

Appendix A

CalEEMod Air Quality and Greenhouse Gas Emissions Estimates

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

Coral Avenue Subdivision Project
San Luis Obispo County, Summer**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	44
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Table Name	Column Name	Default Value	New Value
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2.0 Emissions Summary

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

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					
2019	34.0556	22.7277	15.4168	0.0254	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,484.6550	2,484.6550	0.6057	0.0000	2,499.7966
Maximum	34.0556	22.7277	15.4168	0.0254	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,484.6550	2,484.6550	0.6057	0.0000	2,499.7966

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					
2019	34.0556	22.7277	15.4168	0.0254	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,484.6550	2,484.6550	0.6057	0.0000	2,499.7966
Maximum	34.0556	22.7277	15.4168	0.0254	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,484.6550	2,484.6550	0.6057	0.0000	2,499.7966

[illegible]

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Energy	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Mobile	0.1250	0.4988	1.3924	3.7400e-003	0.3204	4.5300e-003	0.3249	0.0856	4.2700e-003	0.0899		377.0989	377.0989	0.0157		377.4917
Total	0.4690	0.5485	1.9078	4.0500e-003	0.3204	0.0108	0.3312	0.0856	0.0106	0.0962	0.0000	434.1999	434.1999	0.0177	1.0300e-003	434.9485

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Energy	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Mobile	0.1250	0.4988	1.3924	3.7400e-003	0.3204	4.5300e-003	0.3249	0.0856	4.2700e-003	0.0899		377.0989	377.0989	0.0157		377.4917
Total	0.4690	0.5485	1.9078	4.0500e-003	0.3204	0.0108	0.3312	0.0856	0.0106	0.0962	0.0000	434.1999	434.1999	0.0177	1.0300e-003	434.9485

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

	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
Percent Reduction	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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/30/2019	5	2	
3	Grading	Grading	1/31/2019	2/5/2019	5	4	
4	Building Construction	Building Construction	2/6/2019	11/12/2019	5	200	
5	Paving	Paving	11/13/2019	11/26/2019	5	10	
6	Architectural Coating	Architectural Coating	11/27/2019	12/10/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0
(Architectural Coating – sqft)

OffRoad Equipment

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491
Total	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491

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	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491
Total	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491

3.3 Site Preparation - 2019**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					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118		1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	5.7996	0.8824	6.6819	2.9537	0.8118	3.7655		1,704.9189	1,704.9189	0.5394		1,718.4044

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379
Total	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379

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					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	5.7996	0.8824	6.6819	2.9537	0.8118	3.7655	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379
Total	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379

3.4 Grading - 2019**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					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775		1,396.3909	1,396.3909	0.4418		1,407.4359
Total	1.4197	16.0357	6.6065	0.0141	4.9143	0.7365	5.6507	2.5256	0.6775	3.2032		1,396.3909	1,396.3909	0.4418		1,407.4359

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379
Total	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379

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					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359
Total	1.4197	16.0357	6.6065	0.0141	4.9143	0.7365	5.6507	2.5256	0.6775	3.2032	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379
Total	0.0376	0.0324	0.3215	7.7000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		76.2679	76.2679	2.8000e-003		76.3379

3.5 Building Construction - 2019**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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.5800e-003	0.1129	0.0336	2.0000e-004	4.6400e-003	9.0000e-004	5.5400e-003	1.3400e-003	8.6000e-004	2.2000e-003		21.5006	21.5006	1.3200e-003		21.5336
Worker	9.3900e-003	8.1000e-003	0.0804	1.9000e-004	0.0198	1.3000e-004	0.0199	5.2400e-003	1.2000e-004	5.3600e-003		19.0670	19.0670	7.0000e-004		19.0845
Total	0.0140	0.1210	0.1140	3.9000e-004	0.0244	1.0300e-003	0.0254	6.5800e-003	9.8000e-004	7.5600e-003		40.5675	40.5675	2.0200e-003		40.6181

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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.5800e-003	0.1129	0.0336	2.0000e-004	4.6400e-003	9.0000e-004	5.5400e-003	1.3400e-003	8.6000e-004	2.2000e-003		21.5006	21.5006	1.3200e-003		21.5336
Worker	9.3900e-003	8.1000e-003	0.0804	1.9000e-004	0.0198	1.3000e-004	0.0199	5.2400e-003	1.2000e-004	5.3600e-003		19.0670	19.0670	7.0000e-004		19.0845
Total	0.0140	0.1210	0.1140	3.9000e-004	0.0244	1.0300e-003	0.0254	6.5800e-003	9.8000e-004	7.5600e-003		40.5675	40.5675	2.0200e-003		40.6181

3.6 Paving - 2019**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	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491
Total	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491

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	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491
Total	0.0611	0.0527	0.5224	1.2500e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		123.9353	123.9353	4.5500e-003		124.0491

3.7 Architectural Coating - 2019**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	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	34.0556	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

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	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	34.0556	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

	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	0.1250	0.4988	1.3924	3.7400e-003	0.3204	4.5300e-003	0.3249	0.0856	4.2700e-003	0.0899		377.0989	377.0989	0.0157		377.4917
Unmitigated	0.1250	0.4988	1.3924	3.7400e-003	0.3204	4.5300e-003	0.3249	0.0856	4.2700e-003	0.0899		377.0989	377.0989	0.0157		377.4917

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	57.12	59.46	51.72	144,063	144,063
Total	57.12	59.46	51.72	144,063	144,063

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Single Family Housing	13.00	5.00	5.00	35.80	21.00	43.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.559162	0.032279	0.198583	0.128083	0.030808	0.007362	0.013004	0.019140	0.002385	0.001267	0.005421	0.000811	0.001695

5.0 Energy Detail

Historical Energy Use: N

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

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	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
NaturalGas Unmitigated	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

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/yr	lb/day										lb/day					
Single Family Housing	477.782	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Total		5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

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/yr	lb/day										lb/day					
Single Family Housing	0.477782	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Total		5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Unmitigated	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

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	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0151	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003		0.8913	0.8913	8.7000e-004		0.9130
Total	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

6.2 Area by SubCategory**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	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0151	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003		0.8913	0.8913	8.7000e-004		0.9130
Total	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Coral Avenue Subdivision Project - San Luis Obispo County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

Coral Avenue Subdivision Project
San Luis Obispo County, Winter**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	44
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Table Name	Column Name	Default Value	New Value
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2.0 Emissions Summary

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

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					
2019	34.0556	22.7348	15.4053	0.0253	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,478.8579	2,478.8579	0.6055	0.0000	2,493.9965
Maximum	34.0556	22.7348	15.4053	0.0253	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,478.8579	2,478.8579	0.6055	0.0000	2,493.9965

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					
2019	34.0556	22.7348	15.4053	0.0253	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,478.8579	2,478.8579	0.6055	0.0000	2,493.9965
Maximum	34.0556	22.7348	15.4053	0.0253	5.8787	1.2871	6.7615	2.9747	1.2025	3.7869	0.0000	2,478.8579	2,478.8579	0.6055	0.0000	2,493.9965

[illegible]

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Energy	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Mobile	0.1219	0.5186	1.4263	3.6000e-003	0.3204	4.5700e-003	0.3249	0.0856	4.3000e-003	0.0899		362.3527	362.3527	0.0159		362.7498
Total	0.4658	0.5684	1.9417	3.9100e-003	0.3204	0.0109	0.3312	0.0856	0.0106	0.0962	0.0000	419.4536	419.4536	0.0178	1.0300e-003	420.2065

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Energy	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Mobile	0.1219	0.5186	1.4263	3.6000e-003	0.3204	4.5700e-003	0.3249	0.0856	4.3000e-003	0.0899		362.3527	362.3527	0.0159		362.7498
Total	0.4658	0.5684	1.9417	3.9100e-003	0.3204	0.0109	0.3312	0.0856	0.0106	0.0962	0.0000	419.4536	419.4536	0.0178	1.0300e-003	420.2065

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

	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
Percent Reduction	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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/30/2019	5	2	
3	Grading	Grading	1/31/2019	2/5/2019	5	4	
4	Building Construction	Building Construction	2/6/2019	11/12/2019	5	200	
5	Paving	Paving	11/13/2019	11/26/2019	5	10	
6	Architectural Coating	Architectural Coating	11/27/2019	12/10/2019	5	10	

Acres of Grading (Site Preparation Phase): 1**Acres of Grading (Grading Phase): 1.5****Acres of Paving: 0****Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490
Total	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490

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	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490
Total	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490

3.3 Site Preparation - 2019**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					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118		1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	5.7996	0.8824	6.6819	2.9537	0.8118	3.7655		1,704.9189	1,704.9189	0.5394		1,718.4044

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686
Total	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686

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					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044
Total	1.7123	19.4821	7.8893	0.0172	5.7996	0.8824	6.6819	2.9537	0.8118	3.7655	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686
Total	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686

3.4 Grading - 2019**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					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775		1,396.3909	1,396.3909	0.4418		1,407.4359
Total	1.4197	16.0357	6.6065	0.0141	4.9143	0.7365	5.6507	2.5256	0.6775	3.2032		1,396.3909	1,396.3909	0.4418		1,407.4359

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686
Total	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686

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					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359
Total	1.4197	16.0357	6.6065	0.0141	4.9143	0.7365	5.6507	2.5256	0.6775	3.2032	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686
Total	0.0428	0.0368	0.3145	7.3000e-004	0.0791	5.2000e-004	0.0796	0.0210	4.8000e-004	0.0215		72.7004	72.7004	2.7300e-003		72.7686

3.5 Building Construction - 2019**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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8100e-003	0.1125	0.0378	2.0000e-004	4.6400e-003	9.3000e-004	5.5700e-003	1.3400e-003	8.9000e-004	2.2200e-003		20.8722	20.8722	1.4100e-003		20.9075
Worker	0.0107	9.2000e-003	0.0786	1.8000e-004	0.0198	1.3000e-004	0.0199	5.2400e-003	1.2000e-004	5.3600e-003		18.1751	18.1751	6.8000e-004		18.1922
Total	0.0155	0.1217	0.1164	3.8000e-004	0.0244	1.0600e-003	0.0255	6.5800e-003	1.0100e-003	7.5800e-003		39.0473	39.0473	2.0900e-003		39.0996

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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8100e-003	0.1125	0.0378	2.0000e-004	4.6400e-003	9.3000e-004	5.5700e-003	1.3400e-003	8.9000e-004	2.2200e-003		20.8722	20.8722	1.4100e-003		20.9075
Worker	0.0107	9.2000e-003	0.0786	1.8000e-004	0.0198	1.3000e-004	0.0199	5.2400e-003	1.2000e-004	5.3600e-003		18.1751	18.1751	6.8000e-004		18.1922
Total	0.0155	0.1217	0.1164	3.8000e-004	0.0244	1.0600e-003	0.0255	6.5800e-003	1.0100e-003	7.5800e-003		39.0473	39.0473	2.0900e-003		39.0996

3.6 Paving - 2019**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	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490
Total	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490

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	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490
Total	0.0695	0.0598	0.5110	1.1900e-003	0.1285	8.5000e-004	0.1294	0.0341	7.8000e-004	0.0349		118.1381	118.1381	4.4300e-003		118.2490

3.7 Architectural Coating - 2019**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	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	34.0556	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

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	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	34.0556	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

	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	0.1219	0.5186	1.4263	3.6000e-003	0.3204	4.5700e-003	0.3249	0.0856	4.3000e-003	0.0899		362.3527	362.3527	0.0159		362.7498
Unmitigated	0.1219	0.5186	1.4263	3.6000e-003	0.3204	4.5700e-003	0.3249	0.0856	4.3000e-003	0.0899		362.3527	362.3527	0.0159		362.7498

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	57.12	59.46	51.72	144,063	144,063
Total	57.12	59.46	51.72	144,063	144,063

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Single Family Housing	13.00	5.00	5.00	35.80	21.00	43.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.559162	0.032279	0.198583	0.128083	0.030808	0.007362	0.013004	0.019140	0.002385	0.001267	0.005421	0.000811	0.001695

5.0 Energy Detail

Historical Energy Use: N

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

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	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
NaturalGas Unmitigated	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

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/yr	lb/day										lb/day					
Single Family Housing	477.782	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Total		5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

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/yr	lb/day										lb/day					
Single Family Housing	0.477782	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437
Total		5.1500e-003	0.0440	0.0187	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.2097	56.2097	1.0800e-003	1.0300e-003	56.5437

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	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130
Unmitigated	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

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	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0151	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003		0.8913	0.8913	8.7000e-004		0.9130
Total	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

6.2 Area by SubCategory**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	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0151	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003		0.8913	0.8913	8.7000e-004		0.9130
Total	0.3388	5.7400e-003	0.4967	3.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	0.8913	0.8913	8.7000e-004	0.0000	0.9130

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Coral Avenue Subdivision Project - San Luis Obispo County, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

Coral Avenue Subdivision Project
San Luis Obispo County, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	44
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Land Use Change -

Table Name	Column Name	Default Value	New Value
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2.0 Emissions Summary

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

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					
2019	0.4320	1.9447	1.5924	2.6300e-003	0.0201	0.1102	0.1303	9.2100e-003	0.1058	0.1150	0.0000	221.2643	221.2643	0.0442	0.0000	222.3685
Maximum	0.4320	1.9447	1.5924	2.6300e-003	0.0201	0.1102	0.1303	9.2100e-003	0.1058	0.1150	0.0000	221.2643	221.2643	0.0442	0.0000	222.3685

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					
2019	0.4320	1.9447	1.5924	2.6300e-003	0.0201	0.1102	0.1303	9.2100e-003	0.1058	0.1150	0.0000	221.2641	221.2641	0.0442	0.0000	222.3682
Maximum	0.4320	1.9447	1.5924	2.6300e-003	0.0201	0.1102	0.1303	9.2100e-003	0.1058	0.1150	0.0000	221.2641	221.2641	0.0442	0.0000	222.3682

[illegible]

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.6584	0.6584
2	4-1-2019	6-30-2019	0.5976	0.5976
3	7-1-2019	9-30-2019	0.6042	0.6042
		Highest	0.6584	0.6584

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	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367
Energy	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	23.4280	23.4280	8.2000e-004	3.0000e-004	23.5386
Mobile	0.0207	0.0901	0.2426	6.3000e-004	0.0542	7.9000e-004	0.0549	0.0145	7.4000e-004	0.0153	0.0000	57.4462	57.4462	2.4700e-003	0.0000	57.5080
Waste						0.0000	0.0000		0.0000	0.0000	1.4149	0.0000	1.4149	0.0836	0.0000	3.5052
Water						0.0000	0.0000		0.0000	0.0000	0.1240	0.8663	0.9903	0.0128	3.1000e-004	1.4018
Total	0.0832	0.0991	0.3280	6.8000e-004	0.0542	1.8900e-003	0.0560	0.0145	1.8400e-003	0.0164	1.5389	81.8739	83.4127	0.0998	6.1000e-004	86.0903

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

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	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367
Energy	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	23.4280	23.4280	8.2000e-004	3.0000e-004	23.5386
Mobile	0.0207	0.0901	0.2426	6.3000e-004	0.0542	7.9000e-004	0.0549	0.0145	7.4000e-004	0.0153	0.0000	57.4462	57.4462	2.4700e-003	0.0000	57.5080
Waste						0.0000	0.0000		0.0000	0.0000	1.4149	0.0000	1.4149	0.0836	0.0000	3.5052
Water						0.0000	0.0000		0.0000	0.0000	0.1240	0.8663	0.9903	0.0128	3.1000e-004	1.4018
Total	0.0832	0.0991	0.3280	6.8000e-004	0.0542	1.8900e-003	0.0560	0.0145	1.8400e-003	0.0164	1.5389	81.8739	83.4127	0.0998	6.1000e-004	86.0903

	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
Percent Reduction	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

3.0 Construction Detail**Construction Phase**

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/30/2019	5	2	
3	Grading	Grading	1/31/2019	2/5/2019	5	4	
4	Building Construction	Building Construction	2/6/2019	11/12/2019	5	200	
5	Paving	Paving	11/13/2019	11/26/2019	5	10	
6	Architectural Coating	Architectural Coating	11/27/2019	12/10/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 21,870; Residential Outdoor: 7,290; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0
(Architectural Coating – sqft)

OffRoad Equipment

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Demolition - 2019****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	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	5.9000e-004	5.0800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0805	1.0805	4.0000e-005	0.0000	1.0815
Total	6.2000e-004	5.9000e-004	5.0800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0805	1.0805	4.0000e-005	0.0000	1.0815

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	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	5.9000e-004	5.0800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0805	1.0805	4.0000e-005	0.0000	1.0815
Total	6.2000e-004	5.9000e-004	5.0800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0805	1.0805	4.0000e-005	0.0000	1.0815

3.3 Site Preparation - 2019**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					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.8000e-003	8.8000e-004	6.6800e-003	2.9500e-003	8.1000e-004	3.7600e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	0.0000	0.0000	0.0666
Total	4.0000e-005	4.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	0.0000	0.0000	0.0666

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					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.8000e-003	8.8000e-004	6.6800e-003	2.9500e-003	8.1000e-004	3.7600e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	0.0000	0.0000	0.0666
Total	4.0000e-005	4.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0665	0.0665	0.0000	0.0000	0.0666

3.4 Grading - 2019**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					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	2.8400e-003	0.0321	0.0132	3.0000e-005	9.8300e-003	1.4700e-003	0.0113	5.0500e-003	1.3600e-003	6.4100e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536

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3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.3000e-004	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1331
Total	8.0000e-005	7.0000e-005	6.3000e-004	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1331

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					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	2.8400e-003	0.0321	0.0132	3.0000e-005	9.8300e-003	1.4700e-003	0.0113	5.0500e-003	1.3600e-003	6.4100e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536

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3.4 Grading - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.3000e-004	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1331
Total	8.0000e-005	7.0000e-005	6.3000e-004	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1331

3.5 Building Construction - 2019**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	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885	0.0000	183.0719	183.0719	0.0352	0.0000	183.9518
Total	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885	0.0000	183.0719	183.0719	0.0352	0.0000	183.9518

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3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	0.0114	3.5800e-003	2.0000e-005	4.5000e-004	9.0000e-005	5.5000e-004	1.3000e-004	9.0000e-005	2.2000e-004	0.0000	1.9265	1.9265	1.2000e-004	0.0000	1.9296
Worker	9.6000e-004	9.0000e-004	7.8200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6623	1.6623	6.0000e-005	0.0000	1.6638
Total	1.4300e-003	0.0123	0.0114	4.0000e-005	2.3800e-003	1.0000e-004	2.4900e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	3.5888	3.5888	1.8000e-004	0.0000	3.5934

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	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885	0.0000	183.0717	183.0717	0.0352	0.0000	183.9515
Total	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885	0.0000	183.0717	183.0717	0.0352	0.0000	183.9515

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3.5 Building Construction - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	0.0114	3.5800e-003	2.0000e-005	4.5000e-004	9.0000e-005	5.5000e-004	1.3000e-004	9.0000e-005	2.2000e-004	0.0000	1.9265	1.9265	1.2000e-004	0.0000	1.9296
Worker	9.6000e-004	9.0000e-004	7.8200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6623	1.6623	6.0000e-005	0.0000	1.6638
Total	1.4300e-003	0.0123	0.0114	4.0000e-005	2.3800e-003	1.0000e-004	2.4900e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	3.5888	3.5888	1.8000e-004	0.0000	3.5934

3.6 Paving - 2019**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	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.9000e-004	2.5400e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5402	0.5402	2.0000e-005	0.0000	0.5407
Total	3.1000e-004	2.9000e-004	2.5400e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5402	0.5402	2.0000e-005	0.0000	0.5407

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	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.6 Paving - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.9000e-004	2.5400e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5402	0.5402	2.0000e-005	0.0000	0.5407
Total	3.1000e-004	2.9000e-004	2.5400e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5402	0.5402	2.0000e-005	0.0000	0.5407

3.7 Architectural Coating - 2019**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	0.1690					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793
Total	0.1703	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	0.1690					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793
Total	0.1703	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

3.7 Architectural Coating - 2019**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	0.0207	0.0901	0.2426	6.3000e-004	0.0542	7.9000e-004	0.0549	0.0145	7.4000e-004	0.0153	0.0000	57.4462	57.4462	2.4700e-003	0.0000	57.5080
Unmitigated	0.0207	0.0901	0.2426	6.3000e-004	0.0542	7.9000e-004	0.0549	0.0145	7.4000e-004	0.0153	0.0000	57.4462	57.4462	2.4700e-003	0.0000	57.5080

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	57.12	59.46	51.72	144,063	144,063
Total	57.12	59.46	51.72	144,063	144,063

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Single Family Housing	13.00	5.00	5.00	35.80	21.00	43.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.559162	0.032279	0.198583	0.128083	0.030808	0.007362	0.013004	0.019140	0.002385	0.001267	0.005421	0.000811	0.001695

5.0 Energy Detail

 Historical Energy Use: N

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

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						0.0000	0.0000		0.0000	0.0000	0.0000	14.1218	14.1218	6.4000e-004	1.3000e-004	14.1772
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.1218	14.1218	6.4000e-004	1.3000e-004	14.1772
NaturalGas Mitigated	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615
NaturalGas Unmitigated	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615

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/yr	tons/yr										MT/yr					
Single Family Housing	174391	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615
Total		9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615

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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/yr	tons/yr										MT/yr					
Single Family Housing	174391	9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615
Total		9.4000e-004	8.0400e-003	3.4200e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3061	9.3061	1.8000e-004	1.7000e-004	9.3615

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	48543.4	14.1218	6.4000e-004	1.3000e-004	14.1772
Total		14.1218	6.4000e-004	1.3000e-004	14.1772

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	48543.4	14.1218	6.4000e-004	1.3000e-004	14.1772
Total		14.1218	6.4000e-004	1.3000e-004	14.1772

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	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367
Unmitigated	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367

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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	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.5000e-003	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367
Total	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367

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6.2 Area by SubCategory**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	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.5000e-003	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367
Total	0.0616	9.5000e-004	0.0820	0.0000		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	0.1334	0.1334	1.3000e-004	0.0000	0.1367

7.0 Water Detail**7.1 Mitigation Measures Water**

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.9903	0.0128	3.1000e-004	1.4018
Unmitigated	0.9903	0.0128	3.1000e-004	1.4018

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.390924 / 0.246452	0.9903	0.0128	3.1000e-004	1.4018
Total		0.9903	0.0128	3.1000e-004	1.4018

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.390924 / 0.246452	0.9903	0.0128	3.1000e-004	1.4018
Total		0.9903	0.0128	3.1000e-004	1.4018

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.4149	0.0836	0.0000	3.5052
Unmitigated	1.4149	0.0836	0.0000	3.5052

Coral Avenue Subdivision Project - San Luis Obispo County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	6.97	1.4149	0.0836	0.0000	3.5052
Total		1.4149	0.0836	0.0000	3.5052

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	6.97	1.4149	0.0836	0.0000	3.5052
Total		1.4149	0.0836	0.0000	3.5052

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Greenhouse Gas Emission Worksheet

N₂O Mobile Emissions

Morro Bay Coral Ave. Residential

From CalEEMod v.2016.3.2 Vehicle Fleet Mix Output:

Annual VMT:

144,063

Vehicle Type	Percent Type	CH ₄ Emission Factor (g/mile)*	CH ₄ Emissions (g/mile)**	N ₂ O Emission Factor (g/mile)*	N ₂ O Emissions (g/mile)**
Light Auto	55.9%	0.04	0.02236	0.04	0.02236
Light Truck < 3750 lbs	3.2%	0.05	0.0016	0.06	0.00192
Light Truck 3751-5750 lbs	19.9%	0.05	0.00995	0.06	0.01194
Med Truck 5751-8500 lbs	12.8%	0.12	0.01536	0.2	0.0256
Lite-Heavy Truck 8501-10,000 lbs	3.1%	0.12	0.00372	0.2	0.0062
Lite-Heavy Truck 10,001-14,000 lbs	0.7%	0.09	0.00063	0.125	0.000875
Med-Heavy Truck 14,001-33,000 lbs	1.3%	0.06	0.00078	0.05	0.00065
Heavy-Heavy Truck 33,001-60,000 lbs	1.9%	0.06	0.00114	0.05	0.00095
Other Bus	0.2%	0.06	0.00012	0.05	0.0001
Urban Bus	0.2%	0.06	0.00012	0.05	0.0001
Motorcycle	0.5%	0.09	0.00045	0.01	0.00005
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.2%	0.09	0.00018	0.125	0.00025
Total	100.0%		0.05647		0.071045

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO₂e) Units based on Global Warming Potential (GWP)

CH₄ 21 GWP
N₂O 310 GWP
1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO ₂ e units
N ₂ O Emissions:	0.0102 metric tons N ₂ O	3.17 metric tons CO ₂ e
Project Total:		3.17 metric tons CO₂e

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).

in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009

Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009

*** CalEEMod v.2016.3.2 results for mobile sources.

Appendix B

Sage Biological Addendum

September 8, 2017

David Watson, AICP
Watson Planning Consultants
P.O. Box 385
Pismo Beach, CA 93448

SUBJECT: BIOLOGICAL RESOURCES ADDENDUM FOR THE CITY OF MORRO BAY TRACT NO. 2859 PROJECT SITE (APN No. 065-386-015)

Dear Mr. Watson:

Sage Institute, Inc. (SII) is pleased to submit this Biological Resources Addendum (BRA) for the Tract No. 2859 project site in the City of Morro Bay, California (APN No. 065-386-015). This BRA is based on the 1991 Draft and Final Environmental Impact Report for the Cloisters Residential Subdivision Project (EIR) that are hereby incorporated by reference. The purpose of this BRA is to establish existing conditions of the Tract No. 2859 project site in relationship to the biological resources evaluation in the EIR, and to evaluate the current potential for any direct or indirect potentially significant impacts on biological or wetland resources, or adverse effects on any rare, threatened, or endangered plant or wildlife species (special-status species). This report is intended to support the environmental review documentation process for the City of Morro Bay.

1. METHODS

SII Principal Ecologist David Wolff reviewed the EIR ecological/biological resources section and May 15, 2007 monarch butterfly habitat survey report you provided. A current California Natural Diversity Data Base (CNDDDB) query focused along the coast from Cayucos to Los Osos provided a list and mapped locations of special-status plant and wildlife species, as well as natural communities of special concern that have been recorded in the vicinity of the project site (See attached Figure 1). The CNDDDB records helped focus the field survey efforts and evaluation of potential project effects on specific species or habitats, but are not intended to be definitive in terms of presence/absence of special-status biological resources. Mr. Wolff conducted a field survey of the project site on August 22, 2017 to document existing conditions in terms of habitats and plant species observable at the time of the site visit. The survey data collected on plant and wildlife species, the evaluation and analysis of biological resources, and conclusions presented in this BRA are based on the methods and field reconnaissance conducted over the project site as described above.

2. EXISTING CONDITIONS

The Tract 2859 project site is essentially an infill 0.99 acre site bordered by State Highway 1 on the east, San Jacinto Street and residential development on the north, Coral Avenue and residential development on the west, and residential development directly abutting to the south (see Figure 2). The site supports a ruderal non-native annual grassland cover with two rows of blue gum eucalyptus trees (*Eucalyptus globulus*) that appears to be the site condition at least as far back 1994 from review of available Google Earth imagery. Figure 3 provides a set of representative photographs from the SII field survey. In

addition, the 1994 aerial imagery of the predevelopment Cloisters project signatures of established dune vegetation and active dunes that are clearly not on the Tract 2859 site suggesting existing conditions as described below have been established since at least 1994. A drainage ditch emanating from three culverts in the northeast corner draining the urbanized north Morro Bay area runs from north to south along the eastern border of the site. The drainage ditch continues south connecting to the created pond feature in the Cloisters project. Again, the ditch carrying the urban drainage along the eastern property edge appears to have been in place at least as far back as 1994. The ditch was dry with a cover of annual grasses during the SII field survey. There is no apparent natural creek flowing to that location and there is no other drainage pattern through the site.

The vegetative ground cover of the Tract 2859 site throughout and under the eucalyptus rows is a non-native ruderal annual grassland habitat composed predominantly of oats (*Avena* sp.), foxtail barley (*Hordeum murinum leporinum*), ryegrass (*Lolium perenne*), bur clover (*Medicago polymorpha*), field bindweed (*Convolvulus arevensis*), English plantain (*Plantago lanceolata*), buckhorn plantain (*Plantago coronopus*), and black mustard (*Brassica nigra*). There are also widely scattered Australian saltbush (*Atriplex semibaccata*), saltgrass (*Distichlis spicata*), scarlet pimpernel (*Lysimachia arvensis*), and bristly ox-tongue (*Helminthotheca echioides*). These are all non-native invasive weedy species and there is no evidence of wetland vegetation under either the Federal or State definitions.

There was abundant gopher evidence throughout the site (mounds of dirt) that exposed a loamy soil with small uniform gravel suggesting there is not a native soil profile. More importantly, there was no surface evidence of sands or sandy soils that would support dune plant or wildlife species. The site was very level and uniform demonstrating that there is no dune type topography on the site as well.

3. BIOLOGICAL RESOURCES EVALUATION

The EIR identified several key potentially significant biological and wetland resources for the overall Cloisters project and provided mitigation measures to reduce impacts to a less than significant level. These key biological resources issues are summarized below along with any applicability to the Tract 2859 project site.

- **Wetlands** – The EIR had lengthy discussion of Federal waters of the U.S., and CDFW 1600 and Coastal Act waters of the State that including drainages, dune slack ponds, and willow thickets (willows in uplands, dunes, drainages). The EIR had Federal jurisdictional wetlands mapped on Figure 3.10-3 that showed the Tract 2859 site without any mapped wetland habitats. Based on the SII field survey we have affirmed that there are no wetlands under either current federal or state jurisdictional definitions on the Tract 2859 site.

The EIR did not address the Federal threatened California red-legged frog (*Rana draytonii*; CRLF) that is a highly aquatic species. There are CNDDDB recorded occurrences of the CRLF in the coastal drainages around Morro Bay (Figure 1). As stated above, the site is ruderal uplands with no wetland or aquatic habitat present. The drainage ditch is likely ephemeral from urban runoff without perennial aquatic habitat needed by the CRLF. Further, the ditch runs along the highway and behind residential development with no upstream creek habitat. As such, there is no expectation that the CRLF would occur on the Tract 2859 project site.

- **Environmentally Sensitive Habitat Areas (ESHA)** – The EIR presented mapped ESHA that mostly included the active coastal dunes, dune scrub, dune slack, wetlands, willow thickets, and special-status species habitat that were mapped and proposed on Figure 3.10-7. No existing or

proposed ESHA was mapped on the Tract 2859. Based on the SII field survey there are no habitats or conditions that would meet the ESHA definition and/or criteria on the Tract 2859 project site.

- **Active Dune/Dune Scrub Habitats** – The EIR discussed special-status species such as the Morro Bay blue butterfly and its host plant the dune lupine (*Lupinus chamissonis*), the western snowy plover, and globose dune beetle associated with the active and stable dune habitats mapped within the Cloisters project area. As discussed above, the past and current conditions of the biological resources provide the evidence that the site does not support the dune habitat, dune lupine, or sandy substrate/topography to support any of the dune associated plant or wildlife species discussed in the EIR.

The EIR did not address the Federal Endangered morro shoulderband snail (*Helminthoglypta walkeriana*) known from its restrictive range around Morro Bay and found only in pure sandy soils with coastal dune and coastal scrub vegetation. As described above, the loamy/gravelly soils on the Tract 2859 site would not support the Morro shoulderband snail.

- **Monarch Butterfly Winter Roosts** – The EIR discussed the monarch butterfly and suggested the two eucalyptus rows on the Tract 2859 site were “appropriate” roosting habitat without any direct observations noted of a winter roost aggregation of monarch butterflies. The 2007 monarch butterfly winter roost survey provided extensive data collection and analysis of the onsite eucalyptus rows. The 2007 study had negative findings as a winter roost as well as being deemed unsuitable based on a 13 criteria analysis. The current CNDDDB query shows the known monarch butterfly roost sites in the region but does not have a record on the Tract 2859 site. The CNDDDB has abundant data on observed winter roost sites in the region from a study that occurred over almost a 10-year period in the 1980’s and 1990’s. Given these CNDDDB records around the site, it can be suggested the Tract 2859 eucalyptus rows were viewed by this study with no record of a winter roost. As such, the onsite eucalyptus rows should not be considered monarch butterfly fall or winter roost habitat.
- **CNDDDB Recorded Occurrences** – Figure 1 provides a list and mapped locations of CNDDDB recorded observations of special-status species. The majority of these species are associated with the coastal and dune habitats with sandy substrate, wetlands and aquatic habitats, or generally intact native plant communities on the inland hills. Based on the existing conditions of the Tract 2859 site supporting a ruderal non-native annual grassland habitat lacking sandy soils, dune topography, or other native habitat elements, it is not expected to support any of the special-status species recorded in the CNDDDB as shown on Figure 1.
- **Nesting Birds** – As with all undeveloped project sites, there is a potential for nesting birds to use the eucalyptus and/or annual grassland. Nesting birds are protected by Sections 3503 and 3503.5 (raptors specifically) of the Fish and Game Code of California and the Migratory Bird Treaty Act. No large stick nests for raptors were observed in any of the eucalyptus trees during the SII survey or other nesting birds. Although the survey was conducted at almost the end of the nesting season for most birds. In general the eucalyptus trees have an open structure not conducive to secretive bird nesting but the potential for nesting birds still remains.

4. PROJECT IMPACTS AND RECOMMENDED MITIGATION

The Tract 2859 project site supports a ruderal and weedy non-native annual grassland ground cover with two rows of eucalyptus essentially surrounded by urbanization. As such, conversion of the site to residential development, including the removal of the eucalyptus trees would not be considered a

significant impact on biological resources. While the eucalyptus do provide habitat structure to the site, they are non-native and the oils in the bark and leaf litter tend to preclude the development of a native plant understory. However, there still remains the possibility of nesting birds including raptors that are protected by regulations where avoidance of impacts is typically the best approach. The following mitigation measure is recommended to ensure that potentially significant impacts on nesting birds is reduced to a less than significant level.

MM BIO-1: Vegetation removal and initial site disturbance for any project elements shall be conducted between September 1st and January 31st outside of the nesting season for birds. If vegetation removal is planned for the bird nesting season (February 1st to August 31st), then preconstruction nesting bird surveys shall be required to determine if any active nests would be impacted by project construction. If no active nests are found, then no further mitigation shall be required.

If any active nests are found that would be impacted by construction, then the nest sites shall be avoided with the establishment of a non-disturbance buffer zone around active nests as determined by a qualified biologist. Nest sites shall be avoided and protected with the non-disturbance buffer zone until the adults and young of the year are no longer reliant on the nest site for survival as determined by a qualified biologist. As such, avoiding disturbance or take of an active nest would reduce potential impacts on nesting birds to a less-than-significant level.

5. SUMMARY

Based on the findings described above establishing the existing conditions of biological resources within the Tract 2859 project site and incorporation of the recommended mitigation measures, implementation of the proposed project would not result in any substantial adverse effects on biological, botanical, wetland habitat resources. Therefore, with mitigation measures incorporated into the project, direct and indirect project impacts on biological resources would be considered to be less than significant under CEQA.

Thank you very much for considering SII for environmental consulting services.

Very truly yours,



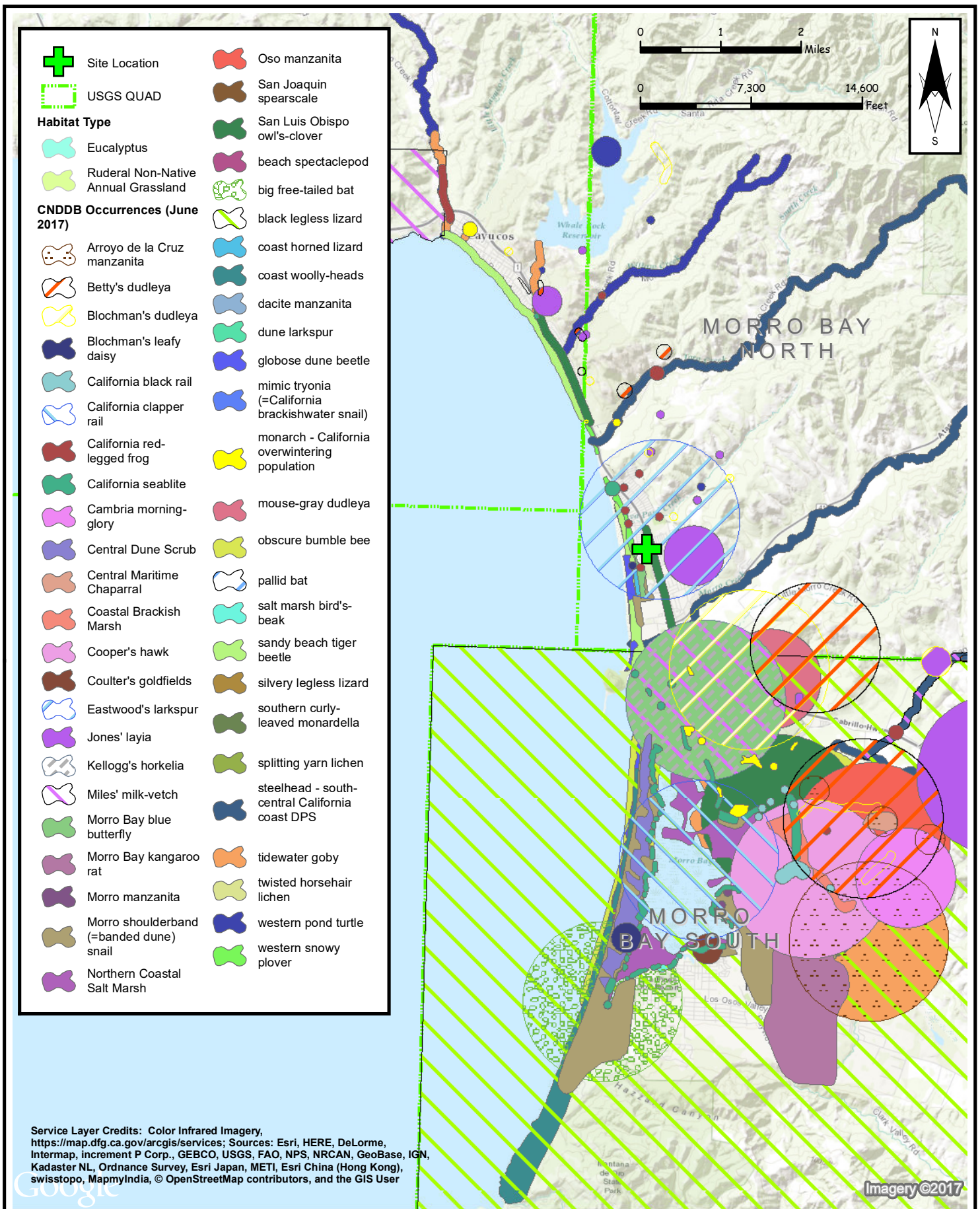
David K. Wolff, Principal Ecologist

ATTACHMENTS

Figure 1 – Regional Location and CNDDDB Occurrences Map

Figure 2 – Habitat Map

Figure 3 – Representative Photographs



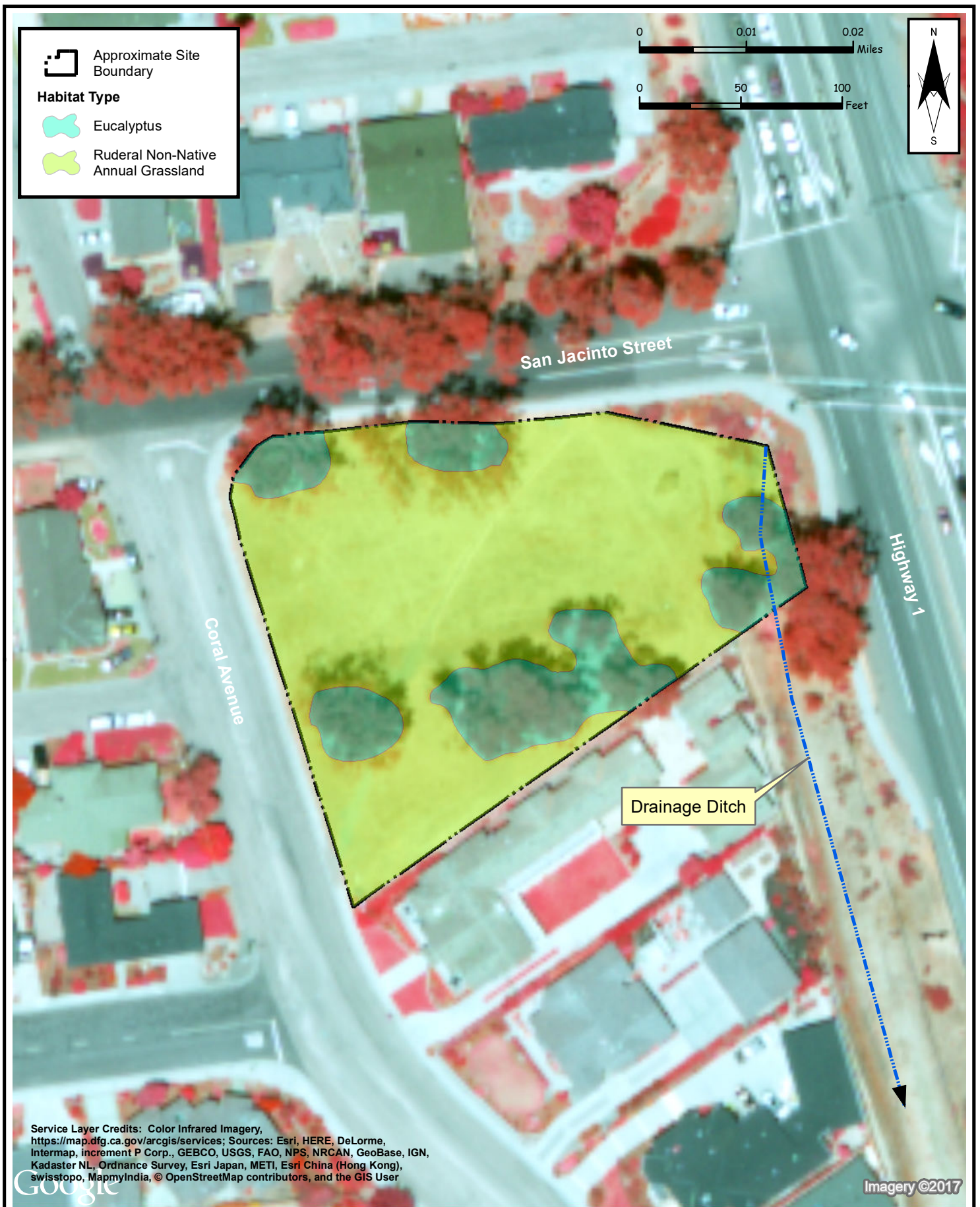




Photo 1 – View east along San Jacinto Road at ruderal grassland, eucalyptus rows, and residential development to the north and east. 8/22/2017



Photo 2 – View south along Coral Avenue at ruderal grassland, eucalyptus row, and residential development to the east. 8/22/2017

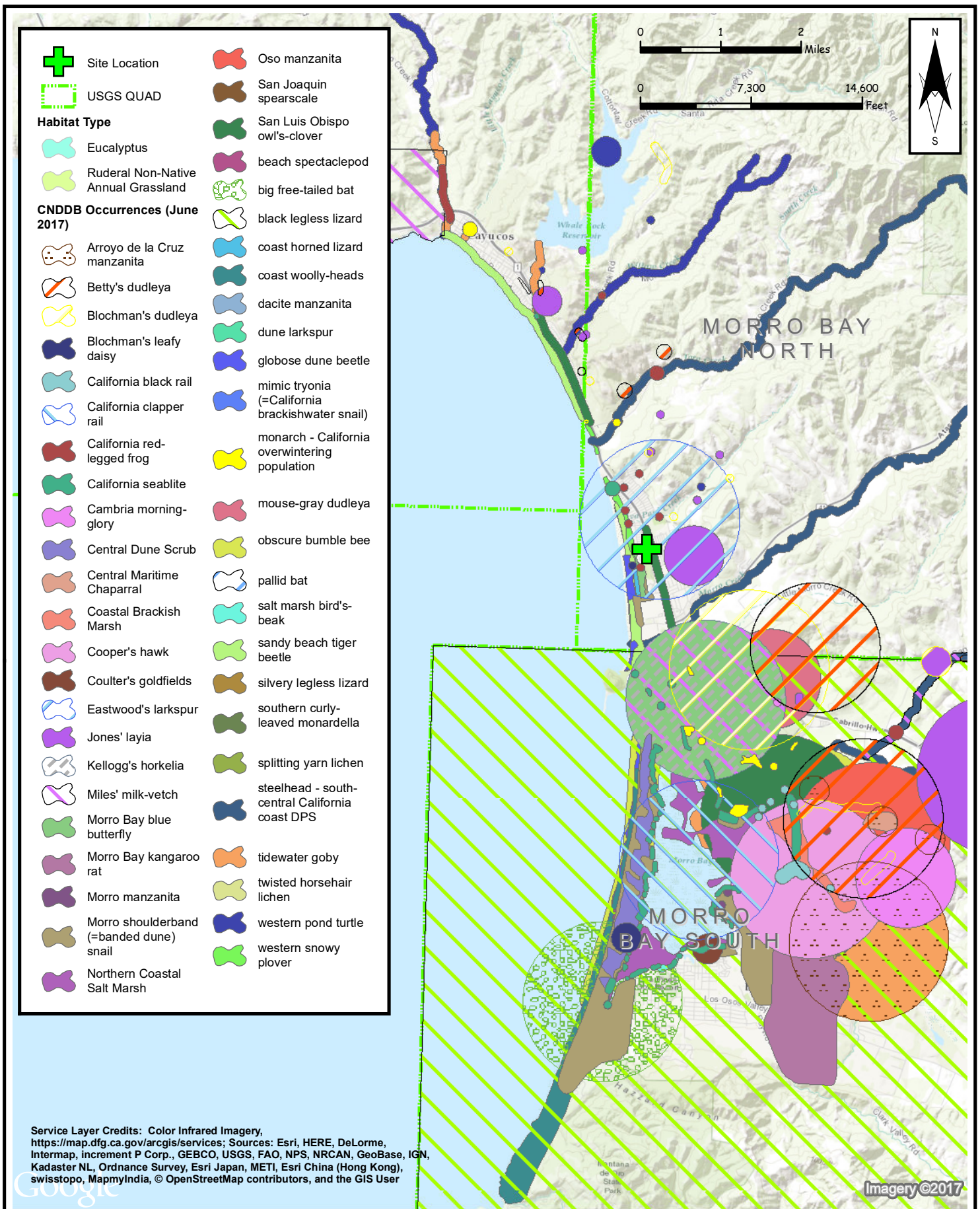


Photo 3 – View west across the site at ruderal grassland, eucalyptus rows, and residential development to the west. 8/22/2017



Photo 4 – View north at drainage ditch running along Highway 1 at the eastern edge of the property. 8/22/2017

FIGURE 3 – REPRESENTATIVE PHOTOGRAPHS



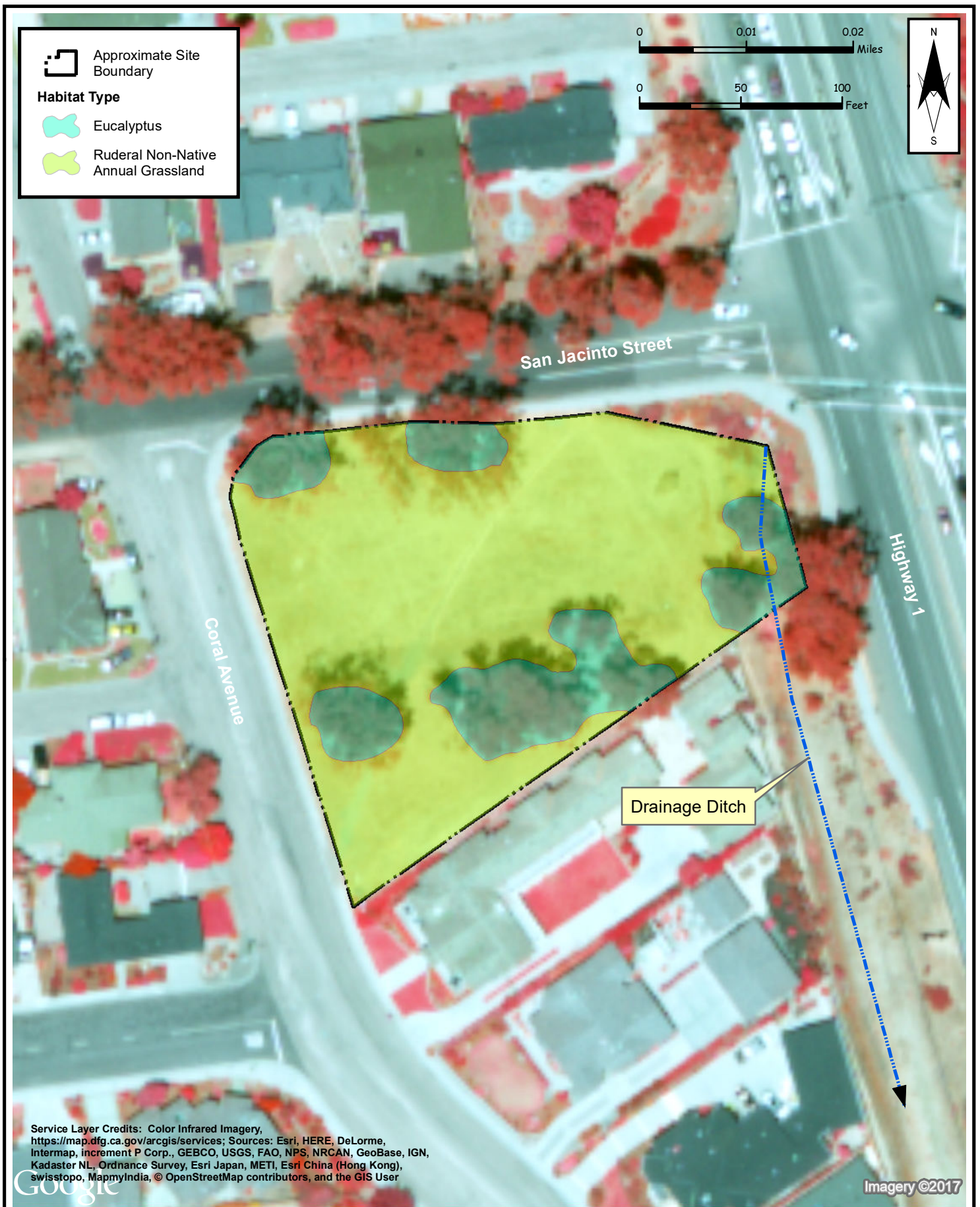




Photo 1 – View east along San Jacinto Road at ruderal grassland, eucalyptus rows, and residential development to the north and east. 8/22/2017



Photo 2 – View south along Coral Avenue at ruderal grassland, eucalyptus row, and residential development to the east. 8/22/2017



Photo 3 – View west across the site at ruderal grassland, eucalyptus rows, and residential development to the west. 8/22/2017



Photo 4 – View north at drainage ditch running along Highway 1 at the eastern edge of the property. 8/22/2017

FIGURE 3 – REPRESENTATIVE PHOTOGRAPHS

Appendix C

Certified Arborist Report

**Certified Arborist Report
and
Mitigation/Enhancement
for
Proposed Subdivision at
2783 Coral Avenue
Morro Bay, CA 93442**

Prepared for:

Rob Shultz
City Attorney
City of Morro Bay
955 Shasta Ave.
Morro Bay, CA 93442

Prepared by:

ISA Certified Arborist
Robert F. Schreiber

Robert F. Schreiber

ISA Certified Arborist
#FL0314A

CERTIFIED ARBORIST REPORT

Rob Shultz
City Attorney
City of Morro Bay
955 Shasta Ave.
Morro Bay, CA 93442
772-6568

RE: 2783 Coral Avenue Morro Bay, CA 93442 CRR/CC/PD
Zone district

The site is currently vegetated with blue gum eucalyptus trees. Monarch butterfly habitat surveys conducted during the environmental review (S00-059/UP0-118/CP0-184) of the proposed subdivision determined the site is not an overnight roosting location and removal of these trees would not impact sensitive species.

As stated in the Staff Report for the project:

The California Coastal Commission (CCC) added a number of conditions to the approval of the Cloister's subdivision, some of which pertained to final landscape plans. Specifically, the CCC added condition of approval 4.b, which states the following.

No landscaping, including street trees, in the north residential cluster outside of the view corridor, shall when mature, exceed the maximum structure height of 14 feet in that cluster and no landscaping, including street trees, on any lot in the south residential cluster outside of the view corridor shall when mature, exceed the maximum allowed structure height on that lot.

The requested subdivision is most proximate to the northern cluster of the Cloisters and the proposed lots could potentially be considered a component of the northern cluster of the Cloister's subdivision. The eucalyptus trees on the project site are approximately 40 to 60 feet in height.

The trees onsite are growing in clumps, forcing the trees to grow phototropic towards the sun. The wind comes from the opposite

direction, forcing the trees to be either one-sided or grow at sharp angles to the ground. The trees are in declining age and have been pruned incorrectly from the bottom instead of reduction pruning to reduce weight of the branches and the possibility of wind throw knocking them over. At this point the trees are a hazard to individuals and property and should be replaced with more appropriate species to this environment.

It is the recommendation of this Certified Arborist to remove *all* on-site eucalyptus as these large trees are not appropriate for residential planting in this area. No sensitive species habitat is present in the trees onsite. In the event trees are not removed prior to start of construction, there is a high risk of inevitable failure as they continue to grow in their current state. Consultation with Caltrans should occur to request removal of the large eucalyptus tree located within the right-of-way for Highway 1.

As stated in the Environmental Determination for the project:

Replacement trees for the six eucalyptus trees removed shall be replaced at a ratio of two five-gallon trees, or one 15-gallon tree for every tree removed. The replacement trees may be planted on the project site, on other privately held lands with the property owner's permission, or presented to the City to plant on public lands.

The conditions of approval do not specify that replacement trees shall be "in-kind" or of the same species. Assuming removal of all eucalyptus trees, a total of 98 5-gallon trees or 64 15-gallon trees would be required to be planted onsite. Replacement trees as appropriate for the site shall be incorporated into a landscape plan for the project, and if planted prior to construction of residences, protected during construction to ensure their viability.

Required tree replacements to meet the mitigation requirements for the project do not all fit into the development plan for the site. If determined to be necessary by the City, additional replacement plantings shall be the responsibility of the contractor, to be

planted and/or funded by the contractor throughout the City in appropriate locations.

The landscape templates of adjacent properties include several successful complimentary species, with growth cycles appropriate for trees in developed areas. The landscape template shall include the following:

- Melaleuca paper trees
- Myoporum
- Purple fountain grass and other grasses
- Ginger trees
- Butterfly bushes
- Lavender
- Small palms

Mitigation/Enhancement Program:

Due to the restricted soil space to building space, a modified landscape plan must be applied that does not fully replace all existing trees on site. The following is intended as a guideline for the contractor/landscape architect to implement in the field and augment as necessary as long as it remains consistent with the plant list and suggested placement.

In order to ensure proposed landscaping does not interfere with retaining wall improvements, infrastructure improvements, or residential construction, the following landscape template is suggested:

*Street frontage of Coral Avenue shall be vegetated with Myoporum, two per property frontage for a total of 4 trees.

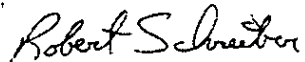
*Street frontages of Coral Avenue and Verdon Court shall be vegetated with one Melaleuca paper tree and either small palms, purple melaleuca or smaller gingers

*Filler bushes shall consist of Melaleuca, small palms, and other shrubs and grasses as listed above to maintain consistency and incorporate the proposed development into the Cloisters project. Planting distances shall be consistent with adjacent Cloisters development planting.

*Additional vegetation on-site shall consist primarily of native species with turf areas to be minimized.

ISA Certified Arborist

Robert F. Schreiber



ISA Certified Arborist

#FL0314A

TERMS OF ASSIGNMENT

The following terms and conditions apply to all oral and written reports and correspondence pertaining to the consultations inspections and activities of Arbor First:

1. All property lines and ownership of property, trees, and landscape plants and fixtures are assumed to be accurate and reliable as presented and described to the consultant, either verbally or in writing. The consultant assumes no responsibility for verification of ownership or locations of property lines, or for results of any actions or recommendations based on inaccurate information.
2. It is assumed that any property referred to in any report or in conjunction with any services performed by Arbor First, is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations, and that any titles and ownership to any property are assumed to be good and marketable. Any existing liens and encumbrances have been disregarded, and any and all property is appraised and/or assessed as though free and clear, under responsible ownership and competent management.
3. All reports and other correspondence are confidential and are the property of Arbor First and its named clients and their assigns or agents. Possession of this report or a copy thereof does not imply any right of publication or use for any purpose, without the express permission of the consultant and the client to whom the report was issued. Loss, removal or alteration of any part of a report invalidates the entire appraisal/evaluation.
4. The scope of any report or other correspondence is limited to the trees and conditions specifically mentioned in those reports and correspondence. Arbor First and the consultant assume no liability for the failure of trees or parts of trees, either inspected or otherwise. The consultant assumes no responsibility to report on the condition of any tree or landscape feature not specifically requested by the named client.
5. All inspections are limited to visual examination of accessible parts, without dissection, excavation, probing boring or other invasive procedures, unless otherwise noted in the report, and reflect the condition of those items and features at the time of inspection. No warrantee or guarantee is made, expressed or implied, that problems or deficiencies of the plants or the property will not occur in the future, from any cause. The consultant shall not be responsible for damages caused by any tree defects, and assumes no responsibility for the correction of defects or tree related problems.
6. The consultant shall not be required to provide further documentation give testimony, be deposed, or to attend court by reason of this appraisal/report unless subsequent contractual arrangements are made, including payment of additional fees for such services as described by the consultant or in the fee schedules or contract.
7. Arbor First makes no warrantee, either expressed or implied, as to the suitability of the information contained in any reports or correspondence, either written or verbal, for any particular purpose. It remains the responsibility of the client to determine applicability to his/her particular case.
8. Any report and the values, observations, and recommendations expressed therein represent the professional opinion of the consultant and the fee for services is in no manner contingent upon the reporting of a specified value nor upon any particular finding to be reported.
9. Any photographs, diagrams, graphs, sketches, or other graphic material included in any report, being intended solely as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys, unless otherwise noted in the report. Any reproductions of graphic material or the work product of any other persons is intended solely for the purpose of clarification and ease of reference. Inclusion of said information does not constitute a representation by Arbor First or the consultant as to the sufficiency or accuracy of that information.
10. Payment terms are net payable upon receipt of invoice. All balances due beyond 30 days of invoice date will be charged a service fee of 1.5 percent per month (18.% APR). All checks returned for insufficient funds or any other reason will be subject to a \$30.00 service fee. Advance payment of fees may be required in some cases.

Attachment B:
Arborist Submitted Materials

City Council Meeting

In Regards to the *Eucalyptus globulus*, Blue Gum Eucalyptus' on Coral Ave. and San Jacinto St.

I am a Certified Arborist and have been working with trees for over 30 years. I am concerned about the Blue Gum Eucalyptus trees on Coral Ave. and San Jacinta St. They have not received the proper form of pruning and are a hazard. Recent development plans are being considered that would try to save and build around these trees. In my opinion this is a poor decision and a great liability. In the past I have had to file a report against Morro Bay for saving a Blue Gum Eucalyptus that should not have been. In this particular case the stress of the construction damaged a root and the tree fell over, which caused over \$75,000 in damages. It will be much more cost effective to remove these trees prior to construction. The following are some facts about this breed of tree that bring me to the conclusion that these trees should be removed.

1. Trees trimmed every year from the bottom will not develop girth to support the weight of the branches. These trees have been trimmed every 1-3 years. The pruning that they have received has not been reduction pruning which helps remove weight from heavy branches and shapes the tree so the wind blows around them instead of through. The inner branches when removed keep the branch from developing girth or size to support the weight of the branch.
2. These trees are known to be poor at compartmentalization, which means that they won't heal from injury. The soil compaction and added fill from a major construction site will kill the roots.
3. The roots from these particular trees have been plugging the sewer lines for quite a few years, which is bound to get worse as they age further.
4. These trees are known to grow up to 160 Ft. tall.
5. The roots of these trees will likely tear up house foundations, the Eucalyptus oils will keep plants from growing, and large branches or whole trees will likely fall on houses due to the improper pruning
6. Eucalyptus trees are vulnerable to long horned beetles, especially trees that have been stressed. Examples of factors that stress these trees are age, improper pruning, and construction damage.

In conclusion I feel that these trees are a far greater liability than an asset. The trees have become very wide spread and are now competing for the sun, this is called phototropism*. So the trees are very one sided and the weight will be leaning over the newly developed houses. As stated above these trees can grow to be over 160 Ft. tall, which can easily take out 2 or more houses if they fall, possibly even take somebody's life. One of the first things an arborist is taught is that you must choose the right tree for the right space. Though these trees are lovely they are the wrong tree for the proposed use of this site.

*Phototropism: The influence of light on the direction of plant growth.

RECEIVED

OCT 03 2007

City of Morro Bay
Public Services Department

Addendum to Certified Arborist Report for Coral Avenue.

From the corner of San Jacinto and Coral, a brief analysis was done of the twelve trees toward Highway 1. All of these trees had problems, with some very severe. All but one or two are definite hazards. The following trees are listed in number from 1-12 with their attending problems.

1. Co-dominant leaders with cracks and rot near the cracks.
2. Co-dominant leaders with cracks and rot near the cracks
3. Co-dominant leaders with cracks and rot near the cracks
4. Co-dominant leaders with cracks and rot near the cracks
5. Co-dominant leaders with cracks and rot near the cracks
6. Old pruning cuts too large to heal which reduces structure integrity. More than likely half or more of the inside of the tree is rotten.
7. Co-dominant leaders with cracks and rot near the cracks.
8. Co-dominant leaders with cracks and rot near the cracks. Old pruning cuts too large to heal which reduces structure integrity. More than likely half or more of the inside of the tree is rotten.
9. Co-dominant leaders with cracks and rot near the cracks. Old pruning cuts too large to heal which reduces structure integrity. More than likely half or more of the inside of the tree is rotten. Tree is dead.
10. Large wounds, larger co-dominant leaders
11. Co-dominant leaders with cracks and rot near the cracks. Old pruning cuts too large to heal which reduces structure integrity. More than likely half or more of the inside of the tree is rotten.
12. Co-dominant leaders with cracks and rot near the cracks. Old pruning cuts too large to heal which reduces structure integrity. More than likely half or more of the inside of the tree is rotten.

On the opposite side, although the trees are in better shape, they all have problems, and four are dying.

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OCT 03 2007

City of Morro Bay
Public Services Department

Appendix D

45dB, LLC. Acoustics Report

April 18, 2018 (Revision 1)

Project 1725

RE: Huber 6-Lot Subdivision
APN 065-386-015
2783 Coral Avenue
Morro Bay, CA

Requested by:
David Watson, AICP
Watson Planning
PO Box 385
Pismo Beach, CA 93448-0385
dave@watsonplanning.us
CC: Kevin Huber, Morro Bay Ventures LLC
c/o Grupe Commercial Company
khuber@grupe.com

1 Summary

45dB Acoustics has reviewed regulatory noise requirements of the Morro Bay Noise Element for the proposed 6-lot single-family residential subdivision located at San Jacinto Street, State Highway 1, and Coral Avenue ("Project"). This acoustic analysis is to accompany a Permit application to the City of Morro Bay.

The modeled existing noise levels range from 72 dBA nearest Highway 1, down to 56 dBA at the western edge of the Project. Twenty-year future (year 2037) noise levels increase by approximately one decibel, i.e., 73 dBA nearest Highway 1 down to 57 dBA at the western edge of the Project. The noise impact on site is due primarily to Highway 1 traffic noise. At this time, there are no architectural design plans with which to assess Sound Transmission Class (STC) ratings. In order for the proposed Project to meet or exceed the applicable state and local regulations, the minimum composite wall/window STC rating for the single-family residential (SFR) homes nearest the noise source must be a minimum of STC 28 on the side facing the noise source. It is recommended that the design specification for each SFR home be STC 33 facing the noise source, to allow for a 5 dB variation of as-built STC to designed STC.

No significant sources of vibration exist at the location.

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2 Introduction

This sound level assessment is intended to determine the off-site and on-site noise impacts associated with the proposed subdivision project. The following topics are presented in this report in response to City of Morro Bay requirements for projects identified by the Noise Element of the City's General Plan:

- “The topographical relationship of noise sources and the dwelling/occupied sites to be developed
- Identification of noise sources and their characteristics, including predicted noise spectra at the exterior of the proposed dwelling structure, considering present and future land usage
- Basis for the sound level prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met
- An assessment of potential short-term construction-related noise and vibration impacts
- Information on fundamentals of noise and vibration to aid in interpreting the report

3 Project Location

The subject of this assessment is six (6) lots of single-family homes within a subdivision. The Project is to be located at Tract 1996 within the Cloisters subdivision, and will be located at 2783 Coral Avenue, directly to the west of California State Highway 1, with San Jacinto Street creating the northern border and Coral Avenue the western border. Figure 1 is a Google Maps photo looking southwest from the intersection of San Jacinto and Highway 1 South. Figure 2 shows an aerial view of the tentative tract map for the Project. A drawing of the development is shown in Figure 3.

The site is a relatively flat parcel with a slope of just under 3%. Highway 1 is the significant traffic noise source considered in this study.

Plans for architectural designs and landscaping for the homes and lots are not included, and would be submitted at a subsequent time by interested home buyers-builders.

Figure 1: View of Project land parcel from the northeastern corner

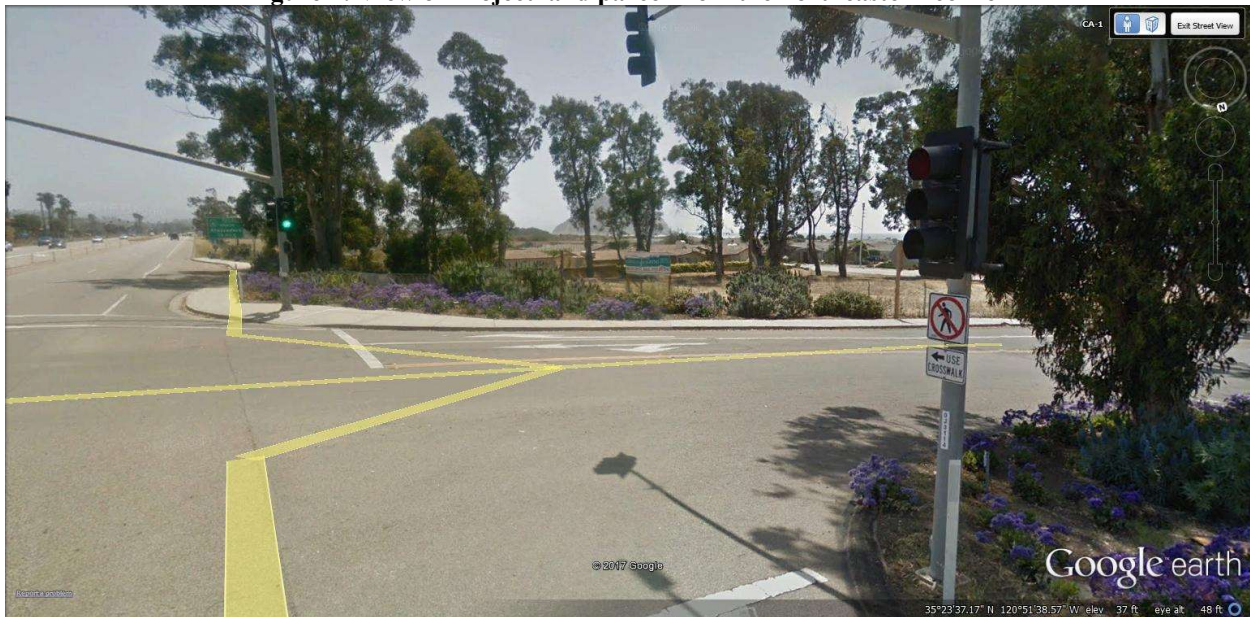


Figure 2: Aerial Map of Site



Figure 3: Tentative Tract Map



4 Regulatory Setting

Noise regulations are addressed by federal, state, and local government agencies, discussed below. Local policies are generally adaptations of federal and state guidelines, adjusted to prevailing local condition.

4.1 Federal Regulation

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- a) Promulgating noise emission standards for interstate commerce.
- b) Assisting state and local abatement efforts.
- c) Promoting noise education and research.

The Department of Transportation (DOT) assumes a significant role in noise control. Surface transportation system noise is regulated by the Federal Transit Administration (FTA). Freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). For this project, the nearest airport is approximately 4 miles to the south and is not a potential noise factor. The nearest railroad line runs north and south and is 0.6 miles southwest of the site; it is located far enough away that noise levels at the Project will not be affected by the train noise. Therefore, Highway is the sole noise source considered relevant for the Project analysis.

4.2 State Regulation

California State Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation inside single-family detached housing to provide an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 55 dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45 dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms shall have an interior CNEL of 45 dBA or less. The 2013 California Green Building Standards Code (CGBSC), Division of the State Architect - Structural Safety (DSA-SS) (CCR, Title 24, Part 11) submittal guideline, chapter 5 contains mandatory requirements for acoustical control:

“5.507.4.1 Exterior noise transmission **prescriptive** method

“Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 ... within the 65 CNEL or LDN noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.”

Chapter 5.507.4.1.1 governs acoustical performance and noise exposure where noise contours are not readily available:

“Buildings exposed to a noise level of 65 dB Leq-1-hr [**or more**] during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).”

The **performance** method described above may be used to comply with CGBSC in the following way:

“...wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq -1Hr) of 50 dBA in occupied areas during any hour of operation.”

This report provides noise contours utilizing existing CalTrans traffic count data, and therefore the **prescriptive** method may be utilized for building design, adjusted to match calculated/modeled noise levels as presented herein.

4.3 Local Regulation

The City of Morro Bay General Plan, Noise Element Part 1 Policy Document (Reference 1) provides regulation and guidelines regarding noise. The Noise Element provides the conclusions, recommendations, and strategies necessary to ensure an appropriately quiet and pleasurable interior environment for the residents of the proposed project. Since the regulation of transportation noise sources such as roadway and train traffic primarily fall under either State or Federal jurisdiction, the local jurisdiction generally uses land use and planning decisions to limit locations or volumes of such transportation noise sources, to avoid development within noise impact zones, or to shield impacted receivers or sensitive receptors.

5 Sound Level Analysis

As Highway 1 is the primary noise source (and the only transportation source) for this Project, we shall verify exterior (outdoor) noise levels with existing traffic data input to the noise prediction software, in order to determine recommended noise mitigation measures to achieve interior noise level maximum of CNEL = 45 dBA.

5.1 Existing (Outdoor) Sound Level Modeled

The SoundPlan noise model uses the site plan drawing and Highway 1 traffic counts to obtain calculated noise levels. Highway 1 traffic counts are provided by Caltrans' Traffic Census Program. SoundPlan provides the resulting daytime, evening, nighttime, and CNEL noise levels for the project (shown on the following pages), in order to compare against applicable regulations. Traffic data is easily adjusted for 1% growth per year and input into the SoundPlan model again to determine the future noise situation.

Figure 4: Traffic counts data used for noise model input

2015 Traffic Volumes

Dist	Rte	CO	Post Mile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
05	001	SLO	31.13	MORRO BAY, SAN JACINTO STREET	2100	23600	20100	2000	18400	16000

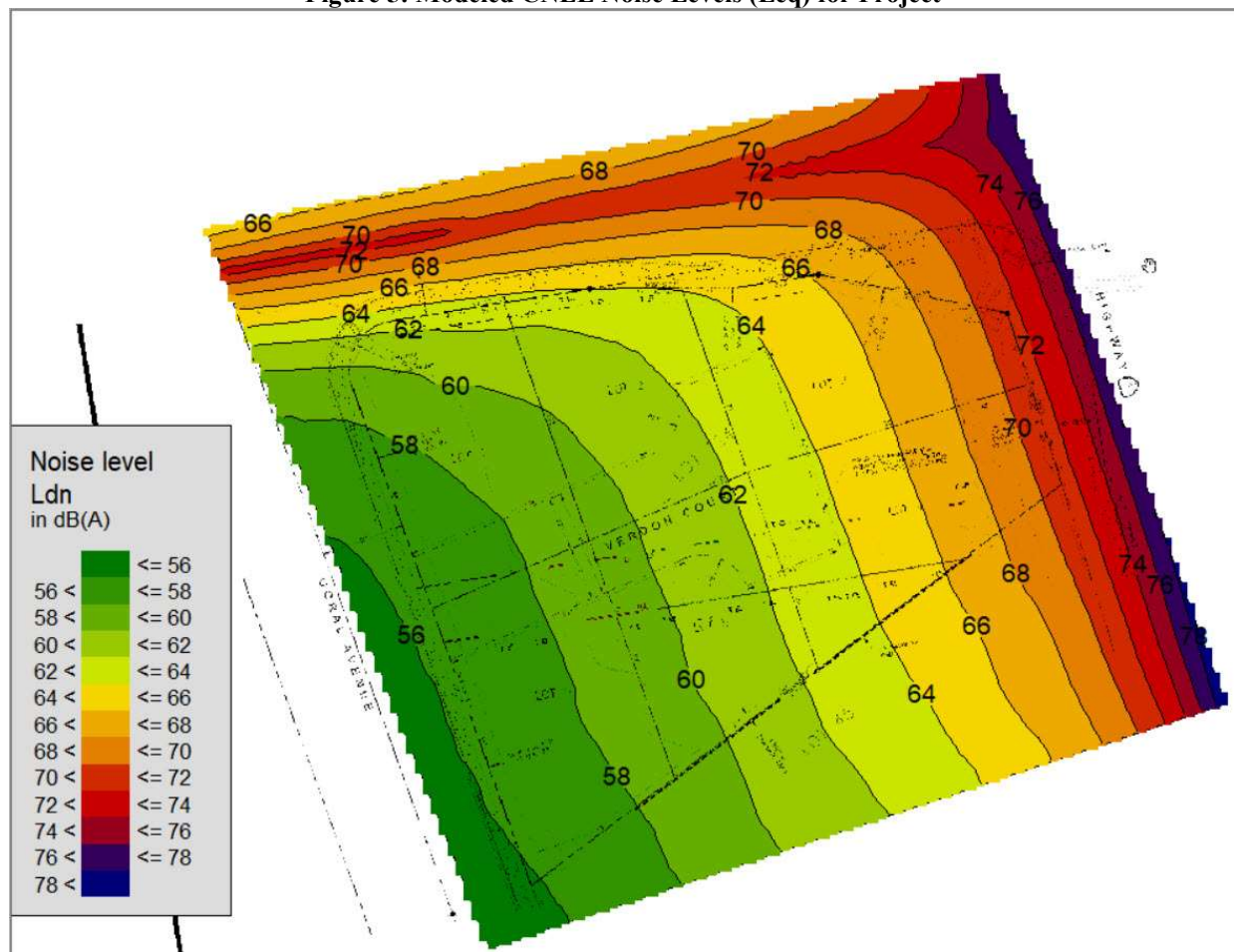
SoundPlan® calculates the sound level contours for the entire calculation area. The software sufficiently calculates sound attenuation of environmental noise, even over complex terrain, uneven ground conditions, and with complex obstacles. The modeling software calculates the sound field in accordance with ISO 9613-2 "Acoustics - Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation." The standard states that "this part of ISO 9613 specifies an engineering method for calculating the attenuation of sound during propagation outdoors, in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions favorable to propagation from sources of known sound emissions. These conditions are for downwind propagation under a well-developed moderate

ground-based temperature inversion, such as commonly occurs at night.” This model is sufficiently conservative—but not overly so, which would render the results unrealistic.

Resulting equivalent noise levels Community Noise Equivalent Levels (CNEL, also Leq) are shown in Figure 5 below for the site layout.

It is readily seen that noise levels are lowest (57 dBA) on the western side of the Project, away from Highway 1. Noise levels exceed 71 dBA for the eastern faces of the project (facing Highway 1). San Jacinto Street also contributes to the noise levels along that roadway, as shown.

Figure 5: Modeled CNEL Noise Levels (Leq) for Project



5.2 Future (Outdoor) Noise Level

The calculated future Ldn/CNEL (year 2037) at each location across the site will be approximately 1 dB greater than those modeled here, assuming future traffic growth of approximately one percent per year.

The Maximum Exterior Noise exposure compatible with noise sensitive uses without mitigation is 60 dBA Ldn/CNEL. Based on the modeled noise environment for the Project, future habitable spaces should preferably face away from the noise source. Bathrooms, kitchens, corridors and closets are not habitable spaces. If habitable spaces face east toward Highway 1, wall / window composite STC rating shall be sufficient to bring the interior habitable space noise level below CNEL = 45 dBA. A composite/combined wall / window assembly of STC 28 or greater facing the noise source is required for the Project to comply with regulations. A composite STC 33 building envelope facing the noise source is recommended to provide an engineering factor of safety and to allow for some variance due to construction and to provide a potential margin of acoustic comfort for inhabitants of the SFR homes.

5.3 Future (Interior) Noise Levels for the Project

Noise-sensitive uses proposed in areas where the Ldn is 60 dBA or higher should be designed so that interior noise level attributable to exterior sources does not exceed 45 dBA Ldn/CNEL when doors and windows are closed. Future designed plans for this Project can be assessed upon that requirement. There are no designs to assess at this time.

6 Vibration Analysis

The potential for vibration near a highway is defined and described in the Federal Transit Administration *Transit Noise and Vibration Impact Assessment* document. The approximate human threshold of perception to vibration is 70 VdB (Vibration Velocity Level, dB). Buses, trucks and heavy street traffic at 50 feet distance from the highway is equal to 70 VdB or less. Vibration levels along transportation corridors are proportional to the speed and weight of the vehicles as well as the condition of the roadway and vehicle engines and tires. Typically, the setback to the 70 VdB contour along roadways is 100 feet or less from the centerline. The current project is located just further than this distance. Therefore, vibration levels are anticipated to be less than the human threshold of perception, assuming roadways are properly maintained without large holes/irregularities.

7 Noise Mitigation Recommendations

Ordinary construction using best practices shall incorporate STC values for assemblies matching those shown for the planned wall detail and specified window glazing. There are no other noise mitigation measures required to meet all applicable regulations.

8 Conclusion

Compliance with California Green Building Standards Code (CGBSC) for interior spaces on the Project can be achieved by using standard construction wall and roof assemblies and windows and doors that comply with CGBSC with the above STC values as defined in Section 5.2 Future (Outdoor) Noise Levels. No mitigation of construction noise and vibration impact is required due to the short period of construction, the anticipated phased scheduling of construction; the distance to potential residential receptors; and the daytime weekday hours of operation.

With the specified window and exterior wall assemblies in future project plans, this project complies with the interior noise requirements of the State Building Code.

for 45dB Acoustics, LLC

A handwritten signature in black ink, appearing to read 'Sarah Taubitz', written in a cursive style.

Sarah Taubitz, MSME, INCE

10 Appendix

10.1 Terminology/Glossary

A-Weighted Sound Level [units of dBA or dB(A)]

The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. The ear does not respond equally to all frequencies, but is less sensitive at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA. The A-weighted sound level is also called the noise level. A-weighted sound levels correlate well with subjective reactions of people to noise and are universally used for community noise evaluations.

Air-borne Sound:

Sound that travels through the air, differentiated from structure-borne sound.

Ambient Sound Level:

The prevailing general sound level existing at a location or in a space, which usually consists of a composite of sounds from many sources near and far. The ambient level is typically defined by the Leq level.

Background Sound Level:

The underlying, ever-present lower level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as Traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level.

Community Noise Equivalent Level (CNEL):

The Leq of the A-weighted noise level over a 24-hour period with a 5 dB penalty applied to noise levels between 7 p.m. and 10 p.m. and a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m. CNEL is similar to Ldn.

Day-Night Sound Level (Ldn):

The Leq of the A-weighted noise level over a 24-hour period with a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m. Ldn is similar to CNEL.

Decibel (dB):

The decibel is a measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

Energy Equivalent Level (Leq):

Because sound levels can vary markedly in intensity over a short period of time, some method for describing either the average character of the sound or the statistical behavior of the

variations must be utilized. Most commonly, one describes ambient sounds in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq.

Field Sound Transmission Class (FSTC):

A single number rating similar to STC, except that the transmission loss values used to derive the FSTC are measured in the field. All sound transmitted from the source room to the receiving room is assumed to be through the separating wall or floor-ceiling assembly.

Outdoor-Indoor Transmission Class (OITC):

A single number classification, specified by the American Society for Testing and Materials (ASTM E 1332 issued 1994), that establishes the A-weighted sound level reduction provided by building facade components (walls, doors, windows, and combinations thereof), based upon a reference sound spectra that is an average of typical air, road, and rail transportation sources. The OITC is the preferred rating when exterior façade components are exposed to a noise environment dominated by transportation sources.

Percentile Sound Level, Ln:

The noise level exceeded during n percent of the measurement period, where n is a number between 0 and 100 (e.g., L10 or L90)

Sound Transmission Class (STC):

STC is a single number rating, specified by the American Society for Testing and Materials, which can be used to measure the sound insulation properties for comparing the sound transmission capability, in decibels, of interior building partitions for noise sources such as speech, radio, and television. It is used extensively for rating sound insulation characteristics of building materials and products.

Structure-Borne Sound:

Sound propagating through building structure. Rapidly fluctuating elastic waves in gypsum board, joists, studs, etc.

Sound Exposure Level (SEL):

SEL is the sound exposure level, defined as a single number rating indicating the total energy of a discrete noise-generating event (e.g., an aircraft flyover) compressed into a 1-second time duration. This level is handy as a consistent rating method that may be combined with other SEL and Leq readings to provide a complete noise scenario for measurements and predictions. However, care must be taken in the use of these values since they may be misleading because their numeric value is higher than any sound level which existed during the measurement period.

Subjective Loudness Level:

In addition to precision measurement of sound level changes, there is a subjective characteristic which describes how most people respond to sound:

- A change in sound level of 3 dBA is *barely perceptible* by most listeners.

- A change in level of 6 dBA is *clearly perceptible*.
- A change of 10 dBA is subjectively perceived as being *twice* (or *half*) as loud.

10.2 Calculating CNEL

Housing and Urban Development (HUD) Code of Federal Regulations (CFR), Part 51 Environmental Criteria and Standards, along with Federal Highway Administration (FHWA) guidelines are used for estimating CNEL values based on “design hour” traffic flow measurement.

Highway projects receiving Federal aid are subject to noise analyses under the procedures of the FHWA. Where such analyses are available they may be used to assess sites subject to the requirements of this standard. The Federal Highway Administration employs two alternate sound level descriptors (23 CFR 772.12):

- (i) The A-weighted sound level not exceeded more than 10 percent of the time for the highway design hour traffic flow, symbolized as L10; or
- (ii) The equivalent sound level for the design hour, symbolized as Leq. The day-night average sound level may be estimated from the design hour L10 or Leq values by the following relationships, provided heavy trucks do not exceed 10 percent of the total traffic flow in vehicles per 24 hours and the traffic flow between 10 p.m. and 7 a.m. does not exceed 15 percent of the average daily traffic flow in vehicles per 24 hours:

(a) $CNEL \approx L10 \text{ (design hour)} - 3 \text{ decibels}$

(b) $CNEL \approx Leq \text{ (design hour) decibels}$

Existing highway traffic noise measurements are made to represent an hourly equivalent sound level, Leq. Statistical accuracy requires a minimum measurement of approximately eight minutes. Most highway agencies have automated measurement equipment and typically measure 15-minute time periods to represent the Leq. This is acceptable if unusual events do not occur during the noisiest hour.

Measurements along low-volume highways may require longer measurement periods (e.g., 30-60 minutes) to attain desirable statistical accuracy. If information is not available to identify the noisiest hour of the day or if there is public controversy at a specific location, 24-hour measurements may be necessary.

The FHWA stipulates the use of noise meters with sufficient accuracy to yield valid data for the particular project (ANSI S1.4-1983, TYPE II or better). The measurement procedure shall ensure measurements have consistent and supportable validity. Traffic conditions, climatic conditions, and land uses at the time of measurement shall be noted.

10.3 Characteristics of Sound

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 to 140 dBA. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. Because of the physical characteristics of noise transmission and of noise perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 below presents the subjective effect of changes in sound pressure levels.

Table 1: Sound Level Change Relative Loudness/Acoustic Energy Loss

0 dBA	Reference 0%
-3 dBA	Barely Perceptible Change 50%
-5 dBA	Readily Perceptible Change 67%
-10 dBA	Half as Loud 90%
-20 dBA	1/4 as Loud 99%
-30 dBA	1/8 as Loud 99.9%
<i>Source: Highway Traffic Noise Analysis and Abatement Policy and Guidance, U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, June 1995.</i>	

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss. Generally, sound levels from a point source will decrease by 6 dBA for each doubling of distance. Sound levels for a highway line source vary differently with distance because sound pressure waves propagate along the line and overlap at the point of measurement. A closely spaced, continuous line of vehicles along a roadway becomes a line source and produces a 3 dBA decrease in sound level for each doubling of distance. However, experimental evidence has shown that where sound from a highway propagates close to “soft” ground (e.g., plowed farmland, grass, crops, etc.), a more suitable drop-off rate to use is not 3.0 dBA but rather 4.5 dBA per distance doubling (FHWA 2010).

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. The Leq is the most common parameter associated with such measurements. The Leq metric is a single-number noise descriptor that represents the average sound level over a given period of time. For example, the L50 noise level is the level that is exceeded 50 percent of the time. This level is also the level that is exceeded 30 minutes in an hour. Similarly, the L02, L08 and L25 values are the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. Other values typically noted during a noise survey are the Lmin and Lmax. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law requires that, for planning purposes, an artificial dB increment be added to quiet-time noise levels in a 24-hour noise descriptor called the CNEL or Ldn. This increment is incorporated in the calculation of CNEL or Ldn, described earlier.

10.4 Evidence of Compliance

Evidence of compliance shall consist of submittal of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for building permit. The report shall show topographical relationship of noise sources and dwelling site, identification of noise sources and their characteristics, predicted noise spectra at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met. If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify the means that will be employed to provide ventilation and cooling, if necessary, to provide a habitable interior environment.

10.5 Accuracy (Uncertainty) in Acoustic Modeling Results

SoundPlan is one of several industry-standard, commercial software packages typically utilized by acoustic consultants today. The modeling software calculates the sound field in accordance with ISO 9613-2 “Acoustics - Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation.” This Standard defines the estimated accuracy for sound sources at heights of zero to five meters (0-5 m) as +/- 3 dB for source distances of up to 1000 m (1 km). Further, it estimates the accuracy of the calculation for sound sources at heights of five to thirty meters (5-30 m) to be +/-1 dB for source distance of up to 100 m away from the receiver, and +/- 3 dB for source distances of between 100 and 1000m away from the receiver. These estimated accuracies are considered by 45dB Acoustics to be the same as the uncertainty, or error, on the resulting sound level contours for any model created. Flat terrain is generally expected to have lower error/uncertainty (higher accuracy); complex terrain situations may produce resulting noise level contours error/uncertainty at the high end of these stated estimates. *Error/uncertainty has not been added to the results presented herein. It may be pertinent to add additional sound mitigation, and/or higher STC values to designed structures, to create the highest possible level of confidence that noise regulations are fully met.*

11 References

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