775874	Scat; older than 2012 active season
10-Jan-13	Scat	587690	3775837	Scat; 2012 active season

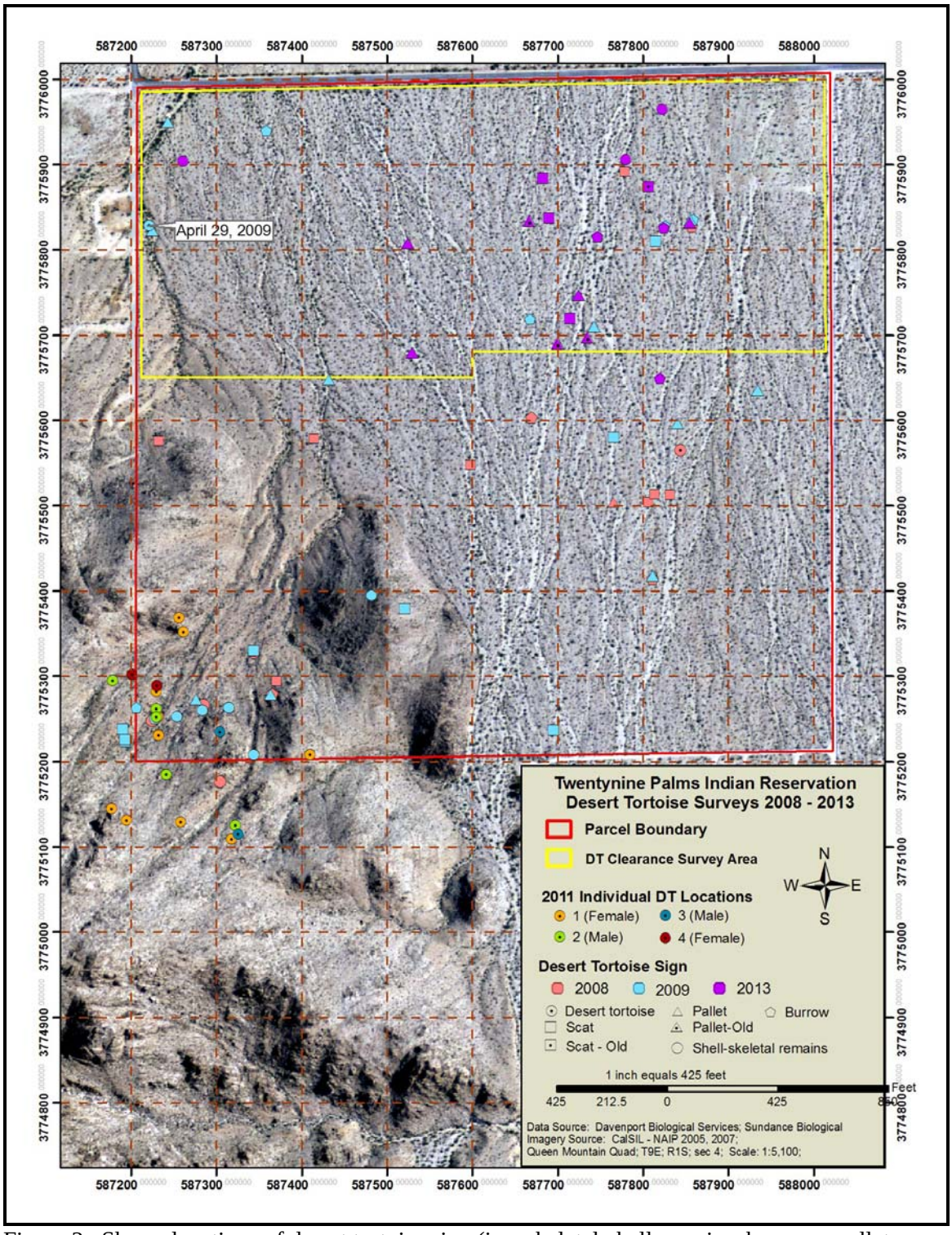


Figure 2. Shows locations of desert tortoise sign (i.e., skeletal-shell remains, burrows, pallets, and scat) observed during this survey as well as data collected during previous surveys. In addition, the locations radio-tagged animals being monitored in 2011 as well as an adult desert tortoise observed on 29 April 2009, prior to initiation of formal surveys, are included.

DISCUSSION

Consistent with the results of the previous surveys (Sundance 2008, Davenport 2009), desert tortoise sign (burrows, pallets, scat) were observed to be more abundant in the eastern portion of the survey area. In addition, a burrow previously observed in the western portion of the survey area in 2009 (Davenport 2009), had collapsed and showed no recent activity. Pallets that had been observed in 2009 (Davenport 2009) were not evident during this survey.

The absence of desert tortoises on the surface during the winter is typical of this species. During times of harsh weather, and limited food availability, desert tortoises may become inactive and remain in their burrows. Therefore, the lack of desert tortoise observations during this survey should not be misinterpreted to mean they are absent from the survey area. The continued presence of active burrows, pallets showing recent activity, and scat from the 2012 activity season indicate their continuing presence within the survey area.

Although not observed during a formal study, an adult female desert tortoise was observed within the study area in the spring of 2009 (Davenport 2009). This animal was located in the arroyo that runs along the western edge of the study area (Figure 2). During the clearance survey, no desert tortoise burrows were observed in the western half of the survey area and her burrow is thought to be located on Joshua Tree National Park.

Given the number of adult desert tortoise burrows, additional younger desert tortoises are anticipated to occur on and adjacent to the study area. Detecting the burrows of these smaller animals is difficult due to their small size and the presence of numerous rodent burrows of similar size and shape. In addition, smaller desert tortoises may also be cohabitating with adult tortoises in the larger burrows. The best time to detect the smaller animals is during the spring while they are on the surface foraging.

Due to the lack of desert tortoise burrows, the best location for a project site is the northwest portion of the survey area. In addition, due to the presence of other development in close proximity (i.e., across the street), this location would cause the least amount of habitat fragmentation. Furthermore, placing a project in the northwest corner would maximize the distance from active desert tortoise burrows located on the reservation. Moreover, based on the general lack of sign in the northwest corner (Sundance 2008, Davenport 2009), development in this area would minimize the loss of habitat being used by desert tortoise.

CONCLUSION

Based on the results of this clearance survey, the general area covered under this survey is occupied by desert tortoises. Based on the observation of burrows and sign, desert tortoises currently occupy and concentrate their activity within the eastern portion of the survey area. Based on the number, size, and location of tortoise burrows observed during this survey, as well as during previous surveys, at least three adult desert tortoises are likely located within the general survey area or use it on a regular basis. An unknown number of juvenile and sub-adult animals are also anticipated to occur on site. Additional desert tortoises, that have their main burrows off site, are also anticipated to use the general survey area for foraging and reproductive purposes. Based on the absence of burrows and other sign during the clearance survey, the best location for a project would be the northwest portion of the study area.

CONSERVATION RECOMMENDATIONS

To avoid and/or reduce the potential for take (e.g., harm or harassment) of desert tortoises, implement the following recommendations.

Locate and restrict project related activity to an area where active/recent desert tortoise burrows are absent (i.e., northwest portion of survey area). Maintain a buffer of 25 meters between the arroyo located on the west side of the reservation and the project.

Limit project related grading and other habitat degrading activity to the smallest area practicable.

Prior to project related activities that would degrade habitat (e.g., grading), construct a desert tortoise proof fence around the project site during the inactive period of this species (generally December and February). Install short extensions of the fence to discourage desert tortoises from drifting along the fence and onto roads. The extensions should be approximately 5 feet in length and placed at a 45-degree angle to the main fence alignment and open to the south. Two extensions should be placed on both the east and west segments of the fence. An extension should be placed at the mid and northern terminus of the east and west segments of the desert tortoise proof fence. Install pipe cattle guards at all vehicle gates. Keep all personnel gates closed except when being used to access or depart the site. Have a qualified biologist present during installation of the desert tortoise proof fence and cattle guards.

Have a qualified biologist on site during the initial grading of the project site.

Have designated parking for project related vehicles within the fenced project site. Restrict parking of all project related vehicles to this area.

Require all drivers and operators to check beneath their vehicles and equipment for the presence of desert tortoise prior to their movement.

Restrict lighting to the project site. That is, use shielding so that the surrounding habitat is not illuminated

Instruct all project personnel to not touch, handle, or otherwise disturb the desert tortoise.

Restrict project related vehicles to 15 MPH while on the project site and while on Adobe Road and Baseline Road. Prevent access to Desert Knoll Avenue.

Secure all trash and garbage in covered bins to avoid attracting predators to the project site and surrounding habitat

In the event a desert tortoise is observed within the project site, cease all activity and contact the qualified biologist. The desert tortoise may not be touched, handled, or otherwise disturbed. If appropriate, a breach should be opened in the desert tortoise proof fence on the west, east, or south side to facilitate the animal's movement off the site. Following movement from the project site, the desert tortoise proof fence shall be immediately repaired to prevent access.

REFERENCES

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U.S. Fish and Wildlife Service. 2009. Preparing for any action that may occur within the range of the Mojave desert tortoise (Gopherus agassizii).

Desert Tortoise Management Plan
Twenty-Nine Palms Indian Reservation
Twentynine Palms, CA

(Northwest Quarter, Section 4, T1S, R9E, Queen Mountain Quadrangle, 7.5 Minute Series, USGS)

Photo by: A. Davenport

Prepared for:

Native American Land Conservancy

And

Twenty-Nine Palms Band of Mission Indians

By

Arthur Davenport
Davenport Biological Services
P.O. Box 1692
Barstow, California 92312
619-729-4242

December 12, 2011

EXECUTIVE SUMMARY

The purpose of this management plan is to provide measures, that if applied, should conserve the presence of desert tortoises on the northwest quarter of Section 4 of the Queen Mountain 7.5 Minute USGS Quadrangle, Twenty-Nine Palms Indian Reservation, Twentynine Palms, California. In support of the management plan, the entire northwest quarter of Section 4 was surveyed for desert tortoises. In addition, to better understand how desert tortoises were using habitat in this area, and potentially gaining additional knowledge that could be used to refine management actions, a radio telemetry study was initiated. Since the initiation of studies in 2009, five adult desert tortoises have been observed on the Twenty-Nine Palms Indian Reservation; four have been radio tagged. Based on the location and size of burrows observed during all survey events, additional desert tortoises are likely present on site, as well as on surrounding lands. Consistent with the purposes of the wildlife grant (i.e., development and implementation of programs that benefit wildlife resources), this management plan incorporates the data from site-specific surveys as well as other information available in the scientific literature for the purpose of conserving desert tortoises on these lands.

INTRODUCTION

The purpose of this management plan is to provide measures, that when applied, are intended to conserve desert tortoises (*Gopherus agassizii*) occupying the Twenty-Nine Palms Indian Reservation, Twentynine Palms, California. The Tribal lands for which this management plan was developed, are located within the northwest quarter of Section 4, of the Queen Mountain USGS, 7.5 Minute Quadrangle, T1S, R9E; an area of approximately 64.7 hectares (160 acres)(Figure 1).

Funding for the desert tortoise survey, radio telemetry study, and management plan preparation was provided through a wildlife grant from the U.S. Fish and Wildlife Service. These wildlife grants are used to provide technical and financial assistance to Tribes for the development and implementation of programs that benefit fish and wildlife resources. Activities under the wildlife grant program may include planning for wildlife and habitat conservation, management actions, natural history studies, habitat mapping, field surveys, population monitoring, and habitat preservation. The funds may be used for salaries, equipment, consultant services, subcontractors, acquisitions, and travel.

SITE CHARACTERISTICS

The topography within the study area includes a gently sloping alluvial fan as well as rocky hills and the lower slopes of Queen Mountain (Figure 2). Elevation within the study area ranges from approximately 2,050 to 2,313 foot (625 to 705 meters) above sea level. The plant community within this area is best described as creosote bush-white burrsage scrub and creosote bush-brittle bush scrub (Sawyer et al., 2008). The creosote bush (*Larrea tridentata*), and burro-weed (*Ambrosia dumosa*), occurred throughout the site. The brittle bush (*Encelia farinose*) occurred on the slopes of Queen Mountain. Numerous succulents such as California barrel cactus (*Ferocactus cylindraceus*), pencil cactus (*Opuntia ramosissima*), silver cholla (*Opuntia echinocarpa*), and foxtail cactus (*Escobaria vivipara* var. *alversonii*) also occurred throughout the study area. The description of plant communities follows Sawyer et al. (2009). Botanical common and taxonomic names follow Hickman (1993).

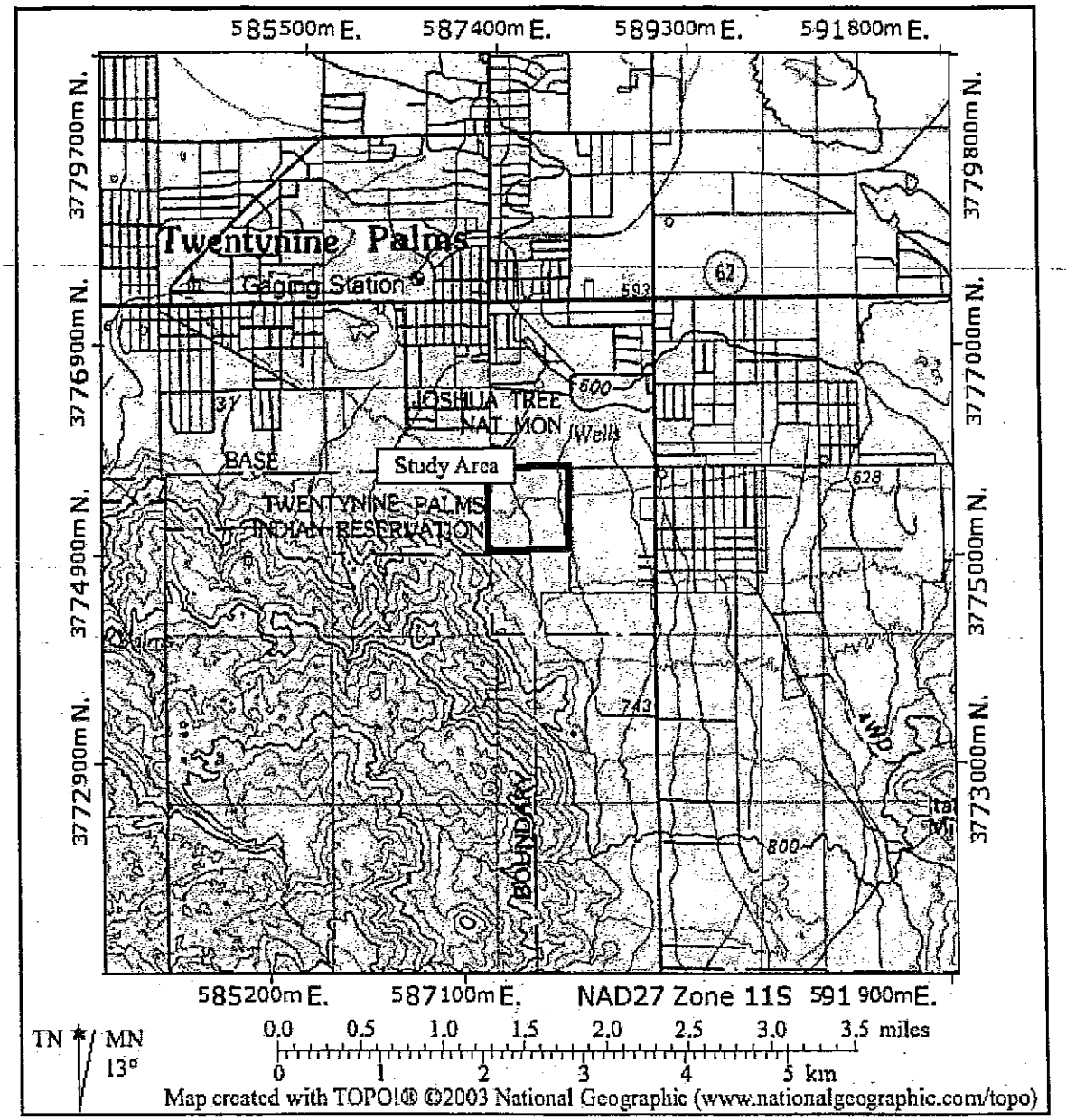

Figure 1. Shows location of study area as well as topography of site and surrounding area.

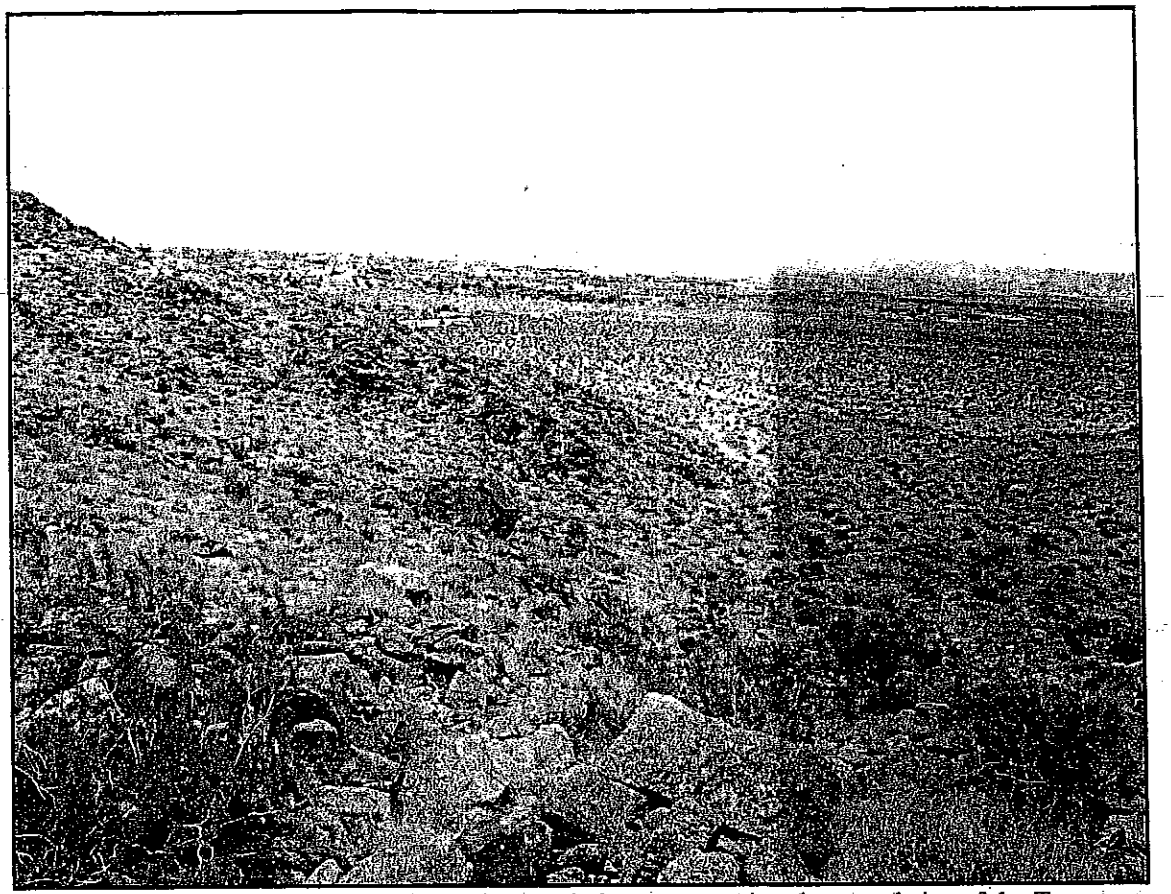

Figure 2. Shows diverse topography and general plant community characteristics of the Twenty-Nine Palms Indian Reservation (Northwest Quarter of Section 4, Queen Mountain, USGS 7.5 Minute Quadrangle).

LEGAL STATUS

The desert tortoises located on the Twenty-Nine Palms Indian Reservation are listed as threatened under the Endangered Species Act of 1973, as amended. The Mojave population of desert tortoise, where it occurs in California and Nevada, was listed as a federally threatened species on April 2, 1990 (USFWS 1990). Critical habitat was designated for the Mojave population of desert tortoise on February 8, 1994 (USFWS 1994). Critical habitat was not designated on the Twenty-Nine Palms Indian Reservation.

EVOLUTION AND SYSTEMATICS

The earliest fossil remains of turtles are found in the Upper Triassic sediments of Germany, and are about 200 million years old. Additional turtle fossils have been found in the Upper Triassic sediments of Thailand, and the early Jurassic in North America (Carroll, 1988). Members of modern families of turtle appeared in the Tertiary period, about 60 million years ago (Carroll, 1988). Seven modern families of turtles currently occur in North America, including Testudinidae, of which the desert tortoise belongs (Ernst et al., 1994). Fossils of desert tortoises have been found in Pleistocene sediments in Arizona, California, New Mexico, and Nevada (Ernst et al., 1994). The Pleistocene epoch (time period) extends from about 10,000 to 2.5 million years ago.

DESCRIPTION

The desert tortoise is a large terrestrial turtle with a high domed shell, shovel-like front feet, and large elephantine hind feet. The shell is composed of dermal bones that make up the carapace (shell that covers the back) and the plastron (shell that covers the chest and stomach). The plastron lacks a hinge, and has two adjacent projections at the front end (i.e., gulars). Male desert tortoises have concaved plastrons, longer gulars, longer thicker tails, thicker claws, and larger chin glands (i.e., menta glands), than females. The plastrons of females are flat.

Figure 3. Shows a large male desert tortoise observed within the Twenty-Nine Palms Indian Reservation (Northwest Quarter of Section 4, Queen Mountain, USGS 7.5 Minute Quadrangle).

DISTRIBUTION

The current geographic range of the desert tortoise includes portions of the Mojave, Sonoran, Colorado, and Great Basin deserts. As such, desert tortoises occur in portions of Arizona, Nevada, Utah, and California. The geographic range of the desert tortoise includes lands within the Twenty-Nine Palms Indian Reservation, Twentynine Palms, California. Based on recent surveys within the northwest quarter of Section 4, of the Queen Mountain USGS Quadrangle, several active desert tortoise burrows have been identified (Davenport 2009)(Figures 4a & 4b).

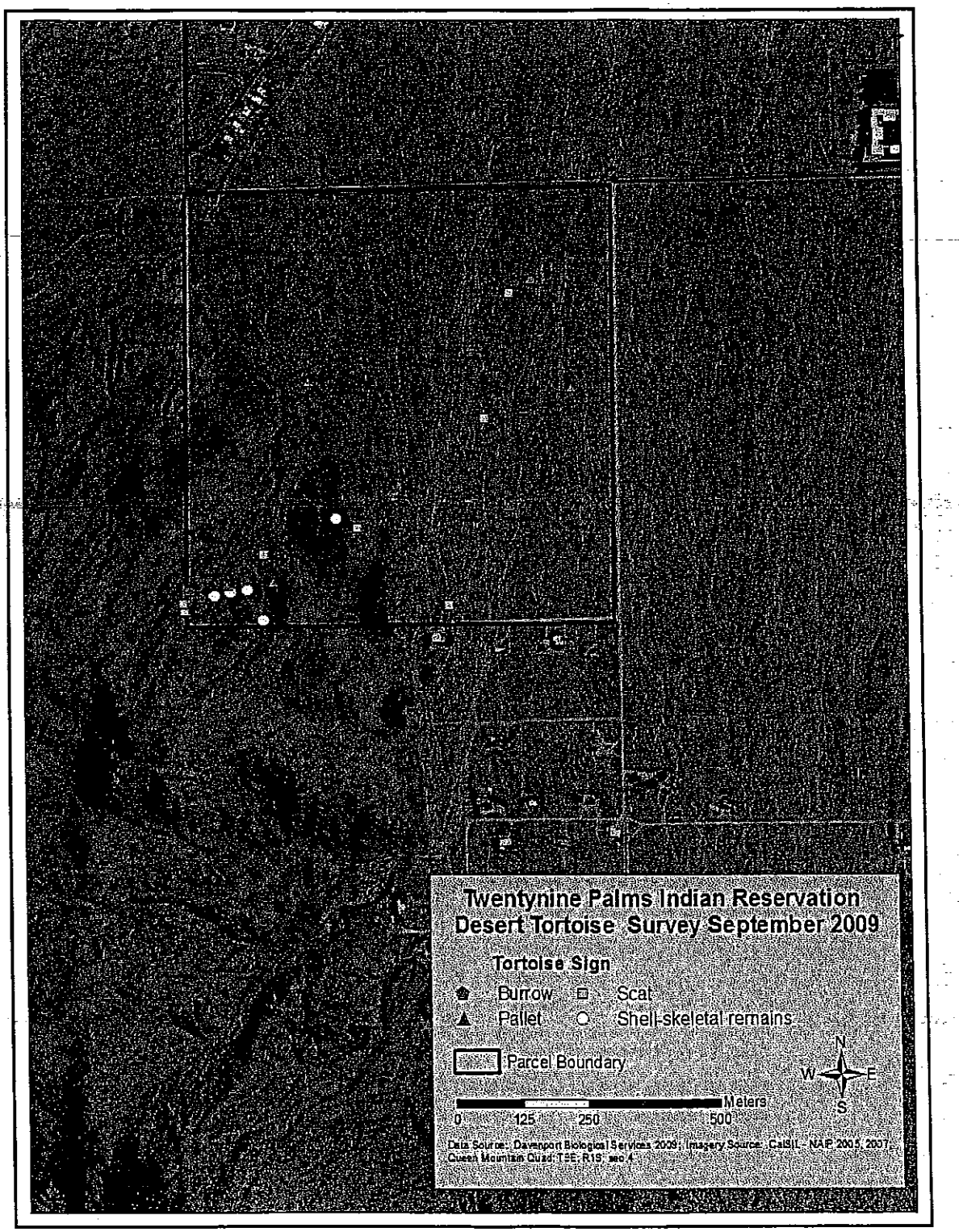

Figure 4a. Shows locations of desert tortoise sign (i.e., skeletal-shell remains, burrows, pallets, and scat)(Davenport 2009).

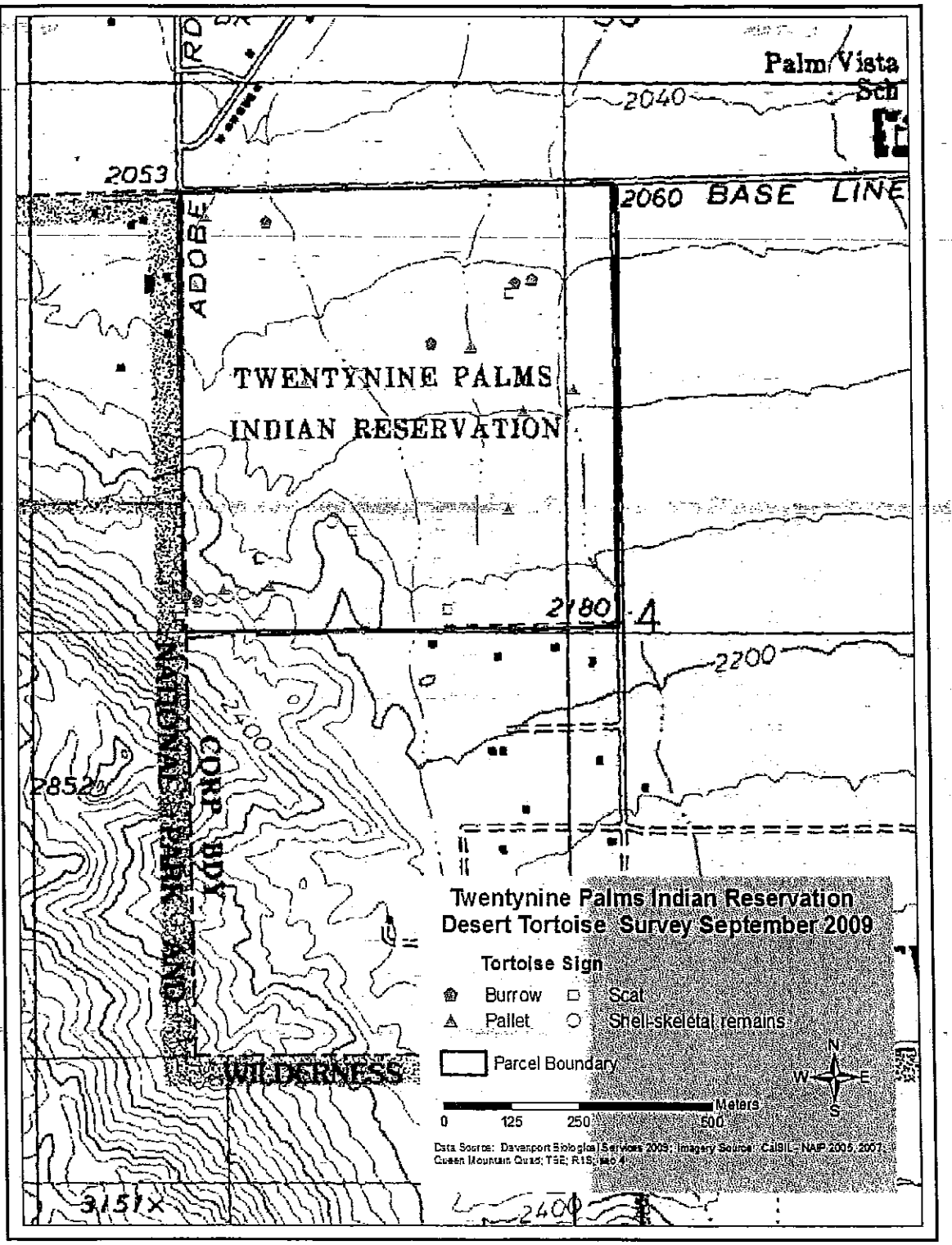

Figure 4b. Shows locations of desert tortoise sign (i.e., skeletal-shell remains, burrows, pallets, and scat) observed during this survey on topographic map (Davenport, 2009).

Additional active burrows have been documented both east and south of the study area (Sundance 2008). The desert tortoises associated with the burrows documented by Sundance (2008), likely use habitat within the Twenty-Nine Palms Indian Reservation.

To better understand the spatial use of the study area by desert tortoises, animals were radio-tagged beginning October 2009. Since radio-tagging began, four adult desert tortoises have been tagged and their subsequent locations documented (Figures 5a & 5b). Too date, all of the desert tortoises that were located and tagged were initially located along the lower slopes of Queen Mountain. In addition, all subsequent locations for these animals were also on the slopes of Queen Mountain. An adult female desert tortoise observed prior to the initiation of radio-tagging study remains un-tagged. This animal has not been seen since its initial discovery.

GENETIC DIVERSITY

To date, no subspecies of desert tortoise has been recognized. However, based on an analysis of mitochondrial DNA, there are five genetically unique populations of desert tortoise. These genetically unique populations have different mitochondrial genotypes (i.e., mitochondrial genotypes, a1, a2, a3, a4, and a5)(Lamb et al., 1989). Based on Lamb (1989), a unique group comprised of the a1 genotype, occupies the Mojave and Colorado deserts of California, including the Mojave Desert located in southern Nevada. A second group, composed of the a2 and a3 genotypes, occurs in the northeastern portion of the Mojave Desert, in Utah. A third group, composed of a4 genotypes, occurs in west central and southern Arizona and extends to central Sonora, Mexico. The fourth genotype, a5, occurs in southern Sonora, Mexico. The desert tortoises located on the Twentynine Palms Indian Reservation belong to the population associated with the Mojave and Colorado deserts (i.e., mitochondrial genotype a1).

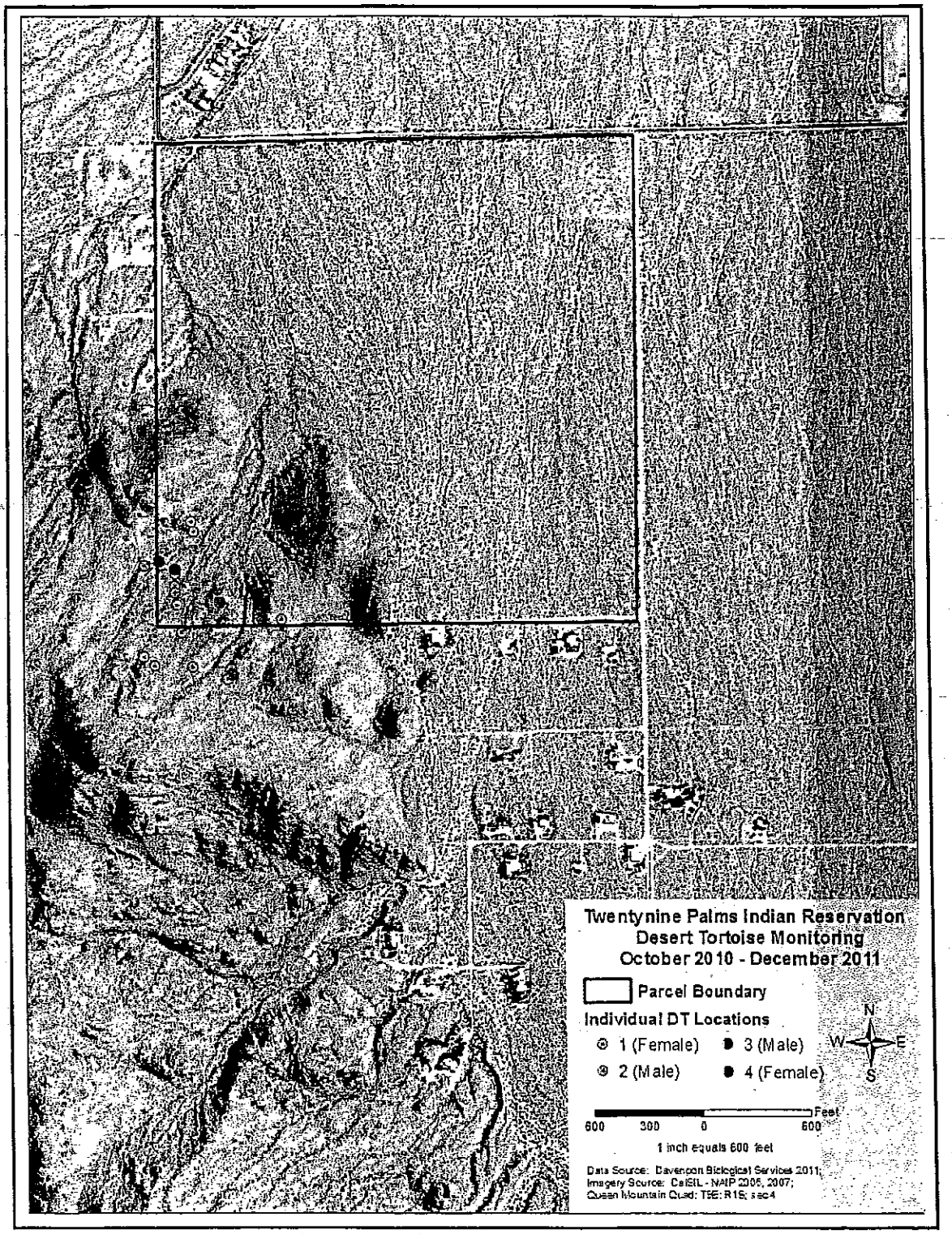

Figure 5a. Shows documented locations of radio-tagged desert tortoises.

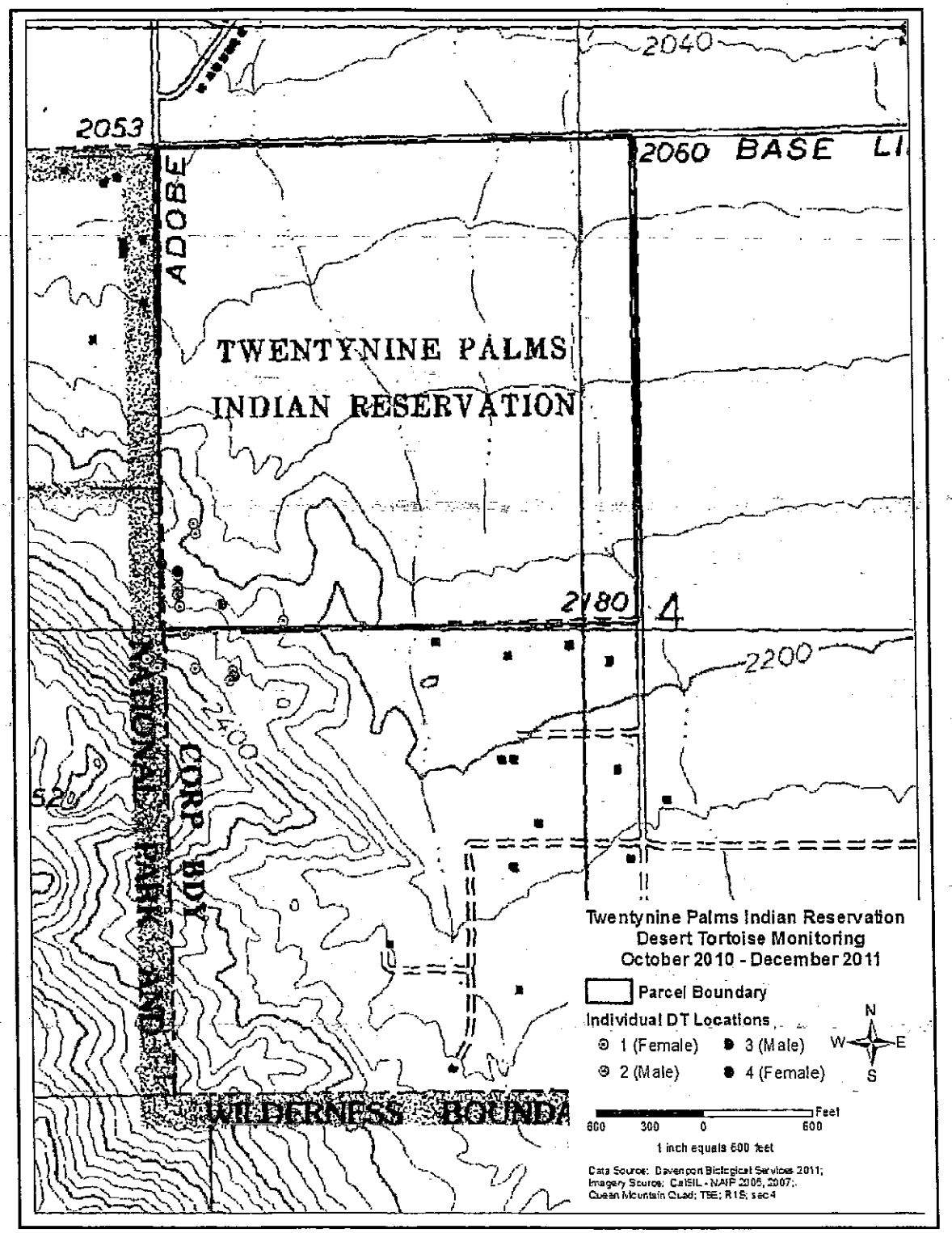

Figure 5b. Shows documented locations of radio-tagged desert tortoises.

HABITAT

Desert tortoises are associated with a variety of desert plant communities. This species occurs in blue palo verde-ironwood woodland, mesquite bosques, mesquite thicket, screwbean mesquite bosques, smoke tree woodland, Joshua tree woodland, catclaw acacia thorn scrub, white bursage scrub, cheesebush scrub, black sagebrush scrub, fourwing saltbush scrub, desert holly scrub,

allscale scrub, spinescale scrub, black brush scrub, brittle bush scrub, shadscale scrub, Virgin River brittle brush scrub, California joint fir scrub, Death Valley joint fir scrub, Nevada joint fir scrub, Mormon tea scrub, Palmer's goldenbush scrub, black-stem rabbitbrush scrub, needleleaf rabbitbrush scrub, California buckwheat scrub, spiny hop sage scrub, desert lavender scrub, winterfat scrubland, creosote bush scrub, creosote bush-white burrsage scrub, creosote bush-brittle bush scrub, Anderson's boxthorn scrub, desert almond scrub, bitter brush scrub, bladder sage scrub, Jojoba scrub, bush seepweed scrub, Parish's goldeneye scrub, net-veined goldeneye scrub, Mojave yucca scrub, Indian rice grass grassland, desert dunes, big galleta shrub-steppe, and cactus dominated plant communities. The presence of friable soils for burrowing or the availability of other shelter sites such as small caves are essential components of this species' habitat.

The main plant communities located within the study area, are creosote bush-white burrsage scrub and creosote bush-brittle bush scrub. These plant communities appear healthy and robust and needs no management, other than protection from physical damage, to remain suitable for desert tortoises. Some limited damage has occurred due to limited off-highway vehicle use and dumping of trash, horticultural clippings, and furniture.

BEHAVIOR

Burrowing

Desert tortoises excavate their own burrows or opportunistically use the burrows of other animals such as kit fox, as well as natural shelters such as rock burrows, caliche caves, and other cavities in the ground. Small desert tortoises, such as hatchlings, also use natural openings under rocks and the available burrows of rodents for shelter. During adverse climatic conditions (e.g., during extreme heat of summer or cold of winter), this species will seek shelter in its burrow or other location and enter periods of inactivity until conditions improve.

Home Range

Based on the literature, the home ranges of desert tortoises across their geographic distribution are quite variable. Vaughn estimated the mean home range size to be 7.0 hectares (1.7 to 34)(17.3 acres (4.2 to 84)) for females, and 5.5 ha (0.4-9.5) for males. Barrett (1990) reported average home ranges of 19 ha (3 to 53)(47 acres (7.4 to 130) for both sexes. Barrett also noted that the desert tortoises in her study used as average of eight burrows, and that the animals over-wintered in burrows located on steep rocky slopes. Based on a more recent study completed in the western Mojave Desert, the average home range size of male desert tortoises was 39.4 hectares (97 acres)(+/- 9.4 SE), and 13.8 hectares (34 acres)(+/- 1.6 SE) for female desert tortoises during the first year of the study. During the second year of the study, the average home range size of males was 47.4 hectares (117 acres)(+/- 7.8 SE), and 16.9 hectares (41.8 acres)(+/_ 2.4 SE) for females (Harless et al., 2009).

There can be considerable overlap in the home ranges of desert tortoises as well as shared burrow use by both males and females (Harless et al., 2009). Based on the results of this study, that was completed in the western Mojave Desert, female desert tortoises shared burrows more often with male desert tortoises, while using a significantly fewer burrows per year. Interestingly, the territories of males also overlapped and they shared burrows with a similar number of tortoises of either sex. The results of this study suggest that the animals observed during this study were not territorial.

Brumation

Desert tortoises enter periods of inactivity during the winter and extreme heat of summer and during periods of resource scarcity. These periods of inactivity are referred to as brumation, as

reptiles do not hibernate. Desert tortoises generally emerge from brumation in late February or March and remain active until late October. However, periods of adverse climatic conditions during the summer (e.g., dry, hot, scarcity of food), or periods of favorable conditions during the winter (e.g., warm temperatures) can result in less or more activity, respectively.

Reproduction

During the active season, male desert tortoises will engage in combat. During these aggressive interactions, animals are occasionally flipped over; desert tortoises can generally right them selves, provided they don't suffer heat stress. Mating generally occurs in the spring.

Desert tortoises have been documented to lay up to three clutches of eggs per year and eggs are generally laid between April and July. During a study conducted during the spring of 1997, the average clutch size for first and second clutches were 4.33 and 5.00 eggs, respectively (Lovich et al. 1997). During this same study, early egg laying was documented to have occurred between the 18 and 23 of April. The documentation of egg laying in April was about one month earlier than previously reported for this species (Ernst et al., 1994). The number of eggs produced per year appears to be tied to annual productivity of plant material (Lovich et al., 1997). Based on another study, the average number of clutches produced by female per year, was positively correlated with winter rainfall, but summer rains also contributed to the reproductive energetics of the females (Turner et al., 1984). In short, dry winters are anticipated to result in the lower production of eggs by desert tortoises during the following spring and summer active periods.

Lifespan

Although there are exceptions, desert tortoises in the Mojave Desert generally live approximately 25 years in the wild. Only approximately 11% of desert tortoises from the eastern Mojave Desert live past 25 years (Germano, 1992). The greatest life span estimate for a wild desert tortoise is 48-53 years for an animal from the eastern Mojave Desert (Germano, 1992).

Sexual maturity in desert tortoises is estimated to occur when the animal is between 15 and 20 years old (Berry, 1978). However, depending on the annual vegetation productivity of a site, time to maturity may be quicker or slower than indicated in the literature. Based on the observations of a captive born male desert tortoise, that had free access to high quality foods during the growing season, sexual maturity was reached in 10 years (A. Davenport, pers. obs.).

Population

The number of desert tortoises within a given area varies across the range of this species. In California, in one study, density estimates ranged from 0.29 to 0.39 per hectare (75 to 101 per square mile)(Barrow, 1979; as in Ernst et al, 1994). Based on another study, using the Lincoln Peterson Index, a capture/recapture method, density estimates ranged from 80 to 124 per kilometer^2 (206 to 319 per square mile)(Schneider, 1980, as in Ernst et al., 1994). Based on my experience, the density of desert tortoises generally falls well below these numbers. Thus, these estimates should represent the higher end of potential population densities for this species and should not be considered the norm. Within the study area, five adult desert tortoises have been documented (Appendix 1).

The age structure of desert tortoise populations has been found to range from 42 to 58% adults, 14 to 17% subadults, 18 to 33% juveniles, 5 to 10% small juveniles, and 1 to 2% hatchlings (Berry, 1976; as in Ernst et al., 1994). However, it is important to note that the detection probability of hatchling, juvenile, and adult desert tortoises are not the same and smaller animals are likely underrepresented in sampling events. Thus, adult desert tortoises have likely been significantly over represented during sampling events and thus likely represent less of the total actual population present. Assuming one clutch per year, of 5 eggs, which is conservative based

on the literature, and a sex ratio of 1:1, there should be on average about 2.5 times as many hatchlings as there are adult female desert tortoises. The potential number of hatchlings strongly suggests the under-sampling of hatchlings, small, and juvenile desert tortoises during population studies. Based on the observation of five adult desert tortoises within the study area, and using a conservative under estimate, at least twice as many animals are likely present.

THREATS

Disease

Several parasites and pathogens may cause disease in desert tortoises (Jacobson, 2007). As with most species, their normally occurring microbial flora and fauna are unlikely to pose a threat to their long-term survival. However, some microbes may become pathogenic and cause disease when the host animal becomes stressed. In addition, other microbes may be virulent and tend to cause disease in otherwise healthy animals. For the desert tortoise, a significant die off of animals was observed in the 1980's and was listed as one o of the threats to the survival of the species in the final rule listing the animal as threatened (USFWS, 1990). Two microbes, a previously unidentified *Mycoplasma* (*Mycoplasma agassizii*) and *Pasteurella testudinis* were cultured from desert tortoises showing upper respiratory tract disease (URTD). Based on further research, *M. agassizii* was found to be the cause of disease (Jacobson, 2007). It is important to note that there are some strains of *M. agassizii* that apparently do not cause overt clinical disease. Thus, the strain of *Mycoplasma* present in a given population of desert tortoise will influence the clinical course of disease as well as the transmission of the pathogen between animals (Jacobson, 2007).

In regard to the desert tortoises located within the study area, the strain of *Mycoplasma*, if it is present, is currently not known. However, as discussed previously, a threat exists to the resident desert tortoises due to the presence of captive desert tortoises held in the adjacent urban areas, as these animals may escape or be released into the local population. Based on the origin of the released animals, they may carry a virulent strain of *Mycoplasma agassizii* and infect the resident population. Thus, measures need to be taken to prevent the release of desert tortoises into the population that occupies the Twenty-Nine Palms Indian Reservation. In addition, the resident animals should be screened and the strain of *Mycoplasma*, if present, identified, to guide management actions.

Development

The most serious threat to the conservation of the desert tortoise is the loss and fragmentation of habitat through agricultural, industrial, and urban development. Throughout large portions of its range, agricultural, industrial, and urban development have damaged or destroyed large areas of occupied habitat. In addition, highways and roads constructed to support such development present additional hazards to this species (i.e., vehicle strikes).

In regard to urban development, additional impacts, beyond the direct destruction of habitat, occur in a zone around these areas due to the presence of people and their pets. Pets, such as domestic dogs, opportunistically harass, harm, or kill desert tortoises as well as other wildlife. In short, the presence of domestic dogs within these zones increases the density of predators within desert tortoise habitat to abnormally high levels, levels that would not be reached or sustained under normal conditions. In addition, where potential food resources, such as garbage, small dogs, and house cats are not kept from native predators, coyote may occur at higher densities in the lands located adjacent to urban development. This higher density of predators, both native and domestic, will likely result in abnormally high predation rates on desert tortoises and a decline of this species throughout a zone adjacent to and surrounding such development. Given the reproductive strategy of the desert tortoise, the susceptibility of hatchling and young desert

tortoises to predation given their soft shells, and the species' relatively short reproductive life, an increase in average predation rates will likely result in the decline and potential collapse of local populations of this animal.

People occasionally collect desert tortoises for pets. In addition to the harm that can be caused to small local populations through the loss of reproductive potential of the individual tortoises, these animals often receive poor care, and may be released in a weakened, diseased, state. The release of diseased animals into a wild population can result in the transfer of disease causing pathogens to resident animals. In addition, desert tortoises collected in one region harboring a virulent strain of a pathogen may be inadvertently released into a region where it does not exist. Exposure to disease can reduce the fitness of resident desert tortoises, reduce their life span, and reduce their reproductive output. Depending on the size of the local population, and the severity of and communicability of the disease, local populations of desert tortoises may collapse and become unsustainable.

Unfortunately, some people occasionally purposely harm desert tortoises. During vandalism events, desert tortoise have been shot, dropped, and run over by vehicles. I have also observed domestic dogs, on walks with their owners, allowed to harass and bite at desert tortoise. Concerning desert tortoises located on the Twenty-Nine Palms Indian Reservation, since completion of the survey within the study area by Davenport (2009), two burrows appear to have been damaged by human activity. In one case, the opening of the burrow appears to have been carefully enlarged for an unknown reason. Damage to this burrow may have been related to a possible collection event or attempt. In another case, the front of a short burrow had been collapsed.

In regard to the desert tortoises located within the study area, increased predation by domestic dogs and a likely increased density of coyotes is a threat to their long-term persistence. In addition, due to the close proximity of urban development, the potential collection of desert tortoises from a limited population, the potential release of diseased tortoises into the population, and potential vandalism remain serious threats to the long-term persistence of desert tortoises in this area. In addition, the release of a diseased desert tortoise, harboring a virulent pathogen from another region, poses a threat to the population of desert tortoises occupying the study area as well as Joshua Tree National Park.

Predation

As indicated by the sympatric distribution of desert tortoises with a number of native predators, under normal conditions, predation by native predators does not pose a threat to the survival of the desert tortoise. A number of native predators are likely to prey opportunistically upon desert tortoises. Because of their soft shell, hatchling and juvenile desert tortoise are more susceptible to predation events. Local native mammalian predators that likely opportunistically prey upon desert tortoises include spotted skunk (*Spilogale putorius*), badger (*Taxidea taxus*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*). The spotted skunk, gray fox, and coyote, likely also prey opportunistically on their eggs. Some birds also likely prey opportunistically on this species, and they include loggerhead shrike (*Lanius ludovicianus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverious*), and common raven (*Corvus corax*). Local native reptilian predators that likely prey opportunistically on desert tortoise eggs and their hatchlings include large snakes such as the gopher snake (*Pituophis melanoleucus*). During the course of the desert tortoise studies, three juvenile desert tortoises were found that appeared, based on the presence of puncture wounds, to have been killed by a small carnivore (Figure 6).

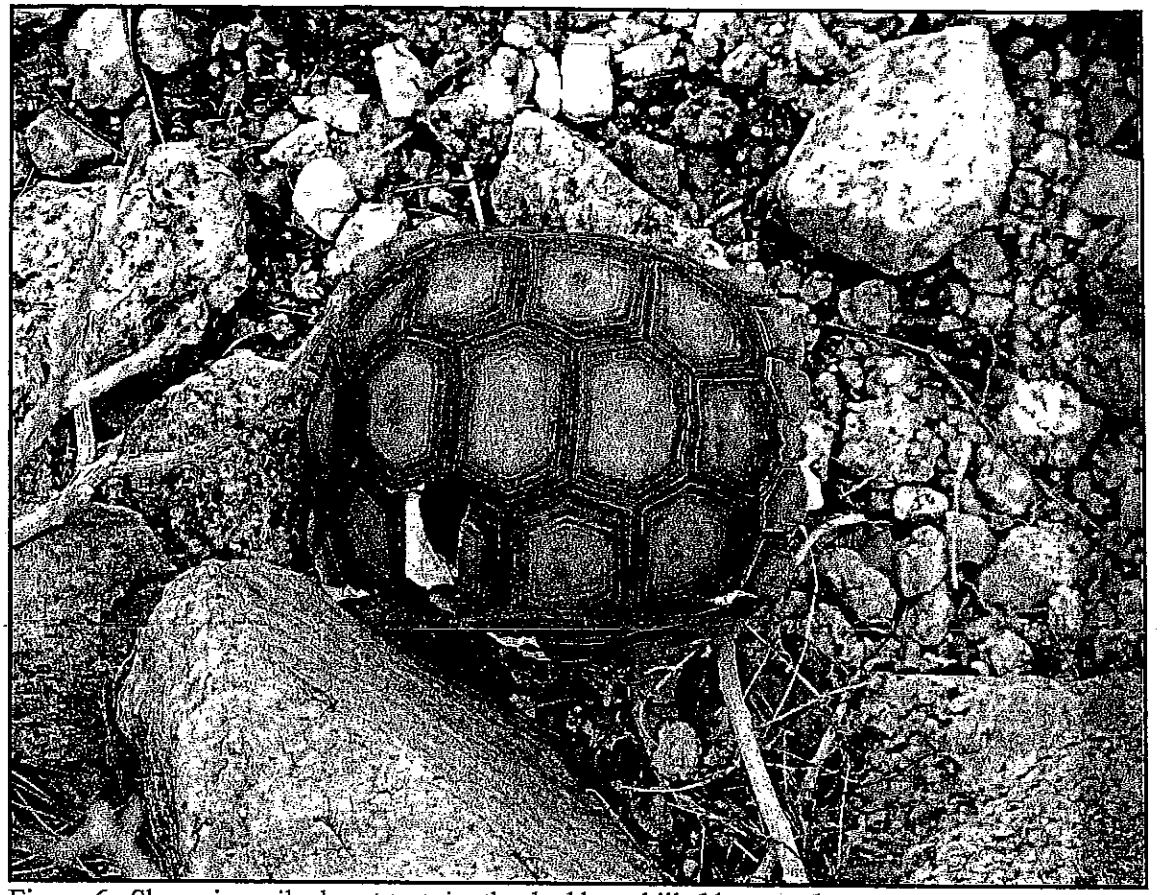

Figure 6. Shows juvenile desert tortoise that had been killed by a predator.

Small Population

Due to the small size of the study area (160 acres), and the limited number of desert tortoises that could occupy this site, the desert tortoises located on these lands do not represent a self sustaining viable population. The desert tortoises located on the study area are a component of and rely on the larger population of desert tortoises that exist on adjacent lands, including Joshua Tree National Park. Based on a thorough survey of the entire site, five adult desert tortoises have been documented within the study area. If all of the adult desert tortoises have been observed, this represents a density of 16 adult desert tortoises per square mile. If this number is close to being correct, based on other estimates of desert tortoise density, the population occurring on the Twenty-Nine Palms Indian Reservation appears significantly depressed. The reason for the apparent reduced number of animals is unknown, but likely related to the proximity of the site to urban development.

MANAGEMENT RECOMMENDATIONS

The natural average density of desert tortoises associated with the study area, absent the negative affects associated with the adjacent urban center, is not known. Thus, the general goal of the management plan is to prevent or significantly reduce indirect affects of such development on the local population of desert tortoises.

Given the slow documented time to maturity of desert tortoises in the wild (i.e., 15 to 20 years), and their generally short life span (i.e., 25 years), the reproductively active period of this long-lived species is relatively short (i.e., 5 to 10 years). Thus, conservation of adult desert tortoise and the prevention of abnormally high death rates of young and adult tortoise are critical to the

conservation of this species. The following management recommendations are designed to reduce or prevent abnormally high death rates and promote normal reproduction in the population of desert tortoises that occupy the Twenty-Nine Palms Indian Reservation.

Population Health Management

Genetic Diversity
To maintain the genetic health of the desert tortoise population located on the Twenty-Nine Palms Indian Reservation, it is essential that gene flow be maintained between these animals and the larger population of desert tortoises occurring on adjacent lands. Thus, the isolation of desert tortoises located on the study area from the larger population of desert tortoise that occurs on Joshua Tree National Park must be prevented. Therefore, do not construct a tortoise proof barrier fence or other barrier between desert tortoises located on the study area and those occupying adjacent lands (e.g., Joshua Tree National Park). It's important to note that desert tortoises that occur east of the study area are also a component of the entire population.

Disease
Within the study area, screen local desert tortoises for *Mycoplasma*, and if present, have the strain identified.

If a virulent strain of *Mycoplasma* is found, isolate infected desert tortoise or tortoises from free-roaming population. To prevent the infection of free-roaming desert tortoise, the infected animal or animals should be removed from the site and transferred to a secure facility designed for such animals. Alternately, the infected desert tortoise or tortoises could be placed in secure enclosure on site.

To prevent transmission of *Mycoplasma* to uninfected desert tortoises, the secure enclosure must be separated from surrounding habitat with a solid wall, or double fence. The double fence should include two parallel fences that are separated by enough space to prevent contact between the enclosed infected tortoises and the free-roaming tortoises. Too allow access and repair, and prevent contact between infected and free-roaming desert tortoises, one meter spacing between the fences is recommended. In addition, the barrier should extend two feet underground to prevent burrowing across the barrier. The above ground portion of the barrier should extend a minimum of three feet to prevent escape of infected desert tortoise or the movement of free-roaming desert tortoises into the enclosure.

The dimensions of the enclosure will depend on the amount of care the desert tortoises are to receive. For minimal care, the enclosure should be of adequate size to provide an adequate foraging area for the animal. The dimensions of the enclosure should be based on the average home range of a female desert tortoise, as their use areas are significantly smaller than that of male desert tortoise, and adequate forage is obtained for reproduction, and thus maintenance. The average home range of a female desert tortoise in California was estimated to be is 16.9 hectares (41.8 acres)(Harless et al., 2009). Enclosures of smaller dimensions will require more intensive care as adequate forage and water will need to be provided to meet the basic physiological needs of the desert tortoise.

Although it has been reported that some desert tortoises are able to clear the pathogen, this has not been documented (Jacobson, 2007). Thus, until an effective treatment becomes available, infected animals must remain isolated from the free-roaming population.

To prevent the release or movement of desert tortoises originating from the urban areas onto the Twenty-Nine Palms Indian Reservation, a barrier that prevents the movement or release of

animals needs to be erected along the border of the reservation and the surrounding urban center. This barrier should be a solid wall of sufficient height to prevent the release of desert tortoises onto the study area. To prevent breaching of the wall through burrowing, the wall or an extension of the wall should extend two feet underground. To prevent access from the west, work with Joshua Tree National Park in establishing an adequate barrier between urban development and natural open areas.

Vehicle Strikes
To prevent desert tortoises from wandering onto roads, and being accidentally struck and killed by motor vehicles, construct a tortoise proof barrier between roads and habitat occupied by this species. The barrier should be located immediately adjacent to the road to reduce the loss of habitat to the resident population of desert tortoises. Such barriers need to extend three feet above and two feet underground to prevent burrowing and breaching of the barrier.

Habitat Maintenance

Degradation
To prevent degradation of habitat by off-highway vehicle activity and dumping, erect a barrier between the study area and adjacent urban development. The barrier wall discussed previously should suffice to prevent trespass and dumping within the study area.

Loss and Fragmentation
Prevent further loss and fragmentation of habitat occupied by desert tortoises by locating future development outside of habitat occupied by this species. If development cannot be located outside of occupied desert tortoise habitat, position such development such that it does not increase fragmentation of occupied habitat. To prevent fragmentation of habitat, site new development adjacent to previously developed areas and as far as practicable from desert tortoise burrows. In addition, locate roads to new development immediately adjacent to developed areas such that they do not further the direct and indirect impacts of the development on the local population of desert tortoises.

Predator Management

Monitoring
Monitor predator activity in the vicinity of desert tortoise burrows using a grid of remote, infrared flash equipped, auto-triggered cameras. If the location of a desert tortoise nest is discovered, monitor the nest using remote auto triggered cameras.

To reduce attracting predators to desert tortoise burrows, remote camera stations should be located approximately 25 feet away from the burrow, and camouflaged with the natural rock of the area. For nests, cameras should be located at least 10 feet away, and camouflaged with natural rock of the area to reduce detection.

Review data collected at remote camera stations on a monthly basis.

Develop management actions based on the analysis of collected information. Management actions may range from no action, protection of nest sites, to removal of a specific individual predator.

Prevent Predation Events by Domestic Animals
To prevent or reduce the presence of domestic dogs within habitat occupied by desert tortoises, erect a barrier fence or wall between the study area and adjacent urban development. Work with

Joshua Tree National Park in developing measures to control access to the study area from urban areas located to the northwest.

Garbage Control
To prevent access by native predators, such as coyote, use secure containers for the storage of garbage prior to disposal.

Population Monitoring
When handling desert tortoises, follow the Desert Tortoise Field Manual (USFWS 2009).

Continue monitoring the desert tortoises within the study area and their spatial use of the site. Gather location data on the tagged desert tortoises throughout their active period (March through October). Attempt to collect a minimum of 20 independent location points per animal per year. Each fall, document the location of each tagged desert tortoises' brumation burrow.

Attach radio transmitters to untagged desert tortoises when they are encountered. Collect basic morphometric (e.g., length, weight) and general health data for each animal. Photograph each individual from above and all four sides, and document any new or old injuries.

For previously tagged desert tortoise, collect weight and general health data in the early spring and in the fall.

Replace radio transmitters as needed.

To monitor climatic conditions and annual vegetative productivity, install and monitor five climate data loggers and rain gauges. The data loggers and rain gauges should be placed along a transect that extends from the lowest to highest elevation sites within the study area.

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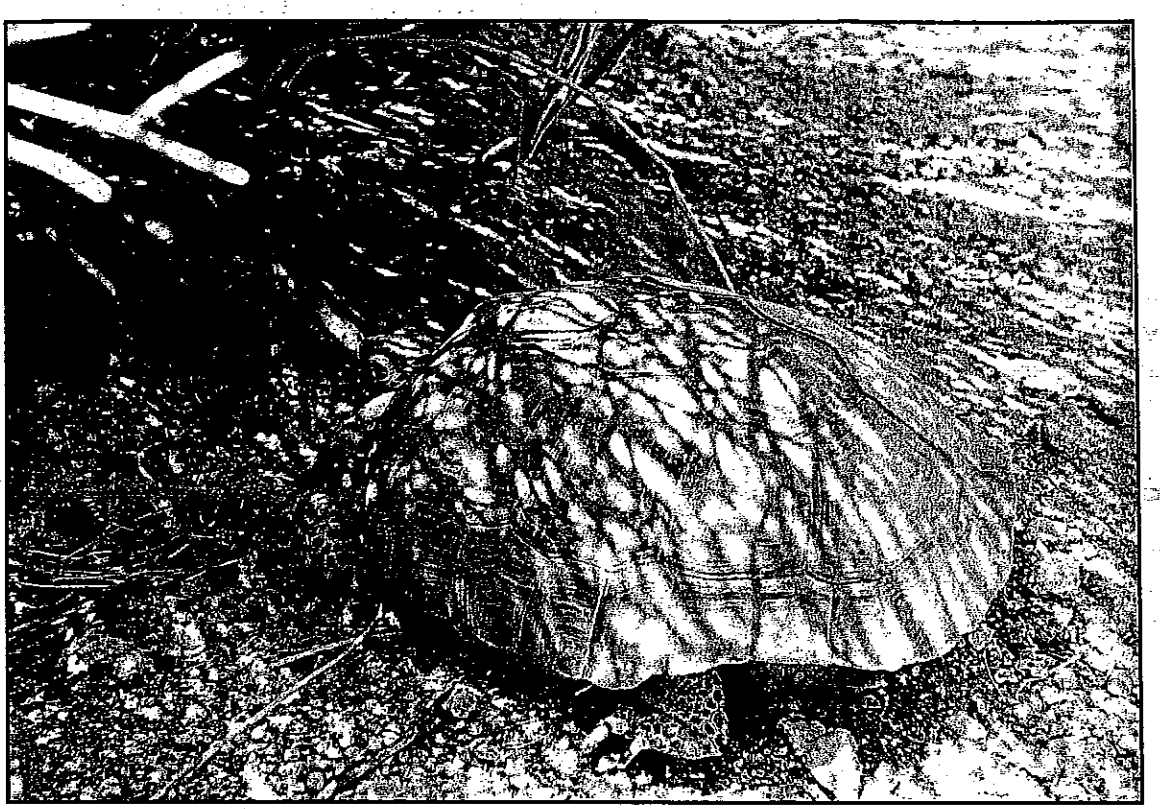
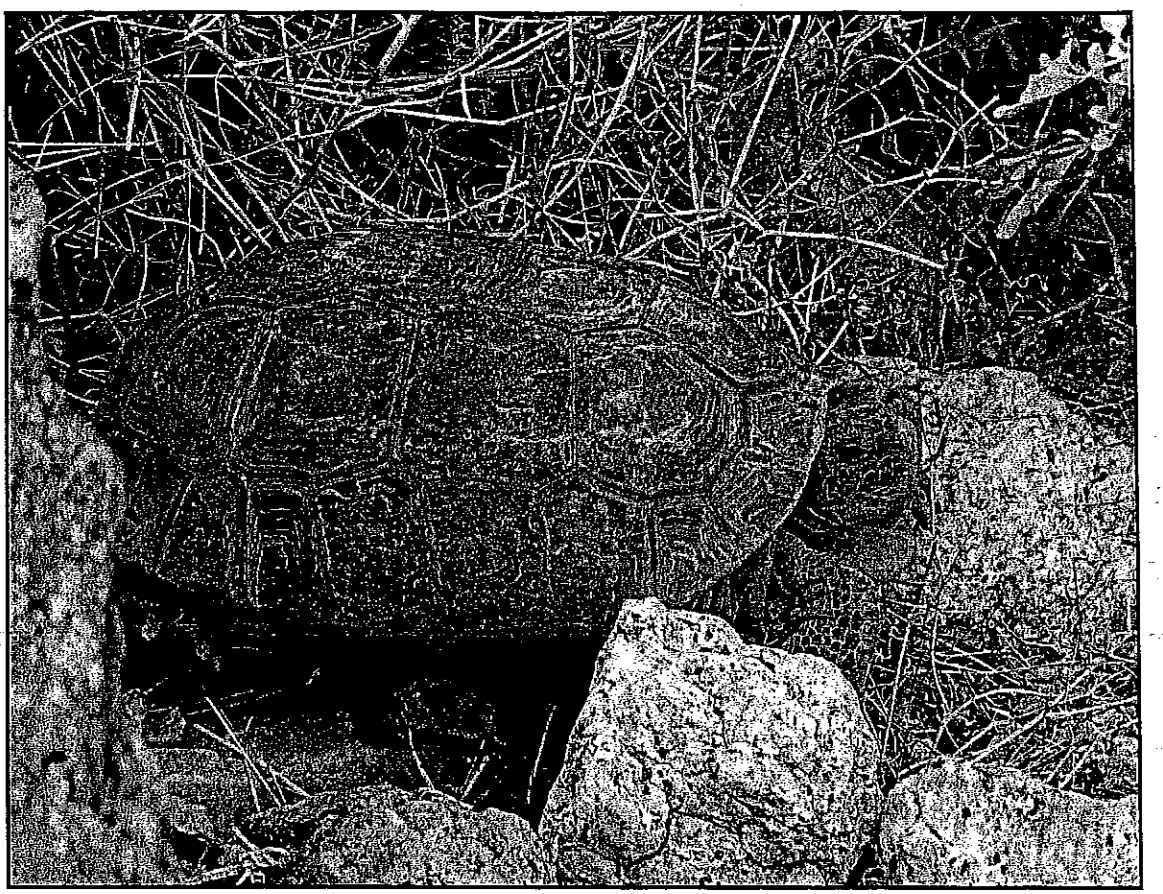
Appendix 1

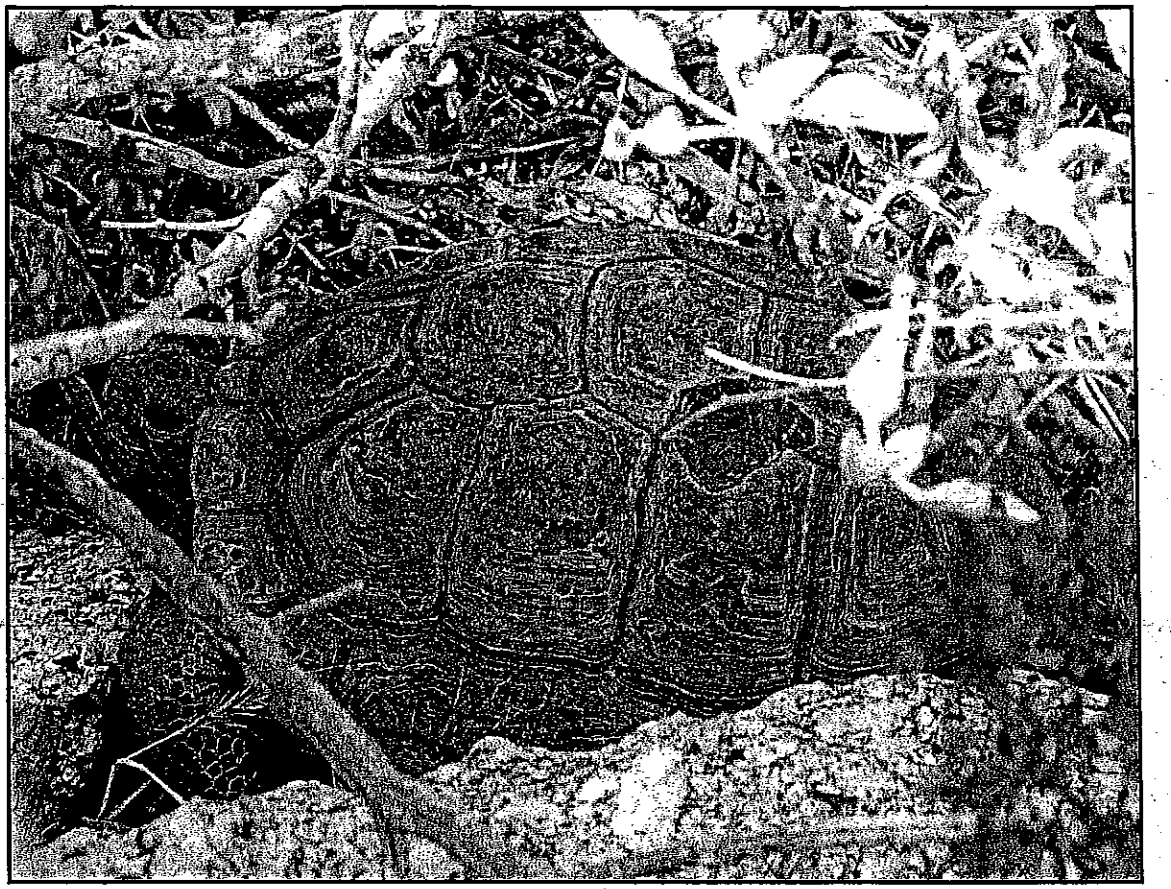
Photographs of Each Desert Tortoise Observed Within Study Area



Photograph taken on 29 April 2009. Desert tortoise female is at least 20 years old (Twenty-Nine Palms Indian Reservation, Northwest Quarter of Section 4, T1S, R9E, Queen Mountain USGS Quadrangle). This animal remains untagged as of 12 Dec 2011.



Photograph taken on 2 October 2010. Desert tortoise female No. 2, is at least 20 years old. Note extreme wearing of scutes due to the use of burrows located in coarse granitic rock (Twenty-Nine Palms Indian Reservation, Northwest Quarter of Section 4, T1S, R9E, Queen Mountain USGS Quadrangle).



Photograph taken on 2 October 2010. Desert tortoise male No. 1, is at least 20 years old. Note old healed wound on 3rd and 4th vertebral, and 3rd costal scutes. Wear of scutes due to the use of burrows located in coarse granitic rock (Twenty-Nine Palms Indian Reservation, Northwest Quarter of Section 4, T1S, R9E, Queen Mountain USGS Quadrangle).

Appendix E

Traffic Level of Service Back-up Documentation

ESA

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in	
# 1 Adobe Road and Two Mile Road	C	29.3	0.229	C	29.3	0.229	+ 0.000	D/V
# 2 Utah Trail and Two Mile Road	A	9.1	0.294	A	9.1	0.294	+ 0.000	V/C
# 3 Adobe Road and State Route 62	C	22.0	0.259	C	22.0	0.259	+ 0.000	D/V
# 4 Utah Trail and State Route 62	B	11.8	0.083	B	11.8	0.083	+ 0.000	D/V
# 5 Utah Trail and Palm Vista Driv	A	8.5	0.009	A	8.5	0.009	+ 0.000	D/V
# 6 Adobe Road and Baseline Road	A	8.3	0.015	A	8.3	0.015	+ 0.000	D/V
# 7 Utah Trail and Baseline Road	A	9.4	0.027	A	9.4	0.027	+ 0.000	D/V
# 8 Old Woman Spring Road and Stat	B	16.8	0.532	B	16.8	0.532	+ 0.000	D/V

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Adobe Road and Two Mile Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.229
Loss Time (sec):	18	Average Delay (sec/veh):	29.3
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Adobe Road						Two Mile Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	0 1	1 0	1	1 0
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	23	258	22	20	172	77	94	89	40	33	91	42
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	258	22	20	172	77	94	89	40	33	91	42
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	24	269	23	21	179	80	98	93	42	34	95	44
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	269	23	21	179	80	98	93	42	34	95	44
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	24	269	23	21	179	80	98	93	42	34	95	44
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.91	0.91	0.95	1.00	0.85	0.95	0.91	0.91
Lanes:	1.00	1.84	0.16	1.00	1.38	0.62	1.00	1.00	1.00	1.00	1.37	0.63
Final Sat.:	1805	3286	280	1805	2379	1065	1805	1900	1615	1805	2354	1086
Capacity Analysis Module:												
Vol/Sat:	0.01	0.08	0.08	0.01	0.08	0.08	0.05	0.05	0.03	0.02	0.04	0.04
Crit Moves:	****				****		****				****	
Green Time:	10.0	18.7	18.7	18.7	27.5	27.5	19.8	17.3	17.3	17.3	14.7	14.7
Volume/Cap:	0.12	0.39	0.39	0.06	0.25	0.25	0.25	0.25	0.13	0.10	0.25	0.25
Uniform Del:	36.0	30.7	30.7	28.5	23.5	23.5	28.9	30.9	30.2	30.0	32.8	32.8
IncremntDel:	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.4	0.2	0.1	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	36.3	31.1	31.1	28.6	23.6	23.6	29.3	31.3	30.4	30.1	33.1	33.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.3	31.1	31.1	28.6	23.6	23.6	29.3	31.3	30.4	30.1	33.1	33.1
LOS by Move:	D	C	C	C	C	C	C	C	C	C	C	C
HCM2kAvgQ:	1	4	4	0	3	3	2	2	1	1	2	2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Utah Trail and Two Mile Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.294
Loss Time (sec):	0	Average Delay (sec/veh):	9.1
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Utah Trail						Two Mile Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	11	114	8	4	92	91	101	10	13	9	18	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	114	8	4	92	91	101	10	13	9	18	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	13	134	9	5	108	107	119	12	15	11	21	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	134	9	5	108	107	119	12	15	11	21	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	13	134	9	5	108	107	119	12	15	11	21	9
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.93	0.07	1.00	0.50	0.50	0.82	0.08	0.10	0.26	0.51	0.23
Final Sat.:	617	637	45	624	368	364	559	55	72	174	348	155
Capacity Analysis Module:												
Vol/Sat:	0.02	0.21	0.21	0.01	0.29	0.29	0.21	0.21	0.21	0.06	0.06	0.06
Crit Moves:		****			****				****	****		
Delay/Veh:	8.5	9.1	9.1	8.4	9.4	9.4	9.2	9.2	9.2	8.2	8.2	8.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.5	9.1	9.1	8.4	9.4	9.4	9.2	9.2	9.2	8.2	8.2	8.2
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		9.1			9.3			9.2			8.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.1			9.3			9.2			8.2	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.2	0.2	0.0	0.4	0.4	0.2	0.2	0.2	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Adobe Road and State Route 62

Cycle (sec):	90	Critical Vol./Cap.(X):	0.259
Loss Time (sec):	12	Average Delay (sec/veh):	22.0
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Adobe Road						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	25	25	25	25	25	25	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	21	33	15	54	19	128	177	155	7	9	165	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	33	15	54	19	128	177	155	7	9	165	59
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	23	37	17	60	21	142	197	172	8	10	183	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	37	17	60	21	142	197	172	8	10	183	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	37	17	60	21	142	197	172	8	10	183	66
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.75	0.95	0.95	0.73	1.00	0.85	0.95	0.94	0.94	0.95	0.91	0.91
Lanes:	1.00	0.69	0.31	1.00	1.00	1.00	1.00	1.91	0.09	1.00	1.47	0.53
Final Sat.:	1427	1245	566	1378	1900	1615	1805	3433	155	1805	2555	914
Capacity Analysis Module:												
Vol/Sat:	0.02	0.03	0.03	0.04	0.01	0.09	0.11	0.05	0.05	0.01	0.07	0.07
Crit Moves:				****			****				****	
Green Time:	25.0	25.0	25.0	25.0	25.0	57.0	32.0	26.5	26.5	26.5	21.0	21.0
Volume/Cap:	0.06	0.11	0.11	0.16	0.04	0.14	0.31	0.17	0.17	0.02	0.31	0.31
Uniform Del:	23.9	24.2	24.2	24.5	23.7	6.7	21.0	23.6	23.6	22.5	28.5	28.5
IncremntDel:	0.1	0.1	0.1	0.2	0.0	0.1	0.3	0.1	0.1	0.0	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.9	24.3	24.3	24.7	23.8	6.7	21.3	23.7	23.7	22.5	28.7	28.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.9	24.3	24.3	24.7	23.8	6.7	21.3	23.7	23.7	22.5	28.7	28.7
LOS by Move:	C	C	C	C	C	A	C	C	C	C	C	C
HCM2kAvgQ:	0	1	1	1	0	2	4	2	2	0	3	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Utah Trail and State Route 62

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: B[11.8]

Street Name:	Utah Trail						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	44	52	4	2	39	66	28	73	45	2	57	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	52	4	2	39	66	28	73	45	2	57	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	46	54	4	2	41	69	29	76	47	2	59	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	46	54	4	2	41	69	29	76	47	2	59	15
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	283	236	99	258	252	67	74	xxxx	xxxxx	123	xxxx	xxxxx
Potent Cap.:	673	668	962	699	655	1003	1538	xxxx	xxxxx	1477	xxxx	xxxxx
Move Cap.:	587	655	962	642	641	1003	1538	xxxx	xxxxx	1477	xxxx	xxxxx
Volume/Cap:	0.08	0.08	0.00	0.00	0.06	0.07	0.02	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	631	xxxxx	xxxx	825	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	11.8	xxxxx	xxxxx	10.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	11.8			10.0			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Utah Trail and Palm Vista Drive

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[8.5]

Street Name:	Utah Trail						Palm Vista Drive					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1	0 0		0 0 0	1 0		0 0 0	0 1		0 0 0	0 0	
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	12	55	0	0	30	4	0	0	4	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	55	0	0	30	4	0	0	4	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	14	65	0	0	35	5	0	0	5	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	14	65	0	0	35	5	0	0	5	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	40	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	38	xxxx	xxxx	xxxxx
Potent Cap.:	1583	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1040	xxxx	xxxx	xxxxx
Move Cap.:	1583	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1040	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.0	xxxx	xxxx	xxxxx
Control Del:	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.5	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	A	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			8.5			xxxxxx		
ApproachLOS:	*			*			A			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Adobe Road and Baseline Road

Average Delay (sec/veh): 7.8 Worst Case Level Of Service: A[8.3]

Street Name:	Adobe Road								Baseline Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	1	0	0	0 0	0	0	0	0 0	0	0	0	0 1
Volume Module: >> Count Date: 10 May 2012 << AM Peak																
Base Vol:	0	0	0		13	0	0		0	0	0		0	0	0	16
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		13	0	0		0	0	0		0	0	0	16
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	0	0	0		13	0	0		0	0	0		0	0	0	16
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	0
FinalVolume:	0	0	0		13	0	0		0	0	0		0	0	0	16
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx		6.2		
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx		3.3		
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx		0		
Potent Cap.:	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx		1091		
Move Cap.:	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx		1091		
Volume/Cap:	xxxx	xxxx	xxxx		0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.01		
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx		0.0		
Control Del:	xxxxx	xxxx	xxxxx		7.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx		8.3		
LOS by Move:	*	*	*		A	*	*	*	*	*	*	*		A		
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				8.3			
ApproachLOS:	*				*				*				A			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Utah Trail and Baseline Road

Average Delay (sec/veh): 5.1 Worst Case Level Of Service: A[9.4]

Street Name:	Utah Trail						Baseline Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1 0		1 0 0	1 0		0 0	1! 0	0	0 0	1! 0	0
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	18	18	1	11	24	9	4	8	5	1	8	27
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	18	1	11	24	9	4	8	5	1	8	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	19	19	1	12	25	9	4	8	5	1	8	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	19	19	1	12	25	9	4	8	5	1	8	28
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	35	xxxx	xxxxx	20	xxxx	xxxxx	129	111	30	117	115	19
Potent Cap.:	1590	xxxx	xxxxx	1609	xxxx	xxxxx	849	783	1050	863	779	1064
Move Cap.:	1590	xxxx	xxxxx	1609	xxxx	xxxxx	807	768	1050	840	764	1064
Volume/Cap:	0.01	xxxx	xxxx	0.01	xxxx	xxxx	0.01	0.01	0.01	0.00	0.01	0.03
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.3	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	844	xxxxx	xxxx	972	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.4	xxxxx	xxxxx	8.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			9.4			8.9		
ApproachLOS:	*			*			A			A		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 Old Woman Spring Road and State Route 62

Cycle (sec):	45	Critical Vol./Cap.(X):	0.532
Loss Time (sec):	12	Average Delay (sec/veh):	16.8
Optimal Cycle:	52	Level Of Service:	B

Street Name:	Old Woman Spring Road						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	20	20	10	20	20
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0
Volume Module: >> Count Date: 10 May 2012 << AM Peak												
Base Vol:	69	96	72	123	105	227	122	574	31	36	502	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	69	96	72	123	105	227	122	574	31	36	502	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	78	108	81	138	118	255	137	645	35	40	564	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	108	81	138	118	255	137	645	35	40	564	61
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	78	108	81	138	118	255	137	645	35	40	564	61
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.47	0.89	0.89	0.63	0.85	0.85	0.95	0.94	0.94	0.95	0.94	0.94
Lanes:	1.00	1.14	0.86	1.00	1.00	1.00	1.00	1.90	0.10	1.00	1.81	0.19
Final Sat.:	891	1931	1448	1189	1619	1619	1805	3398	183	1805	3210	345
Capacity Analysis Module:												
Vol/Sat:	0.09	0.06	0.06	0.12	0.07	0.16	0.08	0.19	0.19	0.02	0.18	0.18
Crit Moves:						****	****				****	
Green Time:	8.7	8.7	8.7	8.7	8.7	8.7	8.7	17.3	17.3	8.7	17.3	17.3
Volume/Cap:	0.45	0.29	0.29	0.60	0.38	0.82	0.39	0.49	0.49	0.12	0.46	0.46
Uniform Del:	18.6	18.0	18.0	19.2	18.3	20.1	18.4	12.2	12.2	17.4	11.9	11.9
IncremntDel:	1.9	0.2	0.2	4.5	0.2	11.2	0.7	0.3	0.3	0.2	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	20.5	18.2	18.2	23.7	18.5	31.3	19.1	12.4	12.4	17.5	12.2	12.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.5	18.2	18.2	23.7	18.5	31.3	19.1	12.4	12.4	17.5	12.2	12.2
LOS by Move:	C	B	B	C	B	C	B	B	B	B	B	B
HCM2kAvgQ:	2	2	2	3	2	7	2	5	5	1	4	4

Note: Queue reported is the number of cars per lane.

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Adobe Road and Two Mile Road	C	25.1	0.435	C	25.1	0.435	+ 0.000 D/V
# 2 Utah Trail and Two Mile Road	A	8.9	0.327	A	8.9	0.327	+ 0.000 V/C
# 3 Adobe Road and State Route 62	C	21.1	0.359	C	21.1	0.359	+ 0.000 D/V
# 4 Utah Trail and State Route 62	C	17.7	0.225	C	17.7	0.225	+ 0.000 D/V
# 5 Utah Trail and Palm Vista Driv	A	9.2	0.052	A	9.2	0.052	+ 0.000 D/V
# 6 Adobe Road and Baseline Road	A	8.4	0.028	A	8.4	0.028	+ 0.000 D/V
# 7 Utah Trail and Baseline Road	B	10.3	0.040	B	10.3	0.040	+ 0.000 D/V
# 8 Old Woman Spring Road and Stat	B	17.7	0.717	B	17.7	0.717	+ 0.000 D/V

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Adobe Road and Two Mile Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.435
Loss Time (sec):	18	Average Delay (sec/veh):	25.1
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Adobe Road						Two Mile Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1 0	1	1 0	1	1 0
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	58	281	34	97	581	172	89	93	61	38	119	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	281	34	97	581	172	89	93	61	38	119	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	59	287	35	99	593	176	91	95	62	39	121	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	287	35	99	593	176	91	95	62	39	121	35
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	59	287	35	99	593	176	91	95	62	39	121	35
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.93	0.93	0.95	0.92	0.92	0.95	1.00	0.85	0.95	0.92	0.92
Lanes:	1.00	1.78	0.22	1.00	1.54	0.46	1.00	1.00	1.00	1.00	1.56	0.44
Final Sat.:	1805	3169	383	1805	2691	797	1805	1900	1615	1805	2715	776
Capacity Analysis Module:												
Vol/Sat:	0.03	0.09	0.09	0.05	0.22	0.22	0.05	0.05	0.04	0.02	0.04	0.04
Crit Moves:	****			****			****				****	
Green Time:	10.0	26.0	26.0	26.0	42.0	42.0	10.0	10.0	10.0	10.0	10.0	10.0
Volume/Cap:	0.30	0.31	0.31	0.19	0.47	0.47	0.45	0.45	0.35	0.19	0.40	0.40
Uniform Del:	36.8	25.0	25.0	24.1	16.4	16.4	37.4	37.4	37.0	36.3	37.2	37.2
IncremntDel:	0.8	0.2	0.2	0.2	0.2	0.2	1.6	1.5	1.2	0.5	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	37.6	25.2	25.2	24.3	16.6	16.6	39.1	38.9	38.1	36.8	37.9	37.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.6	25.2	25.2	24.3	16.6	16.6	39.1	38.9	38.1	36.8	37.9	37.9
LOS by Move:	D	C	C	C	B	B	D	D	D	D	D	D
HCM2kAvgQ:	1	4	4	2	8	8	3	3	2	1	3	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Utah Trail and Two Mile Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.327
Loss Time (sec):	0	Average Delay (sec/veh):	8.9
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Utah Trail						Two Mile Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	24	70	2	0	158	70	29	0	27	7	16	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	70	2	0	158	70	29	0	27	7	16	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	27	78	2	0	176	78	32	0	30	8	18	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	78	2	0	176	78	32	0	30	8	18	1
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	27	78	2	0	176	78	32	0	30	8	18	1
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.97	0.03	1.00	0.69	0.31	0.52	0.00	0.48	0.29	0.67	0.04
Final Sat.:	655	705	20	670	537	238	380	0	354	202	462	29
Capacity Analysis Module:												
Vol/Sat:	0.04	0.11	0.11	0.00	0.33	0.33	0.08	xxxx	0.08	0.04	0.04	0.04
Crit Moves:		****			****		****			****		
Delay/Veh:	8.3	8.2	8.2	0.0	9.4	9.4	8.0	0.0	8.0	8.0	8.0	8.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.3	8.2	8.2	0.0	9.4	9.4	8.0	0.0	8.0	8.0	8.0	8.0
LOS by Move:	A	A	A	*	A	A	A	*	A	A	A	A
ApproachDel:		8.2			9.4			8.0			8.0	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.2			9.4			8.0			8.0	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.1	0.1	0.0	0.5	0.5	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Adobe Road and State Route 62

Cycle (sec):	90	Critical Vol./Cap.(X):	0.359
Loss Time (sec):	12	Average Delay (sec/veh):	21.1
Optimal Cycle:	60	Level Of Service:	C

Street Name:	Adobe Road						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	25	25	25	25	25	25	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0		1	1 0	1	1 0	1 0	1	1 0
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	13	40	15	129	58	373	199	209	4	15	275	48
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	40	15	129	58	373	199	209	4	15	275	48
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	14	42	16	136	61	393	209	220	4	16	289	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	42	16	136	61	393	209	220	4	16	289	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	42	16	136	61	393	209	220	4	16	289	51
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.72	0.96	0.96	0.72	1.00	0.85	0.95	0.95	0.95	0.95	0.93	0.93
Lanes:	1.00	0.73	0.27	1.00	1.00	1.00	1.00	1.96	0.04	1.00	1.70	0.30
Final Sat.:	1366	1325	497	1370	1900	1615	1805	3532	68	1805	3006	525
Capacity Analysis Module:												
Vol/Sat:	0.01	0.03	0.03	0.10	0.03	0.24	0.12	0.06	0.06	0.01	0.10	0.10
Crit Moves:				****			****				****	
Green Time:	25.0	25.0	25.0	25.0	25.0	54.0	29.0	26.5	26.5	26.5	24.0	24.0
Volume/Cap:	0.04	0.11	0.11	0.36	0.12	0.41	0.36	0.21	0.21	0.03	0.36	0.36
Uniform Del:	23.7	24.2	24.2	26.1	24.3	9.5	23.4	23.9	23.9	22.6	26.8	26.8
IncremntDel:	0.0	0.1	0.1	0.6	0.1	0.3	0.4	0.1	0.1	0.0	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.7	24.3	24.3	26.6	24.3	9.8	23.8	24.0	24.0	22.6	27.0	27.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.7	24.3	24.3	26.6	24.3	9.8	23.8	24.0	24.0	22.6	27.0	27.0
LOS by Move:	C	C	C	C	C	A	C	C	C	C	C	C
HCM2kAvgQ:	0	1	1	3	1	6	4	2	2	0	4	4

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Utah Trail and State Route 62

Average Delay (sec/veh): 8.8 Worst Case Level Of Service: C[17.7]

Street Name:	Utah Trail						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module: >> Count Date: 10 May 2102 << PM Peak												
Base Vol:	61	37	4	25	99	79	92	88	59	7	70	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	37	4	25	99	79	92	88	59	7	70	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	66	40	4	27	106	85	99	95	63	8	75	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	66	40	4	27	106	85	99	95	63	8	75	8
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	514	422	126	440	450	79	83	xxxx	xxxxx	158	xxxx	xxxxx
Potent Cap.:	474	526	929	531	508	987	1527	xxxx	xxxxx	1434	xxxx	xxxxx
Move Cap.:	340	490	929	469	472	987	1527	xxxx	xxxxx	1434	xxxx	xxxxx
Volume/Cap:	0.19	0.08	0.00	0.06	0.23	0.09	0.06	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	393	xxxxx	xxxx	592	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	1.1	xxxxx	xxxxx	1.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	17.7	xxxxx	xxxxx	14.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	B	*	*	*	*	*	*	*
ApproachDel:	17.7			14.6			xxxxxx			xxxxxx		
ApproachLOS:	C			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Utah Trail and Palm Vista Drive

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: A[9.2]

Street Name:	Utah Trail						Palm Vista Drive					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1	0 0		0 0 0	1 0		0 0 1!	0 0		0 0 0	0 0	
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	23	102	0	0	118	6	3	0	45	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	102	0	0	118	6	3	0	45	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	25	110	0	0	127	6	3	0	48	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	110	0	0	127	6	3	0	48	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	133	xxxx	xxxxx	xxxx	xxxx	xxxxx	289	289	130	xxxx	xxxx	xxxxx
Potent Cap.:	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx	706	624	925	xxxx	xxxx	xxxxx
Move Cap.:	1464	xxxx	xxxxx	xxxx	xxxx	xxxxx	696	614	925	xxxx	xxxx	xxxxx
Volume/Cap:	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.05	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	906	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.2	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			9.2			xxxxxx		
ApproachLOS:	*			*			A			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Adobe Road and Baseline Road

Average Delay (sec/veh): 7.8 Worst Case Level Of Service: A[8.4]

Street Name:	Adobe Road								Baseline Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	1	0	0	0 0	0	0	0	0 0	0	0	0	0 1
Volume Module: >> Count Date: 10 May 2012 << PM Peak																
Base Vol:	0	0	0		27	0	0		0	0	0		0	0	0	30
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00
Initial Bse:	0	0	0		27	0	0		0	0	0		0	0	0	30
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00
PHF Volume:	0	0	0		27	0	0		0	0	0		0	0	0	30
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	0
FinalVolume:	0	0	0		27	0	0		0	0	0		0	0	0	30
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx				6.2
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx				3.3
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx				0
Potent Cap.:	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx				1091
Move Cap.:	xxxx	xxxx	xxxxx		1636	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx				1091
Volume/Cap:	xxxx	xxxx	xxxx		0.02	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx				0.03
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx				0.1
Control Del:	xxxxx	xxxx	xxxxx		7.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx				8.4
LOS by Move:	*	*	*		A	*	*	*	*	*	*	*				A
Movement:	LT - LTR - RT				LT - LTR - RT				LT - LTR - RT				LT - LTR - RT			
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				8.4			
ApproachLOS:	*				*				*				A			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 Utah Trail and Baseline Road

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: B[10.3]

Street Name:	Utah Trail						Baseline Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0	0 1	0	1 0	0 1	0	0 0	1! 0	0	0 0	0 1	0
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	6	51	1	49	62	2	10	13	8	0	16	41
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	51	1	49	62	2	10	13	8	0	16	41
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	6	51	1	49	62	2	10	13	8	0	16	41
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	6	51	1	49	62	2	10	13	8	0	16	41
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	xxxxx	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	4.0	3.3
Capacity Module:												
Cnflict Vol:	64	xxxx	xxxxx	52	xxxx	xxxxx	253	225	63	xxxx	226	52
Potent Cap.:	1551	xxxx	xxxxx	1567	xxxx	xxxxx	704	678	1007	xxxx	677	1022
Move Cap.:	1551	xxxx	xxxxx	1567	xxxx	xxxxx	646	654	1007	xxxx	653	1022
Volume/Cap:	0.00	xxxx	xxxx	0.03	xxxx	xxxx	0.02	0.02	0.01	xxxx	0.02	0.04
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.3	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	716	xxxxx	xxxx	xxxx	882
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.2
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	xxxxx	xxxx	9.4
Shared LOS:	*	*	*	*	*	*	*	B	*	*	*	A
ApproachDel:	xxxxxx			xxxxxx			10.3			9.4		
ApproachLOS:	*			*			B			A		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #8 Old Woman Spring Road and State Route 62

Cycle (sec):	45	Critical Vol./Cap.(X):	0.717
Loss Time (sec):	12	Average Delay (sec/veh):	17.7
Optimal Cycle:	52	Level Of Service:	B

Street Name:	Old Woman Spring Road						State Route 62					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	20	20	10	20	20
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0	1 0	1	1 0
Volume Module: >> Count Date: 10 May 2012 << PM Peak												
Base Vol:	102	128	135	120	130	159	226	670	62	98	915	94
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	102	128	135	120	130	159	226	670	62	98	915	94
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	109	136	144	128	138	169	240	713	66	104	973	100
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	109	136	144	128	138	169	240	713	66	104	973	100
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	109	136	144	128	138	169	240	713	66	104	973	100
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.55	0.88	0.88	0.57	0.87	0.87	0.95	0.94	0.94	0.95	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.83	0.17	1.00	1.81	0.19
Final Sat.:	1051	1666	1666	1091	1657	1657	1805	3261	302	1805	3228	332
Capacity Analysis Module:												
Vol/Sat:	0.10	0.08	0.09	0.12	0.08	0.10	0.13	0.22	0.22	0.06	0.30	0.30
Crit Moves:				****			****				****	
Green Time:	8.7	8.7	8.7	8.7	8.7	8.7	8.7	17.3	17.3	8.7	17.3	17.3
Volume/Cap:	0.54	0.43	0.45	0.61	0.43	0.53	0.69	0.57	0.57	0.30	0.78	0.78
Uniform Del:	18.9	18.5	18.6	19.2	18.5	18.9	19.6	12.6	12.6	18.0	14.1	14.1
IncremntDel:	2.8	0.4	0.5	5.1	0.4	0.9	5.9	0.6	0.6	0.5	3.0	3.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	21.8	18.9	19.1	24.3	18.9	19.8	25.5	13.2	13.2	18.5	17.1	17.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.8	18.9	19.1	24.3	18.9	19.8	25.5	13.2	13.2	18.5	17.1	17.1
LOS by Move:	C	B	B	C	B	B	C	B	B	B	B	B
HCM2kAvgQ:	2	3	3	3	3	3	5	6	6	1	8	8

Note: Queue reported is the number of cars per lane.