
Appendix A: Air Quality and Greenhouse Gas Assessment Study

East Laurel Drive - Monterey County, Summer

East Laurel Drive
Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.12		2.12	92,347.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - trail approx. size

Construction Phase - Anticipated Schedule

Demolition - conservative estimation for demolition of 1 mile segment

Grading - The proposed project would disturb approximately 2.12 acres and involve approximately 375 cubic yards of cut and approximately 1,403 cubic yards of fill

Construction Off-road Equipment Mitigation - standard dust control measures

Water Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	34.00
tblConstructionPhase	NumDays	10.00	43.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	PhaseEndDate	2/10/2020	3/13/2020
tblConstructionPhase	PhaseEndDate	12/14/2020	4/30/2020
tblConstructionPhase	PhaseEndDate	12/28/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/11/2021	6/30/2020
tblConstructionPhase	PhaseStartDate	2/11/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	12/15/2020	5/1/2020
tblConstructionPhase	PhaseStartDate	12/29/2020	6/1/2020
tblGrading	MaterialImported	0.00	1,028.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.3787	23.9152	16.8751	0.0334	6.7168	1.1649	7.7127	3.4109	1.0880	4.3273	0.0000	3,295.0244	3,295.0244	0.7705	0.0000	3,310.8465
Maximum	3.3787	23.9152	16.8751	0.0334	6.7168	1.1649	7.7127	3.4109	1.0880	4.3273	0.0000	3,295.0244	3,295.0244	0.7705	0.0000	3,310.8465

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					
2020	3.3787	23.9152	16.8751	0.0334	2.9537	1.1649	3.9496	1.4805	1.0880	2.3969	0.0000	3,295.0244	3,295.0244	0.7705	0.0000	3,310.8465
Maximum	3.3787	23.9152	16.8751	0.0334	2.9537	1.1649	3.9496	1.4805	1.0880	2.3969	0.0000	3,295.0244	3,295.0244	0.7705	0.0000	3,310.8465

	ROG	NOx	CO	SO2	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	56.03	0.00	48.79	56.59	0.00	44.61	0.00	0.00	0.00	0.00	0.00	0.00

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Energy	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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000	0.0000	5.0000e-004

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Energy	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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000	0.0000	5.0000e-004

	ROG	NOx	CO	SO2	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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	1/31/2020	5	3	
3	Grading	Grading	2/1/2020	3/13/2020	5	30	
4	Building Construction	Building Construction	3/14/2020	4/30/2020	5	34	
5	Paving	Paving	5/1/2020	6/30/2020	5	43	
6	Architectural Coating	Architectural Coating	6/1/2020	6/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 15

Acres of Paving: 2.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,541

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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	198.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	129.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	39.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Water Unpaved Roads
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition - 2020

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					2.2385	0.0000	2.2385	0.3390	0.0000	0.3390			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	2.1262	20.9463	14.6573	0.0241	2.2385	1.1525	3.3910	0.3390	1.0761	1.4151		2,322.3127	2,322.3127	0.5970		2,337.2363

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	0.0831	2.9226	0.5878	8.1000e-003	0.1727	0.0115	0.1842	0.0473	0.0110	0.0583		857.7046	857.7046	0.0310		858.4803

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	0.0574	0.0462	0.4995	1.1600e-003	0.1068	9.2000e-004	0.1077	0.0283	8.5000e-004	0.0292		115.0071	115.0071	4.9100e-003		115.1299
Total	0.1406	2.9689	1.0874	9.2600e-003	0.2795	0.0124	0.2919	0.0756	0.0119	0.0875		972.7117	972.7117	0.0359		973.6102

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					0.9570	0.0000	0.9570	0.1449	0.0000	0.1449			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	2.1262	20.9463	14.6573	0.0241	0.9570	1.1525	2.1094	0.1449	1.0761	1.2211	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363

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	0.0831	2.9226	0.5878	8.1000e-003	0.1648	0.0115	0.1763	0.0454	0.0110	0.0564		857.7046	857.7046	0.0310		858.4803
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	0.0574	0.0462	0.4995	1.1600e-003	0.1012	9.2000e-004	0.1022	0.0270	8.5000e-004	0.0278		115.0071	115.0071	4.9100e-003		115.1299
Total	0.1406	2.9689	1.0874	9.2600e-003	0.2661	0.0124	0.2785	0.0723	0.0119	0.0842		972.7117	972.7117	0.0359		973.6102

3.3 Site Preparation - 2020

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	1.6521	19.9196	11.2678	0.0245	1.5908	0.7771	2.3678	0.1718	0.7149	0.8867		2,372.9062	2,372.9062	0.7675		2,392.0924

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	0.0353	0.0285	0.3074	7.1000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		70.7736	70.7736	3.0200e-003		70.8492
Total	0.0353	0.0285	0.3074	7.1000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		70.7736	70.7736	3.0200e-003		70.8492

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					0.6801	0.0000	0.6801	0.0734	0.0000	0.0734			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	1.6521	19.9196	11.2678	0.0245	0.6801	0.7771	1.4571	0.0734	0.7149	0.7883	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924

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	0.0353	0.0285	0.3074	7.1000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		70.7736	70.7736	3.0200e-003		70.8492
Total	0.0353	0.0285	0.3074	7.1000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		70.7736	70.7736	3.0200e-003		70.8492

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5597	0.0000	6.5597	3.3686	0.0000	3.3686			0.0000			0.0000

Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	1.9219	21.3418	9.9355	0.0206	6.5597	0.9902	7.5499	3.3686	0.9110	4.2796		1,996.4061	1,996.4061	0.6457		2,012.5480

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	0.0361	1.2694	0.2553	3.5200e-003	0.0750	5.0000e-003	0.0800	0.0205	4.7800e-003	0.0253		372.5384	372.5384	0.0135		372.8753
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	0.0442	0.0356	0.3842	8.9000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.5000e-004	0.0224		88.4670	88.4670	3.7800e-003		88.5614
Total	0.0803	1.3050	0.6396	4.4100e-003	0.1572	5.7100e-003	0.1629	0.0423	5.4300e-003	0.0478		461.0054	461.0054	0.0173		461.4367

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					2.8043	0.0000	2.8043	1.4401	0.0000	1.4401			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	1.9219	21.3418	9.9355	0.0206	2.8043	0.9902	3.7944	1.4401	0.9110	2.3510	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480

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	0.0361	1.2694	0.2553	3.5200e-003	0.0716	5.0000e-003	0.0766	0.0197	4.7800e-003	0.0245		372.5384	372.5384	0.0135		372.8753
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	0.0442	0.0356	0.3842	8.9000e-004	0.0779	7.1000e-004	0.0786	0.0207	6.5000e-004	0.0214		88.4670	88.4670	3.7800e-003		88.5614
Total	0.0803	1.3050	0.6396	4.4100e-003	0.1495	5.7100e-003	0.1552	0.0405	5.4300e-003	0.0459		461.0054	461.0054	0.0173		461.4367

3.5 Building Construction - 2020

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014

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
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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	0.0000
Vendor	0.0655	1.8366	0.4794	4.3100e-003	0.1015	0.0100	0.1115	0.0292	9.6000e-003	0.0388	453.7160	453.7160	0.0199	454.2138	
Worker	0.1722	0.1387	1.4985	3.4700e-003	0.3204	2.7700e-003	0.3232	0.0850	2.5500e-003	0.0875	345.0213	345.0213	0.0147	345.3896	
Total	0.2377	1.9753	1.9779	7.7800e-003	0.4218	0.0128	0.4347	0.1142	0.0122	0.1263	798.7374	798.7374	0.0346	799.6034	

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014

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	0.0655	1.8366	0.4794	4.3100e-003	0.0971	0.0100	0.1072	0.0281	9.6000e-003	0.0377		453.7160	453.7160	0.0199		454.2138

Worker	0.1722	0.1387	1.4985	3.4700e-003	0.3037	2.7700e-003	0.3064	0.0809	2.5500e-003	0.0834		345.0213	345.0213	0.0147		345.3896
Total	0.2377	1.9753	1.9779	7.7800e-003	0.4008	0.0128	0.4136	0.1090	0.0122	0.1212		798.7374	798.7374	0.0346		799.6034

3.6 Paving - 2020

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.1292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2839	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0662	0.0533	0.5764	1.3300e-003	0.1232	1.0700e-003	0.1243	0.0327	9.8000e-004	0.0337		132.7005	132.7005	5.6700e-003		132.8422
Total	0.0662	0.0533	0.5764	1.3300e-003	0.1232	1.0700e-003	0.1243	0.0327	9.8000e-004	0.0337		132.7005	132.7005	5.6700e-003		132.8422

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.1292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2839	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0662	0.0533	0.5764	1.3300e-003	0.1168	1.0700e-003	0.1179	0.0311	9.8000e-004	0.0321		132.7005	132.7005	5.6700e-003		132.8422
Total	0.0662	0.0533	0.5764	1.3300e-003	0.1168	1.0700e-003	0.1179	0.0311	9.8000e-004	0.0321		132.7005	132.7005	5.6700e-003		132.8422

3.7 Architectural Coating - 2020

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
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Category	lb/day										lb/day				
Archit. Coating	1.7511					0.0000	0.0000		0.0000	0.0000			0.0000		0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218	281.9928
Total	1.9933	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218	281.9928

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	0.0353	0.0285	0.3074	7.1000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		70.7736	70.7736	3.0200e-003		70.8492
Total	0.0353	0.0285	0.3074	7.1000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		70.7736	70.7736	3.0200e-003		70.8492

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	1.7511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Total	1.9933	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
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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	0.0353	0.0285	0.3074	7.1000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		70.7736	70.7736	3.0200e-003		70.8492
Total	0.0353	0.0285	0.3074	7.1000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		70.7736	70.7736	3.0200e-003		70.8492

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
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Other Asphalt Surfaces	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905
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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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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	lb/day										lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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					
Other Asphalt Surfaces	0	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

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					
Other Asphalt Surfaces	0	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

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Unmitigated	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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	0.0106					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Total	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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	0.0106					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Total	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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

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

East Laurel Drive - Monterey County, Winter

East Laurel Drive
Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.12		2.12	92,347.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - trail approx. size

Construction Phase - Anticipated Schedule

Demolition - conservative estimation for demolition of 1 mile segment

Grading - The proposed project would disturb approximately 2.12 acres and involve approximately 375 cubic yards of cut and approximately 1,403 cubic yards of fill

Construction Off-road Equipment Mitigation - standard dust control measures

Water Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	34.00
tblConstructionPhase	NumDays	10.00	43.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	PhaseEndDate	2/10/2020	3/13/2020
tblConstructionPhase	PhaseEndDate	12/14/2020	4/30/2020
tblConstructionPhase	PhaseEndDate	12/28/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/11/2021	6/30/2020
tblConstructionPhase	PhaseStartDate	2/11/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	12/15/2020	5/1/2020
tblConstructionPhase	PhaseStartDate	12/29/2020	6/1/2020
tblGrading	MaterialImported	0.00	1,028.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.3877	23.9961	16.9191	0.0331	6.7168	1.1652	7.7128	3.4109	1.0883	4.3274	0.0000	3,270.8644	3,270.8644	0.7703	0.0000	3,286.7345
Maximum	3.3877	23.9961	16.9191	0.0331	6.7168	1.1652	7.7128	3.4109	1.0883	4.3274	0.0000	3,270.8644	3,270.8644	0.7703	0.0000	3,286.7345

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					
2020	3.3877	23.9961	16.9191	0.0331	2.9537	1.1652	3.9497	1.4805	1.0883	2.3970	0.0000	3,270.8644	3,270.8644	0.7703	0.0000	3,286.7345
Maximum	3.3877	23.9961	16.9191	0.0331	2.9537	1.1652	3.9497	1.4805	1.0883	2.3970	0.0000	3,270.8644	3,270.8644	0.7703	0.0000	3,286.7345

	ROG	NOx	CO	SO2	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	56.03	0.00	48.79	56.59	0.00	44.61	0.00	0.00	0.00	0.00	0.00	0.00

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Energy	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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000	0.0000	5.0000e-004

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Energy	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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000	0.0000	5.0000e-004

	ROG	NOx	CO	SO2	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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	1/31/2020	5	3	
3	Grading	Grading	2/1/2020	3/13/2020	5	30	
4	Building Construction	Building Construction	3/14/2020	4/30/2020	5	34	
5	Paving	Paving	5/1/2020	6/30/2020	5	43	
6	Architectural Coating	Architectural Coating	6/1/2020	6/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 15

Acres of Paving: 2.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,541

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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	198.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	129.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	39.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Water Unpaved Roads
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition - 2020

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					2.2385	0.0000	2.2385	0.3390	0.0000	0.3390			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	2.1262	20.9463	14.6573	0.0241	2.2385	1.1525	3.3910	0.3390	1.0761	1.4151		2,322.3127	2,322.3127	0.5970		2,337.2363

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	0.0859	2.9916	0.6359	7.9400e-003	0.1727	0.0118	0.1845	0.0473	0.0113	0.0586		840.8687	840.8687	0.0332		841.6982

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	0.0625	0.0582	0.4915	1.0800e-003	0.1068	9.2000e-004	0.1077	0.0283	8.5000e-004	0.0292		107.6830	107.6830	4.6800e-003		107.8000
Total	0.1484	3.0498	1.1274	9.0200e-003	0.2795	0.0127	0.2922	0.0756	0.0121	0.0878		948.5517	948.5517	0.0379		949.4982

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					0.9570	0.0000	0.9570	0.1449	0.0000	0.1449			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	2.1262	20.9463	14.6573	0.0241	0.9570	1.1525	2.1094	0.1449	1.0761	1.2211	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363

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	0.0859	2.9916	0.6359	7.9400e-003	0.1648	0.0118	0.1766	0.0454	0.0113	0.0567		840.8687	840.8687	0.0332		841.6982
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	0.0625	0.0582	0.4915	1.0800e-003	0.1012	9.2000e-004	0.1022	0.0270	8.5000e-004	0.0278		107.6830	107.6830	4.6800e-003		107.8000
Total	0.1484	3.0498	1.1274	9.0200e-003	0.2661	0.0127	0.2788	0.0723	0.0121	0.0845		948.5517	948.5517	0.0379		949.4982

3.3 Site Preparation - 2020

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	1.6521	19.9196	11.2678	0.0245	1.5908	0.7771	2.3678	0.1718	0.7149	0.8867		2,372.9062	2,372.9062	0.7675		2,392.0924

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	0.0385	0.0358	0.3025	6.7000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		66.2664	66.2664	2.8800e-003		66.3385
Total	0.0385	0.0358	0.3025	6.7000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		66.2664	66.2664	2.8800e-003		66.3385

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					0.6801	0.0000	0.6801	0.0734	0.0000	0.0734			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	1.6521	19.9196	11.2678	0.0245	0.6801	0.7771	1.4571	0.0734	0.7149	0.7883	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924

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	0.0385	0.0358	0.3025	6.7000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		66.2664	66.2664	2.8800e-003		66.3385
Total	0.0385	0.0358	0.3025	6.7000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		66.2664	66.2664	2.8800e-003		66.3385

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5597	0.0000	6.5597	3.3686	0.0000	3.3686			0.0000			0.0000

Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	1.9219	21.3418	9.9355	0.0206	6.5597	0.9902	7.5499	3.3686	0.9110	4.2796		1,996.4061	1,996.4061	0.6457		2,012.5480

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	0.0373	1.2994	0.2762	3.4500e-003	0.0750	5.1200e-003	0.0801	0.0205	4.9000e-003	0.0254		365.2258	365.2258	0.0144		365.5861
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	0.0481	0.0448	0.3781	8.3000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.5000e-004	0.0224		82.8331	82.8331	3.6000e-003		82.9231
Total	0.0854	1.3442	0.6543	4.2800e-003	0.1572	5.8300e-003	0.1630	0.0423	5.5500e-003	0.0479		448.0589	448.0589	0.0180		448.5092

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					2.8043	0.0000	2.8043	1.4401	0.0000	1.4401			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	1.9219	21.3418	9.9355	0.0206	2.8043	0.9902	3.7944	1.4401	0.9110	2.3510	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480

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	0.0373	1.2994	0.2762	3.4500e-003	0.0716	5.1200e-003	0.0767	0.0197	4.9000e-003	0.0246		365.2258	365.2258	0.0144		365.5861
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	0.0481	0.0448	0.3781	8.3000e-004	0.0779	7.1000e-004	0.0786	0.0207	6.5000e-004	0.0214		82.8331	82.8331	3.6000e-003		82.9231
Total	0.0854	1.3442	0.6543	4.2800e-003	0.1495	5.8300e-003	0.1553	0.0405	5.5500e-003	0.0460		448.0589	448.0589	0.0180		448.5092

3.5 Building Construction - 2020

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014

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
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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	0.0000
Vendor	0.0692	1.8579	0.5473	4.1900e-003	0.1015	0.0103	0.1118	0.0292	9.8500e-003	0.0391	440.5821	440.5821	0.0217	441.1251	
Worker	0.1875	0.1746	1.4745	3.2500e-003	0.3204	2.7700e-003	0.3232	0.0850	2.5500e-003	0.0875	323.0489	323.0489	0.0140	323.4000	
Total	0.2567	2.0325	2.0219	7.4400e-003	0.4218	0.0131	0.4349	0.1142	0.0124	0.1266	763.6310	763.6310	0.0358	764.5251	

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014

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	0.0692	1.8579	0.5473	4.1900e-003	0.0971	0.0103	0.1074	0.0281	9.8500e-003	0.0380		440.5821	440.5821	0.0217		441.1251

Worker	0.1875	0.1746	1.4745	3.2500e-003	0.3037	2.7700e-003	0.3064	0.0809	2.5500e-003	0.0834		323.0489	323.0489	0.0140		323.4000
Total	0.2567	2.0325	2.0219	7.4400e-003	0.4008	0.0131	0.4139	0.1090	0.0124	0.1214		763.6310	763.6310	0.0358		764.5251

3.6 Paving - 2020

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.1292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2839	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0721	0.0672	0.5671	1.2500e-003	0.1232	1.0700e-003	0.1243	0.0327	9.8000e-004	0.0337		124.2496	124.2496	5.4000e-003		124.3846
Total	0.0721	0.0672	0.5671	1.2500e-003	0.1232	1.0700e-003	0.1243	0.0327	9.8000e-004	0.0337		124.2496	124.2496	5.4000e-003		124.3846

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.1292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2839	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605

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	0.0721	0.0672	0.5671	1.2500e-003	0.1168	1.0700e-003	0.1179	0.0311	9.8000e-004	0.0321		124.2496	124.2496	5.4000e-003		124.3846
Total	0.0721	0.0672	0.5671	1.2500e-003	0.1168	1.0700e-003	0.1179	0.0311	9.8000e-004	0.0321		124.2496	124.2496	5.4000e-003		124.3846

3.7 Architectural Coating - 2020

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
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Category	lb/day										lb/day				
Archit. Coating	1.7511					0.0000	0.0000		0.0000	0.0000			0.0000		0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218	281.9928
Total	1.9933	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218	281.9928

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	0.0385	0.0358	0.3025	6.7000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		66.2664	66.2664	2.8800e-003		66.3385
Total	0.0385	0.0358	0.3025	6.7000e-004	0.0657	5.7000e-004	0.0663	0.0174	5.2000e-004	0.0180		66.2664	66.2664	2.8800e-003		66.3385

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	1.7511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Total	1.9933	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
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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	0.0385	0.0358	0.3025	6.7000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		66.2664	66.2664	2.8800e-003		66.3385
Total	0.0385	0.0358	0.3025	6.7000e-004	0.0623	5.7000e-004	0.0629	0.0166	5.2000e-004	0.0171		66.2664	66.2664	2.8800e-003		66.3385

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
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Other Asphalt Surfaces	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905
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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
Other Asphalt Surfaces	0	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

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					
Other Asphalt Surfaces	0	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

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	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Unmitigated	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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	0.0106					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Total	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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	0.0106					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004
Total	0.0433	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.6000e-004	4.6000e-004	0.0000		5.0000e-004

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

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

East Laurel Drive - Monterey County, Annual

East Laurel Drive
Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.12		2.12	92,347.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	55
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - trail approx. size

Construction Phase - Anticipated Schedule

Demolition - conservative estimation for demolition of 1 mile segment

Grading - The proposed project would disturb approximately 2.12 acres and involve approximately 375 cubic yards of cut and approximately 1,403 cubic yards of fill

Construction Off-road Equipment Mitigation - standard dust control measures

Water Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	34.00
tblConstructionPhase	NumDays	10.00	43.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	PhaseEndDate	2/10/2020	3/13/2020
tblConstructionPhase	PhaseEndDate	12/14/2020	4/30/2020
tblConstructionPhase	PhaseEndDate	12/28/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/11/2021	6/30/2020
tblConstructionPhase	PhaseStartDate	2/11/2020	3/14/2020
tblConstructionPhase	PhaseStartDate	12/15/2020	5/1/2020
tblConstructionPhase	PhaseStartDate	12/29/2020	6/1/2020
tblGrading	MaterialImported	0.00	1,028.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1495	1.2100	0.9082	1.7500e-003	0.1385	0.0595	0.1979	0.0583	0.0556	0.1139	0.0000	152.8864	152.8864	0.0344	0.0000	153.7473
Maximum	0.1495	1.2100	0.9082	1.7500e-003	0.1385	0.0595	0.1979	0.0583	0.0556	0.1139	0.0000	152.8864	152.8864	0.0344	0.0000	153.7473

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					
2020	0.1495	1.2100	0.9082	1.7500e-003	0.0672	0.0595	0.1267	0.0271	0.0556	0.0827	0.0000	152.8862	152.8862	0.0344	0.0000	153.7471
Maximum	0.1495	1.2100	0.9082	1.7500e-003	0.0672	0.0595	0.1267	0.0271	0.0556	0.0827	0.0000	152.8862	152.8862	0.0344	0.0000	153.7471

	ROG	NOx	CO	SO2	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	51.48	0.00	36.01	53.51	0.00	27.39	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	0.7978	0.7978
2	4-1-2020	6-30-2020	0.5581	0.5581
		Highest	0.7978	0.7978

2.2 Overall Operational

Unmitigated Operational

[illegible]

Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

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	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

	ROG	NOx	CO	SO2	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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	1/31/2020	5	3	
3	Grading	Grading	2/1/2020	3/13/2020	5	30	
4	Building Construction	Building Construction	3/14/2020	4/30/2020	5	34	
5	Paving	Paving	5/1/2020	6/30/2020	5	43	
6	Architectural Coating	Architectural Coating	6/1/2020	6/30/2020	5	22	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 15

Acres of Paving: 2.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,541

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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	198.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	129.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	39.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0224	0.0000	0.0224	3.3900e-003	0.0000	3.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
Total	0.0213	0.2095	0.1466	2.4000e-004	0.0224	0.0115	0.0339	3.3900e-003	0.0108	0.0142	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031

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	8.4000e-004	0.0299	6.0700e-003	8.0000e-005	1.6800e-003	1.2000e-004	1.7900e-003	4.6000e-004	1.1000e-004	5.7000e-004	0.0000	7.7168	7.7168	2.9000e-004	0.0000	7.7241
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	5.7000e-004	5.3000e-004	4.7300e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9826	0.9826	4.0000e-005	0.0000	0.9837
Total	1.4100e-003	0.0304	0.0108	9.0000e-005	2.7100e-003	1.3000e-004	2.8300e-003	7.3000e-004	1.2000e-004	8.5000e-004	0.0000	8.6994	8.6994	3.3000e-004	0.0000	8.7077

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					9.5700e-003	0.0000	9.5700e-003	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
Total	0.0213	0.2095	0.1466	2.4000e-004	9.5700e-003	0.0115	0.0211	1.4500e-003	0.0108	0.0122	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030

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	8.4000e-004	0.0299	6.0700e-003	8.0000e-005	1.6000e-003	1.2000e-004	1.7200e-003	4.4000e-004	1.1000e-004	5.5000e-004	0.0000	7.7168	7.7168	2.9000e-004	0.0000	7.7241
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	5.7000e-004	5.3000e-004	4.7300e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9826	0.9826	4.0000e-005	0.0000	0.9837
Total	1.4100e-003	0.0304	0.0108	9.0000e-005	2.5800e-003	1.3000e-004	2.7100e-003	7.0000e-004	1.2000e-004	8.2000e-004	0.0000	8.6994	8.6994	3.3000e-004	0.0000	8.7077

3.3 Site Preparation - 2020

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0299	0.0169	4.0000e-005		1.1700e-003	1.1700e-003		1.0700e-003	1.0700e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	2.4800e-003	0.0299	0.0169	4.0000e-005	2.3900e-003	1.1700e-003	3.5600e-003	2.6000e-004	1.0700e-003	1.3300e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551

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	5.0000e-005	5.0000e-005	4.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0907	0.0907	0.0000	0.0000	0.0908

Total	5.0000e-005	5.0000e-005	4.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0907	0.0907	0.0000	0.0000	0.0908
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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					1.0200e-003	0.0000	1.0200e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0299	0.0169	4.0000e-005		1.1700e-003	1.1700e-003		1.0700e-003	1.0700e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	2.4800e-003	0.0299	0.0169	4.0000e-005	1.0200e-003	1.1700e-003	2.1900e-003	1.1000e-004	1.0700e-003	1.1800e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551

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	5.0000e-005	5.0000e-005	4.4000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0907	0.0907	0.0000	0.0000	0.0908
Total	5.0000e-005	5.0000e-005	4.4000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0907	0.0907	0.0000	0.0000	0.0908

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0984	0.0000	0.0984	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	0.0288	0.3201	0.1490	3.1000e-004	0.0984	0.0149	0.1133	0.0505	0.0137	0.0642	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863

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	5.5000e-004	0.0195	3.9600e-003	5.0000e-005	1.0900e-003	8.0000e-005	1.1700e-003	3.0000e-004	7.0000e-005	3.7000e-004	0.0000	5.0276	5.0276	1.9000e-004	0.0000	5.0324
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	6.6000e-004	6.1000e-004	5.4600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1338	1.1338	5.0000e-005	0.0000	1.1350
Total	1.2100e-003	0.0201	9.4200e-003	6.0000e-005	2.2800e-003	9.0000e-005	2.3700e-003	6.2000e-004	8.0000e-005	7.0000e-004	0.0000	6.1614	6.1614	2.4000e-004	0.0000	6.1673

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					0.0421	0.0000	0.0421	0.0216	0.0000	0.0216	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	0.0288	0.3201	0.1490	3.1000e-004	0.0421	0.0149	0.0569	0.0216	0.0137	0.0353	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863

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	5.5000e-004	0.0195	3.9600e-003	5.0000e-005	1.0400e-003	8.0000e-005	1.1200e-003	2.9000e-004	7.0000e-005	3.6000e-004	0.0000	5.0276	5.0276	1.9000e-004	0.0000	5.0324
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	6.6000e-004	6.1000e-004	5.4600e-003	1.0000e-005	1.1300e-003	1.0000e-005	1.1400e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	1.1338	1.1338	5.0000e-005	0.0000	1.1350
Total	1.2100e-003	0.0201	9.4200e-003	6.0000e-005	2.1700e-003	9.0000e-005	2.2600e-003	5.9000e-004	8.0000e-005	6.7000e-004	0.0000	6.1614	6.1614	2.4000e-004	0.0000	6.1673

3.5 Building Construction - 2020

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	0.0389	0.2964	0.2533	4.3000e-004		0.0161	0.0161		0.0155	0.0155	0.0000	35.2996	35.2996	7.1600e-003	0.0000	35.4787
Total	0.0389	0.2964	0.2533	4.3000e-004		0.0161	0.0161		0.0155	0.0155	0.0000	35.2996	35.2996	7.1600e-003	0.0000	35.4787

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	1.1400e-003	0.0317	8.6700e-003	7.0000e-005	1.6800e-003	1.7000e-004	1.8500e-003	4.9000e-004	1.7000e-004	6.5000e-004	0.0000	6.9121	6.9121	3.2000e-004	0.0000	6.9201
Worker	2.9000e-003	2.7000e-003	0.0241	6.0000e-005	5.2700e-003	5.0000e-005	5.3200e-003	1.4000e-003	4.0000e-005	1.4400e-003	0.0000	5.0112	5.0112	2.2000e-004	0.0000	5.0166
Total	4.0400e-003	0.0344	0.0328	1.3000e-004	6.9500e-003	2.2000e-004	7.1700e-003	1.8900e-003	2.1000e-004	2.0900e-003	0.0000	11.9234	11.9234	5.4000e-004	0.0000	11.9367

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	0.0389	0.2964	0.2533	4.3000e-004		0.0161	0.0161		0.0155	0.0155	0.0000	35.2995	35.2995	7.1600e-003	0.0000	35.4786
Total	0.0389	0.2964	0.2533	4.3000e-004		0.0161	0.0161		0.0155	0.0155	0.0000	35.2995	35.2995	7.1600e-003	0.0000	35.4786

Mitigated Construction Off-Site

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	1.4100e-003	1.3100e-003	0.0117	3.0000e-005	2.5600e-003	2.0000e-005	2.5900e-003	6.8000e-004	2.0000e-005	7.0000e-004	0.0000	2.4376	2.4376	1.0000e-004	0.0000	2.4402
Total	1.4100e-003	1.3100e-003	0.0117	3.0000e-005	2.5600e-003	2.0000e-005	2.5900e-003	6.8000e-004	2.0000e-005	7.0000e-004	0.0000	2.4376	2.4376	1.0000e-004	0.0000	2.4402

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	0.0248	0.2491	0.2539	3.8000e-004		0.0141	0.0141		0.0130	0.0130	0.0000	33.3374	33.3374	0.0106	0.0000	33.6015
Paving	2.7800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0276	0.2491	0.2539	3.8000e-004		0.0141	0.0141		0.0130	0.0130	0.0000	33.3374	33.3374	0.0106	0.0000	33.6015

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	1.4100e-003	1.3100e-003	0.0117	3.0000e-005	2.4300e-003	2.0000e-005	2.4500e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.4376	2.4376	1.0000e-004	0.0000	2.4402
Total	1.4100e-003	1.3100e-003	0.0117	3.0000e-005	2.4300e-003	2.0000e-005	2.4500e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.4376	2.4376	1.0000e-004	0.0000	2.4402

3.7 Architectural Coating - 2020

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	0.0193					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0185	0.0202	3.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	2.8086	2.8086	2.2000e-004	0.0000	2.8140
Total	0.0219	0.0185	0.0202	3.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	2.8086	2.8086	2.2000e-004	0.0000	2.8140

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	3.9000e-004	3.6000e-004	3.2000e-003	1.0000e-005	7.0000e-004	1.0000e-005	7.1000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6651	0.6651	3.0000e-005	0.0000	0.6659
Total	3.9000e-004	3.6000e-004	3.2000e-003	1.0000e-005	7.0000e-004	1.0000e-005	7.1000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6651	0.6651	3.0000e-005	0.0000	0.6659

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	0.0193					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0185	0.0202	3.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	2.8086	2.8086	2.2000e-004	0.0000	2.8140
Total	0.0219	0.0185	0.0202	3.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	2.8086	2.8086	2.2000e-004	0.0000	2.8140

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	3.9000e-004	3.6000e-004	3.2000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.7000e-004	1.8000e-004	1.0000e-005	1.8000e-004	0.0000	0.6651	0.6651	3.0000e-005	0.0000	0.6659
Total	3.9000e-004	3.6000e-004	3.2000e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.7000e-004	1.8000e-004	1.0000e-005	1.8000e-004	0.0000	0.6651	0.6651	3.0000e-005	0.0000	0.6659

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.533135	0.030877	0.202665	0.141212	0.024955	0.006027	0.018072	0.025901	0.004150	0.002959	0.007890	0.001253	0.000905

5.0 Energy Detail

Historical Energy Use: N

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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					
Other Asphalt Surfaces	0	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

	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					
Other Asphalt Surfaces	0	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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

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	1.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

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	1.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	7.9000e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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

Lighting GHG and Energy Calculation	
Watts	6,226
Hours	12
Days	365
Total Watts/year	27,269,880
kWh/year	27269.88
MWh/year	27.26988

Type of Light	Wattage	Number	Total Watts
Street Lighting	101	42	4,242
	127	10	1,270
Ped Trail Lighting	21	34	714
Total		86	6,226

52 total street lights

34 total pedestrian lights

GHG	PG&E Carbon Intensity (lbs/MWh)	Emissions		
		Pounds	Metric Tons	CO ₂ e
CO ₂	641.345	17489.4	7.93305946	7.933059
CH ₄	0.029	0.790827	0.000358713	0.008968
N ₂ O	0.00617	0.168255	7.63193E-05	0.022743
Total				7.96477

Appendix B: Biological Report

East Laurel Drive Sidewalk Project City of Salinas

Biological Report



Biotic Resources Group

Biotic Assessments ♦ Resource Management ♦ Permitting

Biotic Resources Group

Biotic Assessments ♦ Resource Management ♦ Permitting

East Laurel Drive Sidewalk Project City of Salinas

Biological Report

Prepared for:

Kimley-Horn
Attn: Alex Jewell

Prepared by:

Kathleen Lyons, Plant Ecologist
Biotic Resources Group

With

Dana Bland, Wildlife Biologist
Dana Bland & Associates

August 28, 2018

EAST LAUREL DRIVE SIDEWALK PROJECT

BIOLOGICAL RESOURCES

1.0 INTRODUCTION

The East Laurel Drive Sidewalk Project is located in the City of Salinas. The site is accessed from East Laurel Drive; the proposed project site extends along the north side of East Laurel Drive from St. Edwards Drive to Constitution Boulevard and along the east side of Constitution Boulevard from East Laurel Drive to 350 feet west of Twin Creek Drive. The project area includes portions of both Gabilan and Natividad creeks. The project site is located within a portion of the Constitution Soccer Fields and Veterans Memorial Park. The project location is depicted on Figure 1.

Specific tasks conducted for this study include:

- Characterize the major plant communities within the project area and the immediate project area,
- Identify sensitive biotic resources, including species and habitat of concern, within the project area, and
- Identify biological constraints and recommend measures, if necessary, to avoid or reduce impacts to sensitive resources.

1.1 Description of Proposed Project

The purpose of the proposed project is to close the sidewalk gap within the project area and provide nighttime lighting along the roadway and the trail around Natividad Creek detention pond. This would provide safer passage of pedestrians and cyclists. The proposed project is needed because pedestrians and cyclists from the residential neighborhoods on the east end of the project area use this route to access the City's park, soccer fields, medical facilities, and other County facilities at the Laurel Drive/Constitution Boulevard intersection. Pedestrians and cyclists have limited areas of travel along East Laurel Drive and Constitution Boulevard and have unsafe lighting conditions between dusk and dawn.

The proposed project would include the following improvements:

- East Laurel Drive (north side):
 - Install new sidewalk with curb and gutter with a maximum depth of 2.5 feet—width as indicated—in the following areas:
 - North Sanborn Road to St. Edwards Drive (4-foot wide sidewalk)
 - End of proposed boardwalk to existing trailhead and access driveway (a total of 40 feet) (Tapering width from 6-foot to 4-foot)
 - Ranch View Lane to Constitution Boulevard (6-foot wide sidewalk)
 - Along the east side of Constitution Boulevard extending from the Laurel Dr. intersection to the drive entrance to the soccer fields (6 feet wide sidewalk)
 - East side of Constitution Boulevard from the entrance to the soccer fields northeasterly for approximately 1,700-feet (10-foot wide meandering sidewalk)

- Install six-foot sidewalk, beginning at St. Edwards Drive and extending roughly 2,100 feet west, with a maximum depth of 30 feet. Pending geotechnical and design analysis, the design solution could include a sidewalk supported on a traditional continuous concrete retaining wall supported on drilled pier footings at approximately 20-foot spacing, or boardwalk construction supported on drilled helical anchors at 6-foot transverse spacing and 10-foot longitudinally spacing.
- Rehabilitate the existing trailhead and concrete sidewalk and provided ADA-compliant transition from the existing trailhead and access driveway west to Ranch View Lane.
- Install pedestrian crosswalk and ADA-complaint ramp at Ranch View Lane
- Drainage improvements at structure between Natividad Creek Detention Basin and existing trail.
- East side of Constitution Boulevard:
 - Install new six-foot sidewalk with curb and gutter with a maximum depth of 2.5 feet from East Laurel Drive to 350 feet west of Twin Creek Drive
- Modify the traffic signal at East Laurel Drive and Constitution Boulevard and provide ADA-compliant ramps and signal warnings. All proposed improvements would fall within the existing improvements' footprint.
 - ADA-compliant ramps would have a maximum depth of 2.5 feet
 - Traffic signal modifications would have a maximum depth of 7 feet
- Install street lighting with a foundation depth of up to 12 feet within the median, south side, or along the north side of East Laurel Drive from North Sanborn Road to Natividad Road.
- Install solar LED pedestrian scale lighting with a foundation depth of 3 feet:
 - On the trail around Natividad Creek detention basis from East Laurel Drive to the connection with Garner Avenue and Gee Street.
 - On the trail at Veterans Memorial Park from East Laurel Drive north to the Gabilan Creek pedestrian bridge.

The project limits of work used to analyze impacts for this report are based on the Geometric Layout, prepared by Kimley-Horn, dated August 2018.

1.2 Intended Use of this Report

The findings presented in this biological report are intended for the sole use of Kimley-Horn in evaluating the proposed project. The findings presented by the Biotic Resources Group in this report are for information purposes only; they are not intended to represent the interpretation of any State, Federal or City law or ordinance pertaining to permitting actions within sensitive habitat or endangered species. The interpretation of such laws and/or ordinances is the responsibility of the applicable governing body.

2.0 METHODOLOGY

The biological resources of the project area were assessed through literature review and field observations. Kathleen Lyons (plant ecologist) and Dana Bland (wildlife biologist) conducted a field reconnaissance of the area on June 20, 2018. A previous survey of the East Laurel Boulevard area was conducted on November 23, 2015, as part of a preliminary constraints analysis for the project (Biotic Resources Group, 2015). The major plant communities within the project area were identified during the field visit(s) and review of aerial photographs. The distribution of plant

communities on the site was depicted onto an aerial photo. The general conditions of the habitats on the site were recorded and species observed were recorded in a field notebook.

To assess the potential occurrence of special status biological resources, two electronic databases were accessed to determine recorded occurrences of sensitive plant communities and sensitive species. Information was obtained from the California Native Plant Society's (CNPS) Electronic Rare Plant Inventory (2018) and California Department of Fish & Wildlife (CDFW) RareFind 5 database (CDFW, 2018) for the quadrangle containing the project site: Natividad U.S.G.S., 7.5' quadrangle and the surrounding eight quadrangles: Salinas, Prunedale, Chittenden, Watsonville East, Gilroy and San Juan Bautista.

3.0 EXISTING ENVIRONMENTAL CONDITIONS

The project site is located within the City of Salinas. The habitat types on the project site include non-native grassland/ruderal, riparian woodland, coyote brush/poison oak scrub, and landscape tree groves. The landscape trees occur along East Laurel Drive, along Constitution Boulevard, and in backyards of nearby residences. The project area also includes a riparian mitigation area (area planted with native trees and shrubs).

The site is located westward of the Natividad Creek detention pond, which supports open water and is ringed by riparian woodland vegetation. Riparian woodland also grows along Gabilan Creek, a perennial waterway that is located in the northern portion of the project site, and along an unnamed tributary to Gabilan Creek that is located along Constitution Boulevard.

The proposed area of impact is depicted on Figure 2. The distribution of vegetation types in the project area is depicted on Figure 3. The vegetation types are listed on Table 1.

Table 1. Plant Associations within East Laurel Drive Sidewalk Project Area, July 2018

CNDDB Code	Map Code (Figure 3)	Vegetation Type	Plant Association
42.040.00	NNG	Non-native Grassland/Ruderal	Italian ryegrass, bull mallow, filaree, wild mustard
61.130.00	RW	Riparian Woodland	Black cottonwood - willow – sycamore – box elder
32.060.17	CBS	Coyote Brush/Poison Oak Scrub	Coyote brush – poison oak – California blackberry
None	LT	Landscape Trees	Eucalyptus – Monterey cypress

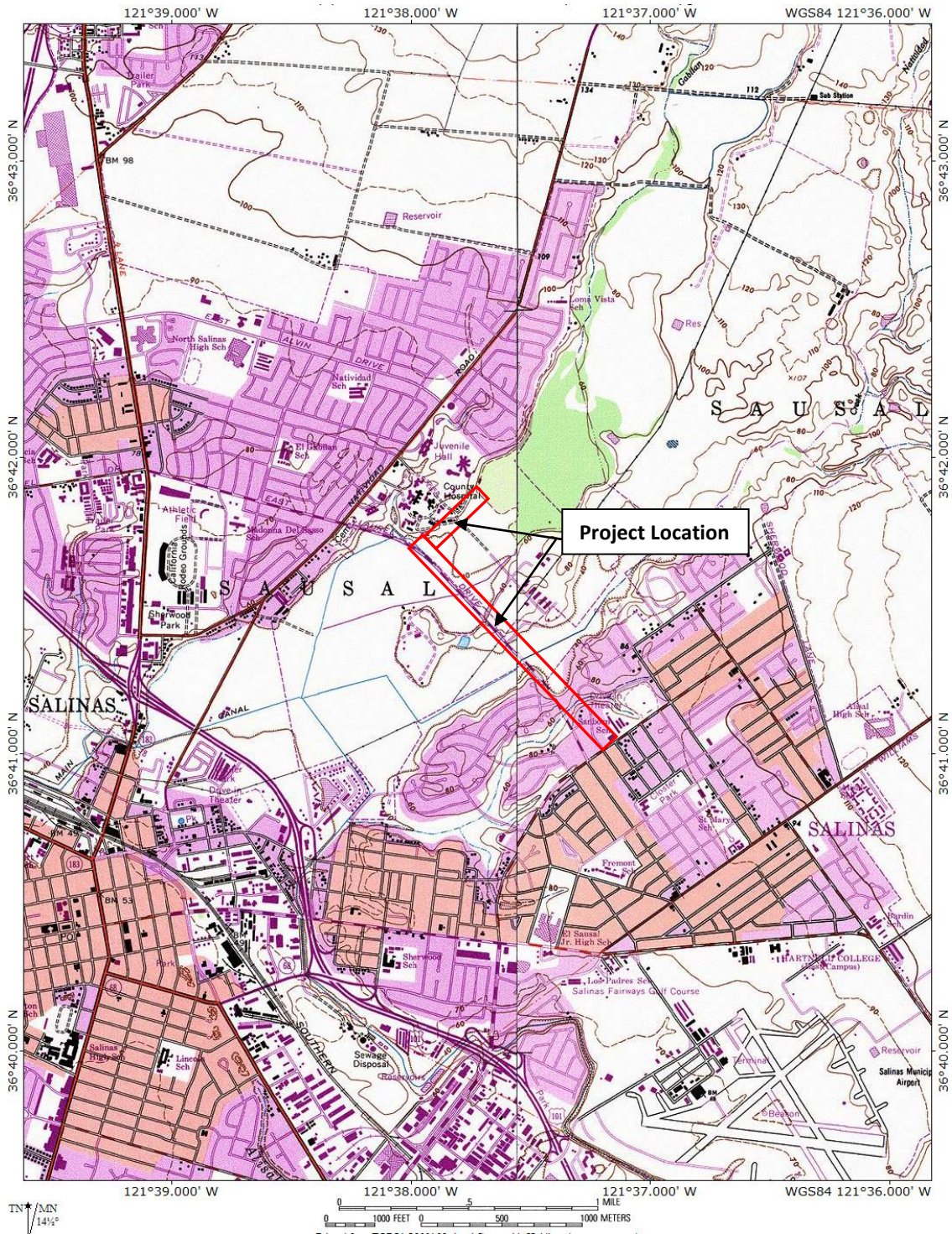


Figure 1. Location of Project
(USGS Natividad Quadrangle)



Figure 2. Proposed Area of Impact (Source: Kimley-Horn, 2018)



Figure 3. Distribution of Vegetation Types

3.1 Non-native Grassland

The project area supports non-native grassland, with ruderal (weedy) areas. This vegetation occurs within the Constitution Soccer Fields (southwest of intersection of Constitution Boulevard and East Laurel Drive), irrigated turf within the Veterans Memorial Park, along portions of the embankment of the East Laurel Drive, and undeveloped adjacent to East Laurel Drive, as depicted on Figures 4 and 5. The condition of grassland areas is depicted in Figures 3 and 4.



Figure 4. Non-native grassland within Soccer Fields



Figure 5. Non-native grassland/ruderal areas east of East Laurel Drive

The grassland/ruderal (weedy) areas are dominated by annual non-native plant species. The dominant grass species are Italian ryegrass (*Lolium multiflorum*), bull mallow (*Malva neglecta*), filaree (*Erodium botrys*), and wild mustard (*Brassica rapa*). Other plant species include wild radish (*Raphanus sativa*), sidewalk conyza (*Conyza bonariensis*), white sweet clover (*Melilotus alba*), English plantain (*Plantago lanceolata*), and cut-leaved plantain (*Plantago coronopus*).

Individuals of Congdon's tarplant, a special status plant species, were documented from a grassland/ruderal and scrub area located westward of the project site (see Figure 3).

The grasslands in the project area provide forage for seed and insect eating birds, as well as for small rodents, which in turn are prey for raptors and snakes. The value of the grassland to native wildlife is moderated by the adjacent existing developments, busy roads, and mowing, but still provides some wildlife habitat particularly for those species that can tolerate high human

presence. Common species expected to make use of this grassland include house finch (*Carpodacus mexicanus*), American goldfinch (*Carduelis tristis*), and Botta's pocket gopher (*Thomomys bottae*). The small mammals in this grassland may attract predators such as red-tailed hawk (*Buteo jamaicensis*) and gopher snake (*Pituophis melanoleucus*).

3.2 Riparian Woodland

The riparian woodland grows along the banks of Gabilan Creek, along the Natividad Creek detention pond, along a drainage swale near the Veterans Memorial Park, and along an unnamed creek that parallels Constitution Boulevard. Young riparian woodland is also present within a planted riparian mitigation area near the Natividad Creek pond. The woodland vegetation along Gabilan Creek and Natividad ponds includes mature trees of black cottonwood (*Populus trichocarpa*), sycamore (*Platanus racemosa*), willow (*Salix sp.*), box elder (*Acer negundo*), and big leaf maple (*Acer macrophyllum*). Understory plant species include coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), creeping ryegrass (*Leymus triticoides*), and California blackberry (*Rubus ursinus*). Water smartweed (*Polygonum sp.*) was observed along the edge of the Natividad Creek detention pond. The creek along Constitution Boulevard supports a dense growth of willows.

Riparian woodland along East Laurel Drive near Gabilan Creek and along the edge of the Natividad Creek detention pond is depicted in Figures 6 and 7, respectively.

In general, riparian habitats are one of the highest value habitats for wildlife species diversity and abundance in California. Factors which contribute to the high wildlife value include the presence of surface water, the variety of niches provided by the high structural complexity of the habitat, and the abundance of plant growth. The value of the riparian habitat along the project site to wildlife is moderated by the relatively narrow corridor, high human use of the surrounding developments, roads, and seasonal water. Common wildlife species that may inhabit this riparian habitat include Pacific treefrog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), Wilson's warbler (*Wilsonia pusilla*), Bewick's wren (*Thryomanes bewickii*), red-shouldered hawk (*Buteo lineatus*), raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*).



Figure 6. Riparian woodland along East Laurel Drive near Gabilan Creek



Figure 7. Riparian woodland along edge of Natividad Creek detention pond

3.3 Coyote Brush Scrub

Some portions of the embankment of East Laurel Drive support a dense growth of coyote brush and poison oak, with lesser amounts of California blackberry. Non-native plant species are also present, such as poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativa*), fennel (*Foeniculum vulgare*), and bristly ox-tongue (*Picris echioides*). The character of this scrub vegetation is depicted in Figure 8.

The berries of shrubs and the seeds of herbaceous plants in the brush/scrub habitat provide forage for wildlife; however, the proximity of this scrub habitat to the busy roadway and nearby development moderates the overall value to wildlife. Wildlife may perch on the outer perimeter of scrub to take advantage of hunting opportunities in adjacent openings and take cover in the denser shrub patches as needed. The dense shrub patches also provide nesting habitat for some birds. Where the scrub abuts riparian and wetland habitat, the diversity of the fauna is expected to be higher because of the presence of water and foraging opportunities in the adjacent riparian and wetland, and the increased complexity of habitat providing additional niches for nesting, foraging and cover.

Common wildlife species observed or expected to occur in the scrub habitat within the project area include western fence lizard (*Sceloporus occidentalis*), Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), California towhee (*Pipilo crissalis*), and white-crowned sparrow (*Zonotrichia leucophrys*).

3.4 Landscape Trees and Tree Groves

The project area supports planted landscape trees. These trees grow along the East Laurel Drive embankment, within Veterans Memorial Park, and in the backyards of residences along East Laurel Drive. Tree species include eucalyptus (*Eucalyptus sp.*), Monterey cypress (*Cupressus macrocarpa*), coast live oak (*Quercus agrifolia*), western sycamore/plane trees (*Platanus sp.*), and *Prunus sp.*

The wildlife value of the landscape trees is low due to the adjacent development. However, the acorns from the oaks and seeds from the other trees provide forage for bird species that can tolerate the high human presence including acorn woodpecker (*Melanerpes formicivorus*), western scrub-

jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), and western gray squirrel (*Sciurus griseus*).



Figure 8. Coyote brush/poison oak scrub along embankment of East Laurel Drive



Figure 9. Landscape trees along Constitution Boulevard

4.0 SENSITIVE BIOTIC RESOURCES

4.1 Sensitive Habitats

Sensitive habitats are defined by local, state, or federal agencies as those habitats that support special status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity. California Department of Fish and Wildlife (CDFW) classifies and ranks the State's natural communities to assist in the determining the level of rarity and imperilment. Vegetation types are ranked between S1 and S5. For vegetation types with ranks of S1-S3, all associations within the type are considered to be highly imperiled. If a vegetation alliance is ranked as S4 or S5, these alliances are generally considered common enough to not be of concern; however, it does not mean that certain associations contained within them are not rare (CDFW, 2007 and 2010). Within the project area, the riparian woodland is considered rare and worthy of consideration by CNDDDB (CNDDDB, 2010). In addition, areas that support special status species, such as Congdon's tarplant, are considered sensitive.

4.2 Regulated Habitats

CDFW is a trustee agency that has jurisdiction under CDFW Code Section 1600 et seq. CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake which supports fish or wildlife. Along watercourses, CDFW jurisdictional limit typically extends to the top of bank or to the edge of riparian habitat if such habitat extends beyond top of bank (outer drip line), whichever is greater. The following areas are expected to be under the jurisdiction of CDFW:

1. Gabilan Creek, extending to top-of-bank or outer edge of riparian woodland, whichever is greatest.
2. Natividad Creek detention pond, to outer edge of riparian woodland
3. Drainage swale near Veterans Memorial Park, extending to top-of-bank or outer edge of riparian woodland, whichever is greatest.
4. Intermittent creek along Constitution Boulevard, extending to top-of-bank or outer edge of riparian woodland, whichever is greatest.

Activities within these areas may be subject to permit action by CDFW. The state agency has a no-net-loss policy for riparian habitat. CDFW requires riparian habitat replacement ratio for impacts to riparian woodland, pursuant to the project's CEQA review and issuance of a Streambed Alteration Agreement.

Water quality in California is governed by the Porter-Cologne Water Quality Control Act and certification authority under Section 401 of the Clean Water Act, as administered by the Regional Water Quality Control Board (RWQCB). The Section 401 water quality certification program allows the State to ensure that activities requiring a Federal permit or license comply with State water quality standards. Water quality certification must be based on a finding that the proposed discharge will comply with water quality standards which are in the regional board's basin plans. The Porter-Cologne Act requires any person discharging waste or proposing to discharge waste in any region that could affect the quality of the waters of the state to file a report of waste discharge. The RWQCB issues a permit or waiver that includes implementing water quality control plans that take into account the beneficial uses to be protected. Waters of the State subject to RWQCB regulation extend to the top of bank, as well as isolated water/wetland features and saline waters. Should there be no Section 404 nexus (i.e., isolated feature not subject to USACE jurisdiction); a report of waste discharge (ROWD) should be filed with the RWQCB. The RWQCB interprets waste to include fill placed into water bodies.

The following areas are expected to be under the jurisdiction of RWQCB:

1. Gabilan Creek, extending to top-of-bank.

2. Natividad Creek detention pond.
3. Drainage swale near Veterans Memorial Park, extending to top-of-bank.
4. Intermittent creek along Constitution Boulevard, extending to top-of-bank.

The US Army Corps of Engineers (USACE) regulates activities within waters of the United States pursuant to congressional acts: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (1977, as amended). Section 10 of the Rivers and Harbors Act requires a permit for any work in, over, or under navigable waters of the United States. Navigable waters are defined as those waters subject to the ebb and flow of the tide to the Mean High Water mark (tidal areas) or below the Ordinary High Water Mark (OHWM) (freshwater areas). The USACE has ultimate responsibility for determining the extent of their jurisdiction. In general, fill placed with jurisdictional waters is subject to permitting. Although a formal delineation of wetlands was not conducted as part of this study, the following areas are expected to be under the jurisdiction of USACE:

1. Gabilan Creek, extending to OHWM.
2. Natividad Creek detention pond, to OHWM
3. Drainage swale near Veterans Memorial Park, extending to OHWM.
4. Intermittent creek along Constitution Boulevard, extending to OHWM.

The City of Salinas General Plan requires a 100-foot setback between development and creeks (measured from top-of bank or outer edge of the riparian woodland, whichever is greater). Encroachments into the 100-foot creek setback may be considered pursuant to the General Plan COS-17 Implementation Program. Development activities may be considered for certain areas within the City if the encroachment will not have a significant adverse impact on the riparian and wetland resources because mitigation measures will achieve a comparable or better level of mitigation than the 100-foot setback OR the property is adjacent to a reclamation ditch and no riparian or wetland resources are identified outside the ditch. A portion of the proposed project area is within an area of the City subject to consideration of a creek setback encroachment (i.e., within and adjacent to Gabilan Creek, Natividad Creek detention pond, drainage swale near Veterans Memorial Park, and intermittent creek along Constitution Boulevard (pending confirmation by the City).

4.3 Special Status Plant Species

Plant species of concern include those listed by either the Federal or State resource agencies as well as those identified as rare (i.e., List 1B) by CNPS. The search of the CNPS and CNDDB inventories for the area resulted in several special status plant species of concern known, or with potential, to occur within the project area (Table 2). The 2018 survey was conducted in June and the 2015 survey was conducted during November. A colony of Congdon's tarplant was identified during the survey (see discussion below). The CNDDB lists an occurrence of alkali milkvetch (*Astragalus tener tener*), from the greater project region. This annual plant species grows in low, alkaline grasslands. No individuals were observed; this species typically bloom March to June and would have been detected during the June 2018 survey, yet none were detected in the project area. Suitable habitat may be present on the flat floodplain adjacent to the Natividad Creek pond, yet this area is located east of the proposed project. No other special status plant species were documented on the site during the survey, and none are expected due to a lack of suitable habitat.

Congdon's Tarplant (*Centromadia parryi* ssp. *congdonii*). This species is recognized as rare by the California Native Plant Society (List 1B). The species is also considered rare by the California Department of Fish and Game (CDFW); however, the species is not currently listed as rare or endangered under the California Endangered Species Act. The species is not currently listed as rare or endangered under the Federal Endangered Species Act.

Congdon's tarplant grows in annual grasslands, typically in areas with high seasonal moisture. The blooming period is typically from June to October. Because Congdon's tarplant is an annual species, its population can vary from year to year depending upon weather conditions (e.g., rainfall, temperature), as well as human and natural disturbances within the species' habitat. Seeds are known to persist in the soil seedbank and germinate under favorable conditions. The species responds well to site disturbances that remove thatch and create open areas that are conducive to seed germination and plant growth. The species is depicted in Figure 10.



Figure 10. Congdon's tarplant growing in grassland/scrub area south of Natividad Creek pond and east of East Laurel Drive project area

This species is known from the greater Monterey Bay region, with several occurrences recorded in the CNDDDB from the Salinas area. The closest recorded colony is located south of the Natividad Creek detention pond where the species grows on a low, flat floodplain east of East Laurel Drive. Another colony of this species is known from the Gabilan Creek floodplain, upstream of the project site near the intersection of Independence and Constitution Boulevard.

Congdon's tarplant was observed on the Natividad Creek pond floodplain. The tarplant was observed growing amid grassland and coyote brush scrub on a low terrace approximately 75 feet east of the proposed project site. The approximate location of this colony is depicted on Figure 2.

Table 2. List of Special Status Plant Species Evaluated as to their Potential to Occur in the Vicinity of the East Laurel Drive Sidewalk Project Area, July 2018

Species	CNPS	State Status	Federal Status	Habitat Type	Occurrence in Vicinity by CNDDDB? Likely Occurrence on Site?
Vernal pool bent grass (<i>Agrostis lacuna-vernalis</i>)	List 1B.1	None	None	Vernal pools, mima mounds	Known from Ft. Ord Project area does not provide suitable habitat
Hickman's Onion (<i>Allium hickmanii</i>)	List 1B.2	None	None	Closed cone coniferous forests, chaparral, coastal bluff scrub	Recorded from south of Marina (Ft. Ord) Project area does not provide suitable habitat
Gabilan Mtns. manzanita (<i>Arctostaphylos gabilanensis</i>)	List 1B.2	None	None	Maritime chaparral, coastal scrub, coastal dunes	Not observed. Project area does not provide suitable habitat
Hooker's manzanita (<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>)	List 1B.2	None	None	Closed-cone coniferous forest, maritime chaparral, coastal scrub	Recorded from Ft. Ord Not observed. Project area does not provide suitable habitat
Toro manzanita (<i>Arctostaphylos montereyensis</i>)	List 1B.2	None	None	Chaparral, coastal scrub	Recorded from Ft. Ord Not observed. Project area does not provide suitable habitat
Pajaro manzanita (<i>Arctostaphylos pajaroensis</i>)	List 1B.1	None	None	Closed-cone coniferous forest, maritime chaparral, coastal scrub, coastal dunes	Recorded from Prunedale Area Not observed. Project area does not provide suitable habitat
Sandmat manzanita (<i>Arctostaphylos pumila</i>)	List 1B.2	None	None	Maritime chaparral, coastal scrub, coastal dunes	Recorded from Ft. Ord area Not observed. Project area does not provide suitable habitat
Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	List 1B.2	None	None	Alkali wetlands	Historic occurrence around project area; other occurrences from Hollister (San Benito County); herbarium collections from 1889 Potentially suitable habitat located east of project area.
Pink Johnny -nip (<i>Castilleja ambigua</i> var. <i>insulata</i>)	List 1B.1	None	None	Coastal scrub; coastal prairie.	Big Sur, South Monterey Project area does not provide suitable habitat
Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congonii</i>)	List 1B.1	None	None	Annual grasslands, often seasonally wet or with wet clays.	Known record near Project area along Natividad Creek area and other areas in greater project vicinity. Observed in grassland east of project area.
Monterey spineflower (<i>Chorizanthe pungens</i> var. <i>pungens</i>)	List 1B.2	None	Threatened	Coastal dunes, chaparral, coastal scrub (in loose sandy soils)	Recorded from Ft. Ord, Marina and Seaside Areas Project area does not provide suitable habitat
Seaside bird's beak	List 1B.1	Endangered	None	Closed cone coniferous	Recorded from sand hills of Seaside at Ft. Ord

Table 2. List of Special Status Plant Species Evaluated as to their Potential to Occur in the Vicinity of the East Laurel Drive Sidewalk Project Area, July 2018

Species	CNPS	State Status	Federal Status	Habitat Type	Occurrence in Vicinity by CNDDB? Likely Occurrence on Site?
<i>(Cordylanthus rigidus littoralis)</i>				forest, chaparral, cismontane woodland, coastal scrub/dunes	Project area does not provide suitable habitat
Hutchinson's larkspur <i>(Delphinium hutchinsoniae)</i>	List 1B.2	None	None	Cismontane woodland, coastal scrub	Recorded from Spreckels area Project area does not provide suitable habitat
Umbrella larkspur <i>(Delphinium umbraculorum)</i>	List 1B.3	None	None	Cismontane woodland, coastal scrub	Recorded from Big Sur, Chualar, Spreckels Project area does not provide suitable habitat
Eastwoods goldenbush <i>(Ericameria fasciculata)</i>	List 1B.1	None	None	Closed-cone coniferous forest, maritime chaparral, coastal scrub, coastal dunes	Recorded from Seaside, Ft. Ord, Marina and Carmel Valley areas Project area does not provide suitable habitat
Pinnacles buckwheat <i>(Eriogonum nortonii)</i>	List 1B3	None	None	Closed-cone coniferous forest, maritime chaparral, coastal scrub, coastal dunes	Recorded from Big Sur, Hollister, Fremont Peak Project area does not provide suitable habitat
Sand-loving wallflower <i>(Erysimum ammosiphilum)</i>	List 1B.2	None	Species of Concern	Maritime chaparral, coastal dunes, coastal scrub	Recorded from south of Ft. Ord, south of Marina along Highway 1 and E of Reservation Road, Marina State Beach Project area does not provide suitable habitat
San Joaquin spearscale <i>(Extriplex joaquina)</i>	List 1B.2	None	None	Washes, riparian scrub	Known from Hollister area Project area does not provide suitable habitat
Fragrant fritillary <i>(Fritillaria liliacea)</i>	List 1B.2	None	None	Grasslands	Recorded from south of Aromas No suitable habitat present
Monterey gilia <i>(Gilia tenuiflora ssp. arenaria)</i>	List 1B.2	Threatened	Endangered	Coastal dunes, coastal scrub, maritime chaparral	Recorded from Marina State Beach, Ft. Ord, E of Del Monte and Reservation Rd., NW of Hwy 1 and Reservation Rd., Project area does not provide suitable habitat
Santa Cruz tarplant <i>(Holocarpha macradenia)</i>	List 1B.1	Endangered	Threatened	Grassland	Known from northern Monterey County, off Elkhorn Road Project area does not provide suitable habitat.
Kellogg's horkelia <i>(Horkelia cuneata ssp. sericea)</i>	List 1B.1	None	Species of Concern	Closed cone coniferous forests, chaparral, coastal scrub, old dunes	Recorded from 1 mi. N of Marina (1940) and Ft. Ord S of Marina No suitable habitat within Project area
Contra Costa goldfields <i>(Lasthenia conjugens)</i>	List 1B.1	None	Endangered	Mesic grassland	Known from Ft. Ord, southwest of Salinas No suitable habitat within Project area; marginally suitable habitat east of site.

Table 2. List of Special Status Plant Species Evaluated as to their Potential to Occur in the Vicinity of the East Laurel Drive Sidewalk Project Area, July 2018

Species	CNPS	State Status	Federal Status	Habitat Type	Occurrence in Vicinity by CNDDDB? Likely Occurrence on Site?
Legenere (<i>Legenere limosa</i>)	List 1B.1	None	Endangered	Edges of ponds	Known from Ft. Ord, Butterfly Valley No suitable habitat within Project area; marginally suitable habitat along Natividad Creek pond.
Indian Valley bush mallow (<i>Malacothamnus aboriginum</i>)	List 1B.2	None	None	Chaparral, scrub	Recorded from Gonzales, east of Soledad Project area does not provide suitable habitat
Carmel Valley bush mallow (<i>Malacothamnus palmeri</i> var. <i>involucratum</i>)	List 1B.2	None	None	Chaparral, scrub	Recorded from Jolon, Ft. Hunter Liggett Project area does not provide suitable habitat
Santa Lucia bush mallow (<i>Malacothamnus palmeri</i> var. <i>palmeri</i>)	List 1B.2	None	None	Chaparral, scrub	Recorded from Carmel Project area does not provide suitable habitat
Oregon meconella (<i>Meconella oregana</i>)	List 1B.1	None	None	Coastal prairie and coastal scrub	Recorded from Spreckels area No suitable habitat within Project area
Marsh microseris (<i>Microseris paludosa</i>)	List 1B.2	None	None	Mesic grassland	Recorded from Seaside area No suitable habitat within Project area; marginally suitable habitat east of site.
Northern curly-leaved monardella (<i>Monardella sinuata</i> ssp. <i>nigrescens</i>)	List 1B.2	None	None	Dunes	Recorded from east of Monterey Airport Project area does not provide suitable habitat
Yadon's rein orchid (<i>Piperia yadonii</i>)	List 1B.1	None	Endangered	Closed cone coniferous forests, chaparral, coastal bluff scrub	Recorded from south of Marina (Ft. Ord), Marina, Prunedale Project area does not provide suitable habitat
Choris' popcorn flower (<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>)	List 1B.2	None	None	Mesic grasslands	Recorded from Ft. Ord, Moro Cojo Slough, Dolan Road area Project area does not provide suitable habitat
San Francisco popcorn flower (<i>Plagiobothrys diffusus</i>)	List 1B.1	Endangered	None	Mesic grasslands	Project area does not provide suitable habitat
Pine rose (<i>Rosa pinetorum</i>)	List 1B.2	None	None	Scrub and woodlands	Recorded from Pacific grove, Veterans Memorial Park, Pt. Lobos Project area does not provide suitable habitat
Santa Cruz microseris (<i>Stebbinsoseris decipiens</i>)	List 1B.2	None	None	Mesic grasslands; coastal prairie	Recorded from Laureles Grade Road, Camp Roberts, Hwy 68/218 area

Table 2. List of Special Status Plant Species Evaluated as to their Potential to Occur in the Vicinity of the East Laurel Drive Sidewalk Project Area, July 2018

Species	CNPS	State Status	Federal Status	Habitat Type	Occurrence in Vicinity by CNDDDB? Likely Occurrence on Site?
					Project area does not provide suitable habitat
Santa Cruz clover (<i>Trifolium buckwestiorum</i>)	List 1B.1	None	None	Mesic grassland	Recorded from Laguna Seca, Tarp Flats and Ft. Ord No suitable habitat within Project area; marginally suitable habitat east of site.
Saline clover (<i>Trifolium. hydrophilum</i>)	List 1B.2	None	None	Alkali wetlands	Historic occurrence near Moss Landing; other occurrences from Soda Lake (Santa Cruz County) and Hwy 25 (San Benito County) No suitable habitat within Project area; marginally suitable habitat east of site.

CNPS Status:

List 1B: These plants (predominately endemic) are rare through their range and are currently vulnerable or have a high potential for vulnerability due to limited or threatened habitat, few individuals per population, or a limited number of populations. List 1B plants meet the definitions of Section 1901, Chapter 10 of the CDFG Code. **List 4:** Plants of limited distribution; a watch list.

4.4 Special Status Animal Species

Special status wildlife species include those listed, proposed or candidate species by the Federal or the State resource agencies as well as those identified as State species of special concern. In addition, all raptor nests are protected by Fish and Game Code, and all migratory bird nests are protected by the Federal Migratory Bird Treaty Act. Special status wildlife species were evaluated for their potential presence in the project area as described in Table 3 below.

Table 3. Special Status Wildlife Species and Their Predicted Occurrence within the Vicinity of the East Laurel Drive Pedestrian Improvement Project Area, July 2018

SPECIES	STATUS ¹	HABITAT	POTENTIAL OCCURRENCE ON SITE
Amphibians			
California tiger salamander <i>Ambystoma californiense</i>	FT, ST	Ponds for breeding, adjacent grasslands with burrows for upland	None, compacted soils in grassland portions of the site lack burrows and are unsuitable for upland refugia; no breeding habitat within project site. Closest known record 2 mi NE, and genetic studies shows all CTS in this area are non-natives and hybrids.
Foothill yellow-legged frog <i>Rana boylei</i>	CSC	Perennial rivers and creeks with cobble substrate	None; no suitable habitat on site.
California red-legged frog <i>Rana draytonii</i>	FT, CSC	Riparian, marshes, estuaries and ponds.	No suitable ponded breeding habitat within site. May occasionally occur in creek for foraging or movement when water present. Closest known record 2.5 mi NE.
Reptiles			
Western pond turtle <i>Emys marmorata</i>	CSC	Creeks and ponds, grasslands for nesting.	Gabilan Creek not suitable habitat due to lack of deep pools, seasonal water. Grassland soils too compact for nesting.
Black legless lizard <i>Anniella pulchra nigra</i>	CSC	Sand dunes, sandy soils with lupines, mock heather other natives plants	None. No suitable habitat on site.
Birds			
White-tailed kite <i>Elanus leucurus</i>	FP	Nests in dense canopy riparian and oak woodlands; forages in open areas	May nest in riparian habitat along portions of Gabilan or Natividad Creek, but not likely at project site due to high human presence.
Northern harrier <i>Circus cyaneus</i>	CSC	Nests on ground in tall grasses or marshes; forages over open habitats.	No nesting habitat; grassland is periodically mowed, high human use
Western burrowing owl <i>Athene cunicularia hypugea</i>	CSC	Lives in grasslands with short vegetation and burrows	Unlikely, grassland area soils too compact and lack burrows. No known records within >5 miles
California horned lark <i>Eremophila alpestris actia</i>	CSC	Nests on ground in grasslands with short vegetation	None, grasslands mowed, high human disturbance
Mammals			
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	CST	Forested habitats with caves, mines, old buildings and hollows in redwood trees as roosts	None. Site lacks suitable habitat.

¹ Key to status:

FT	=	Federally listed as threatened species
CST	=	Candidate for State listing as threatened species
CSC	=	California species of special concern
FP	=	Fully protected by State

In general, the habitats with the project site provide only marginal habitat for native wildlife species because of the relatively narrow riparian corridor, the high human use within the project site and the surrounding developments, the high volume of traffic on East Laurel Drive, and the compacted soils of the grassland. Most wildlife species expected to occur on the site are those that can tolerate high human presence in the surrounding areas. Nonetheless, the riparian corridor may provide seasonal forage and nesting habitat for neotropical migrant birds, and nesting habitat for some raptors that are able to tolerate high human presence such as red-shouldered hawk. One special status species that may occasionally occur along the creek, the California red-legged frog, is discussed in more detail below.

The California red-legged frog (CRLF) is a State Species of Special Concern and Federally listed as threatened. This species is found in quiet pools along streams, in marshes, and ponds. Red-legged frogs are closely tied to aquatic environments and favor intermittent streams which include some areas with water at least 0.7 meters deep, a largely intact emergent or shoreline vegetation, and a lack of introduced bullfrogs and non-native fishes. This species' breeding season spans January to April (Stebbins 1985). Females deposit large egg masses on submerged vegetation at or near the surface. Embryonic stages require a salinity of ≤ 4.5 parts per thousand (Jennings and Hayes 1994). They are generally found on streams having a small drainage area and low gradient (Hayes and Jennings 1988). Recent studies have shown that although only a small percentage of red-legged frogs from a pond population disperse, they are capable of moving distances of up to 2 miles (Bulger 1999). The red-legged frog occurs west of the Sierra Nevada-Cascade crest and in the Coast Ranges along the entire length of the state. Much of its habitat has undergone significant alterations in recent years, leading to extirpation of many populations. Other factors contributing to its decline include its former exploitation as food, water pollution, and predation and competition by the introduced bullfrog and green sunfish (Moyle 1973, Hayes and Jennings 1988).

The habitat for California red-legged frogs along these portions of Gabilan and Natividad Creeks is poor, and the impoundment (detention pond) of Natividad Creek is manipulated for flood control. There are no off-channel slow-moving or ponded areas present in this portion of Gabilan Creek for breeding. It is unknown if fish inhabit the Natividad Creek detention pond, but many surveys have documented large populations of bullfrogs along the creek. The closest documented occurrence of CRLF to the project site is approximately 2.5 miles northeast in a tributary to Natividad Creek (CDFW 2015). The red-legged frog is usually absent from urbanized creeks and waterways. However, this frog is capable of relatively long-distance movements, and may occasionally traverse this portion of Gabilan Creek or find summer habitat within the Natividad Creek detention pond when water is present. However, the red-legged frog is unlikely to occur within most of the project site and the proposed project does not include any work within Gabilan Creek.

5.0 IMPACT ANALYSIS

5.1 Significance Thresholds

The thresholds of significance presented in the California Environmental Quality Act (CEQA) were used for this analysis. For this analysis, significant impacts may occur if the project would substantially affect, either directly or through habitat modifications:

- A species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- Riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2. Analysis

Development of the East Laurel Drive Sidewalk Project will have few impacts on native habitats. There will be no impact to Waters of the U.S. or Waters of the State, as work will occur outside of creeks and wetlands. Trail construction will require trimming of vegetation along the outer edge of willow riparian along a section of East Laurel Drive, where vegetation grows outward to the existing roadway and short section of trail along Constitution Boulevard where a willow is amid landscape trees; however, this will be a temporary impact.

Impacts to nesting birds could be significant if construction occurs during the bird breeding season; however, measures to prevent impacts to breeding birds are identified. The project's close proximity to a colony of Congdon's tarplant (i.e., within 1000 feet) is significant, yet measures to prevent inadvertent impacts to this species are identified. A summary of significant impacts is presented in Table 4.

Impacts to the coyote brush scrub, non-native grassland, and landscape trees was not deemed to be a significant impact to botanical resources as these habitats are common and were found to not support special status species. However, impacts to breeding birds in these habitats would be significant.

Table 4. Summary of Significant Biological Impacts

Biological Resource	Impact	Permitting	Action Mitigation for Impacts	Monitoring
Riparian Woodland	Trimming/limbing of riparian vegetation along portions of sidewalk along East Laurel Drive and Constitution Boulevard to allow for construction.	Within City of Salinas creek setback area	Avoid or minimize impact to greatest extent; limb only as needed to construction access; allow vegetation to re-grow to edge of sidewalk; see Measure BIO-1	None

Table 4. Summary of Significant Biological Impacts

Biological Resource	Impact	Permitting	Action Mitigation for Impacts	Monitoring
Nesting Birds	Impact to nesting birds if active nests are present during construction	-	Conduct vegetation removal Aug 1 to Feb 1 to avoid nesting birds; if not feasible conduct pre-construction survey; see Measure BIO-2	None
Special Status Plant Species	Impact to Congdon's tarplant adjacent to project area	CDFW	Install limit of work construction fencing to prevent inadvertent impact to occupied area; see Measure BIO-3	None

Impacts to Riparian Woodland

The sidewalk construction will be in close proximity to the Natividad Creek detention pond, Gabilan Creek and an unnamed drainage swale; however, construction will not impact these resources. Similarly, sidewalk construction will be in close proximity to the riparian woodland along East Laurel Drive and Constitution Boulevard; however, actions will be limited to limbing for construction clearance and will be temporary. Most of the project is located within the City's 100-foot creek setback area(s).

Recommended Measure BIO-1. *Implement measures to protect existing riparian woodland from inadvertent impacts during sidewalk construction.*

- Temporary construction fencing should be placed at the edge of the construction area; such fencing shall be placed outside the dripline of the riparian woodland, wherever feasible. This fencing should remain in-place until all project construction is complete.
- Erosion control measures/construction best management practices (BMP's) shall be implemented during construction to prevent any inadvertent impacts to Gabilan Creek, Natividad Creek pond, the drainage swale near Veterans Memorial Park, and the creek along Constitution Boulevard. Such measures shall include use of silt fencing, straw wattles and seeding/revegetation of disturbed areas prior to the onset of the winter rainy season.
- Minimize limbing and trimming of riparian vegetation to only that needed for construction clearance. Allow vegetation to re-grow up to edge of sidewalk.

Impacts to Breeding Birds

Construction activities have the potential to cause direct and indirect impacts to nesting migratory birds and raptors within the riparian corridor of Gabilan Creek and Natividad Creek detention pond, and trimming of trees along Constitution Blvd. Removal of vegetation, removal of tree limbs, and increased noise and dust from construction activities has the potential to indirectly impact nesting birds potentially resulting in the abandonment of nests by parent birds, and death to eggs or nestlings. This potential impact is considered significant.

Recommended Measure BIO-2. *Avoid direct and indirect impacts to breeding birds.* To avoid impacts to migratory birds and raptors that may be present in the project area, it is recommended that grading and all ground disturbances be scheduled to occur outside the primary bird-breeding season on the Central California Coast. To avoid impacts to breeding birds at this site, it is recommended that ground disturbance (including

stripping, vegetation removal, grading, and excavation) be scheduled for the period August 1 to February 1 of any given year.

- If this schedule is not practical, then no more than 14 days prior to construction, a qualified biologist shall survey the development areas and nearby vicinity for nesting birds, including raptors and migrants. If nesting birds are observed within the development area, construction shall be postponed until the biologist confirms that all young have fledged. If birds are nesting nearby and the biologist determines the construction may cause nest failure, the biologist shall recommend an appropriate buffer area around the nest where no construction will take place until the biologist confirms all young have fledged.

Impacts to Congdon's Tarplant

The project is located in close proximity to a colony of Congdon's tarplant, a special status plant species. Protective measures during construction are identified to avoid impacts to this species.

Recommended Measure BIO-3. *Implement measures to protect existing Congdon's Tarplant from inadvertent impacts during trail and sidewalk construction.*

Temporary construction fencing should be placed at the edge of the construction area; such that no work activity occurs in the flat area adjacent to Natividad Creek pond. This fencing should remain in-place until all project construction is complete.

LITERATURE CITED

- Bulger, J. B. 1999. Terrestrial activity and conservation of California red-legged frogs (*Rana aurora draytonii*) in forested habitats of Santa Cruz County, California. Report prepared for Land Trust of Santa Cruz, dated March 2, 1999.
- California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. CNPS, Sacramento CA. 2018.
- California, State of, Department of Fish & Game. 2007. Special Vascular Plants, Bryophytes and Lichens List.
- California, State of, Department of Fish & Wildlife. 2018 Natural Diversity DataBase, RareFind 5.
- Hickman, J. 1993. The Jepson Manual Higher Plants of California. Berkeley: University of California Press.
- Hayes, M. P. and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytoni*) and the foothill yellow-legged frog (*Rana boylei*): Implications for management. In Management of amphibians, reptiles, and small mammals in North America (R. C. Szaro, K. E. Severson, and D. R. Patton, tech. coord.). USDA, Forest Serv., Rocky Mountain Forest and Range Experiment Sta. Gen. Tech. Rpt. RM-166.
- Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Dept. of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.
- Moyle, P. B. 1973. Effects of introduced bullfrogs, *Rana catesbiana*, on native frogs of the San Joaquin Valley, California. Copeia 1973:18-22.
- Stebbins, R. C. 1985. Western reptiles and amphibians. Houghton Mifflin Co., New York.
- Venkatesh, C.S. 1958. A Cyto-Genetic and Evolutionary Study of Hemizonia, Section Centromadia. American Journal of Botany, Vol. 45, No. 2, pp. 77-84.

Appendix C: Cultural Resource Investigation and Tribal
Consultation Correspondence

July 30, 2018

Mr. Alex Jewell
Kimley-Horn
2720 Gateway Oaks Drive, Suite 310
Sacramento, CA 95833

Re: East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) Project in Salinas,
Monterey County, CA (PL#3417-01)

Dear Mr. Jewell:

This letter report presents the results of a cultural resources investigation conducted by Pacific Legacy, Inc. for the proposed East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) Project (the Project). Pacific Legacy was retained by Kimley-Horn and Associates, Inc., acting on behalf of the City of Salinas (City) to conduct an archaeological survey for the Project. The investigation compliments the first phase of the project. The Phase I cultural resources investigation was completed in 2015. The City of Salinas proposes to improve East Laurel Drive from North Sanborn Road to Constitution Boulevard and on Constitution Boulevard between East Laurel Drive and 350 feet west of Twin Creeks Drive within the City of Salinas, Monterey County, California (the Project Area) (*see* Attachment A, Figure 1). All tasks for the Project were performed under contract number 3417-01 between Pacific Legacy, Inc. and Kimley-Horn. This investigation was conducted in compliance with the California Environmental Quality Act (CEQA) but also complies with historic preservation regulations, policies, and statutes, under Section 106 of the National Historic Preservation Act (NHPA), should federal permitting be required. Its purpose was to identify cultural resources that may be adversely impacted by ground disturbing activities associated with the Project.

Results Summary

On behalf of the City of Salinas, Pacific Legacy completed an archaeological assessment for the Phase II Project Area. It included archival and record searches, a request for a search of the Sacred Lands Inventory maintained by the Native American Heritage Commission (NAHC) and a list of potential Native American stakeholders, and a pedestrian inventory survey for the proposed East Laurel Drive Sidewalk and Natividad Trail Improvements Phase II Project locations.

The NAHC review of the Sacred Lands Inventory failed to indicate the presence of cultural resources in the immediate Project Area. Contact with potential Native American stakeholders has been initiated based on the list of names provided by the NAHC. The results of those contact efforts will be forwarded to the City of Salinas.

The archival and records searches revealed that no known cultural resources had been previously recorded within 0.25 mi. of the Project Area. A pedestrian archaeological survey of the Project Area was conducted by Pacific Legacy personnel on June 12, 2018. No prehistoric or

historic period materials were observed, though surface visibility was limited in some areas by City landscaping and infrastructural or commercial and residential development. Based on the results of the pedestrian survey, the archival and records searches, and contact with the NAHC, and the limited extents of the proposed ground disturbing activities associated with the Project, we anticipate that further study or cultural resource monitoring for the Project will not be necessary. Should ground-disturbing activities result in the inadvertent discovery of buried cultural materials, however, work in the immediate vicinity of the find should cease and a qualified archaeologist should be contacted immediately.

Project Description

The City of Salinas proposes Phase II of the East Laurel Drive Project. The Phase II portion of the project includes East Laurel Drive from North Sanborn Road to Constitution Boulevard and on Constitution Boulevard between East Laurel Drive and 350 feet west of Twin Creeks Drive. Phase I of the East Laurel Drive Project was completed in 2015. The purpose of the proposed Phase II project is to close the sidewalk gap within the project area and provide night time lighting along the roadway and the trail around the Natividad Creek detention pond. The proposed project is needed to provide safe passage of pedestrians and cyclists from the residential neighborhoods on the east end of the project area to access the City's park, soccer fields, medical facilities, and other County facilities at the East Laurel Drive/Constitution Boulevard intersection (*see* Attachment B).

Phase II improvements would include:

East Laurel Drive (north side):

- Install new six-foot sidewalk with curb and gutter with a maximum depth of 2.5 feet:
 - North Sanborn Road to St. Edwards Drive
 - End of proposed boardwalk to existing trailhead and access driveway (a total of 40 feet)
 - Ranch View Lane to Constitution Boulevard
- Install six-foot boardwalk, beginning at St. Edwards Drive and extending roughly 2,100 feet west, with a maximum depth of 22 feet.
- Rehabilitate the existing trailhead and concrete sidewalk and provide ADA-compliant transition from the existing trailhead and access driveway, west to Ranch View Lane.
- Install pedestrian crosswalk and ADA-complaint ramp at Ranch View Lane
- Drainage improvements at structure between Natividad Creek Detention Basin and existing trail.
- East side of Constitution Boulevard:
 - Install new six-foot sidewalk with curb and gutter with a maximum depth of 2.5 feet from East Laurel Drive to 350 feet west of Twin Creeks Drive.
- Modify the traffic signal at East Laurel Drive and Constitution Boulevard and provide ADA-compliant ramps and signal warnings.
 - ADA-compliant ramps would have a maximum depth of 2.5 feet
 - Traffic signal modifications would have a maximum depth of 6 feet

- Install street lighting with a foundation depth of 3 feet within the median, south side, or along the north side of East Laurel Drive from North Sanborn Road to Natividad Road.
- Install solar LED pedestrian scale lighting with a foundation depth of 6 feet:
 - on the trail around Natividad Creek detention basin from East Laurel Drive to the connection with Garner Avenue and Gee Street.
 - on the trail at Monterey County Vietnam Veterans Memorial Park from East Laurel Drive north to the Gabilan Creek pedestrian bridge.

Figure 1 map (*see* Attachment A) depicts the Project Area on the Salinas (1984) and Natividad (1984), California 7.5' USGS Quadrangles. It is located in the Sausal City Civil Colonies Land Grant.

Archival and Records Search

Archival and records searches encompassing a portion of the current Project Area were previously conducted by Pacific Legacy (PL) personnel for Phase I of the East Laurel Drive Project (PL#3116-01) on December 1, 2015 under File No. 15-0811. The search was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University. Those searches partially encompassed the current Project Area and a surrounding 0.25 mi. buffer radius. A supplemental archival and records search was conducted by CHRIS staff on June 5, 2018, under File No. 17-2922, to collect additional data on the expanded and amended Project Area for the current proposed East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) Project. The searches included a review of

- *The Historic Properties Directory* (California Office of Historic Preservation 2013);
- *The California Inventory of Historic Resources* (State of California 1976);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *California Points of Historical Interest* listing May 1992 (State of California 1992); and
- The National Register of Historic Places (NRHP) (*Directory of Determinations of Eligibility*, California Office of Historic Preservation, Volumes I and II, 1990; Office of Historic Preservation Computer Listing 1990 and updates).
- Historic maps and documents concerning the general area on file at the Berkeley office of Pacific Legacy along with digital archives of previously conducted studies and known cultural resources within the City of Salinas.

Archival and records searches revealed that prior to the East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) Project, the Project Area had been subject to five previous cultural resource studies that resulted in negative findings and include S-38928 by Basin Research Associates, Inc. (Busby 2009) which covers a large portion of the current Project Area; S-26571 for the Department of Transportation (McLean 2001) which covers portions of the two trail segments; S-6456 by Archaeological Consulting (Haversat and Breschini 1984) which covers the trail around Natividad Creek Detention Basin and the southern end of East Laurel Drive; and both S-5558 by Archaeological Resource Service (Roop 1978) and S-8022 by Archaeological Consulting (Breschini and Haversat 1986) that cross only a small portion of the Project Area at the north end of the Constitution Boulevard survey corridor. Six other cultural

resource studies with negative findings have been conducted within 0.25 m. of the Project Area and are listed in Table 1 below.

Archival and records searches further revealed that no known archaeological sites had been recorded within the Project Area or within 0.25 mi. of the Project Area. Three historic period built environment buildings and/or building complexes appeared in the Historic Property Data File for Monterey County. The building complex listed as 639 Sanborn Road or the "Moore Lumber Company" is comprised of 18 buildings listed as Buildings A-R. The building at 651 Sanborn Road or the "Tombleson Incorporated Office" is comprised of one building. The buildings at 655 Sanborn Road or the "Porras Restaurant" is comprised of two buildings that include a restaurant and office. All of the historic period built environment resources are listed as status code 6Y, or "Determined ineligible for NR [National Register] by consensus through Section 106 process – Not evaluated for CR [California Register] or Local listing." Two properties are located roughly a half block southwest of the Project Area and, the third building, located at 955 Sanborn Road is 1.5 miles south of the Project Area. Like the buildings located along North Sanborn Street itself (identified as Sanborn Road in the data file), they will not be impacted by Project activities.

Table 1. Prior Studies within 0.25 Miles of the Project Area.

Study Number	Author	Date	Type	Results in Project Area	Resources Recorded
S-05558	Roop	1978	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-20587	Price	1998	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-22767	Doane and Haversat	2000	Archival Research	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-23892	Losee	2001	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-29912	Historic Resource Associates	2005	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-35434	Hatoff	2005	Archaeological Field Study and SHPO Consultation	Negative in Project Area	None in or within 0.25 Miles of the Project Area
	O'Connell	2007			
S-06456	Haversat	1984	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-08022	Hampson	1986	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-26571	McLean	2000	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
S-38928	Busby	2009	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area
PLI-3116-01	Holm	2015	Archaeological Field Study	Negative in Project Area	None in or within 0.25 Miles of the Project Area

Native American Contact

Native American contact specific to the current Project was initiated on June 1, 2018 with a letter to the NAHC requesting a review of the Sacred Lands Inventory. A response to this request was received on June 4, 2018. This review failed to indicate the presence of cultural resources in the immediate Project Area. Pacific Legacy has also requested that the NAHC provide an updated

list of Native American individuals and tribal representatives for Monterey County that might have knowledge of unreported resources or areas of concern within the Project vicinity.

The NAHC provided a list of five tribal groups or individuals who may have knowledge of cultural resources in the APE or may have an interest in the Project. Letters were sent to each of the five listed individuals on June 12, 2018 (*see* Table 2). The letters provided a brief description of the current status of the Project and requested input on cultural resources in the APE (*see* Attachment C).

Table 2. Summary of Native American Consultation

Native American Contact Group	Native American Contact Name	Date of Initial Letter	Date(s) Reply Received	Comment
Coastanoan Rumsen Carmel Tribe	Tony Cerda, Chairperson 244 E. 1st Street Pomona, CA 91766	6/12/2018	7/13/2018	No response to date.
Amah Mutsun Tribal Band	Valentin Lopez, Chairperson PO Box 5272 Galt, CA 95632	6/12/2018	7/13/2018	No response to date.
Ohlone/Costanoan-Esselen Nation	Louise Miranda-Ramirez, Chairperson PO Box 1301 Monterey, CA 93942	6/12/2018	7/6/2018	Ms. Ramirez sent a letter and map requesting consultation with lead agency.
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers, Chairperson PO Box 28 Hollister, CA 95024	6/12/2018	7/13/2018	Ms. Sayer indicated that she is confident with Pacific Legacy's assessments.
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irenne Zwierlein, Chairperson 789 Canada Road Woodside, CA 94062	6/12/2018	7/13/2018	Ms. Zwierlein requested that the construction crew has sensitivity training to know when to call the archaeologists.

Archaeological Survey

A pedestrian archaeological survey of the Project Area was conducted by Pacific Legacy archaeologist Mary O'Neill, BA, on June 12, 2018. The purpose of the survey was to identify cultural resources that may be adversely impacted by ground disturbing activities associated with the Project.

The areas surveyed for this Project include both the north and south sides and the median of East Laurel Drive from Constitution Boulevard to Natividad Drive; the east side of Constitution Boulevard from East Laurel Drive to 350 feet west of Twin Creeks Drive; a segment of trail at Monterey County Vietnam Veterans Memorial Park from East Laurel Drive north to the Gabilan Creek pedestrian bridge; the trail around Natividad Creek detention basin from East Laurel Drive to the connection with Garner Avenue and Gee Street, and the north side of East Laurel Drive between the two trails (*see* Attachment B).

That portion of the current Project Area that was previously surveyed in 2015 by Pacific Legacy archaeologists for the East Laurel Drive Project (3116-01) include both sides of East Laurel Drive between North Sanborn Road and Constitution Boulevard (including the median) and on Constitution Boulevard from East Laurel Drive to an existing soccer field driveway (Holm 2015).

East Laurel Drive between Constitution Boulevard and Natividad Drive consists of a paved asphalt two-lane road with a single landscaped median that is bordered on the north side with concrete sidewalks and grass and some areas of overgrown weeds and the south side predominantly by earthen embankments with gravel and agricultural fields. Along the north side of the East Laurel Drive survey corridor, areas of exposed soil (brown to dark grayish brown, sandy loam to loam, 10YR 4/2 to 10 YR 4/3) were inspected in undeveloped areas or minimally developed areas (at the north end) that offered full (100%) ground surface visibility. Other areas, such as those subsumed by grass or concrete sidewalks, offered little or no (0-50%) ground surface visibility. Along the southern side of East Laurel Drive, large areas of exposed soil (yellowish brown sandy loam, 10YR 5/4) were also observed on the embankments and access road for the agricultural fields that offered full (100%) ground surface visibility. No cultural constituents were observed.

Constitution Boulevard consists of a paved asphalt two-lane road with a single landscaped median. The survey corridor, on the east side of Constitution Boulevard, is comprised of landscaped areas that include ornamental trees, shrubs, ivy, overgrown weeds with foxtails, and a riparian corridor (with willows) within and adjacent to an earthen ditch that parallels the survey corridor. No sidewalks are present although earthen footpaths persist. Areas of exposed soil (brown to dark grayish brown, sandy loam to loam, 10YR 4/2 to 10 YR 4/3) were inspected along the earthen footpath created by pedestrian foot-traffic; in between shrubbery and other vegetation; in areas with a sparse coverage of weeds; rodent burrows; and at the edge of the ditch in areas that offered full (100%) ground surface visibility. Other areas, such as those subsumed by shrubbery or ivy, offered little or no (0-10%) ground surface visibility. In some areas, on both sides of the ditch and within the ditch is debris from homeless encampments which includes cardboard, shopping carts, clothing, sleeping paraphernalia, discarded food containers, plastic bags, paper debris, plastic bottles, and other miscellaneous debris. No cultural constituents were observed.

Both sides of the segment of paved trail, at Monterey County Vietnam Veterans Memorial Park, from East Laurel Drive north to the Gabilan Creek pedestrian bridge were surveyed. A riparian corridor (drop-off) is to the north side of the trail. Dried grass, weeds, and a few shrubs are present on both sides of the trail with areas of exposed soil (dark grayish brown, sandy loam to loam, 10 YR 4/3) present. All areas with exposed soils were inspected. Ground surface visibility ranged from 5-20%. No cultural constituents were observed.

Both sides of the paved trail, around Natividad Creek detention basin from East Laurel Drive to the connection with Garner Avenue and Gee Street were surveyed. Dried grass, foxtails, and a few shrubs are present on both sides of the trail with patches of exposed soil (dark grayish brown, sandy loam to loam, 10 YR 4/3) and rodent burrows were present. All areas with exposed soils were inspected. Ground surface visibility ranged from 0-20%. No cultural constituents were observed.

Survey was conducted along the north side of East Laurel Drive, in the vicinity of the Natividad Creek Detention Basin and the Monterey County Vietnam Veterans Memorial Park, between the two trails. No sidewalks are present, although an earthen footpath is present as well as

overgrown weeds and vegetation. All areas with exposed soil (dark grayish brown, sandy loam to loam, 10 YR 4/3) were inspected. Ground surface visibility was generally 100%. No cultural constituents were observed.

No prehistoric or historic period cultural materials were observed during a surface examination of the Project Area, though areas of exposed soil at embankments, the base of vegetation and shrubbery, burrows, along edges of the trails, at the edge of the ditch, grassy areas, and earthen footpaths were carefully inspected for signs of midden, shell, charcoal, lithic material, etc. (see Attachment B). The residential neighborhoods at the east end of the Project Area appear to have been built post the 1960s, however none will be impacted by proposed ground disturbing activities associated with the Project.

Discussion of Results and Recommendations

Archival and records searches revealed that five cultural resource studies had been previously conducted within the Project Area. No known archaeological sites or historic buildings or structures lie within the Project Area. Reviews by the NAHC failed to identify any known cultural resources listed on the Sacred Lands Inventory within the Project Area. An updated contact list of potential Native American stakeholders identified by the NAHC as having knowledge of or concerns about the Project vicinity was provided by the NAHC and contact with potential Native American stakeholders has been initiated based on this list. Some responses have been received from potential stakeholders. The results of those contact efforts will be forwarded to the City of Salinas.

The recently conducted pedestrian archaeological survey of the Project Area, as well as the previous pedestrian inventory conducted by Pacific Legacy in 2015 of a portion of the current Project Area, revealed no signs of prehistoric or historic period cultural materials. Surface visibility was highly variable within the areas examined, but offered sufficient exposure to reveal substantial cultural deposits if present. Based on the negative findings from archival and records searches, searches of the Sacred Lands inventory, and the pedestrian survey, cultural resource monitoring of proposed ground disturbing activities within the Project Area is not advocated. Ground disturbing activities will be confined to the locations previously discussed along the proposed East Laurel Drive Sidewalk and Natividad Trail Improvements Project locations. The Project Area has been subject to previous heavy development associated with residential development and City infrastructure and it is unlikely that limited excavations will result in the discovery or disturbance of intact subsurface cultural remains.

Ground disturbing activities have the potential to reveal buried archaeological deposits not visible during surface inspection. Prior to initiating ground disturbing activities within the Project Area, construction personnel should be alerted to the possibility of encountering buried prehistoric or historic period cultural remains. Personnel should be advised that upon discovery of buried archaeological deposits, work in the immediate vicinity of the find should cease and a qualified archaeologist should be contacted immediately. Once the find has been identified, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed if it is found to be NRHP and/or CRHR eligible. Potential cultural materials include prehistoric and historic period artifacts and remains. These may consist of, but are not limited to:

- Historic artifacts, such as glass bottles and fragments, tin cans, nails, ceramic and pottery sherds, and other metal objects;
- Historic period features such as privies, wells, cellars, foundations or other structural remains (bricks, concrete, or other building materials);
- Flaked-stone artifacts and debitage, consisting of obsidian, basalt, and/or chert;
- Groundstone artifacts, such as mortars, pestles, and grinding slabs;
- Dark, almost black, soil with a “greasy” texture that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire-affected rock; and,
- Human remains.

If human remains are encountered during construction, work in that area must cease and the Monterey County Coroner must be notified immediately. If the remains are determined to be Native American, the NAHC must be notified within 48 hours as required by Public Resources Code 5097. The NAHC will notify the designated Most Likely Descendant, who will in turn provide recommendations for the treatment of the remains within 24 hours.

Should you have any questions regarding this report, please contact Samantha Schell, at 510.524.3991, ext. 105.

Sincerely,



Mary M. O'Neill
Supervisor
Pacific Legacy, Inc., Bay Area Division

Attachments:

Attachment A – Project Figure (Figure 1)
Attachment B – Photographic Documentation
Attachment C – Native American Documentation

References Cited

Busby, C.I.

- 2009 Archaeological Assessment Report - Laurel Natividad Conceptual Alternatives Development Project, Salinas, Monterey County, California. Report S-38928 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

California, State of

- 1976 *California Inventory of Historic Resources*. Department of Parks and Recreation, Office of Historic Preservation, Sacramento, California.
- 1992 *California Points of Historical Interest*. May 1992 and updates. Department of Parks and Recreation, Office of Historic Preservation, Sacramento, California.

California State Historic Preservation Office

- 1990 National Register of Historic Places (NRHP) in the *Directory of Determinations of Eligibility*, Volumes I and II and Computer Listing Updates. State of California Office of Historic Preservation, Sacramento, California.
- 1996 *California Historical Landmarks*. California State Parks, Sacramento.

California State Historic Preservation Office

- 2013 *Historic Properties Directory*. Listing by City. State of California Office of Historic Preservation, Sacramento, California.

Doane, M. and Trudy Haversat

- 2000 Preliminary Archaeological Reconnaissance of the Sanchez School Addition, Salinas, Monterey County, California. Report S-22767 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Hampson, R. Paul et al

- 1986 Preliminary Archaeological Reconnaissance and Historical Overview of the Bardin Ranch, El Sausal Rancho, Monterey County, California. Report S-8022 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Hatoff, B.

Hatoff, B. (for K. O'Connell)

- 2005 SHPO Consultation, Cellular Communications Tower Site — Natividad, 867 East Laurel Drive, Salinas, California. Report S-35434 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Haversat, T., and G. S. Breschini

- 1984 Preliminary Archaeological Reconnaissance of the 30 Acre Villa Ventana Development, Northeast Salinas, Monterey County, California. Report S-6456 on file at the Northwest

Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Historic Research Associates

2005 Cultural Resource Study of the Natividad Medical Center Project AT&T Wireless Services, Inc. Site No. SNFCCA2003C, 1410 Natividad Road, Salinas, Monterey County, California 93906. Report S-29912 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Holm, Lisa

2015 – Archaeological Survey (PL-3116-01) City of Salinas East Laurel Drive Project, Monterey County, California. On file at Pacific Legacy, Berkeley, Alameda County, CA.

Losee, C.

2001 Survey in Salinas, Monterey County (APN 261-443-006): Negative Results. Report S-23892 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

McLean, D.K.B.

2001 Department of Transportation Negative Archaeological Survey Report. Report S-26571 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Price, B.A.

1998 Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-822-02, Salinas, Monterey County, California. Report S-20587 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Roop, William

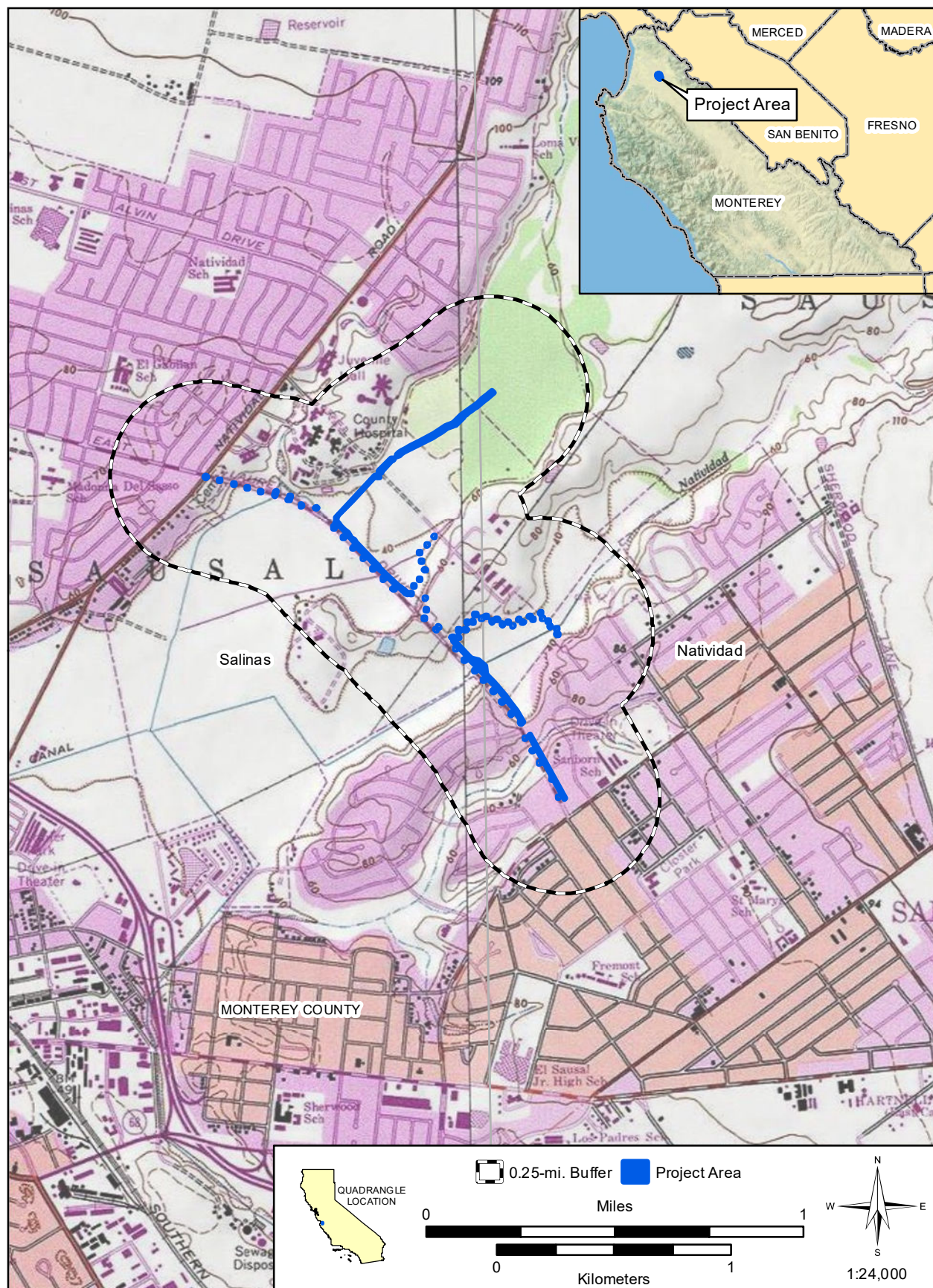
1978 Archaeological Survey for Thurst IV Homes subdivision, Salinas, Monterey County, California. Report S-5558 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

U.S. Geological Survey (USGS)

1984 Natividad 7.5' USGS topographic map.

1984 Salinas 7.5' USGS topographic map.

ATTACHMENT A: PROJECT FIGURES



Attachment A, Figure 1. East Laurel Drive Sidewalk and Natividad Trail Improvements Project Location.

ATTACHMENT B: PHOTOGRAPHIC DOCUMENTATION

Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 1

Direction: Southwest

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:
Mary O'Neill

Description:

(IMG-9910) Overview of
survey corridor towards East
Laurel Drive.



Photograph No. 2

Direction: Southwest

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:
Mary O'Neill

Description:

(IMG-9911) Overview of
portion of survey corridor
from soccer field entrance,
towards East Laurel Drive.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 3

Direction: Northeast

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:

Mary O'Neill

Description:

(IMG-9914) Overview of
survey corridor (with ditch to
right) from soccer field
entrance, towards Twin
Creeks Drive.



Photograph No. 4

Direction: Northeast

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:

Mary O'Neill

Description:

(IMG-9915) Overview of
survey corridor with dense
vegetation and ivy coverage.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 5

Direction: Southeast

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:
Mary O'Neill

Description:

(IMG-9919) Northeast end of
survey corridor along
Constitution Boulevard.
Ditch, overgrown with
foxtails, parallels the edge of
the survey corridor.



Photograph No. 6

Direction: Southwest

Date: 06/12/18

Location: East side of
Constitution Boulevard

Photographer:
Mary O'Neill

Description:

(IMG-9921) Overview of
survey corridor near
northeast end of Constitution
Boulevard towards East
Laurel Drive.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 7

Direction: Northwest

Date: 06/12/18

Location: East Laurel Drive

Photographer:

Mary O'Neill

Description:

(IMG-9923) Overview of survey corridor (for street lighting) along both sides of East Laurel Drive and on the short section of median. View from Constitution Boulevard towards Natividad Road.



Photograph No. 8

Direction: Southeast

Date: 06/12/18

Location: East Laurel Drive

Photographer:

Mary O'Neill

Description:

(IMG-9925) Overview of survey corridor (for street lighting) along both sides of East Laurel Drive and on the median. View from Constitution Boulevard towards Sanborn Road.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 9

Direction: Southeast

Date: 06/12/18

Location: Vietnam Veterans Memorial Park

Photographer:
Mary O'Neill

Description:

(IMG-9926) Overview of survey corridor along both sides of paved trail.



Photograph No. 10

Direction: Northeast

Date: 06/12/18

Location: Vietnam Veterans Memorial Park

Photographer:
Mary O'Neill

Description:

(IMG-9927) Overview of survey corridor along both sides of paved trail. Riparian corridor along left side, outside survey area.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 11

Direction: Northwest

Date: 06/12/18

Location: Vietnam Veterans Memorial Park

Photographer:
Mary O'Neill

Description:

(IMG-9930) Overview of survey corridor along both sides of paved trail. View towards East Laurel Drive from memorial.



Photograph No. 12

Direction: Southeast

Date: 06/12/18

Location: East Laurel Drive

Photographer:
Mary O'Neill

Description:

(IMG-9931) Overview of portion of survey corridor along East Laurel Drive towards Sanborn Road.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 13

Direction: Southeast

Date: 06/12/18

Location: East Laurel Drive

Photographer:

Mary O'Neill

Description:

(IMG-9934) Overview of portion of survey corridor along East Laurel Drive towards Sanborn Road.



Photograph No. 14

Direction: Northeast

Date: 06/12/18

Location: Natividad Creek

Detention Basin

Photographer:

Mary O'Neill

Description:

(IMG-9935) Overview of survey corridor along paved trail from East Laurel Drive to bridge at Garner Avenue and Gee Street.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 15

Direction: Northeast

Date: 06/12/18

Location: Natividad Creek
Detention Basin

Photographer:
Mary O'Neill

Description:

(IMG-9936) Overview of survey corridor along paved trail from East Laurel Drive to bridge at Garner Avenue and Gee Street.



Photograph No. 16

Direction: Southeast

Date: 06/12/18

Location: Natividad Creek
Detention Basin

Photographer:
Mary O'Neill

Description:

(IMG-9938) Overview of end of survey corridor (along both sides of paved trail) at bridge at Garner Avenue and Gee Street.



Attachment B: Pacific Legacy Photographic Documentation

Client: Kimley-Horn

Prepared by: M. O'Neill

Photograph No. 17

Direction: East

Date: 12/03/15

Location: Natividad Creek
Detention Basin

Photographer:
Mary O'Neill

Description:

(DSCO-4957) Overview of structure at Natividad Creek Detention Basin with edge of trail in the foreground; view from East Laurel Drive.



Photograph No. 18

Direction: Northwest

Date: 12/03/15

Location: Natividad Creek
Detention Basin

Photographer:
Mary O'Neill

Description:

(DSCO-4958) Overview of existing trail north of East Laurel Drive, between detention basin and roadway.



ATTACHMENT C: NATIVE AMERICAN CONTACT DOCUMENTATION

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: East Laurel, Phase II

County: Monterey

USGS Quadrangle Name: Salinas - Located in un-sectioned land on Land Grant, Civil Colonies.

Township:_____ **Range:**_____ **Section(s):**_____

USGS Quadrangle Name: Natividad - Located in un-sectioned land on Land Grant, Civil Colonies.

Township:_____ **Range:**_____ **Section(s):**_____

Company/Firm/Agency: Pacific Legacy, Inc.

Street Address: 900 Modoc Street

City: Berkeley

Zip: 94707

Phone: 510/524-3991 x105

Fax: _____

Email: schell@pacificlegacy.com

Project Description: The City of Salinas proposes to improve East Laurel Drive from North Sanborn Road to Constitution Boulevard and Constitution Boulevard between East Laurel Drive and 350 feet west of Twin Creek Drive.

The purpose of the proposed project is to close the sidewalk gap within the project area and provide nighttime lighting along the roadway and the trail around Natividad Creek detention pond.

Project includes installtion of new six-foot sidewalks with curb and gutter, ADA ramps, and lighting with a maximum depth of 2.5 feet.

Respond

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From: NAHC@NAHC [NAHC@nahc.ca.gov]

Sent: Fri 6/1/2018 2:04 PM

To: Samantha Schell

Subject: Read: Sacred Lands File Request

Your message

To:

Subject: Sacred Lands File Request

Sent: Friday, June 1, 2018 5:03:51 PM (UTC-05:00) Eastern Time (US & Canada)

was read on Friday, June 1, 2018 5:03:48 PM (UTC-05:00) Eastern Time (US & Canada).

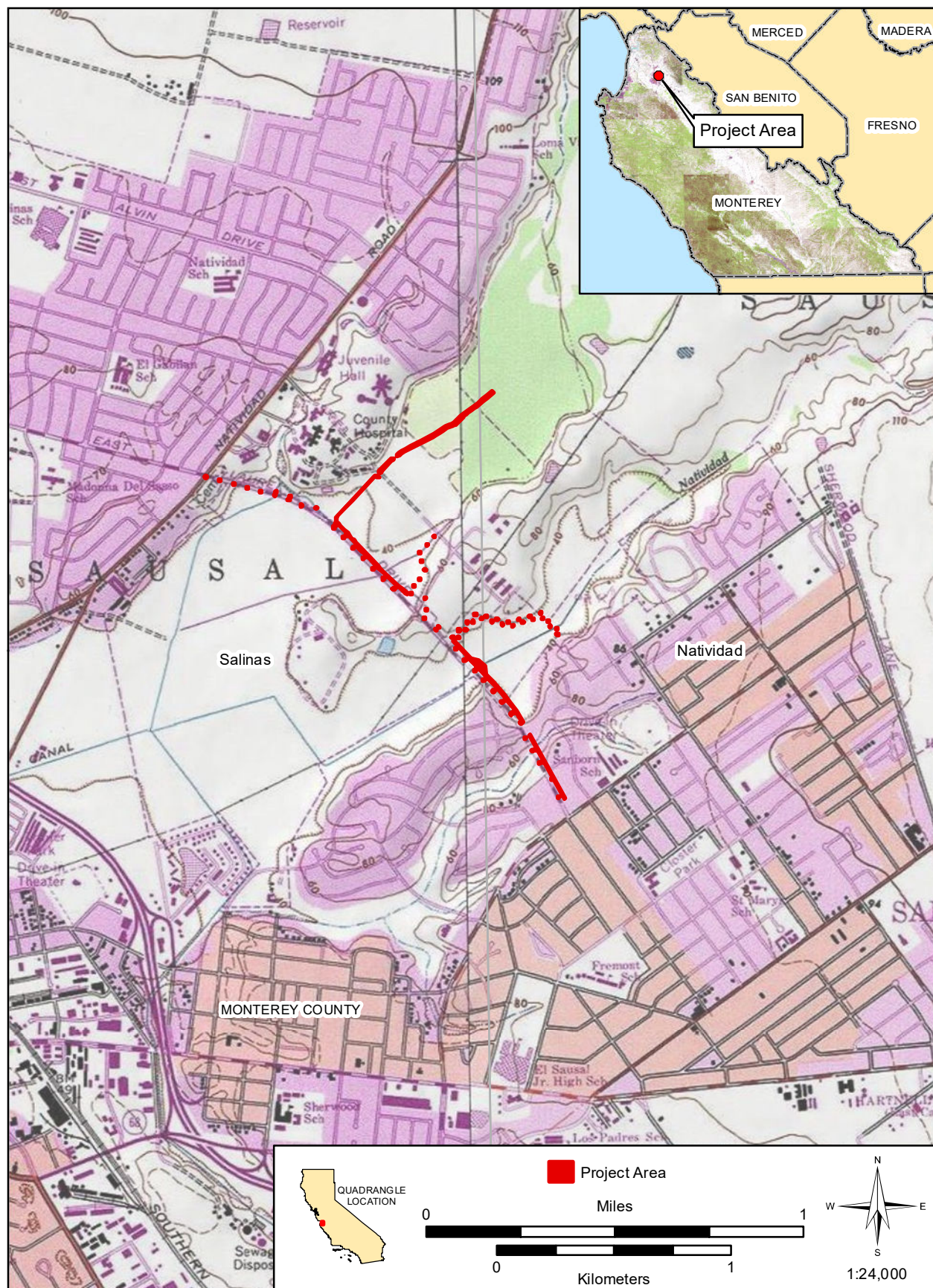


Figure 1. Salinas East Laurel Drive Project Location.

NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471



June 4, 2018

Samantha Schell

Pacific Legacy, Inc.

Sent by Email: schell@pacificlegacy.com

Re: East Laurel, Phase II, Monterey County

Dear Ms. Schell,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to be "Frank Lienert".

Frank Lienert
Associate Governmental Program Analyst

**Native American Heritage Commission
Native American Contacts
6/4/2018**

Coastanoan Rumsen Carmel Tribe
Tony Cerda. Chairperson
244 E. 1st Street Ohlone/Costanoan
Pomona, CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081

Ohlone/Costanoan-Esselen Nation
Louise Miranda-Ramirez. Chairperson
P.O. Box 1301 Esselen
Monterey, CA 93942 Ohlone/Costanoan
ramirez.louise@yahoo.com
(408) 629-5189
408-661-2486 Cell

Amah Mutsun Tribal Band
Valentin Lopez. Chairperson
P.O. Box 5272 Ohlone/Costanoan
Galt, CA 95632 Northern Valley Yokuts
vlopez@amahmutsun.org
(916) 743-5833

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irene Zwiernie. Chairperson
789 Canada Road Ohlone/Costanoan
Woodside, CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 851-7747 Office
(650) 332-1526 Fax

Indian Canyon Mutsun Band of Costanoan
Ann Marie Savers. Chairperson
P.O. Box 28 Ohlone/Costanoan
Hollister, CA 95024
ams@indiancanyon.org
(831) 637-4238

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
East Laurel, Phase II, Monterey County

Ohlone/Costanoan-Esselen Nation



*Previously acknowledged as
The San Carlos Band of Mission Indians
The Monterey Band
And also known as
O.C.E.N. or Esselen Nation
P.O. Box 1301
Monterey, CA 93942*

www.ohlonecostanoanesselenation.org.

Re: Letter received June 20, 2018`

Saleki Atsa,

Ohlone/Costanoan-Esselen Nation is an historically documented previously recognized tribe. OCEN is the legal tribal government representative for over 600 enrolled members of Esselen, Carmeleno, Monterey Band, Rumsen, Chalon, Soledad Mission, San Carlos Mission and/or Costanoan Mission Indian descent of Monterey County. Though other indigenous people may have lived in the area, the area is the indigenous homeland of our people. Included with this letter please find a territorial map by Taylor 1856; Levy 1973; and Milliken 1990, indentifying Tribal areas.

Ohlone/Costanoan-Esselen Nation objects to all excavation in known cultural lands, even when they are described as previously disturbed, and of no significant archaeological value. Please be advised that it is our priority that our ancestor's remains be protected and undisturbed. We desire that all sacred burial items be left with our ancestors on site or as culturally determined by OCEN. We request all cultural items returned to Ohlone/Costanoan-Esselen Nation. We ask for the respect that is afforded all our current day deceased, by no other word these burial sites are cemeteries, respect for our ancestors as you would expect respect for your deceased family members in today's cemeteries. **Our definition of respect is no disturbance.**

OCEN's Tribal leadership desires to be provided with:

Archaeological reports/surveys, including subsurface testing, and presence/absence testing.

OCEN request to be included in mitigation and recovery programs,

OCEN request that Cultural and Tribal mitigation measures reflect request for OCEN Tribal Monitor,

Reburial of any of our ancestral remains, burial artifacts,

Placement/return of all cultural items to OCEN, and that

A Native American Monitor of Ohlone/Costanoan-Esselen Nation, approved by the OCEN Tribal Council is used within our aboriginal territory.

OCEN request consultation with the lead agency.

We ask that a sacred lands search with the Northwest Information Center, Sonoma State University and the Native American Heritage Commission. Please feel free to contact me at (408) 629-5189. Nimasianexelpasaleki. Thank you

Sincerely and Respectfully Yours,


Louise J. Miranda Ramirez, Chairperson

Ohlone/Costanoan-Esselen Nation

(408) 629-5189

Cc: OCEN Tribal Council

June 12, 2018

Ohlone/Costanoan-Esselen Nation
Louise Miranda-Ramirez, Chairperson
PO Box 1301
Monterey, CA 93942

Re: East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) in Salinas, Monterey County, CA (PL#3417.01)

Dear Chairperson Miranda-Ramirez:

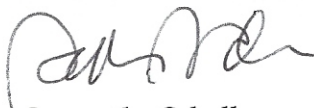
We have been retained by Kimley-Horn to conduct an archaeological assessment for a proposed project located in Salinas along East Laurel Drive Sidewalk and the Natividad Trail in Monterey County. The project will result in subsurface disturbances of approximately 2.5 feet.

The attached map provides the area of potential impact indicated on the Salinas and Natividad, CA 7.5' USGS Quadrangles.

The Sacred Lands Inventory on file with the Native American Heritage Commission (NAHC) has been reviewed. This review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided us with your name as a contact to identify any locations of concern to local Native American Groups within the project area. If appropriate, please provide us with any information you may have regarding locations of concern in the project area. This information will be used for project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as "environmentally sensitive area".

You may respond by mail, email, phone, or visit our office in Berkeley to inspect our research files. We anticipate receiving your reply within 14 days. At present, there is no date for start of construction. If you have any questions, please contact me, at (510) 524-3991 ext. 105. Thank you for your kind attention to this matter.

Sincerely,



Samantha Schell
Archaeologist
Bay Area Division
900 Modoc Street
Berkeley, CA 94707
Ph. 510-524-3991 x105

Attachment: Project Area on the Salinas and Natividad 7.5' USGS Quadrangle

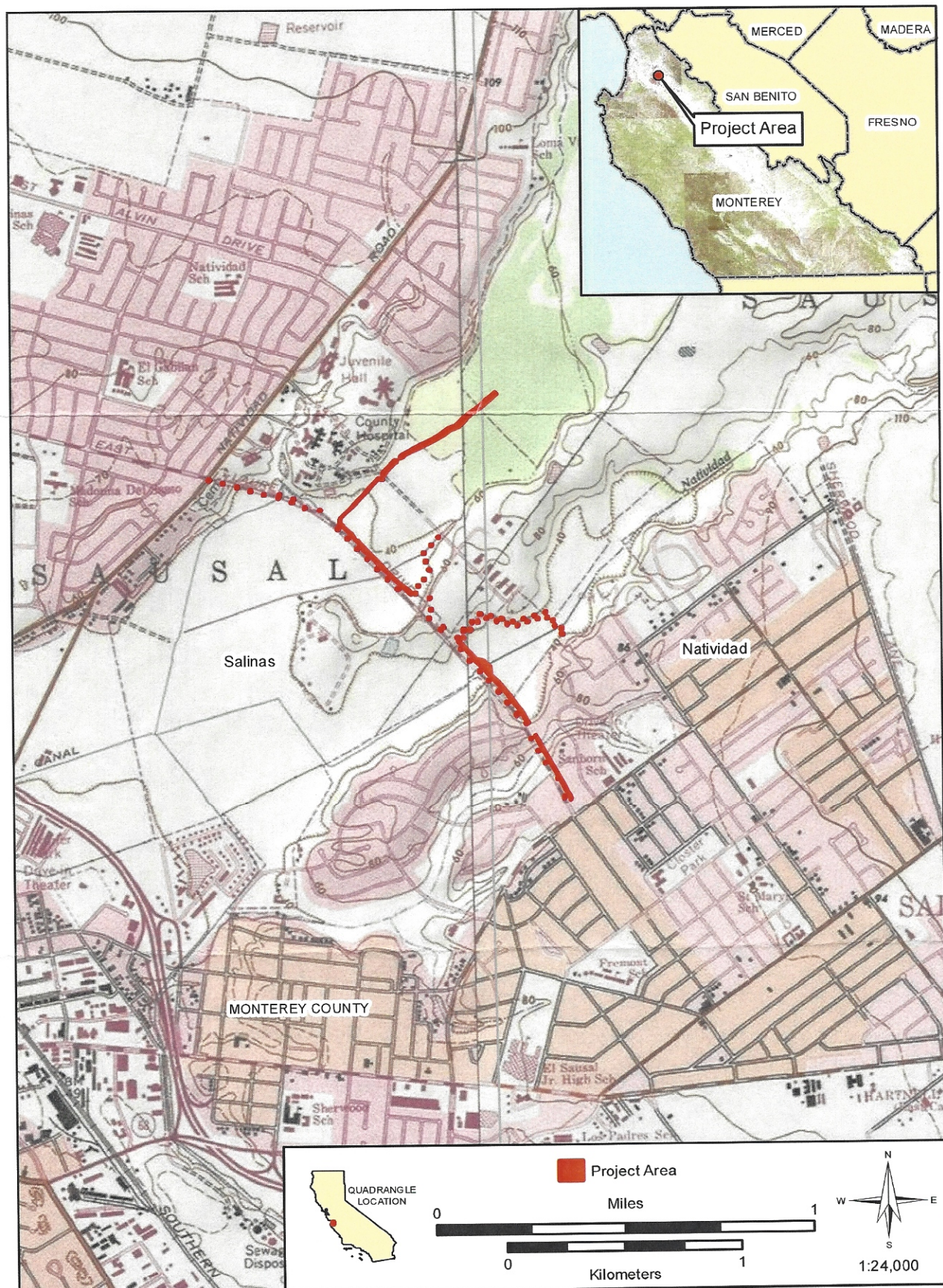


Figure 1. Salinas East Laurel Drive Project Location.

Distribution of Ohlone/Costanoan-Esselen Nation Tribal Rancherías, Districts, Landgrants and Historic Landmarks

OCEN DIRECT LINEAL DESCENT

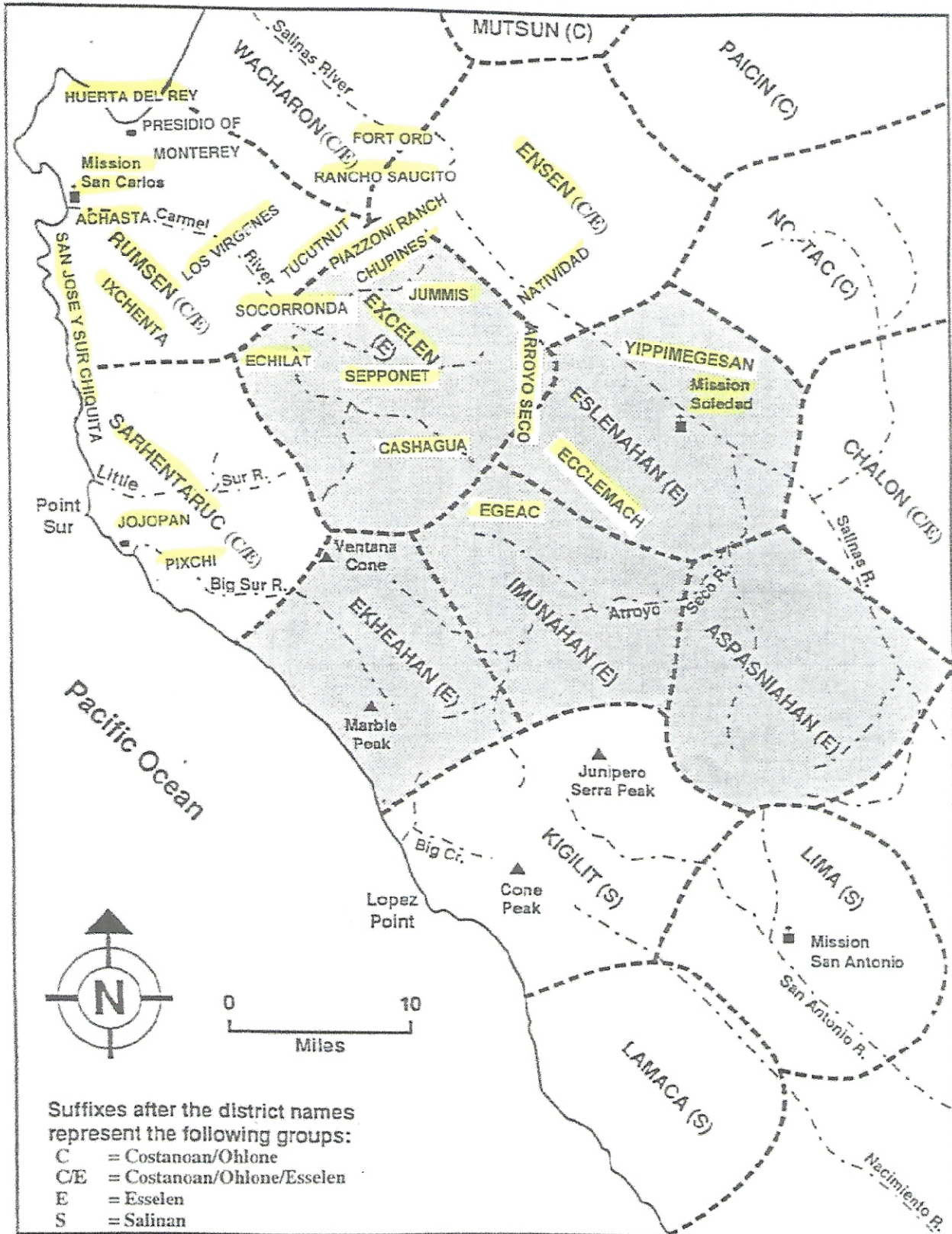


Figure 2:

Map after Taylor 1856; Levy 1973; Hester 1978; Milliken 1990

Pacific Legacy Inc.
Native American Contact Log

Project No. and Name:
PL 3417-01: East Laurel Drive Sidewalk
and Natividad Trail Improvements (Phase
II)

Pacific Legacy Representative:
Samantha Schell

Organization	Contact	Letter	Phone	E-mail	Comments
Native American Heritage Commission	Frank Lienert	06/04/2018 (dated) Received 6/12/2018	-	-	The Sacred Lands Inventory on file with the Native American Heritage Commission (NAHC) has been reviewed. This review failed to indicate the presence of cultural resources in the immediate project area.
Coastanoan Rumsen Carmel Tribe	Tony Cerda, Chairperson 244 E. 1st Street Pomona, CA 91766	6/12/2018	909-524-8041 909-629-6081		VM message on cell, no answer on land line 7/13/2018
Amah Mutsun Tribal Band	Valentin Lopez, Chairperson PO Box 5272 Galt, CA 95632	6/12/2018	906-743-5833		VM message 7/13/2018
Ohlone/Costanoan-Esselen Nation	Louise Miranda-Ramirez, Chairperson PO Box 1301 Monterey, CA 93942	6/12/2018	408-629-5189 408-661-2486	7/6/2018	Sent letter requesting consultation with lead agency received 7/6/2018.
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers, Chairperson PO Box 28 Hollister, CA 95024	6/12/2018	831-637-4238		Reached Ms. Sayers who said, "I have the utmost respect for Pacific Legacy. What is your take on this project?" I said it was the second phase of a bike/pedestrian trail project conducted in 2013 with negative results. She said if we are confident, she is confident. 7/13/2018
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irenne Zwierlein, Chairperson 789 Canada Road Woodside, CA 94062	6/12/2018	650-851-7489 650-851-7747		Reached. She asked if there were any resources found, I said no. She asked to make sure the crew had sensitivity training to know when to call the archaeologists.

June 12, 2018

Coastanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA 91766

Re: East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II) in Salinas, Monterey County, CA (PL#3417.01)

Dear Chairperson Cerda:

We have been retained by Kimley-Horn to conduct an archaeological assessment for a proposed project located in Salinas along East Laurel Drive Sidewalk and the Natividad Trail in Monterey County. The project will result in subsurface disturbances of approximately 2.5 feet.

The attached map provides the area of potential impact indicated on the Salinas and Natividad, CA 7.5' USGS Quadrangles.

The Sacred Lands Inventory on file with the Native American Heritage Commission (NAHC) has been reviewed. This review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided us with your name as a contact to identify any locations of concern to local Native American Groups within the project area. If appropriate, please provide us with any information you may have regarding locations of concern in the project area. This information will be used for project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as "environmentally sensitive area".

You may respond by mail, email, phone, or visit our office in Berkeley to inspect our research files. We anticipate receiving your reply within 14 days. At present, there is no date for start of construction. If you have any questions, please contact me, at (510) 524-3991 ext. 105. Thank you for your kind attention to this matter.

Sincerely,

Samantha Schell
Archaeologist
Bay Area Division
900 Modoc Street
Berkeley, CA 94707
Ph. 510-524-3991 x105

Attachment: Project Area on the Salinas and Natividad 7.5' USGS Quadrangle

Business Office
PO Box 6050
Arnold, CA 95223
209.795.4481 Ph.
209.795.1967 Fax

Pacific Basin
30 Aulike St. #301
Kailua, HI 96734
808.263.4800 Ph.
808.263.4300 Fax

Sierra/Central Valley
4919 Windplay Dr. #4
El Dorado Hills, CA 95762
916.358.5156 Ph.
916.358.5161 Fax

Pacific Legacy Inc.
Native American Contact Log

Project No. and Name: PL 3417-01: East Laurel Drive Sidewalk and Natividad Trail Improvements (Phase II)	Pacific Legacy Representative: Samantha Schell
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Organization	Contact	Letter	Phone	E-mail	Comments
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Amah Mutsun Tribal Band	Valentin Lopez, Chairperson PO Box 5272 Galt, CA 95632	6/12/2018	906-743-5833		VM message 7/13/2018; Returned call 7/17/2018. If any cultural resources are found during construction Amah Mutsun Tribal Band wants to be notified.
Ohlone/Costanoan-Esselen Nation	Louise Miranda-Ramirez, Chairperson PO Box 1301 Monterey, CA 93942	6/12/2018	408-629-5189 408-661-2486	7/6/2018	Sent letter requesting consultation with lead agency received 7/6/2018.
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers, Chairperson PO Box 28 Hollister, CA 95024	6/12/2018	831-637-4238		Reached Ms. Sayers who said, "I have the utmost respect for Pacific Legacy. What is your take on this project?" I said it was the second phase of a bike/pedestrian trail project conducted in 2013 with negative results. She said if we are confident, she is confident. 7/13/2018
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irenne Zwierlein, Chairperson 789 Canada Road Woodside, CA 94062	6/12/2018	650-851-7489 650-851-7747		Reached. She asked if there were any resources found, I said no. She asked to make sure the crew had sensitivity training to know when to call the archaeologists.

MEETING NOTES AND ACTION ITEMS

OCTOBER 3, 2018

NATIVE AMERICAN CONSULTATION FOR EAST LAUREL DRIVE PED IMPROVEMENTS WITH LOUISE MIRANDA-RAMIREZ AND CITY OF SALINAS

Attendees:

Louise Ramirez, Chair for Ohlong/Constanoan-Esselen Nation	Eda Herrera, City of Salinas	Jonathan Estes, City of Salinas
Dana Privitt, Kimley Horn	Samantha Schell, Pacific Legacy	

1. Louise asked if there were any testing done by Pacific Legacy at this project location. Samantha Schell from Pacific Legacy explained that no testing occurred because the records search and archaeological survey were negative within the 2.5 mile buffer area. In addition, the detention pond is a man made body of water.
2. Louise does not agree with the comment from Amah Mutsun tribe on sensitive training for construction crews to know when to call an archaeologist. Louise also disagrees with other Native American contact groups commenting on this project that is not in their "Home Land".
3. Louise request that the Tribal Monitoring occur on this project where original soil is being disturbed, even if it is 12" deep excavation. She understands that the fill on the East Laurel Road is not necessary to monitor. Monitors are elders from her tribe that are trained to oversee construction. An archeologists that she uses is Alan Leventhal from San Jose State University.
4. Louise has requested copies of any archeological reports from East Laurel Drive to keep on file. The draft initial study and MND cannot be released during the internal review process. Final IS/MND will be published sometime in November 2018.
5. Louise would like the City and tribe to arrive to an agreement on the handling of artifacts, if any are found on this project. She emphasized the importance that artifacts should not be removed until the tribe is contacted.
6. Louise would like a copy of the East Laurel Plans that built the road.
7. Louise would like a copy of today's minutes.
8. Louise and tribe are interested in construction projects that occur where there is body of water.

ACTION ITEMS:

City of Salinas:

- Send minutes, East Laurel plans from road construction, concept plans and any reports that are in our files that are public information to Louise.
- Send minutes to Dana Privitt.

Appendix D: Geotechnical Investigation



Type of Services	Geotechnical Investigation
Project Name	East Laurel Drive Sidewalk Improvements
Location	East Laurel Drive Salinas, California
Client	Kimley-Horn and Associates, Inc.
Client Address	765 The City Drive, Suite 200 Orange, California
Project Number	234-36-1
Date	August 9, 2018

DRAFT

Prepared by **Scott E. Fitinghoff, P.E., G.E.**
Principal Engineer
Geotechnical Project Manager

Nicholas S. Devlin
Senior Project Engineer
Quality Assurance Reviewer

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FIGURE 1: VICINITY MAP

FIGURE 2: SITE PLAN

FIGURE 3: REGIONAL FAULT MAP

FIGURE 4: CROSS-SECTION A-A'

APPENDIX A: FIELD INVESTIGATION

APPENDIX B: LABORATORY TEST PROGRAM

Type of Services	Geotechnical Investigation
Project Name	East Laurel Drive Sidewalk Improvements
Location	East Laurel Drive Salinas, California

SECTION 1: INTRODUCTION

This proposed geotechnical report was prepared for the sole use of Kimley-Horn and Associates, Inc. for the East Laurel Drive Sidewalk Improvements in Salinas, California. The location of the site is shown on the Vicinity Map, Figure 1. For our use, we were provided with the following documents:

- A plan set titled “Laurel Drive Pedestrian Improvements, Geometric Layout – Laurel Drive”, prepared by Kimley-Horn, dated June 2018.
- A topographic plan titled “Laurel Drive Pedestrian Improvements”, prepared by the City of Salinas, dated February 2018.
- A plan titled “City of Salinas, East Laurel Drive Sidewalk and Natividad Trail Improvements”, prepared by Kimley-Horn, dated November 9, 2017.
- An untitled utilities plan of East Laurel Drive prepared by Kimley-Horn, undated.

1.1 PROJECT DESCRIPTION

The project will consist of sidewalk improvements along East Laurel Drive between Constitution Boulevard and North Sanborn Road. The planned improvements will consist of a new pedestrian sidewalk along the northern east side of East Laurel Drive. The sidewalk improvements will consist of a typical concrete sidewalk and an elevated boardwalk where the sidewalk will be constructed over the top of the existing East Laurel Drive roadway embankment. The boardwalk is planned to be constructed adjacent to the Natividad Creek detention basin at the approximate location shown on the Site Plan, Figure 2. The total length of planned pedestrian improvements will be approximately 1½ miles. Underground utilities, lights, and landscape retaining walls may also be constructed as part of the project.

1.2 SCOPE OF SERVICES

Our scope of services was presented in our proposal dated March 12, 2018 and consisted of field and laboratory programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis to prepare recommendations for site work and grading, boardwalk foundations, flatwork, trench backfill, and preparation of this report. Brief descriptions of our exploration and laboratory programs are presented below.

1.3 EXPLORATION PROGRAM

Field exploration consisted of eight borings drilled on May 22 and 23, 2018 with track mounted, limited-access, hollow-stem auger drilling geoprobe. The borings were drilled to depths ranging from 4½ to 46½ feet. The borings were backfilled with cement grout in accordance with local requirements; exploration permits were obtained as required by local jurisdictions.

The approximate locations of our exploratory borings are shown on the Site Plan, Figure 2. Details regarding our field program are included in Appendix A.

1.4 LABORATORY TESTING PROGRAM

In addition to visual classification of samples, the laboratory program focused on obtaining data for foundation design and seismic ground deformation estimates. Testing included moisture contents, dry densities, Plasticity Index tests, and triaxial compression tests. Details regarding our laboratory program are included in Appendix B.

1.5 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

SECTION 2: REGIONAL SETTING

2.1 REGIONAL SEISMICITY

The greater San Francisco Bay area is recognized by geologists and seismologists as one of the most seismically active regions in the United States. Significant earthquakes occurring in the Bay area are generally associated with crustal movement along well-defined, active fault zones of the San Andreas Fault system. A regional fault map is presented as Figure 3, illustrating the relative distances of the site to significant fault zones.

The San Andreas Fault generated the great San Francisco earthquake of 1906 and the Loma Prieta earthquake of 1989, and passes about 11.4 miles northeast of the site. A number of other faults exist in the Monterey Bay region. The Working Group on California Earthquake Probabilities (2007) developed estimates of earthquake probabilities in the San Francisco Bay area for the period from 2002 to 2031. Their most recent study suggests the probability of a

magnitude 6.7 or greater earthquake occurring during this time period in the San Francisco Bay region remained consistent with their conclusion in 2003 (62%). Their estimates of the probability of a magnitude 6.7 or greater earthquake on the northern segment of the San Andreas Fault which is the closest segment of the San Andreas to the subject site has been revised from 11 percent to 21 percent in that time period. During such an earthquake the danger of fault ground rupture at the sites is slight, but very strong to severe ground shaking would occur.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The tables below present the State-considered active faults within 25 kilometers of each site.

Table 1: Approximate Fault Distances

Fault Name	Distance	
	(miles)	(kilometers)
Rinconada	5.7	9.2
Zayante Vergeles	8.5	13.6
San Andreas (1906)	11.4	18.4
Monterey Bay-Tularcitos	14.7	23.7

A regional fault map is presented as Figure 3, illustrating the relative distances of the site to significant fault zones.

SECTION 3: SITE CONDITIONS

3.1 SURFACE DESCRIPTION

As discussed before, the project will consist of sidewalk improvements along East Laurel Drive in Salinas, California. The project consists of three parts which are designated by stations from the plans provided to us by Kimley-Horn and Associates dated June 2018. We understand the three parts are:

- Part 1 – The northern sidewalk (Station 1+00 to Station 46+25)
- Part 2 – The boardwalk (Station 56+25 to Station 71+25)
- Part 3 – The southern sidewalk (Station 71+25 to Station 81+25)

3.1.1 Part 1

The northern sidewalk area is currently occupied by a narrow dirt path at the edge of the existing East Laurel Drive embankment which is currently used for pedestrian traffic. The depth of the embankment height is approximately 2½ to 3 feet. The edges of the embankment was observed to have vegetation growth ranging from grass, bushes, and small trees.

3.1.2 Part 2

The boardwalk area is currently occupied by vegetation growth and a narrow unimproved dirt path located at the edge of the existing East Laurel Drive embankment that is currently used by pedestrians. The embankment height varies from 3½ to approximately 24 feet in depth and has an approximate slope of 1:1. The edge of the embankment is inhabited by vegetation of tall grass, bushes, and small trees. This area is adjacent to the Natividad Creek detention basin and the embankment is located between the basin and the East Laurel Drive. We observed concrete rubble present in the embankment surface while drilling our borings.

3.1.3 Part 3

On the southern sidewalk area, the area is occupied by a mixture of an aggregate base walking trail and a narrow unimproved dirt path used by pedestrians. The embankment height varies from to approximately 24 feet until it feathers back to existing grade while approaching North Sanborn Road and has an approximate slope of 1:1. The edge of the embankment is covered by vegetation of tall grass, bushes, and small trees.

Utilities are a concern on all parts of this project, the major one being an active gas line. According to PG&E, there is an active gas line located approximately 7 to 9 feet deep and is within 10 feet of the planned sidewalk improvement project. Additionally, there are overhead wires that are present along the area where the boardwalk is planned.

3.2 SUBSURFACE CONDITIONS

Below the surface, our Exploratory Borings EB-1 through EB-7 encountered fills ranging from 6 to 44 feet below the existing grades. The undocumented fill consists of loose, poorly graded sands, medium dense clayey sand, medium stiff to hard lean clays, very stiff silts, and stiff to very stiff fat clays. In general, based on our observation of the samples from our borings, it appears the undocumented fill was compacted during placement consistent with typical roadway embankment construction practices.

Part 1 – Northern Sidewalk Area (Borings EB-1 and EB-2)

In Boring EB-1, our exploration encountered 6 feet of undocumented fill underlain by soft to medium stiff fat clays to a depth of 9½ feet, underlain by medium stiff lean clays to a depth of 12½ feet underlain by soft fat clay to a depth of 20 feet, the terminal depth of EB-1. In Boring EB-2, our exploration encountered 7½ feet of undocumented fill underlain by stiff to medium stiff fat clays to a depth of 15 feet, the terminal depth of EB-2.

Part 2 – Boardwalk Area (Borings EB-3 to EB-7)

In Boring EB-3, our exploration encountered 14½ feet of undocumented fill underlain by medium dense sands to a depth of 15 feet, the terminal depth of EB-3. In Boring EB-4, our exploration encountered 16 feet of undocumented fill underlain by medium dense poorly graded sand to a depth of 19 feet, underlain by stiff fat clay to a depth of 23½ feet, underlain by stiff peat organics

to a depth of 30 feet, underlain by stiff fat clay to a depth of 33½ feet, underlain by stiff lean clay with sand to a depth of 36½ feet, the terminal depth of EB-4. In Boring EB-5 below the minor aggregate base layer, our exploration encountered 14 feet of undocumented fill underlain by hard fat clays to a depth of 17 feet, underlain by hard sandy lean clays to a depth of 22 feet, underlain by medium stiff to stiff lean clay, underlain by hard sandy clays to a depth of 30 feet, the terminal depth of EB-5. Beneath the 8 inches of aggregate base, Boring EB-6 encountered undocumented fill to the terminal depth of 30½ feet below the existing grade. We attempted to drill EB-7 between EB-6 and EB-8; however, we could not drill the boring at this location because of the close proximity to the gas line and powerlines. In Boring EB-7, our exploration encountered 44 feet of undocumented fill underlain by stiff lean clay to the maximum depth explored of 46½ feet. Our Geologic Cross-Section A-A' (Figure 4) shows the material encountered in our exploratory borings and the depth of the embankment fill.

Part 3 – Southern Sidewalk Area (Borings EB-8)

Beneath the 8 inches of aggregate base, Boring EB-8 encountered very stiff lean clay to the maximum depth of 4½ feet.

3.2.1 Plasticity/Expansion Potential

We performed two Plasticity Index (PI) tests on representative samples. Test results were used to evaluate expansion potential of surficial soils. The first test was performed on a sample from our Boring EB-4 at a depth of 2 feet and resulted in a PI of 22 indicating low to moderate expansion potential to wetting and drying cycles. The second test was performed on a sample from our Boring EB-7 at a depth of 40 feet which resulted in a PI of 66 indicating very high expansion potential to wetting and drying cycles.

3.2.2 In-Situ Moisture Contents

Laboratory testing indicated that the in-situ moisture contents within the upper 10 feet range from at optimum to 12 percent over the estimated laboratory optimum moisture content. We note the soil below the upper 10 feet had moisture contents varying from optimum to more than 100 percent over (in the peat soil) the estimated laboratory optimum moisture.

3.3 GROUND WATER

Ground water was encountered in our Borings EB-2 and EB-4 at depths of 14 to 19 feet below the existing grades. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered. Groundwater was not observed in Borings EB-1, EB-3, and EB-5 through EB-8.

Historic high ground water levels for the site indicate a ground water depth of approximately 10 feet below current grades at the top of the embankment according to Department of Water Resources. In general, fluctuations in ground water levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

Based on the above information and our experience in the vicinity of the site, we estimate a high ground water level of 10 feet below existing grades and recommend 10 feet be used for design.

3.4 CORROSION SCREENING

We tested three sample collected at depths ranging from 1½ to 45½ feet for resistivity, pH, soluble sulfates, and chlorides. The laboratory test results are summarized in Table 2A.

Table 2A: Summary of Corrosion Test Results

Sample Location	Depth (feet)	Soil pH ¹	Resistivity ² (ohm-cm)	Chloride ³ (mg/kg)	Sulfate ^{4,5} (mg/kg)
EB-4	1½	8.2	2,478	<2	32
EB-5	24	7.9	1,428	62	181
EB-7	45½	7.4	1,519	88	84

Notes: ¹ASTM G51
²ASTM G57 - 100% saturation
³ASTM D3427/Cal 422 Modified
⁴ASTM D3427/Cal 417 Modified
⁵1 mg/kg = 0.0001 % by dry weight

Many factors can affect the corrosion potential of soil including moisture content, resistivity, permeability, and pH, as well as chloride and sulfate concentration. Typically, soil resistivity, which is a measurement of how easily electrical current flows through a medium (soil and/or water), is the most influential factor. In addition to soil resistivity, chloride and sulfate ion concentrations, and pH also contribute in affecting corrosion potential.

3.4.1 Preliminary Soil Corrosion Screening

Based on the laboratory test results summarized in Table 2A and published correlations between resistivity and corrosion potential, the soils may be considered moderately to severely corrosive to buried metallic improvements (Chaker and Palmer, 1989).

In accordance with the 2016 CBC Section 1904A.1, alternative cementitious materials for different exposure categories and classes shall be determined in accordance with ACI 318-14 Table 19.3.1.1, Table R19.3.1, and Table 19.3.2.1. Based on the laboratory sulfate test results, no cement type restriction is required. We have summarized applicable exposure categories and classes from ACI 318-14, Table 19.3.1.1 below in Table 2B.

We recommend the structural engineer and a corrosion engineer be retained to confirm the information provided and for additional recommendations, as required.

Table 2B: ACI 318-14 Table 19.3.1.1 Exposure Categories and Classes

Freezing and Thawing (F)	Sulfate (S, soil)	In Contact with Water (W)	Corrosion Protection of Reinforcement (C)
F0 ¹	S0 ²	W0 ³	C0 ⁴

1 (F0) "Concrete not exposed to freezing-and-thawing cycles" (ACI 318-14)

2 (S0) "Water soluble sulfate in soil, percent by mass is less than 0.10" (ACI 318-14)

3 (W0) "Concrete not in contact with water and low permeability is not required" (ACI 318-14)

4 (C0) "Concrete not exposed to an external source of chlorides from deicing chemicals, salt, brackish water, seawater, or spray from these sources" (ACI 318-14)

In addition, ACI 318-14, Table 19.3.2.1 provides requirements for concrete by exposure class. Table 2C below indicates different requirements that we recommend be followed for the concrete design.

Table 2C: ACI 318-14 Table 19.3.2.1 Requirements for Concrete by Exposure Class

Exposure Class	Maximum water:cement ratio	Minimum Compressive Strength (psi)	Maximum Water-Soluble Chloride Ion Content (% wt)
F0	N/A	2,500	N/A
S0 (soil)	N/A	2,500	N/A
W0	0.50	2,500	N/A
C0	N/A	2,500	1.00/0.06 ¹

1 For nonprestressed and prestressed concrete

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT RUPTURE

As discussed above several significant faults are located within 25 kilometers of the site. The site is not located within a State-designated Alquist Priolo Earthquake Fault Zone. As shown in Figure 3, no known surface expression of fault traces is thought to cross the site; therefore, fault rupture hazard is not a significant geologic hazard at the site.

4.2 ESTIMATED GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. Peak ground accelerations (PGA) of 0.537g was estimated for analysis using a value equal to $PGA_M = F_{PGA} \times PGA_G$ (Equation 11.8-1) as allowed in the 2016 California Building Code (CBC).

4.3 LIQUEFACTION POTENTIAL

The site is partial within a high liquefaction susceptibility area as stated from the geologic hazards map provided by Monterey County. The site is not currently mapped by the State of California, but is within a zone mapped as having a moderate liquefaction potential by USGS. Our field and laboratory programs addressed this issue by testing and sampling potentially

liquefiable layers, performing visual classification on sampled materials and performing various tests to further classify soil properties.

4.3.1 Background

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data is available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 3 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

4.3.2 Analysis

As discussed in the “Subsurface” section above, several sand layers were encountered below the design ground water depth of 10 feet. Following the procedures in the 2008 monograph, *Soil Liquefaction During Earthquakes* (Idriss and Boulanger, 2008) and in accordance with CDMG Special Publication 117A guidelines (CDMG, 2008) for quantitative analysis, these layers were analyzed for liquefaction triggering and potential post-liquefaction settlement. These methods compare the ratio of the estimated cyclic shaking (Cyclic Stress Ratio - CSR) to the soil's estimated resistance to cyclic shaking (Cyclic Resistance Ratio - CRR), providing a factor of safety against liquefaction triggering. Factors of safety less than or equal to 1.3 are considered to be potentially liquefiable and capable of post-liquefaction re-consolidation.

The CSR for each layer quantifies the stresses anticipated to be generated due to a design-level seismic event, is based on the peak horizontal acceleration generated at the ground surface discussed in the “Estimated Ground Shaking” section above, and is corrected for overburden and stress reduction factors as discussed in the procedure developed by Seed and Idriss (1971) and updated in the 2008 Idriss and Boulanger monograph.

The soil's CRR is estimated from the in-situ density and strength obtained from field SPT blow counts (“N” value). The “N” values are corrected for effective overburden stresses, taking into consideration both the ground water level at the time of exploration and the design ground water level, and stress reduction versus depth factors. The “N” values are also corrected for fines content, hammer efficiency, boring diameter, rod length, and sampler type (with or without liners).

4.3.3 Summary

Our analyses of our borings indicate that there are not layers of potentially liquefiable soils in the borings. However, the actual soil conditions between the borings may vary, therefore, liquefaction may occur. This level of settlement is very minor.

4.4 SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose unsaturated sandy soils can settle during strong seismic shaking. We evaluated the potential for seismic compaction of the northern part of the boardwalk based on the work by Pradell (1998). Our analyses indicate that the upper 5 feet of the soil in the vicinity of Boring EB-6 could experience up to 1 inch of movement after strong seismic shaking. However, the helical anchors will be found in material below the level and dry sand shaking is not anticipated to be an issue for this project.

4.5 TSUNAMI/SEICHE

The terms tsunami or seiche are described as ocean waves or similar waves in large bodies of water usually created by undersea fault movement or by a coastal or submerged landslide. Tsunamis may be generated at great distance from shore (far field events) or nearby (near field events). Waves are formed, as the displaced water moves to regain equilibrium, and radiates across the open water, similar to ripples from a rock being thrown into a pond. When the waveform reaches the coastline, it quickly raises the water level, with water velocities as high as 15 to 20 knots. The water mass, as well as vessels, vehicles, or other objects in its path create tremendous forces as they impact coastal structures.

Tsunamis have affected the coastline along the Pacific Northwest during historic times. The Fort Point tide gauge in San Francisco recorded approximately 21 tsunamis between 1854 and 1964. The 1964 Alaska earthquake generated a recorded wave height of 7.4 feet and drowned eleven people in Crescent City, California. For the case of a far-field event, the Bay area would have hours of warning; for a near field event, there may be only a few minutes of warning, if any.

A tsunami or seiche originating in the Pacific Ocean would lose much of its energy passing through San Francisco Bay. Based on the study of tsunami inundation potential for the San Francisco Bay Area (Ritter and Dupre, 1972), areas most likely to be inundated are marshlands, tidal flats, and former bay margin lands that are now artificially filled, but are still at or below sea level, and are generally within 1½ miles of the shoreline. The site is approximately 10 miles inland from the San Francisco Bay shoreline, and is approximately 44 to 80 feet above mean sea level. Therefore, the potential for inundation due to tsunami or seiche is considered low.

4.6 FLOODING

Based on our internet search of the Federal Emergency Management Agency (FEMA) flood map public database, the site is located within Floodway Areas in Zone AE (Part 1), described as the floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increase in flood heights and Zone X (Part 2 and Part 3), described as areas determined to be outside the 0.2% annual chance floodplain. We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

SECTION 5: CONCLUSIONS

5.1 SUMMARY

From a geotechnical viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. Descriptions of each concern with brief outlines of our recommendations follow the listed concerns.

- Presence of undocumented fill
- Presence of very high expansive soils
- Soil corrosion potential

5.1.1 Presences of Undocumented Fill

Borings EB-1 through EB-5 encountered 6 to 15 feet of fill. Fill up to 44 feet thick was encountered within EB-6 and EB-7. Based on our review of the site conditions, the fill was placed to construct the roadway embankment for East Laurel Drive. It is likely the fill was placed in two or more time periods. Based on our review of the borings, the fill consists primarily of low to moderate plasticity, stiff to hard lean clay with sand, lean clays, and silt with sand. In general, the fill has dry densities ranging from 80 to 95 and 100 to 110 pounds per cubic foot with moisture contents varying from 27 to 33 percent and 8 to 14 percent, respectively.

The blow counts in the fill from our borings ranged from 7 to 20 blows per foot below a depth of 5 feet. The blow count in some of the borings above 5 feet were less than 7 blows per foot. We also made a visual review of the samples and noted that fill materials were mottled and mechanically compacted. The fills have moderate to high shear strengths consistent with mechanically compacted clays. Although the dry densities are typically below 100 pounds per cubic foot, it is our judgement that the fill has been placed with compactive effort consistent with engineered fill for roadway embankments. We did not observe signs of significant settlement. The fill has higher strength with lower compressibility than the underlying native soils. On this basis, we are recommending the boardwalk be supported on helical anchors deriving their capacity from the fill. Since the embankment has been constructed overlying weaker and compressible soils, it should be noted to some minor settlement of the embankment may occur during the future. Any such settlement would likely be fairly uniform with some minor differential transitions. One of the reasons for the boardwalk solution supported on helical anchors is to minimize the loading on the existing embankment which will reduce any future settlement from the new loads. The other portions of the sidewalk may be supported on subgrade compacted in accordance with the recommendations provided in this report. Recommendations for helical anchors are presented in the "Foundations" section of this report. Recommendations for earthwork are presented in the "Earthwork" section of this report.

5.1.2 Presences of Expansive Soils

As discussed, moderately to very highly expansive surficial soils were encountered in the surficial soils that blanket the site. Expansive soils can undergo significant volume change with

changes in moisture content. They shrink and harden when dried and expand and soften when wetted.

As mentioned in Section 3.2.1, the PI performed on the upper 5 feet indicated to have low to moderate expansive soils. A second PI was performed at approximately 40 feet which indicate to have very high expansive soils present. Earth recommendations addressing this concern are presented in Sections 6 and 7 of this report.

5.1.3 Soil Corrosion Potential

Preliminary soil corrosion data was collected on three samples from 1½ to 45½ feet. Based on the results of the analytical tests, we have summarized applicable exposure categories and classes from ACI 318-14, Table 19.3.1.1; ACI 318-14, Table R19.3.1 and Table 19.3.2.1 should also be considered when designing for corrosion protection. Additionally, the corrosion potential for buried metallic structures, such as metal pipes and the steel from helical anchors, is considered moderately to severely corrosive. Special requirements will likely be required for corrosion control on any proposed buried metallic structures. The helical anchors should be designed with a corrosion allowance and/or from materials that are resistant to corrosion. We recommend that a corrosion engineering specialist be retained for corrosion protection recommendations.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that we be retained to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction.

5.3 CONSTRUCTION OBSERVATION AND TESTING

As site conditions may vary significantly between the small-diameter borings performed during this investigation, we also recommend that a Cornerstone representative be present to provide geotechnical observation and testing during earthwork and foundation construction. This will allow us to form an opinion and prepare a letter at the end of construction regarding contractor compliance with project plans and specifications, and with the recommendations in our report. We will also be allowed to evaluate any conditions differing from those encountered during our investigation, and provide supplemental recommendations as necessary. For these reasons, the recommendations in this report are contingent of Cornerstone providing observation and testing during construction. Contractors should provide at least a 48-hour notice when scheduling our field personnel.

SECTION 6: EARTHWORK

6.1 SITE DEMOLITION

All existing improvements designate for removal, including all foundations, flatwork, utilities, and other improvements should be demolished and removed from the site. Recommendations in

this section apply to the removal of these improvements, which may be present on the site, prior to the start of mass grading or the construction of new improvements for the project.

Cornerstone should be notified prior to the start of demolition, and should be present on at least a part-time basis during all backfill and mass grading as a result of demolition. Occasionally, other types of buried structures can be found on sites with prior development. If encountered, Cornerstone should be contacted to address these types of structures on a case-by-case basis.

6.2 SITE CLEARING AND PREPARATION

6.2.1 Site Stripping

The site should be stripped of all surface vegetation, and surface and subsurface improvements within the proposed development area. Demolition of existing improvements is discussed in detail below. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight. Based on our site observations, surficial stripping should extend about 3 to 8 inches below existing grade in vegetated areas. We note that large concrete rubble was observed on the road embankment slope surface.

6.2.2 Tree and Shrub Removal

Trees and shrubs designated for removal should have the root balls and any roots greater than ½-inch diameter removed completely. Mature trees are estimated to have root balls extending to depths of 2 to 4 feet, depending on the tree size. Significant root zones are anticipated to extend to the diameter of the tree canopy. Grade depressions resulting from root ball removal should be cleaned of loose material and backfilled in accordance with the recommendations in the “Compaction” section of this report.

6.3 REMOVAL OF EXISTING FILLS

Existing fills extending into planned sidewalk and boardwalk areas may be left in place provided to mitigate the risk of settlement on the sidewalk area, the upper 18 inches of fill below subgrade should be re-worked and compacted as discussed in the “Compaction” section below. The owner understands that there is a minor risk of settlement in the future because a majority of the embankment fill will be left in place.

6.4 TEMPORARY CUT AND FILL SLOPES

The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. On a preliminary basis, the upper 10 feet at the site may be classified as OSHA Soil Type B materials. A Cornerstone representative should be retained to confirm the preliminary site classification.

For OSHA Soil Type B soils, the temporary cuts should be sloped at an inclination of 1:1 horizontal to vertical or shored.

6.5 SUBGRADE PREPARATION

After site clearing, demolition, and removal of the existing fills is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 6 inches, moisture conditioned, and compacted in accordance with the “Compaction” section below. Refer to City of Salinas Standard for subgrade preparations.

6.6 MATERIAL FOR FILL

6.6.1 Re-Use of On-site Soils

On-site soils with an organic content less than 3 percent by weight may be reused as fill, provided that the City will allow modification of their standard specifications as discussed previously. It is noted that on-site soils will require aeration and mixing prior to re-use as trench backfill. Fill should not have lumps, clods or cobble pieces larger than 6 inches in diameter; 85 percent of the fill should be smaller than 2½ inches in diameter. Minor amounts of oversize material (smaller than 12 inches in diameter) may be allowed provided the oversized pieces are not allowed to nest together and the compaction method will allow for loosely placed lifts not exceeding 12 inches. Refer to City of Salinas Standard specifications.

6.6.2 Potential Import Sources

Imported and non-expansive material should be inorganic with a Plasticity Index (PI) of 15 or less. In addition, import sources should meet the requirements of the City of Salinas Standard specifications. To prevent significant caving during trenching or foundation construction, imported material should have sufficient fines. Samples of potential import sources should be delivered to our office at least 10 days prior to the desired import start date. Information regarding the import source should be provided, such as any site geotechnical reports. If the material will be derived from an excavation rather than a stockpile, potholes will likely be required to collect samples from throughout the depth of the planned cut that will be imported. At a minimum, laboratory testing will include PI tests. Material data sheets for select fill materials (Class 2 aggregate base, ¾-inch crushed rock, quarry fines, etc.) listing current laboratory testing data (not older than 6 months from the import date) may be provided for our review without providing a sample. If current data is not available, specification testing will need to be completed prior to approval.

Environmental and soil corrosion characterization should also be considered by the project team prior to acceptance. Suitable environmental laboratory data to the planned import quantity should be provided to the project environmental consultant; additional laboratory testing may be required based on the project environmental consultant’s review. The potential import source should also not be more corrosive than the on-site soils, based on pH, saturated resistivity, and soluble sulfate and chloride testing.

6.7 COMPACTION REQUIREMENTS

All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the table below. In general, clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open-graded materials such as crushed rock should be placed in lifts no thicker than 18 inches consolidated in place with vibratory equipment. Each lift of fill and all subgrade should be firm and unyielding under construction equipment loading in addition to meeting the compaction requirements to be approved. The contractor (with input from a Cornerstone representative) should evaluate the in-situ moisture conditions, as the use of vibratory equipment on soils with high moistures can cause unstable conditions. General recommendations for soil stabilization are provided in the “Subgrade Stabilization Measures” section of this report. Where the soil’s PI is 20 or greater, the expansive soil criteria should be used.

Table 3: Compaction Requirements

Description	Material Description	Minimum Relative Compaction (percent)	Moisture ² Content (percent)
Embankment (within upper 5 feet)	On-Site Expansive Soils	88 – 92 ¹	>3
	Low Expansion Soils	90 ³	>1
Trench Backfill	On-Site Expansive Soils	88 – 92 ¹	>3
	Low Expansion Soils	95 ³	>1
Sidewalk Subgrade	On-Site Expansive Soils	88 – 92 ¹	>3
	Low Expansion Soils	90 ³	>1
Pavement Areas	Subgrade and Aggregate Base	95 ⁴	>1

1 – Recommended by Cornerstone Earth group for expansive soils using relative compaction based on maximum density determined by ASTM D1557 (latest version)

2 – Moisture content based on optimum moisture content determined by ASTM D1557 (latest version)

3 – Relative compaction recommended by City of Salinas Specifications (latest version)

4 – Relative compaction recommended by Caltrans Sections 26 (latest version)

6.7.1 Construction Moisture Conditioning

Expansive soils can undergo significant volume change when dried then wetted. The contractor should keep all exposed expansive soil subgrade (and also trench excavation side walls) moist until protected by overlying improvements (or trenches are backfilled). If expansive soils are allowed to dry out significantly, re-moisture conditioning may require several days of re-wetting (flooding is not recommended), or deep scarification, moisture conditioning, and re-compaction.

6.8 TRENCH BACKFILL

Pipeline lines constructed within public right-of-way should be trenched, bedded and shaded, and backfilled in accordance with the local or governing jurisdictional requirements (City of Salinas Specifications, Section 19-4.032), except as modified above.

Pipeline lines should be bedded and shaded to at least 12 inches over the top of the lines with crushed rock ($\frac{3}{8}$ -inch-diameter or greater). Open-graded shading materials should be encapsulated in geotextile fabric and compacted as shown in Table 6 with vibratory equipment prior to placing subsequent backfill materials.

We recommend that the trench be excavated a minimum 12 inches beyond the outside of the pipe including bells. The crushed rock should be consolidated on the outside of the pipe in lifts with vibration equipment to enable the material to be compacted under the pipe haunches. General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the “Material for Fill” section, and are moisture conditioned and compacted in accordance with the requirements in the “Compaction” section.

SECTION 7: FOUNDATIONS

7.1 SUMMARY OF RECOMMENDATIONS

In our opinion, the boardwalk may be supported on drilled piers foundations provided the recommendations in the “Earthwork” section and the sections below are followed.

7.2 SEISMIC DESIGN CRITERIA

We understand that the project structural design will be based on the 2016 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The “Seismic Coefficients” used to design buildings are established based on a series of tables and figures addressing different site factors, including the soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system. Based on our borings and review of local geology, the site is underlain by deep alluvial soils with typical SPT “N” values between 15 and 50 blows per foot. Therefore, we have classified the site as Soil Classification D. The mapped spectral acceleration parameters S_S and S_1 were calculated using the USGS web-based program *U.S. Seismic Design Maps* (<http://geohazards.usgs.gov/designmaps/us/application.php>), Version 3.1.0, revision date July 11, 2013, based on the site coordinates presented below and the site classification. The table below lists the various factors used to determine the seismic coefficients and other parameters.

Table 4: CBC Site Categorization and Site Coefficients

Classification/Coefficient	Design Value
Site Class	D
Site Latitude	36.68724°
Site Longitude	-121.6237°
0.2-second Period Mapped Spectral Acceleration ¹ , S_s	1.500 g
1-second Period Mapped Spectral Acceleration ¹ , S_1	0.600 g
Short-Period Site Coefficient – F_a	1.000
Long-Period Site Coefficient – F_v	1.500
0.2-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – S_{MS}	1.500 g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – S_{M1}	0.900 g
0.2-second Period, Design Earthquake Spectral Response Acceleration – S_{DS}	1.000 g
1-second Period, Design Earthquake Spectral Response Acceleration – S_{D1}	0.600 g

¹For Site Class B, 5 percent damped.

7.3 HELICAL ANCHORS

We understand that helical anchors may be added to support the boardwalk. The anchors should be designed to an axial capacity of 15 kips and should be extended down to a minimum embedment of 22 feet below the existing grade with 5 feet extensions. We recommend to install a lead helical anchor of 7 feet with three diameter plates starting at 8 inches, 10 inches and 12 inches. We recommend the lead anchor be followed by one 5 foot extensions with a plate diameter of 14 inches. Several extensions without plate would be installed up to the bottom of the boardwalk. Installation of the helical piers may result in an open hole in the upper 5 to 10 feet of the helical anchor. This can be backfilled with CLSM. The helical anchors should be Chance type SS175, or 1½ inch round corner square shaft helical pile, or approval equivalent. Cornerstone should review the proposed design prior to the start of construction. We recommend the contractor and Cornerstone monitor the torque during the anchor installation to verify the anchors have been installed at the required structural capacities. If the capacities of the anchors are greater than 15 kips, we recommend we be retained to provide recommendations, consultation, and observations of contractor testing of the anchors to confirm the capacities. Helical ground anchors should be spaced at a minimum of 3 times the maximum helix diameter. Construction tolerances for vertical alignment should be specified such that there will not be overlap at the anchor tips.

7.3.1 Construction Considerations

The installation of all drilled helical anchors should be observed by a Cornerstone representative to confirm the soil profile, verify that the piers extend the minimum depth into suitable materials, and that the piers are constructed in accordance with our recommendations

and project requirements. The drilled shafts should be straight, dry, and relatively free of loose material before reinforcing steel is installed and concrete is placed.

SECTION 8: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS

8.1 EXTERIOR PEDESTRIAN CONCRETE SIDEWALK

Exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported on at least 6 inches of Class 2 aggregate base overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. To help reduce the potential for uncontrolled shrinkage cracking, adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness. Flatwork should be isolated from adjacent foundations or retaining walls except where limited sections of structural slabs are included to help span irregularities in retaining wall backfill at the transitions between at-grade and on-structure flatwork.

SECTION 9: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of Kimley-Horn and Associates, Inc. specifically to support the design of the East Laurel Drive Sidewalk Improvements project in Salinas, California. The opinions, conclusions, and recommendations presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Recommendations in this report are based upon the soil and ground water conditions encountered during our subsurface exploration. If variations or unsuitable conditions are encountered during construction, Cornerstone must be contacted to provide supplemental recommendations, as needed.

Kimley-Horn and Associates, Inc. may have provided Cornerstone with plans, reports and other documents prepared by others. Kimley-Horn and Associates, Inc. understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or his representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through

legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone's control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

SECTION 10: REFERENCES

Boulanger, R.W. and Idriss, I.M., 2004, Evaluating the Potential for Liquefaction or Cyclic Failure of Silts and Clays, Department of Civil & Environmental Engineering, College of Engineering, University of California at Davis.

Boulanger, R.W. and Idriss, I.M., 2014, CPT and SPT Based Liquefaction Triggering Procedures, Department of Civil & Environmental Engineering, College of Engineering, University of California at Davis, Report No. UCD/GCM-14/01, April 2014

California Building Code, 2016, Structural Engineering Design Provisions, Vol. 2.

California Division of Mines and Geology (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, September.

Cetin, K.O., Bilge, H.T., Wu, J., Kammerer, A.M., and Seed, R.B., Probabilistic Model for the Assessment of Cyclically Induced Reconsolidation (Volumetric) Settlements, ASCE Journal of Geotechnical and Geoenvironmental Engineering, Vol. 135, No. 3, March 1, 2009.

Idriss, I.M., and Boulanger, R.W., 2008, Soil Liquefaction During Earthquakes, Earthquake Engineering Research Institute, Oakland, CA, 237 p.

Ishihara, K. and Yoshimine, M., 1992, Evaluation of Settlements in Sand Deposits Following Liquefaction During Earthquakes, Soils and Foundations, 32 (1): 173-188.

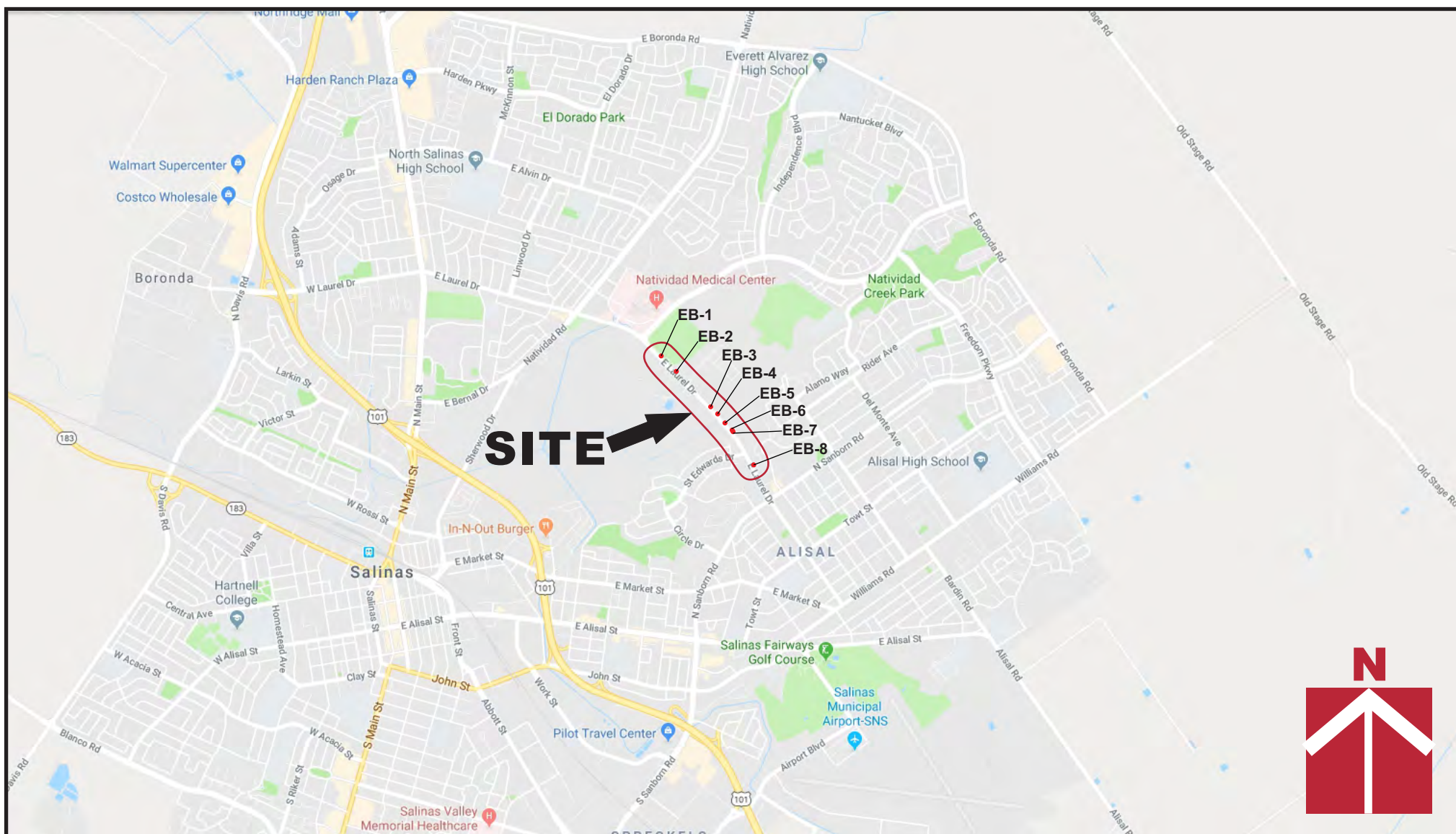
Pradell, D., 1988, Procedure to Evaluate Earthquake-Induced Settlements in Dry Sandy Soils, Journal of Geotechnical and Environmental Engineering, April 1998, p. 364 – 368 and Errata October 1998 p. 1048.

Schwartz, D.P. 1994, New Knowledge of Northern California Earthquake Potential: in Proceedings of Seminar on New Developments in Earthquake Ground Motion Estimation and Implications for Engineering Design Practice, Applied Technology Council 35-1.

Seed, Raymond B., Cetin, K.O., Moss, R.E.S., Kammerer, Ann Marie, Wu, J., Pestana, J.M., Riemer, M.F., Sancio, R.B., Bray, Jonathan D., Kayen, Robert E., and Faris, A., 2003, Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework., University of California, Earthquake Engineering Research Center Report 2003-06.

USGS, 2018, Earthquake Ground Motion Parameters, Version 5.1.0, revision date February 10, 2011 - A Computer Program for determining mapped ground motion parameters for use with IBC 2006 available at <http://earthquake.usgs.gov/research/hazmaps/design/index.php>.

Working Group on California Earthquake Probabilities, 2018, The Uniform Earthquake Rupture Forecast, Version 2 (UCRF 2), U.S.G.S. Open File Report 2007-1437.



Vicinity Map

East Laurel Drive Sidewalk Improvement
Salinas, CA

Project Number

234-36-1

Figure Number

Figure 1

Date

June 2018

Drawn By

RRN



Base by Google Earth, dated 2/4/2018

--- Approximate limits of Boardwalk
(Limits of improvements from K&H plans dated June 2018)

Legend

- ⊕ Approximate location of exploratory boring (EB)
- ↕ A A' Approximate location of cross section (see Figure 4)

0 550 1,100
APPROXIMATE SCALE (FEET)

Project Number

234-36-1

Site Plan

East Laurel Drive Sidewalk Improvement
Salinas, CA

Figure Number

Figure 2

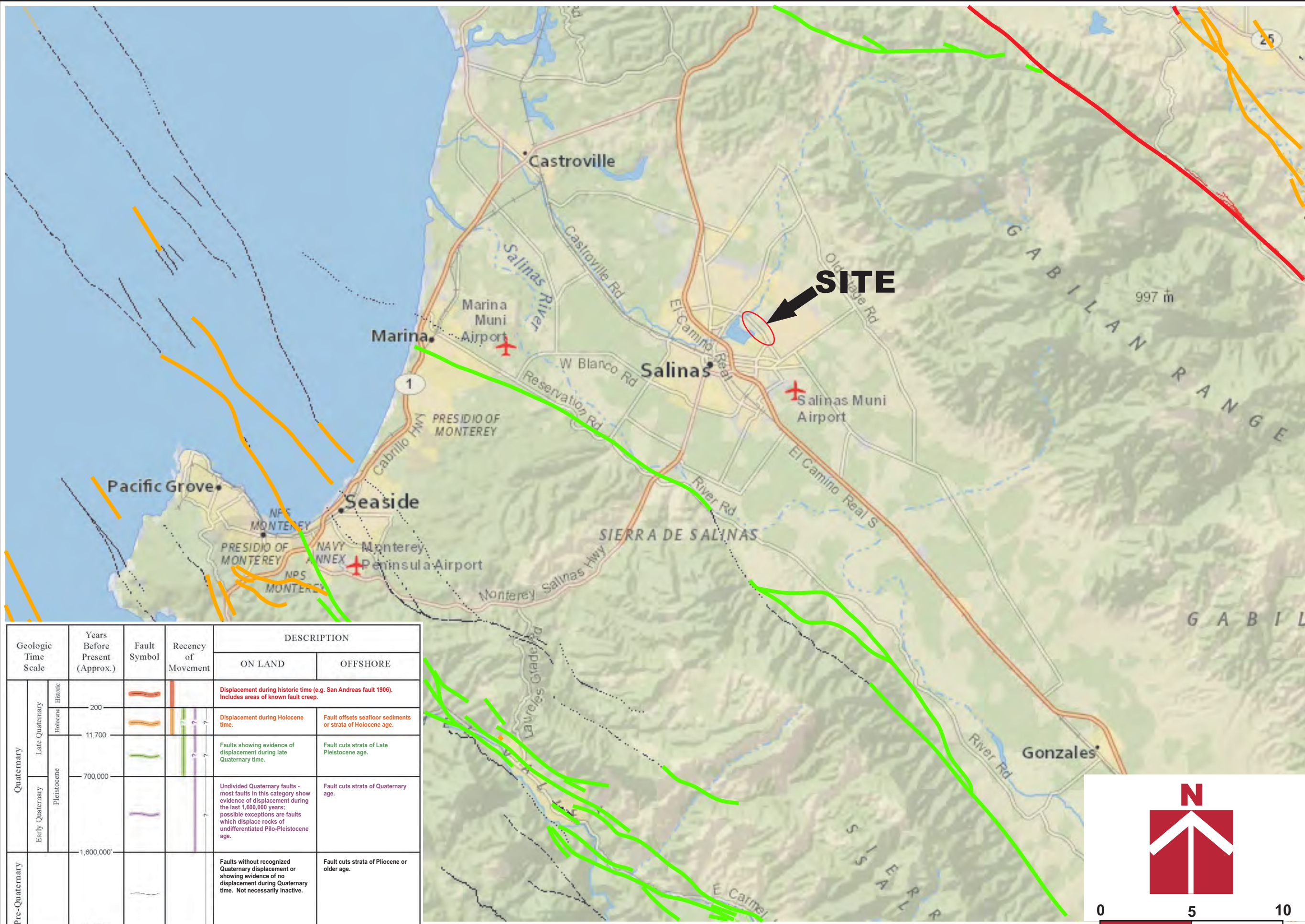
Date

August 2018

Drawn By

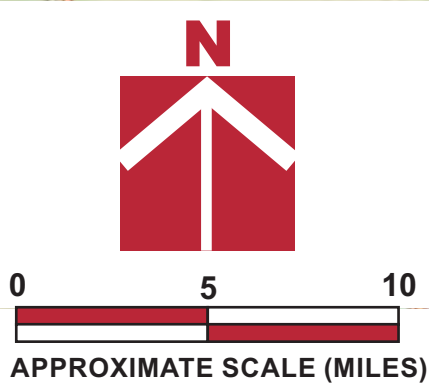
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CORNERSTONE
EARTH GROUP



Geologic Time Scale		Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
					ON LAND	OFFSHORE
Quaternary	Late Quaternary	Holocene			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
					Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
	Early Quaternary	Pleistocene			Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
					Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary		1,600,000+			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
		4.5 billion (Age of Earth)				

Base by USGS, California Quaternary Faults, Cooperator California Geological Survey



Project Number
234-36-1

Figure Number
Figure 3

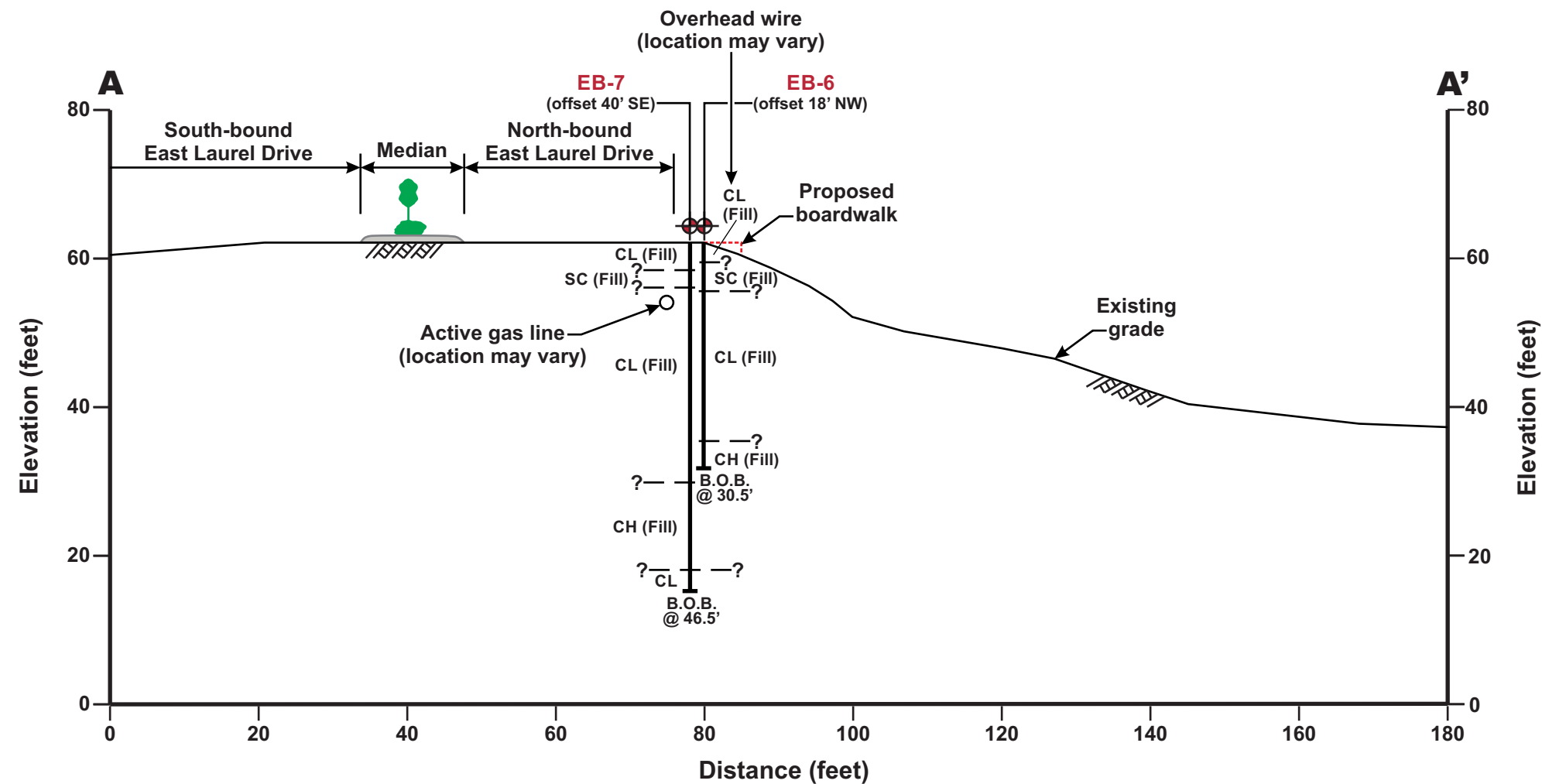
Date
June 2018

Drawn By
RRN

Regional Fault Map

East Laurel Drive Sidewalk Improvement
Salinas, CA

**CORNERSTONE
EARTH GROUP**



Symbols

- CL Lean Clay
- CH Fat Clay
- SC Clayey Sand
- Approximate location of exploratory boring (EB)

- Notes:
- 1) Surficial fills associated with existing pavements, landscaping or utilities are not shown.
 - 2) The subsurface profile is conceptual and is based on limited subsurface data obtained from widely spaced borings. Actual subsurface conditions may vary significantly between borings.
 - 3) See Figure 2 for location of cross section.

Geologic Cross Section A-A'

East Laurel Drive Sidewalk Improvement
Salinas, CA

Project Number
234-36-1

Figure Number
Figure 4

Date
August 2018

Drawn By
RRN



APPENDIX A: FIELD INVESTIGATION

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using track-mounted, hollow-stem, limited-access auger drilling equipment. Eight 8-inch-diameter exploratory borings were drilled on May 22 and 23, 2018 to depths of 5 to 46½ feet. The approximate locations of exploratory borings are shown on the Site Plan, Figure 2. The soils encountered were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488). Boring logs, as well as a key to the classification of the soil, are included as part of this appendix.

Boring locations were approximated using existing site boundaries, a hand-held GPS unit, and other site features as references. Boring elevations were based on interpolation of plan contours were not determined. The locations of the borings should be considered accurate only to the degree implied by the method used.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration (ASTM D1586). 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows required to drive the last 12 inches. The various samplers are denoted at the appropriate depth on the boring logs.

Field tests included an evaluation of the unconfined compressive strength of the soil samples using a pocket penetrometer device. The results of these tests are presented on the individual boring logs at the appropriate sample depths.

Attached boring logs and related information depict subsurface conditions at the locations indicated and on the date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these boring locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

UNIFIED SOIL CLASSIFICATION (ASTM D-2487-98)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	$Cu > 4$ AND $1 < Cc < 3$	GW	WELL-GRADED GRAVEL	
			$Cu > 4$ AND $1 > Cc > 3$	GP	POORLY-GRADED GRAVEL	
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL	
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL	
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	$Cu > 6$ AND $1 < Cc < 3$	SW	WELL-GRADED SAND	
			$Cu > 6$ AND $1 > Cc > 3$	SP	POORLY-GRADED SAND	
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND	
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND	
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT <50	INORGANIC	$PI > 7$ AND PLOTS >"A" LINE	CL	LEAN CLAY	
			$PI > 4$ AND PLOTS <"A" LINE	ML	SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT	
	SILTS AND CLAYS LIQUID LIMIT >50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY	
			PI PLOTS <"A" LINE	MH	ELASTIC SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT	
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT	

OTHER MATERIAL SYMBOLS	
	Poorly-Graded Sand with Clay
	Clayey Sand
	Sandy Silt
	Artificial/Undocumented Fill
	Poorly-Graded Gravelly Sand
	Topsoil
	Well-Graded Gravel with Clay
	Well-Graded Gravel with Silt
	Sand
	Silt
	Well Graded Gravelly Sand
	Gravelly Silt
	Asphalt
	Boulders and Cobble

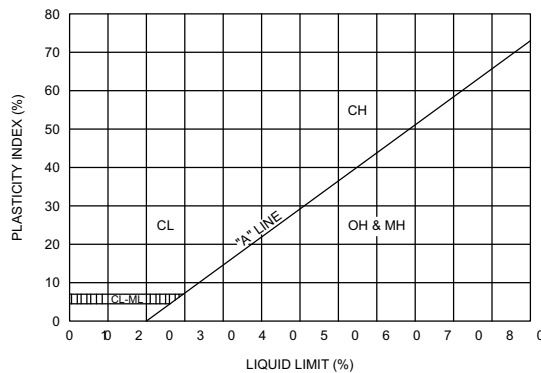
SAMPLER TYPES

	SPT		Shelby Tube
	Modified California (2.5" I.D.)		No Recovery
	Rock Core		Grab Sample

ADDITIONAL TESTS

CA - CHEMICAL ANALYSIS (CORROSIVITY)	PI - PLASTICITY INDEX
CD - CONSOLIDATED DRAINED TRIAXIAL	SW - SWELL TEST
CN - CONSOLIDATION	TC - CYCLIC TRIAXIAL
CU - CONSOLIDATED UNDRAINED TRIAXIAL	TV - TORVANE SHEAR
DS - DIRECT SHEAR	UC - UNCONFINED COMPRESSION
PP - POCKET PENETROMETER (TSF)	(1.5) - (WITH SHEAR STRENGTH IN KSF)
(3.0) - (WITH SHEAR STRENGTH IN KSF)	
RV - R-VALUE	UU - UNCONSOLIDATED UNDRAINED TRIAXIAL
SA - SIEVE ANALYSIS: % PASSING #200 SIEVE	
	- WATER LEVEL

PLASTICITY CHART



PENETRATION RESISTANCE (RECORDED AS BLOWS / FOOT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	STRENGTH** (KSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.5
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.5 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

** UNDRAINED SHEAR STRENGTH IN KIPS/SQ.FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST, POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION.



CORNERSTONE EARTH GROUP

BORING NUMBER EB-1

PAGE 1 OF 1

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CAGROUND ELEVATION _____ BORING DEPTH 20 ft.LATITUDE 36.693774° LONGITUDE -121.631196°**GROUND WATER LEVELS:**▼ **AT TIME OF DRILLING** Not Encountered▼ **AT END OF DRILLING** Not EncounteredDATE STARTED 5/23/18 DATE COMPLETED 5/23/18DRILLING CONTRACTOR Cenozoic DrillingDRILLING METHOD Geoprobe 7822DTLOGGED BY SCO

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Lean Clay with Sand (CL) [Fill] stiff, moist, brown to light brown, fine sand, low plasticity							○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
			dark brown mottles	8	MC-1B	94	24			○
				9	MC-2B	97	22			○
	5		becomes medium stiff	7	MC-3B	92	33			○
			Fat Clay (CH) medium stiff, moist, dark brown to black, some organics, high plasticity							
			becomes soft	2	MC					○
	10		Lean Clay (CL) medium stiff, moist, gray with brown mottles, moderate plasticity							○
			Fat Clay (CH) soft, moist, dark brown to black, some organics, high plasticity	1	MC-5B	75	45			○
	15									
			becomes medium stiff, gray	1	MC					○
	20		Bottom of Boring at 20.0 feet.							
	25									



CORNERSTONE EARTH GROUP

BORING NUMBER EB-2

PAGE 1 OF 1

PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

GROUND ELEVATION _____ BORING DEPTH 15 ft.

LATITUDE 36.692380° LONGITUDE -121.629607°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 14 ft.

▼ AT END OF DRILLING 14 ft.

DATE STARTED 5/23/18 DATE COMPLETED 5/23/18

DRILLING CONTRACTOR Cenozoic Drilling

DRILLING METHOD Geoprobe 7822DT

LOGGED BY SCO

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Sandy Lean Clay (CL) [Fill] hard, moist, brown, fine to coarse sand, fine to coarse gravel, moderate plasticity, AC fragments	20	MC-1B	110	14			
	5		Lean Clay (CL) [Fill] very stiff, moist, brown to light brown some dark brown mottles	16	MC-2B	102	21			
	10		Fat Clay (CH) stiff, moist, dark brown to dark gray, trace fine sand, some organics, high plasticity	15	MC-3B	96	25			
	15		medium stiff, gray with brown mottles	6	MC-4B	67	47			
	15		Bottom of Boring at 15.0 feet.	4	MC					
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

>4.5



CORNERSTONE EARTH GROUP

BORING NUMBER EB-3

PAGE 1 OF 1

PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

GROUND ELEVATION _____ BORING DEPTH 15 ft.

LATITUDE 36.689221° LONGITUDE -121.625794°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING Not Encountered

▽ AT END OF DRILLING Not Encountered

DATE STARTED 5/23/18 DATE COMPLETED 5/23/18

DRILLING CONTRACTOR Cenozoic Drilling

DRILLING METHOD Geoprobe 7822DT

LOGGED BY SCO

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
	0		Lean Clay with Sand (CL) [Fill] very stiff, moist, brown to light brown, fine to medium sand, low plasticity	12	MC-1B	100	12							
	19		Sandy Lean Clay (CL) [Fill] hard, moist, light brown, fine sand, low plasticity	19	MC-2B	108	16							
	17		Clayey Sand (SC) [Fill] loose, moist, brown, fine to medium sand	17	MC-3B	107	17							
	22		Lean Clay with Sand (CL) [Fill] very stiff, moist, brown to light brown, fine to medium sand, low plasticity	22	MC-4B	107	17							
	24		Fat Clay (CH) [Fill] stiff, dark brown with brown mottles, high plasticity	24	MC-5B	106	12							
	15		Poorly Graded Sand (SP) medium dense, moist, gray-brown, fine to coarse sand											
			Bottom of Boring at 15.0 feet.											
	20													
	25													



BORING NUMBER EB-4

PAGE 1 OF 2

PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

GROUND ELEVATION _____ BORING DEPTH 36.5 ft.

LATITUDE 36.688599° LONGITUDE -121.625077°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 19 ft.

▼ AT END OF DRILLING 19 ft.

DATE STARTED 5/22/18 DATE COMPLETED 5/22/18

DRILLING CONTRACTOR Cenozoic Drilling

DRILLING METHOD Geoprobe 7822DT

LOGGED BY SCO

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
	0		Lean Clay with Sand (CL) [Fill] very stiff, moist, brown to light brown, fine sand, low plasticity Liquid Limit = 43, Plastic Limit = 21	6	MC-1B	89	11	22						
			becomes hard, dark brown mottles	12	MC-2B	101	26							>4.5
	5		Lean Clay (CL) [Fill] hard, moist, brown, some fine sand, low to moderate plasticity	16	MC-3B	105	24							>4.5
	10		becomes very stiff	17	MC-4B	101	21							
	15		Fat Clay (CH) [Fill] very stiff, dark brown with brown mottles, high plasticity	20	MC-5B	100	8							
			Poorly Graded Sand (SP) medium dense, moist, gray-brown, fine to coarse sand											
	20		Fat Clay (CH) stiff, moist, blue gray with brown mottles, trace organics, high plasticity	14	MC-6B	45	93							
	25		Peat stiff, wet, black, fibrous, organics											
Continued Next Page														



CORNERSTONE EARTH GROUP

BORING NUMBER EB-4

PAGE 2 OF 2

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf ○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL 1.0 2.0 3.0 4.0			
	25		Peat stiff, wet, black, fibrous, organics	10	MC-7B	18	276						
	30		Fat Clay (CH) stiff, moist, dark gray, trace organics, high plasticity	7	MC								
	35		Lean Clay with Sand (CL) stiff, moist, blue gray, fine to coarse sand, moderate plasticity	7	MC-9B	106	21						
			Bottom of Boring at 36.5 feet.										
	40												
	45												
	50												



CORNERSTONE EARTH GROUP

BORING NUMBER EB-5

PAGE 1 OF 2

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CAGROUND ELEVATION _____ BORING DEPTH 30 ft.LATITUDE 36.687896° LONGITUDE -121.624329°**GROUND WATER LEVELS:**▼ **AT TIME OF DRILLING** Not Encountered▼ **AT END OF DRILLING** Not EncounteredDATE STARTED 5/22/18 DATE COMPLETED 5/22/18DRILLING CONTRACTOR Cenozoic DrillingDRILLING METHOD Geoprobe 7822DTLOGGED BY SCO

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf ○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
	0		some aggregate base on surface							
			Sandy Lean Clay (CL) [Fill] hard, moist, brown to light brown, fine to medium sand, some silt, low plasticity	12	1A MC 1B	84 96	11 30			>4.5
	5		Silt with Sand (ML) [Fill] very stiff, moist, light brown, fine sand, low plasticity	14	MC-2B	86	27			
			Lean Clay (CL) [Fill] stiff, moist, brown, trace fine sand, moderate plasticity	13	MC-3B	89	28			
	15		Fat Clay (CH) hard, moist, gray, some fine sand, high plasticity	26	MC-4B	90	31			
			Sandy Lean Clay (CL) hard, moist, reddish brown, fine to medium sand, low plasticity	45	MC					>4.5
	20		Becomes medium stiff to stiff							
	25			16	MC-6B	99	13			

Continued Next Page



CORNERSTONE EARTH GROUP

BORING NUMBER EB-5

PAGE 2 OF 2

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CA

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ELEVATION (ft)

DEPTH (ft)

SYMBOL

DESCRIPTION

Sandy Lean Clay (CL)
hard, moist, reddish brown, fine to medium sand, low plasticity

Sandy Lean Clay (CL)
hard, moist, light brown, fine sand, low plasticity

Bottom of Boring at 30.0 feet.

N-Value (uncorrected)
blows per footSAMPLES
TYPE AND NUMBERDRY UNIT WEIGHT
PCFNATURAL
MOISTURE CONTENT

PLASTICITY INDEX, %

PERCENT PASSING
No. 200 SIEVEUNDRAINED SHEAR STRENGTH,
ksf

○ HAND PENETROMETER

△ TORVANE

● UNCONFINED COMPRESSION

▲ UNCONSOLIDATED-UNDRAINED
TRIAXIAL

1.0 2.0 3.0 4.0

28

MC

>4.5



CORNERSTONE EARTH GROUP

BORING NUMBER EB-6

PAGE 1 OF 2

DATE STARTED 5/22/18 DATE COMPLETED 5/22/18

DRILLING CONTRACTOR Cenozoic Drilling

DRILLING METHOD Geoprobe 7822DT

LOGGED BY SCO

NOTES

PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

GROUND ELEVATION BORING DEPTH 30.5 ft.

LATITUDE 36.687196° LONGITUDE -121.623637°

GROUND WATER LEVELS:

AT TIME OF DRILLING Not Encountered

AT END OF DRILLING Not Encountered

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ELEVATION (ft)

DEPTH (ft)

SYMBOL

DESCRIPTION

N-Value (uncorrected)
blows per foot

SAMPLES
TYPE AND NUMBER

DRY UNIT WEIGHT
PCF

NATURAL
MOISTURE CONTENT

PLASTICITY INDEX, %

PERCENT PASSING
No. 200 SIEVE

UNDRAINED SHEAR STRENGTH,
ksf

○ HAND PENETROMETER

△ TORVANE

● UNCONFINED COMPRESSION

▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

8 inches aggregate base

Lean Clay with Sand (CL) [Fill]

very stiff, moist, brown, some fine to medium sand, low to moderate plasticity

Poorly Graded Sand with Silt (SP-SM) [Fill]

loose, moist, light brown with white, fine to coarse sand

Lean Clay with Sand (CL) [Fill]

stiff to very stiff, moist, light brown to brown, fine sand, low to moderate plasticity

Lean Clay (CL) [Fill]

very stiff, moist, brown with orange and dark brown mottles, trace fine to coarse sand, trace fine gravel, low to moderate plasticity

Lean Clay with Sand (CL) [Fill]

hard, moist, light brown to brown, fine sand, low to moderate plasticity

Lean Clay (CL) [Fill]

very stiff, moist, brown with dark brown mottles, some fine sand, moderate plasticity

Continued Next Page



CORNERSTONE EARTH GROUP

BORING NUMBER EB-6

PAGE 2 OF 2

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT pcf	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
	25		Lean Clay (CL) [Fill] very stiff, moist, brown with dark brown mottles, some fine sand, moderate plasticity							○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL				
	30		Fat Clay with Sand (CH) [Fill] very stiff, moist, dark brown with brown and gray mottles, fine sand, high plasticity	15	MC-7B	95	22							
			Bottom of Boring at 30.5 feet.											
	35													
	40													
	45													
	50													



CORNERSTONE EARTH GROUP

BORING NUMBER EB-7

PAGE 1 OF 2

PROJECT NAME East Laurel Drive Sidewalk ImprovementsPROJECT NUMBER 234-36-1PROJECT LOCATION Salinas, CAGROUND ELEVATION _____ BORING DEPTH 46.5 ft.LATITUDE 36.687124° LONGITUDE -121.623576°**GROUND WATER LEVELS:**▼ **AT TIME OF DRILLING** Not Encountered▼ **AT END OF DRILLING** Not EncounteredDATE STARTED 5/23/18 DATE COMPLETED 5/23/18DRILLING CONTRACTOR Cenozoic DrillingDRILLING METHOD Geoprobe 7822DTLOGGED BY SCO

NOTES _____

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ELEVATION (ft)

DEPTH (ft)

SYMBOL

DESCRIPTION

Lean Clay (CL) [Fill]
brown to light brown, some fine to medium sand

Lean Clay with Sand (CL) [Fill]
stiff, moist, brown to light brown, some fine to medium sand, moderate plasticity

*Continued Next Page*N-Value (uncorrected)
blows per footSAMPLES
TYPE AND NUMBERDRY UNIT WEIGHT
PCFNATURAL
MOISTURE CONTENT

PLASTICITY INDEX, %

PERCENT PASSING
No. 200 SIEVEUNDRAINED SHEAR STRENGTH,
ksf

○ HAND PENETROMETER

△ TORVANE

● UNCONFINED COMPRESSION

▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

12

MC-1B

101

24

○



PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf ○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL 1.0 2.0 3.0 4.0			
	25		Lean Clay with Sand (CL) [Fill] stiff, moist, brown to light brown, some fine to medium sand, moderate plasticity becomes very stiff, some dark brown mottles	15	MC								
	30												
	35		Fat Clay (CH) [Fill] very stiff, moist, dark brown, high plasticity										
	36			16	3A MC 3B	99 102	28 26						
	40		Fat Clay (CH) [Fill] very stiff, moist, dark brown with brown mottles, trace fine to medium sand, high plasticity										
	41			19	4A MC 4B	80 88	37 35	66					
	45		Lean Clay with Sand (CL) stiff, moist, brown with gray mottling, fine sand, moderate plasticity										
	46			14	MC-5B	92	33						
	46.5		Bottom of Boring at 46.5 feet.										
	50												



CORNERSTONE EARTH GROUP

BORING NUMBER EB-8

PAGE 1 OF 1

DATE STARTED 5/23/18 DATE COMPLETED 5/23/18

DRILLING CONTRACTOR N/A

DRILLING METHOD Hand Auger

LOGGED BY SCO

NOTES

PROJECT NAME East Laurel Drive Sidewalk Improvements

PROJECT NUMBER 234-36-1

PROJECT LOCATION Salinas, CA

GROUND ELEVATION BORING DEPTH 4.5 ft.

LATITUDE 36.684084° LONGITUDE -121.621527°

GROUND WATER LEVELS:

AT TIME OF DRILLING Not Encountered

AT END OF DRILLING Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)

DEPTH (ft)

SYMBOL

DESCRIPTION

8 inches aggregate base

Sandy Lean Clay (CL)

very stiff, moist, brown, fine to medium sand

Bottom of Boring at 4.5 feet.

N-Value (uncorrected)
blows per foot

SAMPLES
TYPE AND NUMBER

DRY UNIT WEIGHT
PCF

NATURAL
MOISTURE CONTENT

PLASTICITY INDEX, %

PERCENT PASSING
No. 200 SIEVE

UNDRAINED SHEAR STRENGTH,
ksf

○ HAND PENETROMETER

△ TORVANE

● UNCONFINED COMPRESSION

▲ UNCONSOLIDATED-UNDRAINED
TRIAxIAL

1.0 2.0 3.0 4.0

APPENDIX B: LABORATORY TEST PROGRAM

The laboratory testing program was performed to evaluate the physical and mechanical properties of the soils retrieved from the site to aid in verifying soil classification.

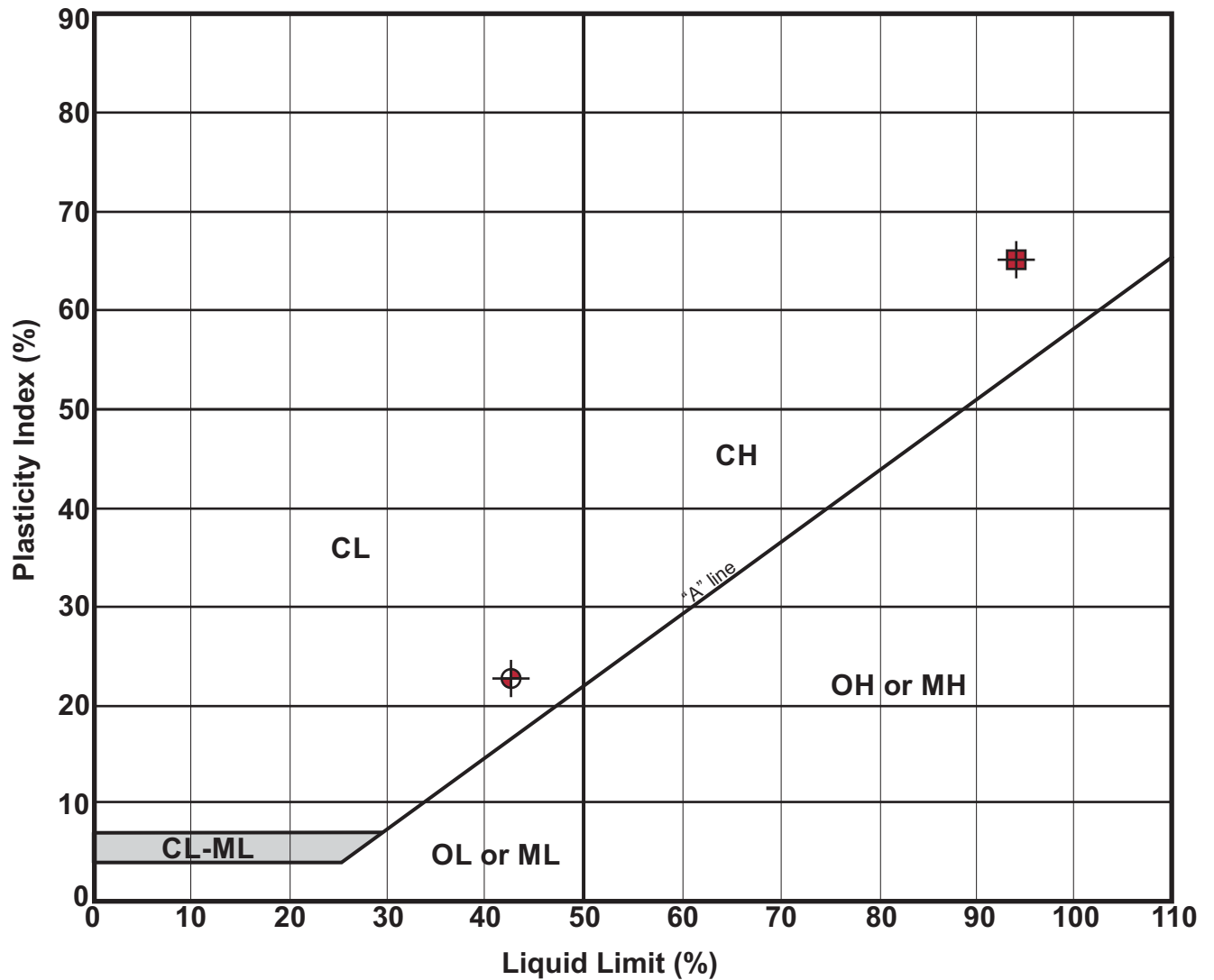
Moisture Content: The natural water content was determined (ASTM D2216) on 35 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry Densities: In place dry density determinations (ASTM D2937) were performed on 32 samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Two Plasticity Index determinations (ASTM D4318) were performed on samples of the subsurface soils to measure the range of water contents over which this material exhibits plasticity. The Plasticity Index was used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of these tests are shown on the boring logs at the appropriate sample depths.

Consolidated-Undrained Triaxial Compression with Pore Pressure Measurements: The undrained shear strength was determined on six relatively undisturbed sample of soil material by consolidated undrained triaxial shear strength testing with pore pressure measurements (ASTM D4767). The results of this test are included as part of this appendix.

Plasticity Index (ASTM D4318) Testing Summary



Symbol	Boring No.	Depth (ft)	Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Passing No. 200 (%)	Group Name (USCS - ASTM D2487)
	EB-4	2.0	11	43	21	22	---	Lean Clay with Sand (CL) [Fill]
	EB-7	40.5	37	94	28	66	---	Fat Clay (CH)

Appendix E: Hazardous Materials Constraints Evaluation

TECHNICAL MEMORANDUM

To: City of Salinas

From: Kimley-Horn and Associates, Inc.

Date: June 8, 2018

Subject: **East Laurel Drive Pedestrian Improvement Project Hazardous Materials Constraints Evaluation**

PROJECT UNDERSTANDING

Project Location

The proposed project is located in the City of Salinas (City), Monterey County (County), California. The proposed project extends along East Laurel Drive from North Sanborn Road to Natividad Road and on Constitution Boulevard from East Laurel Drive to 350 feet west of Twin Creek Drive.

Project Description

The proposed project would include the following improvements.

- East Laurel Drive (north side):
 - Install new sidewalk with curb and gutter with a maximum depth of 2.5 feet— width as indicated—in the following areas:
 - North Sanborn Road to St. Edwards Drive (4-foot wide sidewalk)
 - End of proposed boardwalk to existing trailhead and access driveway (a total of 40 feet) (Tapering width from 6-foot to 4-foot)
 - Ranch View Lane to Constitution Boulevard (6-foot wide sidewalk)
 - Along the east side of Constitution Boulevard extending from the Laurel Dr. intersection to the drive entrance to the soccer fields (6 feet wide sidewalk)
 - East side of Constitution Boulevard from the entrance to the soccer fields northeasterly for approximately 1,700-feet (10-foot wide meandering sidewalk)
 - Install six-foot sidewalk, beginning at St. Edwards Drive and extending roughly 2,100 feet west, with a maximum depth of 30 feet. Pending geotechnical and design analysis, the design solution could include a sidewalk supported on a traditional continuous concrete retaining wall supported on drilled pier footings at approximately 20-foot spacing, or boardwalk construction supported on drilled helical anchors at 6-foot transverse spacing and 10-foot longitudinally spacing.
 - Rehabilitate the existing trailhead and concrete sidewalk and provided ADA-compliant transition from the existing trailhead and access driveway west to Ranch View Lane.
 - Install pedestrian crosswalk and ADA-complaint ramp at Ranch View Lane
 - Drainage improvements at structure between Natividad Creek Detention Basin and existing trail.
- East side of Constitution Boulevard:

- Install new six-foot sidewalk with curb and gutter with a maximum depth of 2.5 feet from East Laurel Drive to 350 feet west of Twin Creek Drive
- Modify the traffic signal at East Laurel Drive and Constitution Boulevard and provide ADA-compliant ramps and signal warnings. All proposed improvements would fall within the existing improvements' footprint.
 - ADA-compliant ramps would have a maximum depth of 2.5 feet
 - Traffic signal modifications would have a maximum depth of 7 feet
- Install street lighting with a foundation depth of up to 12 feet within the median, south side, or along the north side of East Laurel Drive from North Sanborn Road to Natividad Road.
- Install solar LED pedestrian scale lighting with a foundation depth of 3 feet:
 - on the trail around Natividad Creek detention basin from East Laurel Drive to the connection with Garner Avenue and Gee Street.
 - on the trail at Veterans Memorial Park from East Laurel Drive north to the Gabilan Creek pedestrian bridge.

Existing Conditions

East Laurel Drive is classified as a “Major Arterial” within the City’s General Plan Circulation Element. East Laurel Drive traverses a range of land uses including residential, agricultural, recreation, commercial, and medical. The north side of East Laurel Drive, between North Sanborn Road and Saint Edwards Drive, contains a gas station and residential land uses. From approximately Saint Edwards Drive to Constitution Boulevard, the Natividad Creek detention pond, an existing unpaved trail, County property which includes a pump station approximately 90 feet north of the proposed project boundary, Veterans Memorial Park, and the Constitution Soccer Complex. Between Constitution Boulevard and Natividad Road, the north side of East Laurel Drive is adjacent to the Natividad Medical Center. The south side of East Laurel Drive, between North Sanborn Road and Saint Edwards Drive, contains an automotive shop, a church, and residential land uses. Agricultural land is located to the south of East Laurel Drive between the residential land uses and Natividad Road. Natividad Creek crosses under East Laurel Drive and enters the Natividad Creek detention pond, while Gabilan Creek crosses under East Laurel Drive between Veterans Memorial Park and the Constitution Soccer Complex.

From North Sanborn Road to Constitution Boulevard, on the northern side of East Laurel Drive, are wooden utility poles with overhead utility lines; there are approximately five transformers. At Constitution Boulevard the overhead utilities transition to underground. A review of aeriels and Google earth street view did not reveal any markers for underground petroleum or natural gas pipelines.

Constitution Boulevard is classified as a “Minor Arterial” within the City’s General Plan Circulation Element. The proposed project extends along the east side of Constitution Boulevard from East Laurel Drive to 350 feet west of Twin Creek Drive. The west side of Constitution Boulevard contains the Natividad Medical Center, the Monterey County Jail, and residential land uses. The east side of Constitution Boulevard contains the Constitution Soccer Complex and undeveloped land. A church is located at the end of the proposed project boundary.

PROJECT CONSIDERATIONS AND PURPOSE

The purpose of this memo is to assess the likelihood of the presence of hazardous substances, such as petroleum products and agricultural residues on the project site under conditions indicative of an

existing release, past release, or a material threat of a release that could affect the project site. In addition, this memorandum is intended to identify any nearby land uses that may constrain the East Laurel Drive pedestrian improvements. If needed, this memorandum will propose additional studies to be used to determine the best course to ameliorate any known issues or recognized environmental conditions (RECs). To prepare this memorandum, Kimley-Horn used an Environmental Data Resources Inc. (EDR) database search, review of public records, a site visit, and review of aerial photographs, to identify possible areas of concern.

This assessment is ***not consistent*** with the American Society for Testing and Materials (ASTM) Standard Method E 1527-13 and should be used for planning purposes only. The information obtained, as well as recommendations for future planning actions are described in further detail below.

ENVIRONMENTAL DATABASE SEARCH

As part of this assessment, an EDR environmental database search was performed on May 24, 2018. This EDR database search included a review of numerous regulatory databases. A partial list of the databases is provided below. For a complete listing, refer to **Attachment A**.

Databases searched:

- U.S. Environmental Protection Agency's National Priorities List,
- Comprehensive Environmental Response Compensation, and Liability Information System,
- Resource Conservation and Recovery Information System (several databases) including information on treatment, storage, and disposal facilities for hazardous materials and wastes, and
- Emergency Response Notification System (ERNS),
- Leaking Underground Storage Tank Incident Report (LUST).

Database searches were performed on a radius from the center of the alignment of East Laurel Drive and Constitution Boulevard for the length of the proposed project.

RECORD SEARCH SUMMARY

The EDR report identified a total of 60 records within the one-mile prescribed radii. The EDR report did not show the overhead utility lines along East Laurel Drive and did not indicate a power transmission line that crosses East Laurel Drive approximately 600 feet east of Ranch View Lane. No underground pipelines or buried utility lines were identified.

There are 20 records pertaining to 11 sites that are adjacent to the project site. Any sites that have experienced a hazardous materials spill or site that uses or handles hazardous materials were outside the project boundaries. These sites were evaluated for their potential to affect the construction and operation of the proposed project. Of these sites, one was found to represent a REC in that there had been a spill and because of the spill there is the potential for contamination of the project site from a past release. One site, 705 Sanborn Road, is located adjacent to the northeast project boundary and is included below. The remaining locations were found not to pose a risk to human health and safety either during construction or during operation of the proposed project. The location, name, EDR Map

Identification, and risk to the proposed project, of these sites are identified and discussed in additional detail below.

Adjacent Sites

705 Sanborn Road Shell Gas Station (Records D14, D15, D16, D17, D18, D19, D20, D21) - This site is identified by the EDR report in the LUST, HIST UST, UST, HAZNET, CAL FID UST, EDR Hist Auto, Resource Conservation and Recovery Act Small Quantity Generator (RCRA-SQG), SWEEPS UST, FINDS, Enforcement & Compliance History Information (ECHO), and CUPA databases. The location is shown in the lists as typical of those indicating a gas station that stores, dispenses, and handles hazardous fuels, solvents, and oils as part of daily operations, and is shown as an active small quantity generator of hazardous materials. These uses and associated listings are common for gas station facilities. The site has a record of a leaking underground gasoline storage tank. The leak was reported in 1998 and remediation using exaction was begun in 2002 and the site was monitored through 2010 when it was listed as Open – Site Assessment. An Open Site Assessment can include but is not limited to 1) identification of the contaminants and the investigation of their potential impacts; 2) determination of the threats/impacts to water quality; 3) evaluation of the risk to humans and ecology; 4) delineation of the nature and extent of contamination; 5) delineation of the contaminant plume(s); and 6) development of the Site Conceptual Model (SWRCB, 2010). Other than the listed leak, there are no other violations listed. The easternmost portion of the proposed project is adjacent to the gas station is approximately one foot lower in elevation. Construction activities of the proposed project, however, only include eight-foot sidewalk improvements and substantial excavation will not be needed. However, the potential existing that contaminated soil may be uncovered and disturbed during construction. Because of the proximity to the proposed project and because the gas station site has not been fully remediated, this is considered a REC and the potential risk is considered moderate (SWRCB, 2018). Prior to ground disturbing activities for the sidewalk improvements within the easternmost portion of project area, it is recommended that soils be tested within the area of disturbance and a mitigation plan be developed if needed.

867 East Laurel Drive – Verizon Wireless Natividad (Record: A1, and A5) - This site is identified by the EDR report in the Certified Unified Protection Agency (CUPA) list and Facility Index System (FINDS) database from 2015. This listing does not identify any violations and appears to be related to Site A5. There are no associated violations and there is no risk to the proposed project.

867 East Laurel Drive – Located in Fenced Yard at Salinas High School ROP (Record A2) - This site is identified by the EDR report in the Facility Index System (FINDS) database from 2006. This identified a site within a fenced yard and indicates the presence of a United States Environmental Protection Agency (ES EPA) air quality monitoring system. There are no associated violations and there is no risk to the proposed project.

867 East Laurel Drive – Salinas Union High School District (SUHSD) Mission Trails (Record A3) - This site is identified by the EDR in the Hazardous Waste Information System (HAZNET) database from 1994. This school district facility is located approximately 500 feet north of the project site and refers to the handling of photo chemicals and photo processing waste. There are no associated violations and there is no risk to the proposed project.

867 East Laurel Drive – Mission Trails ROP Center (Record A4) - This site is identified by the EDR report in the Facility Index System (FINDS) database from October 2015. There are no associated violations, and there is no risk to the proposed project.

867 East Laurel Drive – Mission Trails ROP Center (Record A5) - This site is identified by the EDR report in the Facility Index System (FINDS) database. There are no associated violations, and there is no risk to the proposed project.

867 East Laurel Drive –Mission Trails ROP (Record A6) - This listing is identified by the EDR report in the Hazardous Waste Information System (HAZNET) database from 2007. This school district facility is located approximately 500 feet north of the project site and refers to the handling of waste oil, mixed oil, and unspecified oil-containing waste and asbestos containing waste. This appears to be in reference to the presence of a school related auto shop. There are no associated violations and there is no risk to the proposed project.

967 East Laurel Drive – Mission Trails ROP Center (Record B7) - This site is identified by the EDR report in the CUPA listing from March 2017. This listing appears to be related to A6 above, and refers to payment of fees for the disposal of waste oil. There are no associated violations and there is no risk to the proposed project.

1441 Constitution Boulevard Natividad Medical Center (Records C8, C9, C11, C12, and C13) - This site is identified by the EDR report in the California Hazardous Materials Incident Reporting System (CHMIRS), HAZNET, and CUPA databases. These incidents refer to the current use, storage, and transfer of waste oil, unspecified oil-containing waste, nonchlorinated safety solvents, incineration of laboratory waste chemicals, associated with hospital operations and a 2011 incident in which a blockage in the main sewer line led to a release of sewage from a manhole into the storm drain. The release was contained and recovered from the storm drain. There are no other listed violations and there is no risk to the proposed project.

855 East Laurel Drive (Record 10) - This site is identified by the EDR report in the California Integrated Waste Quality System Project (CIWQS) database. This listing refers to an industrial terminal and service facility for motor vehicle passenger transport. The listing shows that the site is regulated under an INDSTW and that it was terminated on November 14, 2016. Prior to that time, it appears there were two violations and two enforcement actions in five years. The nature of the violations is not listed and is not expected to be a risk to the proposed project.

855 East Laurel Drive (Record I41, I42, I43, I44, I45, I46) - This site is identified by the EDR report in the Underground Storage Tank (UST) list, Hazardous Substances Storage Container Database (HIST UST), Waste Discharge System (WDS), Leaking Underground Storage Tank (LUST), above ground storage tank (AST), CUPA listing, registered waste tire haulers listing (HAULERS), statewide environmental evaluation and planning system (SWEEPS) UST, and California Facility Inventory Database (CA FID) UST. This site is actively used as a Monterey County fleet management site, for vehicle storage, and fueling and maintenance for vehicles. These listings reflect that the site uses and generates materials that would be potentially hazardous such as oils, and solvents, waste oils, fuels, cleaners, etc. The listings also indicate that the site contains an underground storage tank installed in

1975. This tank is shown as posing a minor threat to water quality. The site also contains two above ground storage tanks, one is 1,750-gallons, and the other is 20,000-gallons. There are no known spills from these tanks and they are monitored by the Monterey CUPA. In July 1998, there was a leak of gasoline discovered from one of the on-site underground storage tanks. In February 1999 remediation by excavation began. Since that time the case remains open and the area continues to be monitored. As of January 2013, this case is listed as “Open – Verification Monitoring”. Based on the State Water Resources Control Board “Open – Verification Monitoring” applies to a site in which remediation phases are essentially complete and a monitoring/sampling program is occurring to conform successful completion of the clean-up efforts (SWRCB, 2013; and SWRCB, 2018). Based on the nature of the site and status of the known spill, the risk to the proposed project is considered low.

Nearby Sites

In addition to the above listed sites, there are two other locations within 0.25 miles of the proposed project that have a history of hazardous materials spills or use hazardous materials that may affect the project site.

920 Acosta Place - Carlin's Fire Extinguisher (Record F31, F32, F33) - This site is identified by the EDR report on the LUST, HIST UST, CUPA listing, HIST Cortese, SWEEPS UST, CA FID UST. The case was opened in 1988 and consistent of a leaking underground storage tank. The case was closed in 12/22/1989. This site is located approximately 250 feet northeast of the proposed project and is located in a residential neighborhood. Based on the approximately 18 years since the leak and because the case was closed there does not appear to be a risk to the proposed project.

745 N Sanborn Road - American Bakeries Company (Records H38 and H39) - This site is identified by the EDR report on the HIST UST and LUST Cleanup Site. The is listing for the American Bakeries Company but the business at the location is the Bread Box Recreation Center. The records show that the site is shown to have an underground storage tank and there is a record of a LUST listed as Open Inactive as of August 18, 2015. An Open-Inactive listing designates a site in which no regulatory oversight activities are being conducted by the Lead Agency (SWRCB, 2018). This site is located approximately 525 feet northeast of the easternmost project area. Based on the listing and lack of current oversight the risk to the proposed project is considered low. Soil testing and development of a mitigation plan, as discussed above, would reduce all potential risks from this site.

Other Sites

There are 11 other sites within 0.25 miles of the eastern boundary of the proposed project; these sites are either sufficiently distanced from the project site or the violations are such that the risk to the proposed project does not exist or is remote. These sites are mostly associated with auto repair and tire services or gasoline fueling stations. None of the automobile related sites are listed with any violations. There are two sites shown to have a history of agricultural use; one is listed as having no violations and the other is shown in a listing from 1999 as inactive but needing evaluation. A Walgreens store is listed but no violations are shown.

Other Land Use Considerations

Salinas Municipal Airport

The Salinas Municipal Airport (Airport) is located in the southeastern portion of the City and is a general aviation airport serving single and twin-engine aircraft as well as helicopters (City of Salinas, 2002). The proposed project is located approximately two miles northwest of the Airport. As discussed in the Salinas Municipal Airport Land Use Plan (SMALUP), the Airport was built during World War II (WWII) but was eventually phased out and deeded to the City. The Airport is open to public use and operates two asphalt runways, runway 8/26 which is oriented east to west away from the project proposed, and runway 13/31 is oriented northwest to southeast and in the direction of the proposed project (Airnav, 2018).

In 1973 the Airport Land Use Commission (ALUC), in a cooperative effort with the City of Salinas Community Development Department (SCDD), developed the Airport Area of Influence (AAI), which defines the boundaries of the jurisdiction of the ALUC. The AAI includes land and structures which could affect or be affected by airport activities and considers, airport building restrictions and zone(s), imaginary aircraft approach surfaces, local flight patterns, aircraft noise, natural features, airport-related accessible land, and airport peripheral roads (SCDD, 1982).

In addition to the SMALUP, the 2006 City of Salinas General Plan discusses the AAI and defines the boundaries. The AAI is reflected on the City of Salinas zoning map and is called out as an Airport Overlay District. The AAI and Overlay District is irregularly shaped and covers undeveloped agricultural lands to the south and east, largely residential areas to north, a portion of the project site to the northwest, and industrial uses to the southwest. Within the AAI, there are more restrictive zones that define height limits on structures. In these zones the structures are not permitted to exceed a certain height or, “imaginary surface.” These zones include the Primary Surface Building Restriction Zone, Other Imaginary Surface Zones including the horizontal surface, conical surface, approach surface, and transitional surface. The Clear Zones are located at the end of each runway and no structure of any kind is allowed in these areas. Lastly, the VORTAC Building Restriction Area is part of the airports Air Navigation system and is located on the east side of the runway (SCDD, 1982).

In relation to the proposed project, the AAI includes the southeastern end of the proposed project at the Sanborn Road intersection with East Laurel Drive. The AAI then extends northwest to St. Edwards Drive, covering approximate 0.25 miles of the project site. The remainder of the approximate one mile of improvements are outside the AAI. Although the proposed project is located within the AAI, it is not located in a building restriction area or other zone defined by an imaginary surface. The corner of Sanborn Road and East Laurel Drive is approximately 0.7 miles northeast of the closest airport runway protection zone.

The proposed project consists of pedestrian and lighting improvements and would not include the construction of any buildings. The proposed project would not violate any height restrictions associated with the AAI or other imaginary surface restriction. Although the proposed project may induce some people to utilize the sidewalk improvements within the AIA, the potential for health and safety impacts

from any associated airport operation to these users is considered remote and would not be any different from the existing conditions.

Conclusion

This assessment identified potential environmental concerns adjacent or in close proximity to the proposed project. Only one site, the existing Shell gas station at 705 Sanborn Road, would be considered an REC of concern to the proposed project. The other sites identified above are at a substantial distance, have no violations associated with the property, or remediation was completed or at a level that the potential to affect the project is low or very low and those parcels are not considered environmental concerns for the proposed improvements.

For the site at 705 Sanborn Road, it is recommended that if construction would occur to a depth that encounters native soils, soil sampling shall be conducted to determine if hazardous materials are in the area to be excavated. If, during construction activity, regardless of depth, discolored soils or unusual odors are encountered, work shall stop immediately and an evaluation of the soils shall be made to determine if any hazardous materials are present in the subsurface soils. If materials are located, it is recommended that a mitigation plan be developed in order to address the potential areas of concern.

Attachments:

Attachment A – Environmental Data Resources Database Report

Attachment A
Environmental Data Resources Database Report
(on file at the City of Salinas)