Appendices

Appendix A

Tentative Subdivision Map No. 19-01 – East Street Industrial Park Unit 2 Project Emissions Modeling Output

Mitigated- Anderson East St. Industrial Project

Shasta County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	70.00	1000sqft	1.61	70,000.00	0
Other Non-Asphalt Surfaces	2.24	Acre	2.24	97,574.40	0
Parking Lot	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The latest PG&E CO2 intensity factor is 290 lb/MWh.

Land Use - Two parcels will be rezoed and redesignated for industrial use on 5.85 acres.

Construction Phase - Building construction, paving, and painting will occur simultaneously.

Vehicle Trips - 780 daily weekday trips (GHD 2020).

Energy Use -

Construction Off-road Equipment Mitigation - SCAQMD Rule 3-16, Fugitive, Indirect, or Non-traditional Sources and MM AQ-1.

Water Mitigation - CA water conservation standards.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	NumDays	20.00	230.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	WD_TR	6.83	11.16

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					
2021	11.8218	40.5467	38.8702	0.0773	18.2141	2.0455	20.2596	9.9699	1.8818	11.8517	0.0000	7,550.5903	7,550.5903	1.4831	0.0000	7,587.6690
2022	11.4005	32.8726	38.0653	0.0767	1.4594	1.4789	2.9382	0.3936	1.3844	1.7780	0.0000	7,496.5968	7,496.5968	1.4696	0.0000	7,533.3376
Maximum	**11.8218**	**40.5467**	**38.8702**	**0.0773**	**18.2141**	**2.0455**	**20.2596**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**7,550.5903**	**7,550.5903**	**1.4831**	**0.0000**	**7,587.6690**

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					
2021	10.6109	26.3067	40.2259	0.0773	15.4528	1.1184	15.5159	8.4677	1.0818	8.5307	0.0000	7,550.5903	7,550.5903	1.4831	0.0000	7,587.6690
2022	10.3774	24.2099	39.6412	0.0767	0.9699	0.9994	1.9693	0.2734	0.9687	1.2421	0.0000	7,496.5968	7,496.5968	1.4696	0.0000	7,533.3376
Maximum	**10.6109**	**26.3067**	**40.2259**	**0.0773**	**15.4528**	**1.1184**	**15.5159**	**8.4677**	**1.0818**	**8.5307**	**0.0000**	**7,550.5903**	**7,550.5903**	**1.4831**	**0.0000**	**7,587.6690**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.62**	**31.19**	**-3.81**	**0.00**	**16.52**	**39.91**	**24.63**	**15.65**	**37.22**	**28.30**	**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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Energy	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Mobile	2.1569	14.5897	18.7883	0.0721	4.3926	0.0703	4.4629	1.1776	0.0664	1.2440		7,341.8674	7,341.8674	0.4609		7,353.3891
Total	**4.2276**	**14.8351**	**19.0020**	**0.0736**	**4.3926**	**0.0890**	**4.4816**	**1.1776**	**0.0851**	**1.2626**		**7,636.3236**	**7,636.3236**	**0.4666**	**5.4000e-003**	**7,649.5961**

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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Energy	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Mobile	2.1569	14.5897	18.7883	0.0721	4.3926	0.0703	4.4629	1.1776	0.0664	1.2440		7,341.8674	7,341.8674	0.4609		7,353.3891
Total	**4.2276**	**14.8351**	**19.0020**	**0.0736**	**4.3926**	**0.0890**	**4.4816**	**1.1776**	**0.0851**	**1.2626**		**7,636.3236**	**7,636.3236**	**0.4666**	**5.4000e-003**	**7,649.5961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	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	Site Preparation	Site Preparation	4/29/2021	5/12/2021	5	10	
2	Grading	Grading	5/13/2021	6/9/2021	5	20	
3	Building Construction	Building Construction	6/10/2021	4/27/2022	5	230	
4	Paving	Paving	6/10/2021	4/27/2022	5	230	
5	Architectural Coating	Architectural Coating	6/10/2021	4/27/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 4.24

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000; Striped Parking Area: 11,082 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	107.00	42.00	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	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0834	0.0496	0.6170	1.5500e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		154.7013	154.7013	5.0100e-003		154.8265
Total	**0.0834**	**0.0496**	**0.6170**	**1.5500e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**154.7013**	**154.7013**	**5.0100e-003**		**154.8265**

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					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**15.3563**	**0.0621**	**15.4184**	**8.4411**	**0.0621**	**8.5032**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0834	0.0496	0.6170	1.5500e-003	0.0965	1.0200e-003	0.0975	0.0266	9.4000e-004	0.0275		154.7013	154.7013	5.0100e-003		154.8265
Total	**0.0834**	**0.0496**	**0.6170**	**1.5500e-003**	**0.0965**	**1.0200e-003**	**0.0975**	**0.0266**	**9.4000e-004**	**0.0275**		**154.7013**	**154.7013**	**5.0100e-003**		**154.8265**

3.3 Grading - 2021

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0414	0.5142	1.3000e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		128.9178	128.9178	4.1700e-003		129.0221
Total	**0.0695**	**0.0414**	**0.5142**	**1.3000e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**128.9178**	**128.9178**	**4.1700e-003**		**129.0221**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5695	0.0000	5.5695	2.8624	0.0000	2.8624			0.0000			0.0000
Off-Road	0.5078	6.5407	18.2936	0.0296		0.2667	0.2667		0.2667	0.2667	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**0.5078**	**6.5407**	**18.2936**	**0.0296**	**5.5695**	**0.2667**	**5.8362**	**2.8624**	**0.2667**	**3.1291**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0414	0.5142	1.3000e-003	0.0804	8.5000e-004	0.0812	0.0222	7.8000e-004	0.0230		128.9178	128.9178	4.1700e-003		129.0221
Total	**0.0695**	**0.0414**	**0.5142**	**1.3000e-003**	**0.0804**	**8.5000e-004**	**0.0812**	**0.0222**	**7.8000e-004**	**0.0230**		**128.9178**	**128.9178**	**4.1700e-003**		**129.0221**

3.4 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	0.1498	4.6264	0.9224	0.0122	0.2847	0.0142	0.2989	0.0820	0.0136	0.0956		1,279.5515	1,279.5515	0.0942		1,281.9058
Worker	0.4956	0.2951	3.6678	9.2400e-003	0.8790	6.0600e-003	0.8850	0.2332	5.5800e-003	0.2387		919.6133	919.6133	0.0298		920.3577
Total	**0.6454**	**4.9214**	**4.5902**	**0.0215**	**1.1636**	**0.0203**	**1.1839**	**0.3151**	**0.0192**	**0.3343**		**2,199.1648**	**2,199.1648**	**0.1239**		**2,202.2635**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9403	7.7504	17.7241	0.0269		0.3537	0.3537		0.3537	0.3537	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.9403**	**7.7504**	**17.7241**	**0.0269**		**0.3537**	**0.3537**		**0.3537**	**0.3537**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	0.1498	4.6264	0.9224	0.0122	0.2036	0.0142	0.2178	0.0621	0.0136	0.0757		1,279.5515	1,279.5515	0.0942		1,281.9058
Worker	0.4956	0.2951	3.6678	9.2400e-003	0.5734	6.0600e-003	0.5795	0.1581	5.5800e-003	0.1637		919.6133	919.6133	0.0298		920.3577
Total	**0.6454**	**4.9214**	**4.5902**	**0.0215**	**0.7770**	**0.0203**	**0.7973**	**0.2202**	**0.0192**	**0.2394**		**2,199.1648**	**2,199.1648**	**0.1239**		**2,202.2635**

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	0.1393	4.3724	0.8487	0.0121	0.2847	0.0124	0.2970	0.0820	0.0118	0.0938		1,268.6675	1,268.6675	0.0902		1,270.9221
Worker	0.4588	0.2628	3.3366	8.9000e-003	0.8790	5.8800e-003	0.8849	0.2332	5.4200e-003	0.2386		886.2947	886.2947	0.0263		886.9528
Total	**0.5982**	**4.6352**	**4.1853**	**0.0210**	**1.1636**	**0.0183**	**1.1819**	**0.3151**	**0.0173**	**0.3324**		**2,154.9622**	**2,154.9622**	**0.1165**		**2,157.8749**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8870	7.4665	17.6923	0.0269		0.3226	0.3226		0.3226	0.3226	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.8870**	**7.4665**	**17.6923**	**0.0269**		**0.3226**	**0.3226**		**0.3226**	**0.3226**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	0.1393	4.3724	0.8487	0.0121	0.2036	0.0124	0.2160	0.0621	0.0118	0.0739		1,268.6675	1,268.6675	0.0902		1,270.9221
Worker	0.4588	0.2628	3.3366	8.9000e-003	0.5734	5.8800e-003	0.5793	0.1581	5.4200e-003	0.1636		886.2947	886.2947	0.0263		886.9528
Total	**0.5982**	**4.6352**	**4.1853**	**0.0210**	**0.7770**	**0.0183**	**0.7952**	**0.2202**	**0.0173**	**0.2375**		**2,154.9622**	**2,154.9622**	**0.1165**		**2,157.8749**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2783**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0414	0.5142	1.3000e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		128.9178	128.9178	4.1700e-003		129.0221
Total	**0.0695**	**0.0414**	**0.5142**	**1.3000e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**128.9178**	**128.9178**	**4.1700e-003**		**129.0221**

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	1.0052	12.0088	14.8600	0.0228		0.6483	0.6483		0.6130	0.6130	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0280**	**12.0088**	**14.8600**	**0.0228**		**0.6483**	**0.6483**		**0.6130**	**0.6130**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0414	0.5142	1.3000e-003	0.0804	8.5000e-004	0.0812	0.0222	7.8000e-004	0.0230		128.9178	128.9178	4.1700e-003		129.0221
Total	**0.0695**	**0.0414**	**0.5142**	**1.3000e-003**	**0.0804**	**8.5000e-004**	**0.0812**	**0.0222**	**7.8000e-004**	**0.0230**		**128.9178**	**128.9178**	**4.1700e-003**		**129.0221**

3.5 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1256**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0643	0.0368	0.4678	1.2500e-003	0.1232	8.2000e-004	0.1241	0.0327	7.6000e-004	0.0334		124.2469	124.2469	3.6900e-003		124.3392
Total	**0.0643**	**0.0368**	**0.4678**	**1.2500e-003**	**0.1232**	**8.2000e-004**	**0.1241**	**0.0327**	**7.6000e-004**	**0.0334**		**124.2469**	**124.2469**	**3.6900e-003**		**124.3392**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8989	10.6113	14.8274	0.0228		0.5749	0.5749		0.5453	0.5453	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9217**	**10.6113**	**14.8274**	**0.0228**		**0.5749**	**0.5749**		**0.5453**	**0.5453**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0643	0.0368	0.4678	1.2500e-003	0.0804	8.2000e-004	0.0812	0.0222	7.6000e-004	0.0229		124.2469	124.2469	3.6900e-003		124.3392
Total	**0.0643**	**0.0368**	**0.4678**	**1.2500e-003**	**0.0804**	**8.2000e-004**	**0.0812**	**0.0222**	**7.6000e-004**	**0.0229**		**124.2469**	**124.2469**	**3.6900e-003**		**124.3392**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**7.8305**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

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	0.0973	0.0579	0.7199	1.8100e-003	0.1725	1.1900e-003	0.1737	0.0458	1.1000e-003	0.0469		180.4849	180.4849	5.8400e-003		180.6310
Total	**0.0973**	**0.0579**	**0.7199**	**1.8100e-003**	**0.1725**	**1.1900e-003**	**0.1737**	**0.0458**	**1.1000e-003**	**0.0469**		**180.4849**	**180.4849**	**5.8400e-003**		**180.6310**

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	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**7.8305**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

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	0.0973	0.0579	0.7199	1.8100e-003	0.1125	1.1900e-003	0.1137	0.0310	1.1000e-003	0.0321		180.4849	180.4849	5.8400e-003		180.6310
Total	**0.0973**	**0.0579**	**0.7199**	**1.8100e-003**	**0.1125**	**1.1900e-003**	**0.1137**	**0.0310**	**1.1000e-003**	**0.0321**		**180.4849**	**180.4849**	**5.8400e-003**		**180.6310**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**7.8161**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	0.0901	0.0516	0.6549	1.7500e-003	0.1725	1.1500e-003	0.1737	0.0458	1.0600e-003	0.0468		173.9457	173.9457	5.1700e-003		174.0749
Total	**0.0901**	**0.0516**	**0.6549**	**1.7500e-003**	**0.1725**	**1.1500e-003**	**0.1737**	**0.0458**	**1.0600e-003**	**0.0468**		**173.9457**	**173.9457**	**5.1700e-003**		**174.0749**

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	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**7.8161**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	0.0901	0.0516	0.6549	1.7500e-003	0.1125	1.1500e-003	0.1137	0.0310	1.0600e-003	0.0321		173.9457	173.9457	5.1700e-003		174.0749
Total	**0.0901**	**0.0516**	**0.6549**	**1.7500e-003**	**0.1125**	**1.1500e-003**	**0.1137**	**0.0310**	**1.0600e-003**	**0.0321**		**173.9457**	**173.9457**	**5.1700e-003**		**174.0749**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1569	14.5897	18.7883	0.0721	4.3926	0.0703	4.4629	1.1776	0.0664	1.2440		7,341.8674	7,341.8674	0.4609		7,353.3891
Unmitigated	2.1569	14.5897	18.7883	0.0721	4.3926	0.0703	4.4629	1.1776	0.0664	1.2440		7,341.8674	7,341.8674	0.4609		7,353.3891

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	781.20	0.00	0.00	1,462,980	1,462,980
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	781.20	0.00	0.00	1,462,980	1,462,980

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
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Non-Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
NaturalGas Unmitigated	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897

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					
Industrial Park	2502.74	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Other Non-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
Parking Lot	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		**0.0270**	**0.2454**	**0.2061**	**1.4700e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**		**294.4400**	**294.4400**	**5.6400e-003**	**5.4000e-003**	**296.1897**

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					
Industrial Park	2.50274	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Other Non-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
Parking Lot	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		**0.0270**	**0.2454**	**0.2061**	**1.4700e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**		**294.4400**	**294.4400**	**5.6400e-003**	**5.4000e-003**	**296.1897**

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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Unmitigated	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173

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	0.4796					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5634					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.1000e-004	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Total	**2.0438**	**7.0000e-005**	**7.5900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0163**	**0.0163**	**4.0000e-005**		**0.0173**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4796					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5634					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.1000e-004	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Total	**2.0438**	**7.0000e-005**	**7.5900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0163**	**0.0163**	**4.0000e-005**		**0.0173**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Mitigated- Anderson East St. Industrial Project

Shasta County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	70.00	1000sqft	1.61	70,000.00	0
Other Non-Asphalt Surfaces	2.24	Acre	2.24	97,574.40	0
Parking Lot	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The latest PG&E CO2 intensity factor is 290 lb/MWh.

Land Use - Two parcels will be rezoed and redesignated for industrial use on 5.85 acres.

Construction Phase - Building construction, paving, and painting will occur simultaneously.

Vehicle Trips - 780 daily weekday trips (GHD 2020).

Energy Use -

Construction Off-road Equipment Mitigation - SCAQMD Rule 3-16, Fugitive, Indirect, or Non-traditional Sources and MM AQ-1.

Water Mitigation - CA water conservation standards.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	NumDays	20.00	230.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	WD_TR	6.83	11.16

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					
2021	11.7496	40.5564	38.2535	0.0752	18.2141	2.0455	20.2596	9.9699	1.8818	11.8517	0.0000	7,344.8219	7,344.8219	1.4899	0.0000	7,382.0702
2022	11.3359	32.9972	37.4875	0.0747	1.4594	1.4794	2.9388	0.3936	1.3850	1.7785	0.0000	7,296.8238	7,296.8238	1.4767	0.0000	7,333.7414
Maximum	**11.7496**	**40.5564**	**38.2535**	**0.0752**	**18.2141**	**2.0455**	**20.2596**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**7,344.8219**	**7,344.8219**	**1.4899**	**0.0000**	**7,382.0702**

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					
2021	10.5387	26.4523	39.6092	0.0752	15.4528	1.1190	15.5159	8.4677	1.0823	8.5307	0.0000	7,344.8219	7,344.8219	1.4899	0.0000	7,382.0702
2022	10.3128	24.3345	39.0634	0.0747	0.9699	1.0000	1.9699	0.2734	0.9693	1.2427	0.0000	7,296.8238	7,296.8238	1.4767	0.0000	7,333.7414
Maximum	**10.5387**	**26.4523**	**39.6092**	**0.0752**	**15.4528**	**1.1190**	**15.5159**	**8.4677**	**1.0823**	**8.5307**	**0.0000**	**7,344.8219**	**7,344.8219**	**1.4899**	**0.0000**	**7,382.0702**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.68**	**30.95**	**-3.87**	**0.00**	**16.52**	**39.89**	**24.63**	**15.65**	**37.20**	**28.30**	**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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Energy	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Mobile	1.6277	15.0031	17.5271	0.0657	4.3926	0.0721	4.4647	1.1776	0.0680	1.2456		6,695.2507	6,695.2507	0.4915		6,707.5386
Total	**3.6984**	**15.2485**	**17.7408**	**0.0672**	**4.3926**	**0.0907**	**4.4834**	**1.1776**	**0.0867**	**1.2643**		**6,989.7069**	**6,989.7069**	**0.4972**	**5.4000e-003**	**7,003.7456**

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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Energy	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Mobile	1.6277	15.0031	17.5271	0.0657	4.3926	0.0721	4.4647	1.1776	0.0680	1.2456		6,695.2507	6,695.2507	0.4915		6,707.5386
Total	**3.6984**	**15.2485**	**17.7408**	**0.0672**	**4.3926**	**0.0907**	**4.4834**	**1.1776**	**0.0867**	**1.2643**		**6,989.7069**	**6,989.7069**	**0.4972**	**5.4000e-003**	**7,003.7456**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	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	Site Preparation	Site Preparation	4/29/2021	5/12/2021	5	10	
2	Grading	Grading	5/13/2021	6/9/2021	5	20	
3	Building Construction	Building Construction	6/10/2021	4/27/2022	5	230	
4	Paving	Paving	6/10/2021	4/27/2022	5	230	
5	Architectural Coating	Architectural Coating	6/10/2021	4/27/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 4.24

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000; Striped Parking Area: 11,082 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	107.00	42.00	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	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0732	0.0593	0.5163	1.3500e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		134.1453	134.1453	4.3000e-003		134.2528
Total	**0.0732**	**0.0593**	**0.5163**	**1.3500e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**134.1453**	**134.1453**	**4.3000e-003**		**134.2528**

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					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**15.3563**	**0.0621**	**15.4184**	**8.4411**	**0.0621**	**8.5032**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0732	0.0593	0.5163	1.3500e-003	0.0965	1.0200e-003	0.0975	0.0266	9.4000e-004	0.0275		134.1453	134.1453	4.3000e-003		134.2528
Total	**0.0732**	**0.0593**	**0.5163**	**1.3500e-003**	**0.0965**	**1.0200e-003**	**0.0975**	**0.0266**	**9.4000e-004**	**0.0275**		**134.1453**	**134.1453**	**4.3000e-003**		**134.2528**

3.3 Grading - 2021

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	0.0610	0.0494	0.4302	1.1200e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		111.7877	111.7877	3.5800e-003		111.8773
Total	**0.0610**	**0.0494**	**0.4302**	**1.1200e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**111.7877**	**111.7877**	**3.5800e-003**		**111.8773**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5695	0.0000	5.5695	2.8624	0.0000	2.8624			0.0000			0.0000
Off-Road	0.5078	6.5407	18.2936	0.0296		0.2667	0.2667		0.2667	0.2667	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**0.5078**	**6.5407**	**18.2936**	**0.0296**	**5.5695**	**0.2667**	**5.8362**	**2.8624**	**0.2667**	**3.1291**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	0.0610	0.0494	0.4302	1.1200e-003	0.0804	8.5000e-004	0.0812	0.0222	7.8000e-004	0.0230		111.7877	111.7877	3.5800e-003		111.8773
Total	**0.0610**	**0.0494**	**0.4302**	**1.1200e-003**	**0.0804**	**8.5000e-004**	**0.0812**	**0.0222**	**7.8000e-004**	**0.0230**		**111.7877**	**111.7877**	**3.5800e-003**		**111.8773**

3.4 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	0.1583	4.6954	1.1061	0.0118	0.2847	0.0148	0.2995	0.0820	0.0142	0.0961		1,237.0893	1,237.0893	0.1066		1,239.7537
Worker	0.4352	0.3523	3.0689	8.0100e-003	0.8790	6.0600e-003	0.8850	0.2332	5.5800e-003	0.2387		797.4192	797.4192	0.0256		798.0584
Total	**0.5934**	**5.0477**	**4.1750**	**0.0199**	**1.1636**	**0.0209**	**1.1845**	**0.3151**	**0.0197**	**0.3349**		**2,034.5085**	**2,034.5085**	**0.1322**		**2,037.8121**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9403	7.7504	17.7241	0.0269		0.3537	0.3537		0.3537	0.3537	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.9403**	**7.7504**	**17.7241**	**0.0269**		**0.3537**	**0.3537**		**0.3537**	**0.3537**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	0.1583	4.6954	1.1061	0.0118	0.2036	0.0148	0.2184	0.0621	0.0142	0.0762		1,237.0893	1,237.0893	0.1066		1,239.7537
Worker	0.4352	0.3523	3.0689	8.0100e-003	0.5734	6.0600e-003	0.5795	0.1581	5.5800e-003	0.1637		797.4192	797.4192	0.0256		798.0584
Total	**0.5934**	**5.0477**	**4.1750**	**0.0199**	**0.7770**	**0.0209**	**0.7979**	**0.2202**	**0.0197**	**0.2400**		**2,034.5085**	**2,034.5085**	**0.1322**		**2,037.8121**

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	0.1473	4.4293	1.0210	0.0117	0.2847	0.0129	0.2976	0.0820	0.0124	0.0943		1,226.2210	1,226.2210	0.1023		1,228.7779
Worker	0.4045	0.3135	2.7753	7.7200e-003	0.8790	5.8800e-003	0.8849	0.2332	5.4200e-003	0.2386		768.5750	768.5750	0.0226		769.1391
Total	**0.5518**	**4.7428**	**3.7963**	**0.0195**	**1.1636**	**0.0188**	**1.1824**	**0.3151**	**0.0178**	**0.3329**		**1,994.7959**	**1,994.7959**	**0.1248**		**1,997.9170**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8870	7.4665	17.6923	0.0269		0.3226	0.3226		0.3226	0.3226	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.8870**	**7.4665**	**17.6923**	**0.0269**		**0.3226**	**0.3226**		**0.3226**	**0.3226**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	0.1473	4.4293	1.0210	0.0117	0.2036	0.0129	0.2165	0.0621	0.0124	0.0744		1,226.2210	1,226.2210	0.1023		1,228.7779
Worker	0.4045	0.3135	2.7753	7.7200e-003	0.5734	5.8800e-003	0.5793	0.1581	5.4200e-003	0.1636		768.5750	768.5750	0.0226		769.1391
Total	**0.5518**	**4.7428**	**3.7963**	**0.0195**	**0.7770**	**0.0188**	**0.7958**	**0.2202**	**0.0178**	**0.2380**		**1,994.7959**	**1,994.7959**	**0.1248**		**1,997.9170**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2783**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

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	0.0610	0.0494	0.4302	1.1200e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		111.7877	111.7877	3.5800e-003		111.8773
Total	**0.0610**	**0.0494**	**0.4302**	**1.1200e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**111.7877**	**111.7877**	**3.5800e-003**		**111.8773**

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	1.0052	12.0088	14.8600	0.0228		0.6483	0.6483		0.6130	0.6130	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0280**	**12.0088**	**14.8600**	**0.0228**		**0.6483**	**0.6483**		**0.6130**	**0.6130**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

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	0.0610	0.0494	0.4302	1.1200e-003	0.0804	8.5000e-004	0.0812	0.0222	7.8000e-004	0.0230		111.7877	111.7877	3.5800e-003		111.8773
Total	**0.0610**	**0.0494**	**0.4302**	**1.1200e-003**	**0.0804**	**8.5000e-004**	**0.0812**	**0.0222**	**7.8000e-004**	**0.0230**		**111.7877**	**111.7877**	**3.5800e-003**		**111.8773**

3.5 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1256**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0567	0.0440	0.3891	1.0800e-003	0.1232	8.2000e-004	0.1241	0.0327	7.6000e-004	0.0334		107.7442	107.7442	3.1600e-003		107.8232
Total	**0.0567**	**0.0440**	**0.3891**	**1.0800e-003**	**0.1232**	**8.2000e-004**	**0.1241**	**0.0327**	**7.6000e-004**	**0.0334**		**107.7442**	**107.7442**	**3.1600e-003**		**107.8232**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8989	10.6113	14.8274	0.0228		0.5749	0.5749		0.5453	0.5453	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0228					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9217**	**10.6113**	**14.8274**	**0.0228**		**0.5749**	**0.5749**		**0.5453**	**0.5453**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0567	0.0440	0.3891	1.0800e-003	0.0804	8.2000e-004	0.0812	0.0222	7.6000e-004	0.0229		107.7442	107.7442	3.1600e-003		107.8232
Total	**0.0567**	**0.0440**	**0.3891**	**1.0800e-003**	**0.0804**	**8.2000e-004**	**0.0812**	**0.0222**	**7.6000e-004**	**0.0229**		**107.7442**	**107.7442**	**3.1600e-003**		**107.8232**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**7.8305**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

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	0.0854	0.0691	0.6023	1.5700e-003	0.1725	1.1900e-003	0.1737	0.0458	1.1000e-003	0.0469		156.5028	156.5028	5.0200e-003		156.6283
Total	**0.0854**	**0.0691**	**0.6023**	**1.5700e-003**	**0.1725**	**1.1900e-003**	**0.1737**	**0.0458**	**1.1000e-003**	**0.0469**		**156.5028**	**156.5028**	**5.0200e-003**		**156.6283**

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	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**7.8305**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

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	0.0854	0.0691	0.6023	1.5700e-003	0.1125	1.1900e-003	0.1137	0.0310	1.1000e-003	0.0321		156.5028	156.5028	5.0200e-003		156.6283
Total	**0.0854**	**0.0691**	**0.6023**	**1.5700e-003**	**0.1125**	**1.1900e-003**	**0.1137**	**0.0310**	**1.1000e-003**	**0.0321**		**156.5028**	**156.5028**	**5.0200e-003**		**156.6283**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**7.8161**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	0.0794	0.0615	0.5447	1.5100e-003	0.1725	1.1500e-003	0.1737	0.0458	1.0600e-003	0.0468		150.8418	150.8418	4.4300e-003		150.9525
Total	**0.0794**	**0.0615**	**0.5447**	**1.5100e-003**	**0.1725**	**1.1500e-003**	**0.1737**	**0.0458**	**1.0600e-003**	**0.0468**		**150.8418**	**150.8418**	**4.4300e-003**		**150.9525**

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	7.6116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**7.8161**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	0.0794	0.0615	0.5447	1.5100e-003	0.1125	1.1500e-003	0.1137	0.0310	1.0600e-003	0.0321		150.8418	150.8418	4.4300e-003		150.9525
Total	**0.0794**	**0.0615**	**0.5447**	**1.5100e-003**	**0.1125**	**1.1500e-003**	**0.1137**	**0.0310**	**1.0600e-003**	**0.0321**		**150.8418**	**150.8418**	**4.4300e-003**		**150.9525**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6277	15.0031	17.5271	0.0657	4.3926	0.0721	4.4647	1.1776	0.0680	1.2456		6,695.2507	6,695.2507	0.4915		6,707.5386
Unmitigated	1.6277	15.0031	17.5271	0.0657	4.3926	0.0721	4.4647	1.1776	0.0680	1.2456		6,695.2507	6,695.2507	0.4915		6,707.5386

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	781.20	0.00	0.00	1,462,980	1,462,980
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	781.20	0.00	0.00	1,462,980	1,462,980

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
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Non-Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
NaturalGas Unmitigated	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897

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					
Industrial Park	2502.74	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Other Non-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
Parking Lot	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		**0.0270**	**0.2454**	**0.2061**	**1.4700e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**		**294.4400**	**294.4400**	**5.6400e-003**	**5.4000e-003**	**296.1897**

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					
Industrial Park	2.50274	0.0270	0.2454	0.2061	1.4700e-003		0.0187	0.0187		0.0187	0.0187		294.4400	294.4400	5.6400e-003	5.4000e-003	296.1897
Other Non-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
Parking Lot	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		**0.0270**	**0.2454**	**0.2061**	**1.4700e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**		**294.4400**	**294.4400**	**5.6400e-003**	**5.4000e-003**	**296.1897**

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	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Unmitigated	2.0438	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173

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	0.4796					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5634					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.1000e-004	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Total	**2.0438**	**7.0000e-005**	**7.5900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0163**	**0.0163**	**4.0000e-005**		**0.0173**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4796					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5634					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.1000e-004	7.0000e-005	7.5900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0163	0.0163	4.0000e-005		0.0173
Total	**2.0438**	**7.0000e-005**	**7.5900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0163**	**0.0163**	**4.0000e-005**		**0.0173**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B1

East Street Industrial Park Frontage Project

Biological Resources Assessment

gallaway
ENTERPRISES

117 Meyers Street, Suite 120, Chico CA 95928

BIOLOGICAL RESOURCE ASSESSMENT

Aquatic and Terrestrial Wildlife, and Botanical Resources

East Street Industrial Park Frontage Project

City of Anderson, California

February 2020

Prepared for:

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Table 1. Special-status Species and Sensitive Natural Communities and Their Potential to Occur in the BSA of the East Street Industrial Park Frontage Project, Anderson, CA. 10

APPENDICES

Appendix A..... Species Lists

Appendix B..... Observed Species

Appendix C..... Project Site Photos

BIOLOGICAL RESOURCE ASSESSMENT

East Street Industrial Park Frontage Project

Project Location:

City of Anderson, California
Section 15 Township 30N Range 4W
San Buenaventura Land Grant

INTRODUCTION

Purpose and Overview

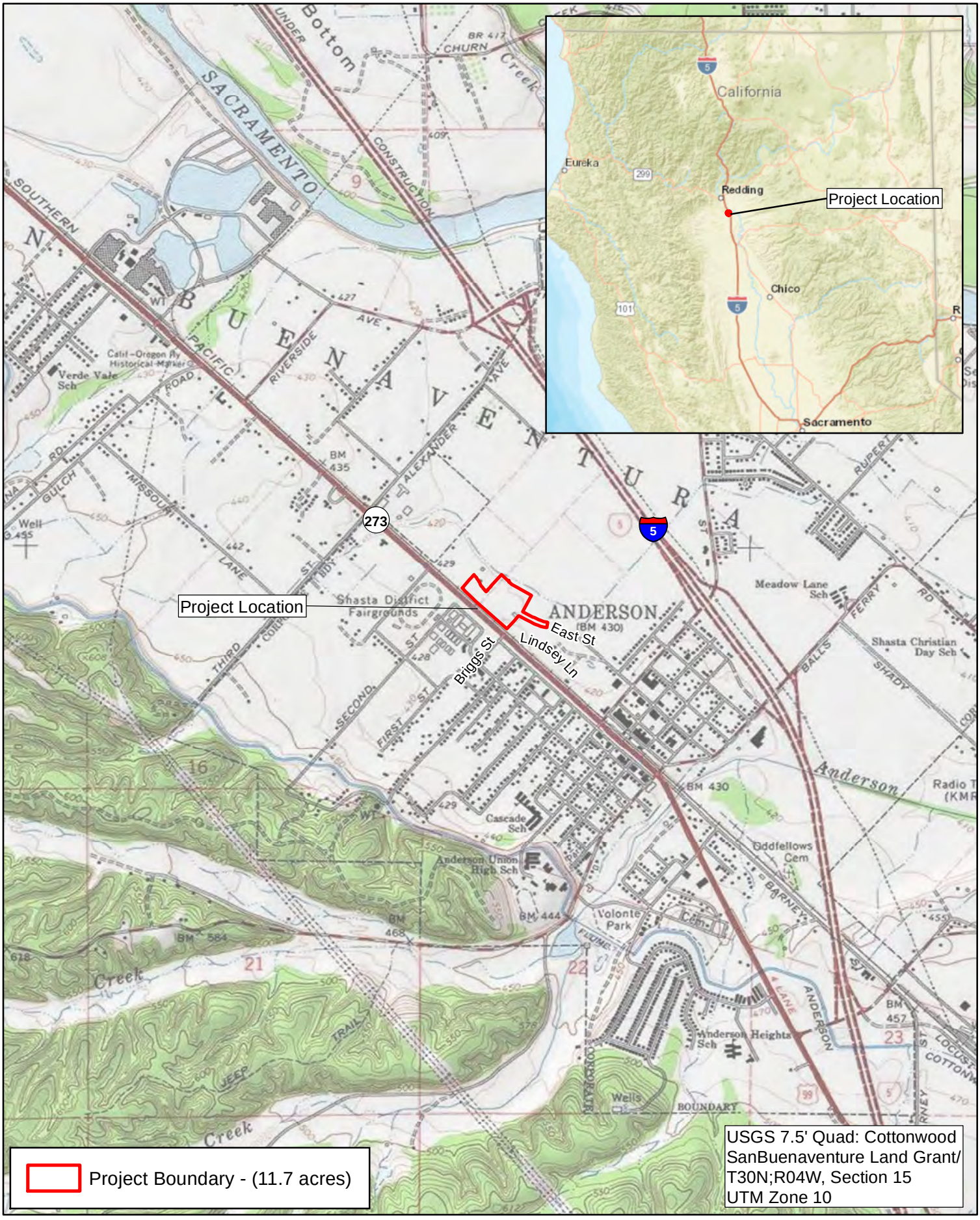
The purpose of this biological resource assessment (BRA) is to document the endangered, threatened, sensitive, and rare species that occur or may occur in the biological survey area (BSA) of the East Street Industrial Park Frontage Project (Project) located in the City of Anderson, Shasta County, California (**Figure 1**)**.** The Project area is approximately 11.7 acres in size.

The BSA is the area where the focus of biological surveys is conducted (**Figure 2**). Gallaway Enterprises conducted a biological and botanical habitat assessments and a wetland delineation in the BSA to evaluate site conditions and potential for rare and listed species to occur. Other primary references consulted include species lists and information gathered using the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC), California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) list of rare and endangered plants, and literature review. The results of the BRA are the findings of surveys, habitat assessments, and recommendations for avoidance and minimization measures.

Project Location and Environmental Setting

The Project site is located within the northern Central Valley of California in the City of Anderson. The site is primarily composed of disturbed annual grassland habitat. There is one (1) drainage in the eastern portion of the Project site that provides riverine habitat. The drainage is part of a system of two (2) drainages, the confluence of which occurs outside of the Project boundary. Valley foothill riparian habitat occurs along the banks of the drainage. There are two (2) seasonal wetlands present within the BSA, which could provide lacustrine habitat when ponded.

The site abuts a railroad easement and a large, worn dirt access road runs from northwest to southeast through the middle of the BSA. It is evident that the land had been historically scraped and there are multiple old elevated dirt access roads present which provide barren habitat within the BSA.



NORTH

1:24,000
0 500 1,000 Feet

Data Sources: ESRI, City of Redding GIS, USGS

East Street Industrial Park Frontage Project
Regional Location
Figure 1

gallaway ENTERPRISES

GE: #19-120 Map Date: 02/11/20

NORTH

1:3,000
0 100 200 Feet

Data Sources: ESRI, City of Redding GIS, SRTA 3/17/2016

East Street Industrial Park Frontage Project
Biological Survey Area
Figure 2

gallaway ENTERPRISES

GE: #19-120 Map Date: 02/27/20

The average annual precipitation is 33.68 inches and the average annual temperature is 62.45° F (WRCC 2020) in the region where the BSA is located. The BSA occurs at an elevation of approximately 420 feet above sea level. The site is sloped between 0 and 3 percent. Soils within the site were gravelly loams with a restrictive layer occurring more than 80 inches deep.

Biological Survey Area

For the purposes of this BRA, the BSA is the area in which biological surveys are conducted. The BSA includes all areas to be affected directly or indirectly by the Project, and not merely the immediate area within the Project boundary.

Project Description

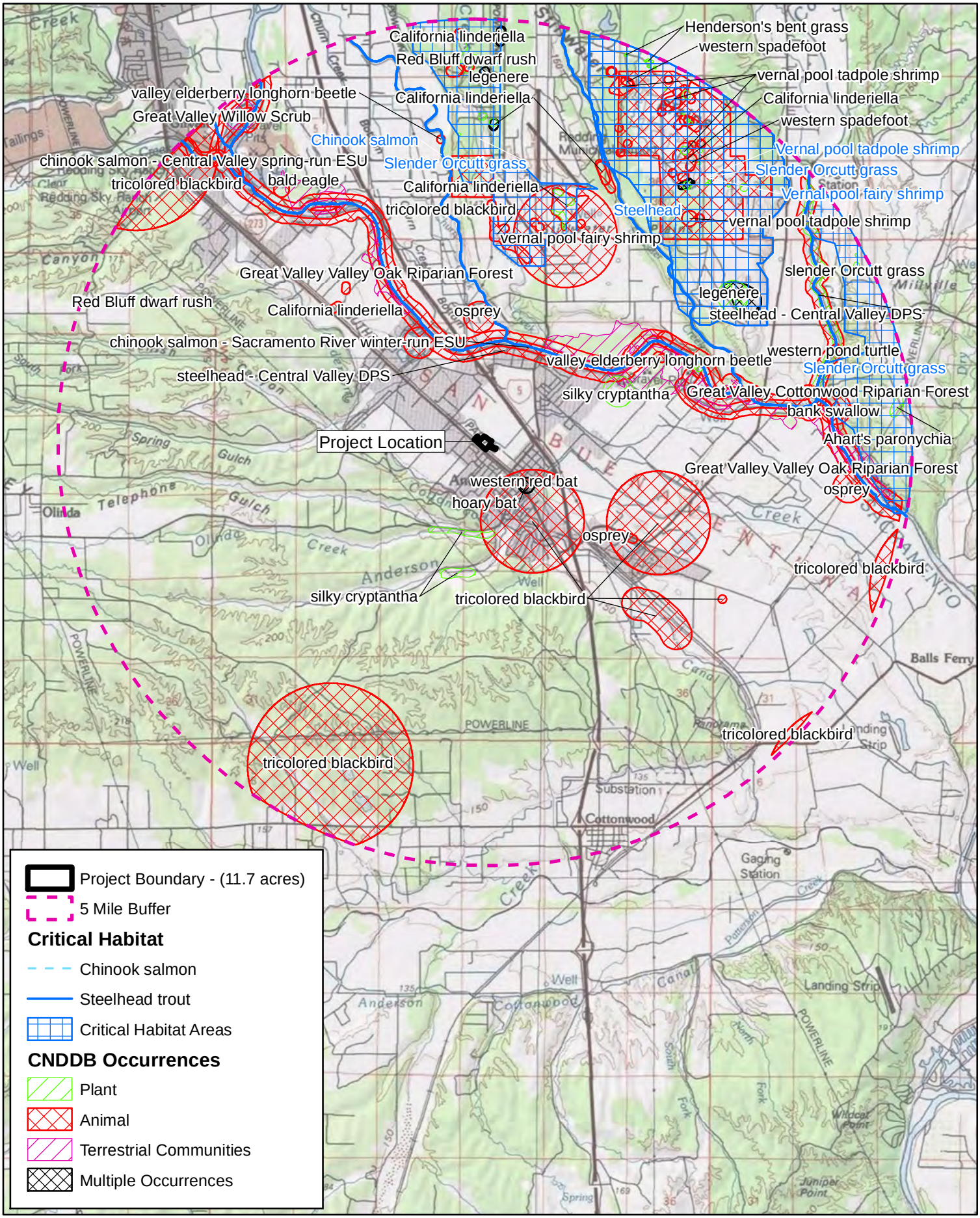
The proposed Project consists of the establishment of an access road to provide connectivity to an adjacent industrially zoned parcel.

METHODS

References Consulted

Gallaway Enterprises obtained lists of special-status species that occur in the vicinity of the BSA. The CNDDB Geographic Information System (GIS) database was also consulted and showed special-status species within a 5-mile radius of the BSA (**Figure 3**). Other primary sources of information regarding the occurrence of federally or state listed threatened, endangered, proposed, and candidate species, and their habitats within the BSA used in the preparation of this BRA are:

- The USFWS IPaC Official Species List for the BSA, February 13, 2020, (**Appendix A**);
- The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Official Species List for the 7.5 minute United States Geological Survey (USGS) "Cottonwood" quadrangle, September 25, 2019 (**Appendix A**);
- The results of a species record search of the CDFW CNDDB RareFind 5 for the 7.5 minute USGS "Cottonwood" quadrangle (**Appendix A**);
- The review of the CNPS Inventory of Rare and Endangered Vascular Plants of California for the 7.5 minute USGS "Cottonwood, Balls Ferry, Hooker, Mitchell Gulch, Olinda, Bend, Redding, Enterprise, and Palo Cedro" quadrangles (**Appendix A**);
- USFWS Critical Habitat Portal, September 3, 2019; and
- Results from field surveys conducted by Gallaway Enterprises on September 10, 2019 and February 12, 2020.



NORTH

1:95,000
0 0.5 1 Miles

Data Sources: ESRI, City of Redding GIS, CNDDB, USGS, USFWS

East Street Industrial Park Frontage Project
Critical Habitat and CNDDB Occurrences
Figure 3

gallaway ENTERPRISES

GE: #19-120 Map Date: 02/17/20

Special-Status Species

Special-status species that are considered in this BRA are those that fall into one of the following categories:

- Listed as threatened or endangered, or are proposed or candidates for listing under the California Endangered Species Act (CESA, 14 California Code of Regulations 670.5) or the Federal Endangered Species Act (ESA, 50 Code of Federal Regulations 17.12);
- Listed as a Species of Special Concern (SSC) by CDFW or protected under the California Fish and Game Code (i.e. Fully Protected species);
- Ranked by the CNPS as 1A, 1B, or 2;
- Protected under the Migratory Bird Treaty Act (MBTA);
- Protected under the Bald and Golden Eagle Protection Act; or
- Species that are otherwise protected under policies or ordinances at the local or regional level as required by the California Environmental Quality Act (CEQA §15380).

Critical Habitat

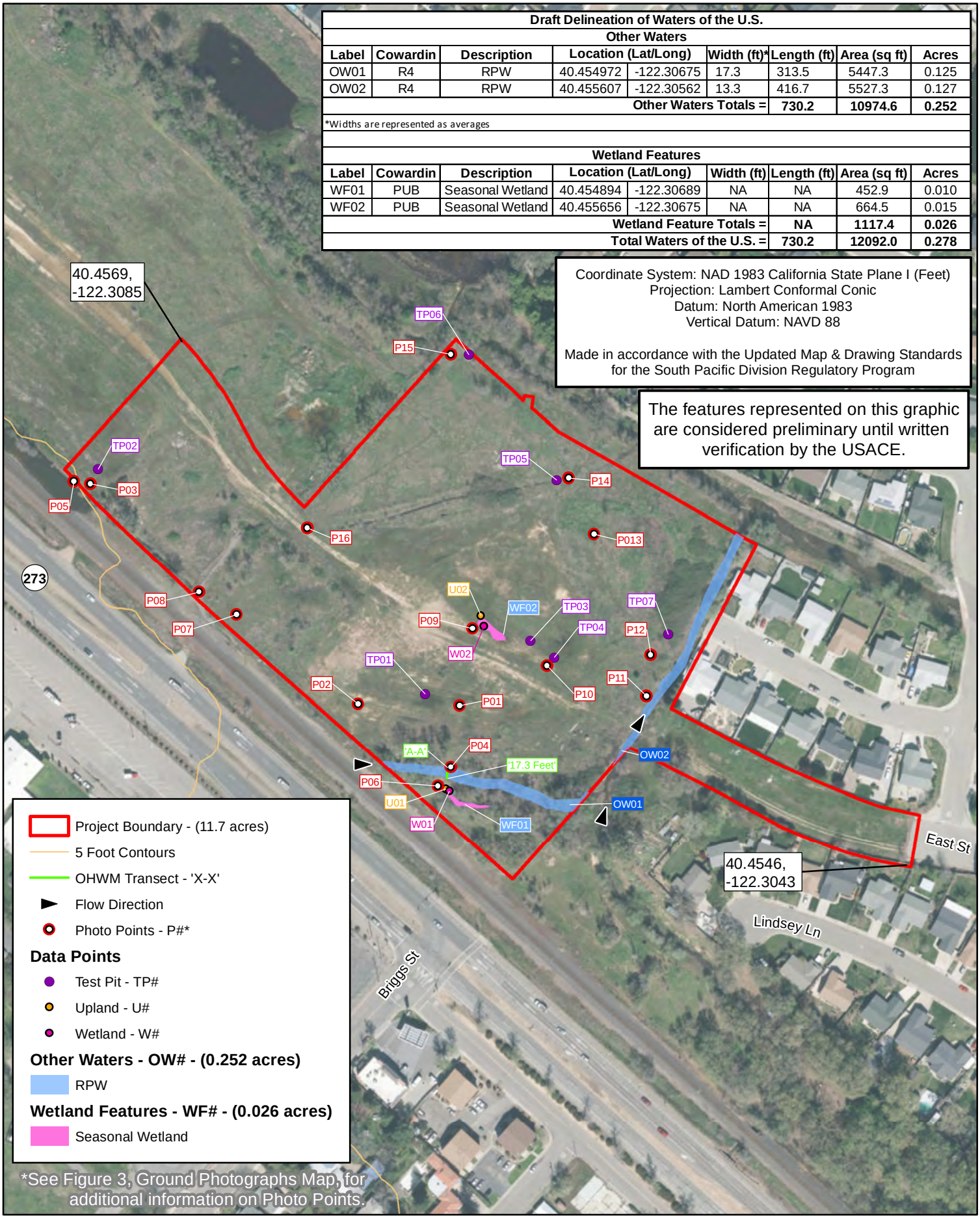
The ESA requires that critical habitat be designated for all species listed under the ESA. Critical habitat is designated for areas that provide essential habitat elements that enable a species survival and which are occupied by the species during the species listing under the ESA. Areas outside of the species range of occupancy during the time of its listing can also be determined as critical habitat if the agency decides that the area is essential to the conservation of the species. The USFWS Critical Habitat Portal was accessed on September 3, 2019 to determine if critical habitat occurs within the BSA. Appropriate Federal Registers were also used to confirm the presence or absence of critical habitat.

Sensitive Natural Communities

Sensitive Natural Communities (SNCs) are monitored by CDFW with the goal of preserving these areas of habitat that are rare or ecologically important. Many SNCs are designated because they represent a historical landscape and are typically preserved as valued components of California's diverse habitat assemblage.

Waters of the United States

A delineation of waters of the United States was conducted by Gallaway Enterprises on September 10, 2019 and February 12, 2020. The delineation report should be considered a draft until verified by the United States Army Corps of Engineers (Corps) (**Figure 4**).



Draft Delineation of Waters of the U.S.

Other Waters

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres
OW01	R4	RPW	40.454972	-122.30675	17.3	313.5	5447.3	0.125
OW02	R4	RPW	40.455607	-122.30562	13.3	416.7	5527.3	0.127
				Other Waters Totals =		**730.2**	**10974.6**	**0.252**

*Widths are represented as averages

Wetland Features

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)	Length (ft)	Area (sq ft)	Acres
WF01	PUB	Seasonal Wetland	40.454894	-122.30689	NA	NA	452.9	0.010
WF02	PUB	Seasonal Wetland	40.455656	-122.30675	NA	NA	664.5	0.015
				Wetland Feature Totals =		**NA**	**1117.4**	**0.026**
				Total Waters of the U.S. =		**730.2**	**12092.0**	**0.278**

Coordinate System: NAD 1983 California State Plane I (Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88

Made in accordance with the Updated Map & Drawing Standards for the South Pacific Division Regulatory Program

The features represented on this graphic are considered preliminary until written verification by the USACE.

NORTH

1:2,400 1 inch = 200 feet
0 75 150 Feet

Data Sources: ESRI, City of Redding GIS, SRTA 3/17/2016

East Street Industrial Park Frontage Project
Draft Delineation of Waters of the U.S.
Figure 4

Delineation by: E. Gregg
Map by: C. Davis

gallaway ENTERPRISES

GE: #19-120 Map Date: 02/25/20

Biological and Botanical Surveys

Field surveys were conducted on September 10, 2019 and February 12, 2020 by Gallaway Enterprises' senior botanist Elena Gregg and biologist Brittany Reaves. A habitat assessment and a protocol-level rare plant survey were conducted to determine the presence of special-status species and their habitats within the BSA.

Wildlife and Botanical Habitat Assessments

Habitat assessments of the BSA were conducted on September 10, 2019 and February 12, 2020. The purpose of the habitat assessments were to determine if suitable habitat occurs within the BSA for special-status species. The habitat assessments were conducted by walking the entire BSA and recording specific habitat types and elements. If habitat was observed for special-status species it was then evaluated for quality based on vegetation composition and structure, physical features (e.g. soils, elevation), microclimate, surrounding area, presence of predatory species and available resources (e.g. prey items, nesting substrates), and land use patterns. A list of species observed within the BSA is provided as **Appendix B**.

RESULTS

Vegetation Communities

Annual Grassland

Annual grassland is the dominant habitat type comprising the majority of the BSA. Species observed in the annual grassland within the BSA included Spanish lotus (*Acmispon americanus*), wild oats (*Avena* sp.), curly dock (*Rumex crispus*), soft chess (*Bromus hordeaceous*), Bermuda grass (*Cynodon dactylon*), and rose clover (*Trifolium hirtum*). This habitat type provides foraging ground for a variety of wildlife species and breeding habitat for terrestrial reptiles, mammals, and ground-nesting birds.

Valley Foothill Riparian

The valley foothill riparian habitat within the BSA is composed primarily of valley oaks (*Quercus lobata*) lining the unnamed drainage within the BSA, with an understory composed of Himalayan blackberry (*Rubus armeniacus*). According to Mayer and Laudenslayer's *A Guide to Wildlife Habitats of California* (1988), valley foothill riparian habitat functions as wildlife migration and dispersal corridors, escapement and nesting areas, and provides food, shelter, and water for a variety of species of resident and migrating wildlife species.

Aquatic Habitat

Riverine

Riverine habitats include both rivers and streams from ephemeral to perennial. Within the BSA, there is one (1) drainage that is considered riverine habitat. This drainage is an unnamed Anderson-Cottonwood Irrigation District storm water ditch that drains into the Tormey Drain. Flowing water was observed

within the drainage during the September and February site visits, indicating the presence of intermittent to perennial flows. Like many streams and canals in the Central Valley, the drainage within the BSA is characterized by relatively warm temperatures, slow moving water, and mud bottoms. The drainage was approximately 17.3 feet wide and shallow; about 4 to 6 inches deep. This habitat type provides food for waterfowl, herons (*Ardeidae* sp.), and many species of insectivorous birds, hawks, and their prey.

Lacustrine

Lacustrine habitats are inland depressions or dammed riverine channels containing standing water (Cowardin 1979 cited in Mayer and Laudenslayer 1988). The seasonal wetlands present in the BSA may provide lacustrine habitat when inundated with water during the wet season. The wetland features were dry during both site visits, and are dry during the summer and fall months. The lack of tall, emergent wetland vegetation within the wetland features indicates that the duration of ponding is short. The seasonal wetlands are vegetated with species including rye-grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and curly dock. The relatively calm waters of lakes and ponds offer unique environmental conditions that contrast with that of running water. Lacustrine habitat provides breeding and foraging habitat for a number of amphibians, reptiles, and birds.

Non-vegetated Habitat

Barren

Barren habitat is typified by non-vegetated soil, rock, paved roads, and gravel. There are dirt and gravel access roads within the BSA. The barren habitat type provides low quality habitat to wildlife. Some ground-nesting birds, such as killdeer (*Charadrius vociferus*), may utilize barren habitat for nesting.

Critical Habitat

There is no critical habitat within the BSA.

Sensitive Natural Communities

There are no designated SNCs within the BSA.

Waters of the United States

Approximately 0.278 acres of waters that potentially fall under the Corps' jurisdiction were identified within the BSA (**Figure 4**). The potentially jurisdictional waters include two (2) drainages and two (2) seasonal wetlands. No additional waters were identified within the BSA. A draft wetland delineation report and map have been prepared and will be submitted to the Corps for verification.

Special-Status Species

A summary of special-status species assessed for potential occurrence within the BSA based on the USFWS IPaC species list, CNDDB query for the 7.5 minute USGS Cottonwood quadrangle, and the CNPS list of rare and endangered plants within the 7.5 minute USGS Cottonwood, Balls Ferry, Hooker, Mitchell Gulch, Olinda, Bend, Redding, Enterprise, and Palo Cedro quadrangles and their potential to occur within the BSA are described in **Table 1**. Potential for occurrence was determined by reviewing database queries from federal and state agencies and evaluating habitat characteristics. Species were not included in the special-status species summary table if the habitat requirements for the species or the species' range does not occur in the BSA [for example: Shasta crayfish (*Pacifastacus fortis*) only occur in water bodies within the Pit River and Fall River watershed, and the BSA is not within the Pit River or Fall River watershed].

Table 1. Special-status Species and Sensitive Natural Communities and Their Potential to Occur in the BSA of the East Street Industrial Park Frontage Project, Anderson, CA.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
SENSITIVE NATURAL COMMUNITIES			
Great Valley Cottonwood Riparian Forest	_/SNC/_	Riparian forest.	None. There is no designated Great Valley Cottonwood Riparian Forest within the BSA.
Great Valley Valley Oak Riparian Forest	_/SNC/_	Riparian forest.	None. There is no designated Great Valley Valley Oak Riparian Forest within the BSA.
Great Valley Willow Scrub	_/SNC/_	Riparian scrub.	None. There is no designated Great Valley Willow Scrub within the BSA.
PLANTS			
Ahart's paronychia (*Paronychia ahartii*)	_/_/1B.1	Vernal pools and mesic habitat in stony, barren clay soils. Blooms: Feb-Jun.	None. No suitable soils or habitat are present in the BSA.
Baker's navarretia (*Navarretia leucocephala ssp. bakeri*)	_/_/1B.1	Vernal pools and wetlands in adobe or alkaline soils. Blooms: Apr-Jul.	None. No suitable soils or wetland habitat are present in the BSA.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
PLANTS			
Big-scale balsamroot (*Balsamorhiza macrolepis*)	_/_/1B.2	Chaparral, cismontane woodland, ultramafic, valley & foothill grassland, sometimes on serpentine soils. Blooms: Mar-Jun.	None. No suitable habitat was present in the BSA.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	_/SE/1B.2	Lake margins and vernal pools with clay soils. Blooms: Apr-Aug.	None. No suitable soils or wetland habitat are present in the BSA.
Legenere (*Legenere limosa*)	_/_/1B.1	Vernal pools. Blooms: Apr-Jun.	None. No suitable wetland habitat is present in the BSA.
Pink creamsacs (*Castilleja rubicundula* var. *rubicundula*)	_/_/1B.2	On serpentine soils in chaparral, cismontane woodland, meadow & seep, ultramafic, valley & foothill grassland. Blooms: Apr-Jun.	None. No suitable soils or wetland habitat are present in the BSA.
Red Bluff dwarf rush (*Juncus leiospermus var. leiospermus*)	_/_/1B.1	Vernal pools and vernally mesic habitat. Blooms: Mar-Jun.	None. No suitable wet or mesic habitat is present in the BSA.
Sanford's arrowhead (*Sagittaria sanfordii*)	_/_/1B.2	Marsh & swamp, wetland. Blooms: May-Oct (Nov).	None. No suitable standing water habitat is present within the BSA.
Slender Orcutt grass (*Orcuttia tenuis*)	FT/SE/1B.1	Vernal pools. Blooms: May-Sep (Oct).	None. No suitable vernal pool habitat is present in the BSA.
Silky cryptantha (*Cryptantha crinita*)	_/_/1B.2	Cobble bars and beds of dry streambeds. Blooms: Apr-May.	None. No suitable habitat was present within the drainage in the BSA.
Sulphur Creek brodiaea (*Brodiaea matsonii*)	_/_/1B.1	Streambanks, in rock cracks and crevices. Blooms: May-Jun.	None. No suitable habitat is present along the banks of the drainage in the BSA.
Watershield (*Brasenia schreberi*)	_/_/2B.3	Shallow ponds, lakes, and slow-moving streams. It grows in water 0.5-3 m deep. Blooms: Jun-Sep.	None. No suitable habitat is present within the BSA.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
INVERTEBRATES			
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE/_/_	Vernal pools.	None. There is no vernal pool habitat within the BSA.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/_/_	Blue elderberry shrubs usually associated with riparian areas.	None. No blue elderberry shrubs occur within the BSA.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/_/_	Vernal pools and seasonally ponded areas.	**Moderate**. There is potentially suitable habitat within the seasonal wetland present within the BSA and there are CNDDB occurrences within 5 miles of the BSA (#365, 387).
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE/_/_	Deep vernal pools.	None. There is no suitable vernal habitat within the BSA.
FISH			
Green sturgeon *(Acipenser medirostris)*	FT/_/_	Klamath/North Coast, Sacramento and San Joaquin rivers and their tributaries.	None. The drainage within the BSA does not contain suitable habitat elements for this species, such as open areas for foraging and deep pools of cold water for holding, rearing, and spawning.
Central Valley steelhead (*Oncorhynchus mykiss irideus*)	FT/_/_	Sacramento and San Joaquin Rivers and their tributaries.	None. Due to its small size and warm temperature, the portion of the drainage within the BSA does not provide suitable habitat.
Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	FT/ST/_	Sacramento River and its tributaries.	None. Due to its small size and warm temperature, the portion of the drainage within the BSA does not provide suitable habitat.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
FISH			
Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	FE/SE/_	Sacramento River and its tributaries.	None. The unique life history timing pattern of winter-run Chinook salmon, requiring cold summer flows, argues against this run occurring in drainages other than the upper Sacramento system and Battle Creek (NMFS 2014).
Delta smelt (*Hypomesus transpacificus*)	FT/SE/_	San Francisco Bay and Sacramento-San Joaquin Delta Estuary.	None. Project is not within delta smelt range.
AMPHIBIANS			
California red-legged Frog (*Rana draytonii*)	FT/SSC/_	Streams with consistent flow, slow side waters with cobble and boulders for oviposition.	None. California red-legged frogs have been extirpated from the Central Valley since 1960 (USFWS 2002).
Western spadefoot (*Spea hammondii*)	_/SSC/_	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Intermittent pools are essential for breeding and egg-laying.	**Moderate**. There is suitable breeding habitat for western spadefoot present in one of the seasonal wetlands (WF 01) and the drainage within the BSA. There are multiple CNDDB occurrences within 5 miles of the BSA.
REPTILES			
Western pond turtle (*Emys marmorata*)	_/SSC/_	Perennial bodies of water with deep pools, locations for haul out, and locations for oviposition.	**Moderate**. The drainage provides marginal habitat, there were no observations of western pond turtle during the site visit, and the nearest CNDDB occurrence is 4 miles from the BSA.
BIRDS			
Bald eagle (*Haliaeetus leucocephalus*)	_/SE, FP/_	Coast, large lakes, and river systems with open forests with large trees and snags near permanent water.	**Low.** The nearest CNDDB occurrence is within 5 miles of the BSA; however, the nesting habitat present within the BSA is marginal.

Common Name *(Scientific Name)*	**Status** Fed/State/CNPS	**Associated Habitats**	**Potential for Occurrence**
BIRDS			
Bank swallow (*Riparia riparia*)	_/ST/_	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	None. There is no suitable nesting habitat within the BSA.
Tricolored blackbird (*Agelaius tricolor*)	_/ST/_	Colonial nester in large freshwater marshes. Does most of its foraging in open habitats such as farm fields, pastures, cattle pens, large lawns.	**Low**. Blackberry bushes provide marginal nesting habitat within the BSA. There are multiple historic CNDDB occurrences within 5 miles of the BSA.
MAMMALS			
Western red bat (*Lasiurus blossevillii*)	_/SSC/_	Riparian areas dominated by walnuts, oaks, willows, cottonwoods, and sycamores where they roost in these broad-leafed trees.	**Moderate**. There is suitable roosting and foraging habitat within the valley oak riparian habitat of the BSA.

CODE DESIGNATIONS	
FE or FT = Federally listed as Endangered or Threatened **FC** = Federal Candidate Species **SE or ST=** State Listed as Endangered or Threatened **SC** = State Candidate Species **SSC** = State Species of Special Concern **FP** = State Fully Protected Species **SNC** = CDFW Sensitive Natural Community	**CNPS California Rare Plant Rank (CRPR):** **CRPR 1B** = Rare or Endangered in California or elsewhere **CRPR 2** = Rare or Endangered in California, more common elsewhere **CRPR 3** = More information is needed **CRPR 4** = Plants with limited distribution **0.1** = Seriously Threatened **0.2** = Fairly Threatened **0.3** = Not very Threatened
Potential for Occurrence: for plants it is considered the potential to occur during the survey period; for birds and bats it is considered the potential to breed, forage, roost, or over-winter in the BSA during migration. Any bird or bat species could fly over the BSA, but this is not considered a potential occurrence. The categories for the potential for occurrence include: **None:** The species or natural community is known not to occur, and has no potential to occur in the BSA based on sufficient surveys, the lack suitable habitat, and/or the BSA is well outside of the known distribution of the species.	

Low: Potential habitat in the BSA is sub-marginal and/or the species is known to occur in the vicinity of the BSA.
Moderate: Suitable habitat is present in the BSA and/or the species is known to occur in the vicinity of the BSA. Pre-construction surveys may be required.
High: Habitat in the BSA is highly suitable for the species and there are reliable records close to the BSA, but the species was not observed. Pre-construction surveys required, with the exception of indicators for foraging habitat.
Known: Species was detected in the BSA or a recent reliable record exists for the BSA.

Endangered, Threatened and Rare Plants

A general plant survey and a habitat assessment were conducted within the BSA on September 10, 2019 and February 12, 2020. There were no endangered, threatened, or rare plants observed within or adjacent to the BSA. Further, the habitat assessment identified a lack of suitable habitat for special-status plant species listed in **Table 1** within the BSA. A list of the plant species observed during the survey is provided in **Appendix B**.

Endangered, Threatened and Special Status Wildlife

Wildlife habitat assessments were conducted within the BSA on September 10, 2019 and February 12, 2020. Suitable habitat was identified for vernal pool fairy shrimp and several avian species protected under the Migratory Bird Treaty Act (MBTA). Potentially suitable habitat for western spadefoot, western pond turtle, bald eagle, tricolored blackbird, and western red bat was also identified within the BSA.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are federally listed as threatened and are widespread, but not abundant. Known populations occur in California to southern Oregon. The geographic range of this species encompasses most of the Central Valley from Shasta County to Tulare County, and the central coast range from northern Solano County to Santa Barbara County, California. Additional disjunctive occurrences have been identified in western Riverside County, California, and in Jackson County, Oregon, near the city of Medford. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Occupied habitats range in size from rock outcrops pools as small as one square meter to large vernal pools up to 12 acres. Smaller vernal pools are the most commonly occupied and are found more frequently in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May (USFWS 2005).

CNDDB Occurrences

There are multiple CNDDB occurrences within 5 miles of the BSA (occurrences #365, 387, 643). These occurrences are all located north of the BSA, on the other side of the Sacramento River, in the vicinity of Stillwater Plains.

Status of vernal pool fairy shrimp occurring in the BSA

No protocol-level surveys for branchiopods were conducted within the BSA; however, known CNDDB occurrences of vernal pool fairy shrimp occur within 5 miles of the BSA and one of the seasonal wetlands

(WF 01) within the BSA provides potentially suitable habitat. As such, vernal pool fairy shrimp are assumed to be present within the seasonal wetland (WF 01) present in the BSA. The other seasonal wetland (WF 02) is too shallow and flashy to support vernal pool fairy shrimp.

Western Spadefoot

The western spadefoot toad is a SSC in California. It is an endemic species of the state. The western spadefoot is distinguishable from other toads by its vertically elliptical pupils, teeth in the upper jaw, smooth skin, and sharp-edged "spades" on the hind feet. Individuals of this species range in size from 1.5 to 2.5 inches. Adults will forage on insects, worms, and other invertebrates. The typical breeding season is from January to May in seasonal pools. Eggs are laid on plant stems or dead plant material in the bottom of pools. Larval development takes from 3 to 11 weeks and must be completed before pools dry. The western spadefoot is found from Tehama County to San Diego County, typically below 3,000 feet elevation, but has been found as high as 4,500 feet. The biggest threat to the species is loss of habitat and non-native predators. As extant populations of this species become fragmented, threats are more significant and the potential for recolonization is reduced (USFWS 2005).

CNDDB Occurrences

There are multiple CNDDB occurrences within 5 miles of the BSA; however, they are all located north of the BSA on the other side of the Sacramento River.

Status of western spadefoot occurring in the BSA

The BSA contains a seasonal wetland (WF 01) and a drainage that could support breeding habitat for western spadefoot when water is present. The other seasonal wetland (WF 02) is too shallow and flashy to support ponding for the 30 days minimum required for western spadefoot larval development.

Western Pond Turtle

The western pond turtle is a SSC in California. Western pond turtles are drab, darkish colored turtles with a yellow to cream colored head. They range from the Washington Puget Sound to the California Sacramento Valley. Suitable aquatic habitats include slow-moving to stagnant water, such as back waters and ponded areas of rivers and creeks, semi-permanent to permanent ponds, and irrigation ditches. Preferred habitats include features such as hydrophytic vegetation for foraging and cover and basking areas to regulate body temperature. In early spring through early summer, female turtles begin to move over land in search for nesting sites. Eggs are laid on the banks of slow-moving streams. The female digs a hole approximately 4 inches deep and lays up to eleven eggs. Afterwards, the eggs are covered with sediment and are left to incubate under the warm soils. Eggs are typically laid between March and August (Zeiner *et al.* 1990). Current threats facing the western pond turtle include loss of suitable aquatic habitats due to rapid changes in water regimes and removal of hydrophytic vegetation.

CNDDB Occurrences

There is one (1) CNDDB occurrence approximately 4 miles east of the BSA (CNDDB occurrence #635). This occurrence was from a 2005 observation within Cow Creek.

Status of western pond turtles occurring in the BSA

Western pond turtles were not observed during the field survey. The drainage within the BSA is narrow and shallow, with densely vegetated banks. There are some exposed banks, but no large emergent rocks or logs to serve as basking areas. There is moderate potential for western pond turtle to occur within the drainage in the BSA.

Migratory Birds and Raptors

Nesting birds are protected under the MBTA (16 USC §703) and the CFGC (§3503). The MBTA prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance have the potential to affect bird species protected by the MBTA.

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

CNDDB Occurrences

The majority of migratory birds and raptors protected under the MBTA and CFGC are not recorded on the CNDDB because they are abundant and widespread.

Status of migratory birds and raptors occurring in the BSA

There is suitable nesting habitat for a variety of ground, shrub, and tree nesting avian species within and adjacent to the BSA.

Bald Eagle

The bald eagle is listed as endangered under the CESA and a Fully Protected species by CDFW. It is a bird of aquatic ecosystems, frequenting large lakes, rivers, estuaries, reservoirs, and some coastal habitats. It feeds primarily on fish, but waterfowl, gulls, cormorants, and a variety of carrion may also be consumed. Bald eagles usually nest in trees near water, but may use cliffs in the southwest United States, and ground nests have been reported from Alaska. Adults utilize the same breeding territory, and often the same nest, year after year. They may also use one or more alternate nests within their breeding territory (USFWS 2006).

The timing and distance of dispersal from breeding territory varies. Individuals that breed in California may make only local winter movements in search of food, staying in the general vicinity of their breeding territory, while others may migrate hundreds of miles to wintering grounds such as the Klamath Basin, remaining there for several months. Eagles seek wintering (non-nesting) areas offering

an abundant and readily available food supply with suitable night roosts that typically offer isolation and thermal protection from winds.

CNDDB Occurrences

There is one (1) CNDDB occurrence within 5 miles of the BSA (#287). This was a nesting occurrence located approximately 4 miles northwest of the BSA, adjacent to the Sacramento River. Fledglings were observed in 2006 and 2007 (CNDDB 2020).

Status of bald eagle occurring in the BSA

The BSA is located approximately 1 mile away from the Sacramento River, which could provide suitable foraging habitat for bald eagle. There are some large trees present within the BSA that could potentially support bald eagle nesting.

Tricolored Blackbird

Tricolored blackbirds are listed as threatened under the CESA. They range from southern Oregon through the Central Valley, and coastal regions of California into the northern part of Mexico. Tricolored blackbirds are medium-size birds with black plumage and distinctive red marginal coverts, bordered by whitish feathers. Tricolored blackbirds nest in large colonies within agricultural fields, marshes with thick herbaceous vegetation, or in clusters of large blackberry bushes near a source of water and suitable foraging habitat. The natural habitat for tricolored blackbird is permanent to semi-permanent wetlands or marsh with tall vegetation for nesting, but will use agricultural land as a substitute in many cases (Hamilton 2000). Tricolored blackbirds exhibit itinerant breeding (occupying and breeding at two or more sites during a breeding season) and have a general pattern of first nesting in the San Joaquin Valley and then making a second nesting attempt often in the northern Sacramento Valley (CDFW 2018). They are nomadic migrators, so documenting occurrence at any location does not mean that they will necessarily return to that area. Current threats facing tricolored blackbirds include colonial breeding in regards to small population size, habitat loss, overexploitation, predation, contaminants, extreme weather events, and drought, water availability, and climate change (CDFW 2018).

CNDDB Occurrences

There are multiple CNDDB occurrences of tricolored blackbird within 5 miles of the BSA. The closest occurrence is less than 1 mile to the southeast of the BSA (CNDDB occurrence # 811). This occurrence was originally from 1932 and an updated survey in 2014 was not able to confirm the presence of nesting birds or even that this survey was conducted in the original location of the 1932 observation. Other CNDDB occurrences within 5 miles of the BSA are from the 1930s or assumed the presence of nests, with the exception of #246 and #441. Occurrence #246 is located 2.5 miles north of the BSA and documented nesting in 1995; however, no tricolored blackbirds were observed at this location during subsequent surveys in 2008 and 2014. Occurrence #441 is located 3 miles southeast of the BSA in a wetland area and nesting was documented in 2006, which is the most recent documented nesting record within 5 miles of the BSA.

Status of tricolored blackbird occurring in the BSA

No tricolored blackbirds were observed during site visit; however, marginal nesting habitat occurs within the Himalayan blackberry bushes that line the drainage in the BSA, the drainage provides an open water source, and suitable foraging habitat occurs within the open annual grasslands within the BSA. Tricolored blackbirds are nomadic breeders and do not exhibit site fidelity. They are also colonial nesters that generally nest in large colonies. Breeding colonies are seldom smaller than 100 nests; however, the blackberry bushes within the BSA could potentially support a small colony (CDFW 2018).

Western Red Bat

Western red bat is designated as a SSC. Western red bats are typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores). Roost sites are generally hidden from view from all directions except below; lack obstruction beneath, allowing the bat to drop downward for flight; lack lower perches that would allow visibility by predators; have dark ground cover to minimize solar reflection; have nearby vegetation to reduce wind and dust; and are generally located on the south or southwest side of a tree. Red bats generally begin to forage 1 to 2 hours after sunset. Although some may forage all night, most typically have an initial foraging period corresponding to the early period of nocturnal insect activity, and a minor secondary activity period corresponding to insects that become active several hours before sunrise. Red bats mate in late summer or early fall. Females become pregnant in spring and have a pregnancy of 80-90 days. Females may have litters of up to five (5) pups per year. This species is considered to be highly migratory. Although generally solitary, red bats appear to migrate in groups and forage in close association with one another in summer. The timing of migration and the summer ranges of males and females seem to be different. Winter behavior of this species is poorly understood (Western Bat Working Group 2020).

CNDDB Occurrences

There is one (1) CNDDB occurrence of western red bat located immediately southeast of the BSA at the intersection of Balls Ferry Road and State Route 99 (#48). One (1) juvenile female western red bat was captured by hand in 1999. There are no other occurrences within 5 miles of the BSA.

Status of western red bat occurring in the BSA

Oak and other broadleaf trees occur within the BSA and provide suitable roosting habitat for western red bat. Western red bats are closely associated with riparian habitat, which occurs within the BSA; therefore, there is moderate potential for western red bat to occur within the BSA.

REGULATORY FRAMEWORK

The following describes federal, state, and local environmental laws and policies that may be relevant if the BSA were to be developed or modified.

Federal

Waters of the United States, Clean Water Act, Section 404

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into jurisdictional waters of the United States under the Clean Water Act (§404). The term "waters of the United States" is an encompassing term that includes "wetlands" and "other waters." Wetlands have been defined for regulatory purposes as follows: "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). Wetlands generally include swamps, marshes, bogs, and similar areas." Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

The Corps may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits are general permits issued to cover particular fill activities. All nationwide permits have general conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each nationwide permit.

Clean Water Act, Section 401

The Clean Water Act (§401) requires water quality certification and authorization for placement of dredged or fill material in wetlands and Other Waters of the United States. In accordance with the Clean Water Act (§401), criteria for allowable discharges into surface waters have been developed by the State Water Resources Control Board, Division of Water Quality. The resulting requirements are used as criteria in granting National Pollutant Discharge Elimination System (NPDES) permits or waivers, which are obtained through the Regional Water Quality Control Board (RWQCB) per the Clean Water Act (§402). Any activity or facility that will discharge waste (such as soils from construction) into surface waters, or from which waste may be discharged, must obtain an NPDES permit or waiver from the RWQCB. The RWQCB evaluates an NPDES permit application to determine whether the proposed discharge is consistent with the adopted water quality objectives of the basin plan.

Federal Endangered Species Act

The United States Congress passed the ESA in 1973 to protect species that are endangered or threatened with extinction. The ESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

Under the ESA, species may be listed as either "endangered" or "threatened." Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a

species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. All species of plants and animals, except non-native species and pest insects, are eligible for listing as endangered or threatened. The USFWS also maintains a list of "candidate" species. Candidate species are species for which there is enough information to warrant proposing them for listing, but that have not yet been proposed. "Proposed" species are those that have been proposed for listing, but have not yet been listed.

The ESA makes it unlawful to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, the term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

Migratory Bird Treaty Act

The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13).

State of California

California Endangered Species Act

The CESA is similar to the ESA, but pertains to state-listed endangered and threatened species. The CESA requires state agencies to consult with the CDFW when preparing documents to comply with the California Environmental Quality Act (CEQA). The purpose is to ensure that the actions of the lead agency do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species. In addition to formal listing under the federal and state endangered species acts, "species of special concern" receive consideration by CDFW. Species of special concern are those whose numbers, reproductive success, or habitat may be threatened.

California Fish and Game Code (§3503.5)

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

California Migratory Bird Protection Act

The CMBPA amends the CFGC (§3513) to mirror the provisions of the MBTA and allow the State of California to enforce the prohibition of take or possession of any migratory nongame bird as designated in the federal MBTA, including incidental take.

Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance have the potential to affect bird species protected by the MBTA and CFGC. Thus, vegetation removal and ground disturbance in areas with breeding birds should be conducted outside of the breeding season (approximately March 1 through August 31). If vegetation removal or ground-disturbing activities are conducted during the breeding season, then a qualified biologist must determine if there are any nests of bird species protected under the MBTA and CFGC present in the Project area prior to commencement of vegetation removal or ground-disturbing activities. If active nests are located or presumed present, then appropriate avoidance measures (e.g. spatial or temporal buffers) must be implemented.

Lake and Streambed Alteration Agreement, CFGC (§1602)

The CDFW is a trustee agency that has jurisdiction under the CFGC (§1600 et seq.). The California Fish and Game Code (§1602), requires that a state or local government agency, public utility, or private entity must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds… except when the department has been notified pursuant to Section 1601." If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures.

Rare and Endangered Plants

The CNPS maintains a list of plant species native to California with low population numbers, limited distribution, or otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS California Rare Plant Rank (CRPR) plants receive consideration under CEQA review. The CNPS CRPR categorizes plants as follows:

- Rank 1A: Plants presumed extinct in California;
- Rank 1B: Plants rare, threatened, or endangered in California or elsewhere;
- Rank 2A: Plants presumed extirpated or extinct in California, but not elsewhere;
- Rank 2B: Plants rare, threatened, or endangered in California, but more numerous elsewhere;
- Rank 3: Plants about which we need more information; and
- Rank 4: Plants of limited distribution.

The California Native Plant Protection Act (CFGC §1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered as defined by CDFW. An exception to this prohibition allows landowners, under specific circumstances, to take listed

plant species, provided that the owners first notify CDFW and give the agency at least 10 days to retrieve (and presumably replant) the plants before they are destroyed. Fish and game Code §1913 exempts from the 'take' prohibition "the removal of endangered or rare native plants from a canal, lateral channel, building site, or road, or other right of way."

California Environmental Quality Act Guidelines §15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines §15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled based on the definition in the ESA and the section of the CFGC dealing with rare, threatened, and endangered plants and animals. The CEQA Guidelines (§15380) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (e.g. candidate species, species of concern) would occur. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

CONCLUSIONS AND RECOMMENDATIONS

Endangered, Threatened, and Special-status Wildlife

Vernal pool fairy shrimp

Vernal pool fairy shrimp are federally listed as threatened. To minimize impacts to vernal pool fairy shrimp, the seasonal wetland (WF 01) present and a 250-foot buffer from the edges of this wetland should be completely avoided by Project activities. Consultation with the USFWS and mitigation for impacts to this species will be required if the wetland feature (WF 01) present will be impacted by Project activities.

Western spadefoot

To minimize impacts to western spadefoot, the following avoidance and minimization measures are proposed:

- Clearance surveys should be conducted immediately prior to the initiation of work when water is present within the BSA. Should any life stages of western spadefoot be found, they will be relocated to appropriate habitat by a qualified biologist.

Western pond turtle

To minimize impacts to western pond turtle, the following avoidance and minimization measures are proposed:

- Immediately prior to conducting work within western pond turtle habitat, a qualified biologist shall conduct a western pond turtle clearance survey.

- A qualified biologist shall be onsite during all vegetation removal within western pond turtle habitat and during the installation or removal of water diversions.
- If western pond turtles are identified in an area where they will be impacted by Project activities, then the biologist will relocate the turtles outside of the work area or create a species protection buffer (determined by the biologist) until the turtles have left the work area.
- Before initiating any ground disturbances, restrictive silt fencing will be installed along the boundaries of the construction area to prevent western pond turtle from entering the construction site from the adjacent aquatic settings and to prevent construction equipment and personnel from entering sensitive habitat from the construction site.

Bald eagle

To avoid impacts to bald eagle, the following avoidance and minimization measures are proposed:

- Project activities including site grubbing and vegetation removal shall be initiated outside of the bird nesting season (February 1 – August 31).
- If Project activities cannot be initiated outside of the bird nesting season than the following will occur:
    - A qualified biologist will conduct a minimum of three (3) pre-construction surveys within 250 feet of the BSA, where accessible.
    - The surveys should be spaced a minimum of 1 week apart, with the final survey being performed within 3 days prior to the initiation of Project activities.
    - If a bald eagle nest is observed within the BSA or in an area adjacent to the BSA where impacts could occur, then consultation with CDFW will be required.

Tricolored blackbird

To avoid impacts to tricolored blackbird, the following avoidance and minimization measures are proposed:

- Project activities including site grubbing and vegetation removal shall be initiated outside of the tricolored blackbird nesting season (March 15 – July 31).
- If Project activities cannot be initiated outside of the tricolored blackbird nesting season, then the following will occur:
    - If construction is initiated in the project work area during the tricolored blackbird nesting season, three (3) surveys shall be conducted within 15 days prior to the construction activity, with one of the surveys within 3 days prior to the start of the construction.
    - During the nesting season, a qualified biologist will conduct two (2) surveys of foraging habitat within 3 miles of a known colony site. The qualified biologist will survey the project site to determine whether foraging habitat is being actively used by tricolored blackbird. The surveys will be conducted approximately one week apart, with the second survey occurring no more than two (2) calendar days prior to ground-disturbing activities. The qualified biologist will survey foraging habitat on the Project site and a minimum 300-foot radius around the project site for foraging tricolored blackbirds by observing and listening from accessible vantage points that

provide views of the entire survey area. Each survey shall last 4 hours, and begin no later than 8:00 AM. If such vantage points are not available, the qualified biologist will survey from multiple vantage points to ensure that the entire survey area is covered.

- If an active tricolored blackbird nesting colony is observed within the BSA or in an area adjacent to the BSA where impacts could occur, then consultation with CDFW will be required.

Migratory birds and raptors

To avoid impacts to avian species protected under the MBTA and the CFGC the following avoidance and minimization measures are recommended:

- Project activities including site grubbing and vegetation removal shall be initiated outside of the bird nesting season (February 1 – August 31).
- If Project activities cannot be initiated outside of the bird nesting season, then the following will occur:
    - A qualified biologist will conduct a pre-construction survey within 250 feet of the BSA, where accessible, within 7 days prior to the start of Project activities.
    - If an active nest (i.e., containing egg(s) or young) is observed within the BSA or in an area adjacent to the BSA where impacts could occur, then a species protection buffer will be established. The species protection buffer will be defined by the qualified biologist based on the species, nest type and tolerance to disturbance. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored by a qualified biologist once per week and a report submitted to the CEQA lead agency weekly.

Western red bats

To minimize impacts to bat species protected by the CFGC, the following avoidance and minimization measures are recommended:

- If mature trees are removed or trimmed the removal or trimming activity should be performed between September 16 and March 15 (outside of the bat maternity season). Trees should be removed at dusk to minimize impacts to roosting bats.

Other Natural Resources

Waters of the United States

If activities occur within the ordinary high water mark and/or result in fill or discharge to any waters of the United States which include but are not limited to, intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, vernal pools or natural ponds, then the following will need to be obtained:

- Prior to any discharge or fill material into waters of the United States, authorization under a Nationwide Permit or Individual Permit shall be obtained from the Corps (Clean Water Act §404). For fill requiring a Corps permit, a water quality certification from the Regional Water Quality Board (Clean Water Act §401) shall also be obtained prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any perennial, intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW, and, if required, a Lake and Streambed Alteration Agreement (CFGC §1602) shall be obtained.

Mitigation requirements for the fill of waters of the United States will be implemented through an onsite restoration plan, and/or an In Lieu Fund and/or a certified mitigation bank with a Service Area that covers the Project area. These agreements, certifications and permits may be contingent upon successful completion of the CEQA process.

Tree Removal

Per Biological Resources Conservation Policy 7 of the City of Anderson General Plan (2007), trees shall be preserved where possible and the loss of trees to be removed shall be mitigated for. Per Biological Resource Conservation Implementation 7, tree removal shall be compensated by the planting of trees or other appropriate means of conservation.

Prior to any issuance of grading or building permits for any site with blue oaks or heritage trees, a tree and habitat preservation plan, mitigation plan, and tree removal mitigation may be required by the City of Anderson. Additionally, tree protection during construction will be required in compliance with City of Anderson Trees Ordinance 17.33.090 (Ord. No. 766, § 2(Exh. B), 6-15-2010).

REFERENCES

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson Manual: vascular plants of California, second edition. University of California Press, Berkeley.

California Department of Fish and Wildlife (CDFW). 2018. A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California. California Department of Fish and Wildlife. Sacramento, California. February 2018.

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 03 September 2019].

California Natural Diversity Database (CNDDB). 2020. Rarefind 5. California Department of Fish and Wildlife. Sacramento, California.

City of Anderson General Plan. 2007. Website http://www.ci.anderson.ca.us/departments/kristen_development_services_and_building_departments/docs/General_Plan_2007.pdf [accessed 30 September 2019].

Hamilton III, W. J. 2000. Tricolored blackbird 2000 breeding season census and survey: observations and recommendations. Unpublished report. Davis, CA: Department of Environmental Science and Policy, University of California.

Mayer, K.E and Laudenslayer, W.F. 1988. A guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection. Sacramento, California.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Stebbins, R.C., 2003. A Field Guide to Western Reptiles and Amphibians, 3rd ed. Houghton Mifflin, Boston, Massachusetts.

U.S. Fish and Wildlife Service (USFWS). 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

USFWS. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon.

USFWS. 2006. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife. Proposed Rule. Federal Register, Volume 17, No. 32.

Western Bat Working Group 2020. Western Bat Species Accounts. Online Access.

Western Regional Climate Center (WRCC). 2020. Local Summary for the Redding Muni AP, California (047304) NOAA Cooperative Station. Online access.

Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

LIST OF PREPARERS

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Cate Reid. GIS Analyst and Cultural Resource Specialist. Master of Arts in Anthropology with a specialization in GIS applications and land use studies, California State University, Chico. Mrs. Reid has over 6 years of experience working with GIS while incorporating surveying applications, analysis of datasets, and collection of field data in order to create professional quality graphics and reports.

Appendix A

Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2020-SLI-1038
Event Code: 08ESMF00-2020-E-03299
Project Name: East Street Updated Boundary

February 13, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2020-SLI-1038

Event Code: 08ESMF00-2020-E-03299

Project Name: East Street Updated Boundary

Project Type: DEVELOPMENT

Project Description: development

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/40.455733753243905N122.3068889488078W

Counties: Shasta, CA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891
Species survey guidelines:
https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7850
Habitat assessment guidelines:
https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass *Orcuttia tenuis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

From: Brittany Reaves
To: "nmfswcrca.specieslist@noaa.gov"
Subject: East Street Industrial Park Frontage Project
Date: Wednesday, September 25, 2019 1:45:00 PM

East Street Industrial Park Frontage Project

Quad Name **Cottonwood**
Quad Number **40122-D3**

ESA Anadromous Fish
SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) – **X**

ESA Anadromous Fish Critical Habitat
SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates
Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat
Black Abalone Critical Habitat –

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) –

ESA Whales –

ESA Pinnipeds
Guadalupe Fur Seal (T) –

ESA Pinnipeds Critical Habitat
Steller Sea Lion –

Essential Fish Habitat
Coho Salmon -
Chinook Salmon - **X**
Groundfish -
Coastal Pelagic -
Highly Migratory Species –

MMPA Species
MMPA Cetaceans -
MMPA Pinnipeds –

– – –

Insignia Builders, Inc.
Attn: Leonard Bandell
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Brittany Reaves
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117 Meyers Street Suite 120
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brittany@gallawayenterprises.com

From:	NMFSWCRCA Specieslist - NOAA Service Account
To:	Brittany Reaves
Subject:	Re: East Street Industrial Park Frontage Project
Date:	Wednesday, September 25, 2019 1:45:41 PM

Receipt of this message confirms that NMFS has received your email to nmfswcrca.specieslist@noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office.

Northern California/Klamath (Arcata) 707-822-7201

North-Central Coast (Santa Rosa) 707-387-0737

Southern California (Long Beach) 562-980-4000

California Central Valley (Sacramento) 916-930-3600

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cottonwood (4012243))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Cryptantha crinita silky cryptantha	PDBOR0A0Q0	None	None	G2	S2	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Great Valley Willow Scrub Great Valley Willow Scrub	CTT63410CA	None	None	G3	S3.2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC

Record Count: 22

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

15 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in Quads 4012254, 4012253, 4012252, 4012244, 4012243, 4012242, 4012234 4012233 and 4012232;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	3.2	S2	G2Q
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	1B.1	S1	G1
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	1B.2	S2	G5T2
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	1B.2	S2	G2
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	1B.1	S2	G2T2
Lathyrus sulphureus var. argillaceus	dubious pea	Fabaceae	perennial herb	Apr-May	3	S1S2	G5T1T2Q
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	1B.1	S3	G3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Sidalcea celata	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	3	S2S3	G2G3

Suggested Citation

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The Consortium of California Herbaria
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Questions and Comments
rareplants@cnps.org

Appendix B

Observed Species

Plant Species Observed in the BSA on September 10, 2019 and February 12, 2020	
Scientific Name	**Common Name**
Acmispon americanus	Spanish lotus
Aira caryophyllea	Silver hairgrass
Alcea rosea	Hollyhock
Alisma lanceolatum	Lance-leaved water plantain
Avena sp.	Wild oats
Bidens frondosa	Sticktight
Brachypodium distachyon	False brome
Briza minor	Lesser quaking-grass
Bromus diandrus	Rip-gut brome
Bromus hordeaceus	Soft chess
Callitriche sp.	Water starwort
Catalpa speciosa	Northern catalpa
Centaurea solstitialis	Yellow star thistle
Centromadia fitchii	Fitch's spikeweed
Cephalanthus occidentalis	Common buttonbush
Cichorium intybus	Chicory
Cirsium vulgare	Bull thistle
Convulvulus arvensis	Bindweed
Croton setiger	Turkey-mullein
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	Tall nutsedge
Cyperus strigosus	False nutsedge
Deschampsia danthonoides	Annual hairgrass
Echinochloa crus-galli	Barnyard grass
Elymus caput-medusae	Medusahead
Epilobium sp.	Willowherb
Epilobium brachycarpum	Tall willowherb
Erigeron canadensis	Canada horseweed
Erodium botrys	Long-beaked stork's-bill
Festuca perennis	Rye-grass
Fraxinus latifolia	Oregon ash
Galium aparine	Bedstraw
Geranium dissectum	Cut-leaf geranium
Grindelia hirsutula var. davyi	Foothill gumplant
Heliotropium europaeum	European heliotrope
Heterotheca grandiflora	Telegraph weed
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
Hordeum murinum	Wall hare barley
Hypericum perforatum	St. John's wort
Hypochaeris glabra	Smooth cat's ear
Juncus effusus	Pacific rush
Lactuca serriola	Prickly lettuce
Leontodon saxatilis	Hawkbit

Scientific Name	Common Name
Ligustrum lucidum	Privet
Ludwigia peploides	Marsh purslane
Lythrum hyssopifolia	Hyssop loosestrife
Marrubium vulgare	Horehound
Mentha pulegium	Pennyroyal
Paspalum dilatatum	Dallisgrass
Persicaria lapathifolia	Willow weed
Phleum pratense	Timothy grass
Phytolacca americana	American pokeweed
Plantago coronopus	Cut-leaf plantain
Plantago erecta	Erect plantain
Plantago lanceolata	English plantain
Platanus racemosa	Western sycamore
Polygonum aviculare	Prostrate knotweed
Populus alba	Silver poplar
Prunus cerasifera	Cherry plum
Pyrus calleryana	Callery pear
Quercus lobata	Valley oak
Rosa sp.	Wild rose
Rubus armeniacus	Himalayan blackberry
Rumex crispus	Curly dock
Rumex pulcher	Fiddle dock
Salix exigua	Sandbar willow
Salix gooddingii	Goodding's black willow
Salix lasiandra	Pacific willow
Setaria parviflora	Marsh bristlegrass
Sisymbrium officinale	Hedge mustard
Solanum americanum	Common nightshade
Torilis arvensis	Hedge parsley
Toxicodendron diversilobum	Poison oak
Tragopogon sp.	Salsify
Tribulus terrestris	Puncture vine
Trifolium glomeratum	Sessile-headed clover
Trifolium hirtum	Rose clover
Verbascum blattaria	Moth mullein
Vicia villosa	Winter vetch
Vinca sp.	Periwinkle

Wildlife Species Observed in the East Street Indusrial Park Frontage BSA on September 10, 2019	
Scientific Name	**Common Name**
Melanerpes formicivorus	Acorn woodpecker
Spinus tristis	American goldfinch
Calypte anna	Anna's hummingbird
Spizella passerina	Chipping sparrow
Aphelocoma californica	Scrub jay
Pacifastacus leniusculus	Signal crawfish
Cathartes aura	Turkey vulture
Sceloporus occidentalis	Western fence lizard

Wildlife Species Observed in the East Street Indusrial Park Frontage BSA on February 12, 2020	
Scientific Name	**Common Name**
Psaltriparus minimus	American bushtit
Spinus tristis	American goldfinch
Calypte anna	Anna's hummingbird
Sayornis nigricans	Black phoebe
Lepus californicus	Black-tailed jackrabbit
Felis catus	Cat
Buteo jamaicensis	Red-tailed hawk
Aphelocoma californica	Scrub jay
Melospiza melodia	Song sparrow
Cathartes aura	Turkey vulture
Zonotrichia leucophrys	White-crowned sparrow

Appendix C

Site Photos Taken September 10, 2019 and February 12, 2020

Project Site Photos

Taken September 10, 2019

Looking northeast at annual grassland habitat.

Looking east at the valley foothill riparian habitat within the BSA.

Riverine habitat within the BSA.

Looking northeast at gravel access road.

Looking east at Himalayan blackberry within the valley foothill riparian habitat along the drainage.

Looking west at annual grassland habitat.

Project Site Photos

Taken February 12, 2020

Looking south at riverine habitat within the BSA.

Looking west at grassland habitat on the eastern side of the BSA.

Looking east at blackberry brambles in the northern section of the BSA.

Looking west at the BSA.

Appendix B2

East Street Industrial Park Frontage Project

Draft Delineation of Jurisdictional Waters of the United States

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DRAFT DELINEATION OF JURISDICTIONAL WATERS OF THE UNITED STATES

East Street Industrial Park Frontage Project

City of Anderson, California

February 2020

Prepared for:

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Prepared by:

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Appendix B: NRCS Soil Map and Soil Series Descriptions

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DRAFT DELINEATION OF JURISDICTIONAL WATERS OF THE UNITED STATES,

East Street Industrial Park Frontage Project, City of Anderson, California

Introduction and Project Location

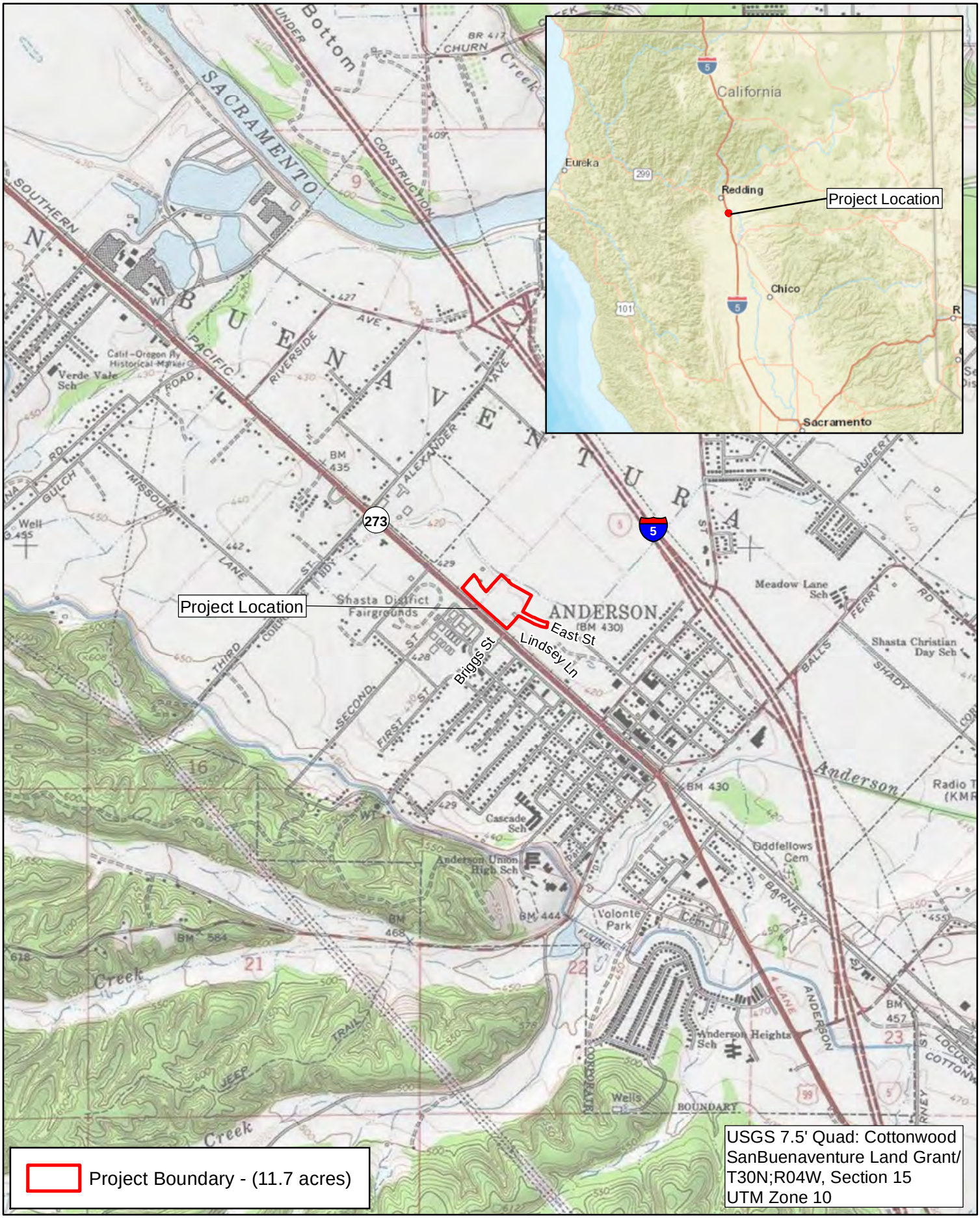
Gallaway Enterprises conducted a delineation of Waters of the United States (WOTUS) and aquatic resources for the East Street Industrial Park Frontage project (Project) consisting of an approximately 12-acre survey area located within the northeastern City Limits of Anderson, Shasta County, California, immediately (**Figure 1 and 2**). The Project site is located within the USGS Cottonwood Quadrangle, Section 15, Township 30N, Range 4W. The project currently proposed on the site is the construction of a commercial development.

To access the site from the Redding area, take Interstate 5 south toward Anderson. From Interstate 5 south, take exit 670 for Riverside Avenue. Turn right onto Riverside Drive then take the first left onto Little Street. Turn right onto Alexander Street and then turn left onto East Street. Continue on East Street for approximately 0.3 miles until East Street turns left and becomes Portola Way. Just past this intersection turn right onto a narrow dirt road and continue on this dirt road for approximately 0.3 miles. The survey area occurs to the west/southwest between the dirt access road and the railroad easement.

A survey of WOTUS was conducted on September 10 and 27, 2019 and February 12, 2020, by Senior Botanist Elena Gregg and assisted by biologist Samantha Morford. Data regarding the location and extent of wetlands and other waters of the United States were collected using a Trimble Geo Explorer 6000 Series GPS Receiver. The survey involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the *United States Army Corps of Engineers Wetlands Delineation Manual* (1987) (1987 Delineation Manual); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008) (Arid West Manual); the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007); the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008), and the *State of California 2016 Wetland Plant List.* Gallaway Enterprises have prepared this report in compliance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (January 2016).

Environmental Setting and Site Conditions

The Project site is located within the northern Central Valley in the City of Anderson, California. The site is primarily composed of disturbed annual grassland habitat with patches of trees and shrubs. An unnamed drainage occurs along the eastern/southeastern boundary and flows offsite into Tormey Drain, which runs parallel to the northern boundary of the Project site. Only the portion of the drainage within the southeastern corner of the Project site is lined by a dense tree canopy (composed of valley oaks), with the remainder of the drainage being largely void of tree canopy. Riparian and wetland vegetation occurs within the banks of this drainage. Historical human disturbances were evident throughout the site and the site is surrounded by disturbed annual grassland and developed land. The site abuts a railroad easement and a large housing development. A well-used dirt access road that is an unofficial continuation of East Street runs through the approximate center of the site. It was evident that the land in the central portion of the Project site had been historically scraped and has been highly manipulated with multiple old elevated dirt access roads, spoil piles, and a now defunct cross drainage ditch.



NORTH

1:24,000
0 500 1,000 Feet

Data Sources: ESRI, City of Redding GIS, USGS

East Street Industrial Park Frontage Project
Regional Location
Figure 1

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GE: #19-120 Map Date: 02/11/20

NORTH

1:3,000
0 100 200 Feet

Data Sources: ESRI, City of Redding GIS, SRTA 3/17/2016

East Street Industrial Park Frontage Project
Project Location
Figure 2

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GE: #19-120 Map Date: 02/27/20

The average annual precipitation is 33.68 inches and the average annual temperature is 62.45° F (WRCC 2019) in the region where the Project site is located. The Project site occurs at an elevation of approximately 420 feet above sea level. The site is sloped between 0 and 3 percent. Soils within the site were gravelly loams with a restrictive layer occurring more than 80 inches deep.

Survey Methodology

The entire Project site was surveyed on-foot by Gallaway Enterprises staff on September 10 and 27, 2019 and February 12, 2020 to identify any potentially jurisdictional features. The survey, mapping efforts, and report production were performed according to the valid legal definitions of WOTUS in effect on February 12, 2020. The boundaries of non-tidal, non-wetland waters, when present, were delineated at the ordinary high water mark (OHWM) as defined in 33 Code of Federal Regulations (CFR) 328.3. The OHWM represents the limit of United States Army Corps of Engineers (Corps) jurisdiction over non-tidal waters (e.g., streams and ponds) in the absence of adjacent wetlands (33 CFR 328.04) (Curtis, et. al. 2011). Historic aerial photographs available on Google Earth were analyzed prior to conducting the field visit. Areas identified as having potential wetland or unusual aerial signatures were assessed in the field to determine the current conditions.

Field data were entered onto data sheets using the most current format (**Appendix A**). Wetland perimeters based on the 1987 Delineation Manual and the Arid West Manual were recorded and defined according to their topographic and hydrologic orientation. Sample points were established for each wetland and the corresponding upland zone. Test pit sampling was performed in areas displaying potential wetland signatures on past aerial photographs and problem areas. Test pit sampling points involved physical sampling of soils and vegetation, and investigation regarding hydrological connectivity. Only areas exhibiting the necessary wetland parameters according to the 1987 Delineation Manual and Arid West Manual on the date surveyed were mapped as wetlands. Photographs were taken to show wetland features, test pit areas, and/or areas identified as having unusual aerial signatures. The locations of the photo points are depicted in **Figure 3** and the associated photographs are provided at the end of the report.

Many of the terms used throughout this report have specific meanings relating to the federal wetland delineation process. Term definitions are based on the Corps 1987 Delineation Manual; the Arid West Manual; *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, (2008)* and the Corps *Jurisdictional Determination Form Instructional Guidebook* (2007). The terms defined below have specific meaning relating to the delineation of WOTUS as prescribed by §404 of the Clean Water Act (CWA) and described in 33 CFR Part 328 and 40 CFR Parts 110, 112, and 116, and 122.

Determination of Hydrophytic Vegetation

The presence of hydrophytic vegetation was determined using the methods outlined in the 1987 Delineation Manual and the Arid West Manual. Areas were considered to have positive indicators of hydrophytic vegetation if they pass the dominance test, meaning more than 50 percent of the dominant species are obligate wetland, facultative wetland and facultative plants. Plant species were identified to the lowest taxonomy possible. Plant indicator status was determined by reviewing the State of California 2016 Wetland Plant List for the Arid West Region. In situations where dominance can be misleading due to seasonality, the prevalence index will be used to determine hydrophytic status of the community surrounding sample sites.

Ground Photographs Table				
Label	Direction	Latitude	Longitude	Comment
P01	NW	40.455320	-122.306921	TP01/Upland with Signature
P02	E	40.455327	-122.307504	Scraped Soil
P03	E	40.456291	-122.309050	TP02
P04	NE	40.455049	-122.306969	OW01
P05	NW & SE	40.456301	-122.309146	Wetland in RR Easement
P06	SE	40.454966	-122.307044	WF01
P07	E	40.455717	-122.308206	Upland with Signature
P08	NW	40.455816	-122.308422	Upland Ditch
P09	SE	40.455658	-122.306849	WF02
P10	NE	40.455497	-122.306418	TP04
P11	N,W,S & E	40.455366	-122.305846	Project Overview
P12	NE	40.455547	-122.305823	TP07
P13	SE	40.456077	-122.306149	Upland Overview
P14	NE & SW	40.456322	-122.306298	Upland Ditch
P15	E	40.456864	-122.306978	TP06
P16	SE & NW	40.456099	-122.307800	Upland Ditch & Overview

NORTH

1:2,200
0 100 200 Feet

Data Sources: ESRI, City of Redding GIS, SRTA 3/17/2016

East Street Industrial Park Frontage Project
Ground Photographs Map
Figure 3

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GE: #19-120 Map Date: 02/25/20

Plant indicator status categories:

Obligate wetland plants (OBL) – plants that occur almost always (estimated probability 99%) in wetlands under normal conditions, but which may also occur rarely (estimated probability 1%) in non-wetlands.

Facultative wetland plants (FACW) - plants that usually occur (estimated probability 67% to 99%) in wetlands under normal conditions, but also occur (estimated probability 1% to 33%) in non-wetlands.

Facultative plants (FAC) – Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.

Facultative upland plants (FACU) – Plants that occur sometimes (estimated probability1% to 33%) in wetlands, but occur more often (estimated probability 67% to 99%) in non-wetlands.

Obligate upland plants (UPL) – Plants that occur rarely (estimated probability 1%) in wetlands, but occur almost always (estimated probability 99%) in non-wetlands under natural conditions.

Determination of Hydric Soils

Soil survey information was reviewed for the current site condition. Field samples were evaluated by using the Munsell soil color chart (2009 Edition), hand texturing, and assessing soil features (e.g. oxidized root channels, evidence of hardpan, Mn and Fe concretions). Information regarding local soil and series descriptions is provided in **Appendix B.** A number of test pits (**Appendix A**) were dug within portions of the site that appeared to have darker aerial signatures but did not meet the wetland test parameters upon investigation in the field. The current Natural Resources Conservation Service (NRCS) *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018) was used in conjunction with the Arid West Manual to determine the presence of hydric soil indicators.

Determination of Wetland Hydrology

Wetland hydrology was determined to be present if a site supported one or more of the following characteristics:

- Landscape position and surface topography (e.g. position of the site relative to an up-slope water source, location within a distinct wetland drainage pattern, and concave surface topography),
- Inundation or saturation for a long duration either inferred based on field indicators or observed during repeated site visits, and
- Residual evidence of ponding or flooding resulting in field indicators such as scour marks, sediment deposits, algal matting, surface soil cracks and drift lines.

The presence of water or saturated soil for approximately 12% or 14 consecutive days during the growing season typically creates anaerobic conditions in the soil, and these conditions affect the types of plants that can grow and the types of soils that develop (Wetland Training Institute 1995).

Historic aerial photographs were analyzed to look for primary and secondary wetland hydrology indicators of inundation or saturation. The historic aerial imagery reviewed was the public, readily available imagery provided on Google Earth. If aerial signatures demonstrated the presence of surface water on 5 or more of the historic aerial photographs viewed, inundation and a primary indicator of wetland hydrology was determined to be present. Saturation, a secondary indicator of wetland hydrology, was determined to be present if saturation, “darker patches within the field,” were observed on 5 or more of the 9 historic aerial photographs viewed.

Determination of Ordinary High Water Mark

Gallaway utilized methods consistent with the Arid West Manual and *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, (2008)* to determine the OHWM. The lateral extents of non-tidal water bodies (e.g. intermittent and ephemeral streams) were based on the OHWM, which is "the line on the shore established by the fluctuations of water" (Corps 2005). The OHWM was determined based on multiple observed physical characteristics of the area, which can include scour, multiple observed flow events (from current and historical aerial photos), shelving, and changes in the character of soil, presence of mature vegetation, deposition, and topography. Due to the wide extent of some floodplains, adjacent riparian scrub areas characterized by hydric soils, hydrophytic vegetation, and hydrology may be included within the OHWM of a non-tidal water body (Curtis, et. al. 2011). Inclusion of minor special aquatic areas is an acceptable practice as outlined in the Arid West Manual.

OHWM Transects:

Representative OHWM widths measured in the field are shown as transect lines and measured in feet as required by the Corps *Final Map and Drawing Standards for the South Pacific Division Regulatory Program (2012)*. These transect lines are used to ensure that the other waters of the United States identified within the Project site are mapped and calculated at the appropriate average width for each channel segment based on the Corps definition of OHWM as defined in the Arid West OHWM Field Guide and the *Ordinary High Water Mark Identification RGL 05-05 (2005)* (RGL 05-05). When the average width of a feature changes, this change is shown on the delineation map as a feature transition and a new average channel width is determined. At each transect line Gallaway uses multiple observed physical indicators in determining the OHWM. The lateral extents of the transect lines identify the location of the OHWM where benches, drift, exposed root hairs, changes in substrate/particle size, and, if appropriate, changes in vegetation were observed. If any other physical indicators as described in the Arid West OHWM Field Guide or RGL 05-05 are observed, these indicators are also utilized to help determine the location of the OHWM. Field data gathered along the OHWM transect of the unnamed drainage on the site was entered onto the Arid West OHWM Datasheet (Curtis and Lichvar 2010), which is provided as **Appendix C**.

Jurisdictional Boundary Determination and Acreage Calculation

The wetland-upland boundary was determined based on the presence or inference of positive indicators of all mandatory criteria. Soil samples were taken within wetland and upland areas. The site was traversed on foot to identify wetland features and boundaries. The spatial data obtained during the preparation of this wetland delineation was collected using a Trimble Geo Explorer 6000 Series GPS Receiver. No readings were taken with fewer than 5 satellites. Point data locations were recorded for at least 25 seconds at a rate of 1 position per second. Area and line data were recorded at a rate of 1 position per second while walking at a slow pace. All GPS data were differentially corrected for maximum accuracy. In some cases, when visual errors and degrees of precision are identified due to environmental factors negatively influencing the precision of the GPS instrument (i.e. dense tree cover, steep topography, and other factors affecting satellite connection) mapping procedures utilized available topographic and aerial imagery datasets in order to improve accuracy in feature alignment and location.

Determination of Wetland Boundaries in Difficult Wetland Situations

Due to the historic disturbances within the Project site associated with dirt access roads, the guidelines provided in the Arid West Manual for making wetland determinations in difficult-to-identify wetland

situations was used. A review of past historic aerials was conducted prior to the site visit and field data was gathered in areas that exhibited wet signatures in the historic aerials. When determining wetland boundaries on the site, Gallaway Enterprises used the guidelines in areas where wetland vegetation or wetland hydrology was lacking but where the landscape position was likely to concentrate water. Gallaway Enterprises mapped these areas as wetlands if hydric soil indicators were detected (unless the soils were considered problematic) and at least one other hydric indicator was present (i.e. wetland hydrology or hydrophytic vegetation).

Non-Jurisdictional Boundary Determination and Acreage Calculation

Areas were determined to be potentially non-jurisdictional if they did not meet the wetland test parameters or were consistent with the description of non-jurisdictional features as presented in the Corps *Jurisdictional Determination Form Instructional Guidebook* (2007). There were a number of areas that exhibited potential wetland signatures throughout the Project site, however, based on data collected at these locations (**Appendix A**), the areas lacked the necessary wetland parameters and were not mapped as features. This included a historically man-made cross drainage ditch that is currently defunct. This ditch was constructed entirely in upland habitat and since it no longer functions as a cross drain, the ditch showed no evidence of wetland hydrology or an OHWM (see site photos taken at photo point P14 and data sheet for TP05 in **Appendix A**).

Results

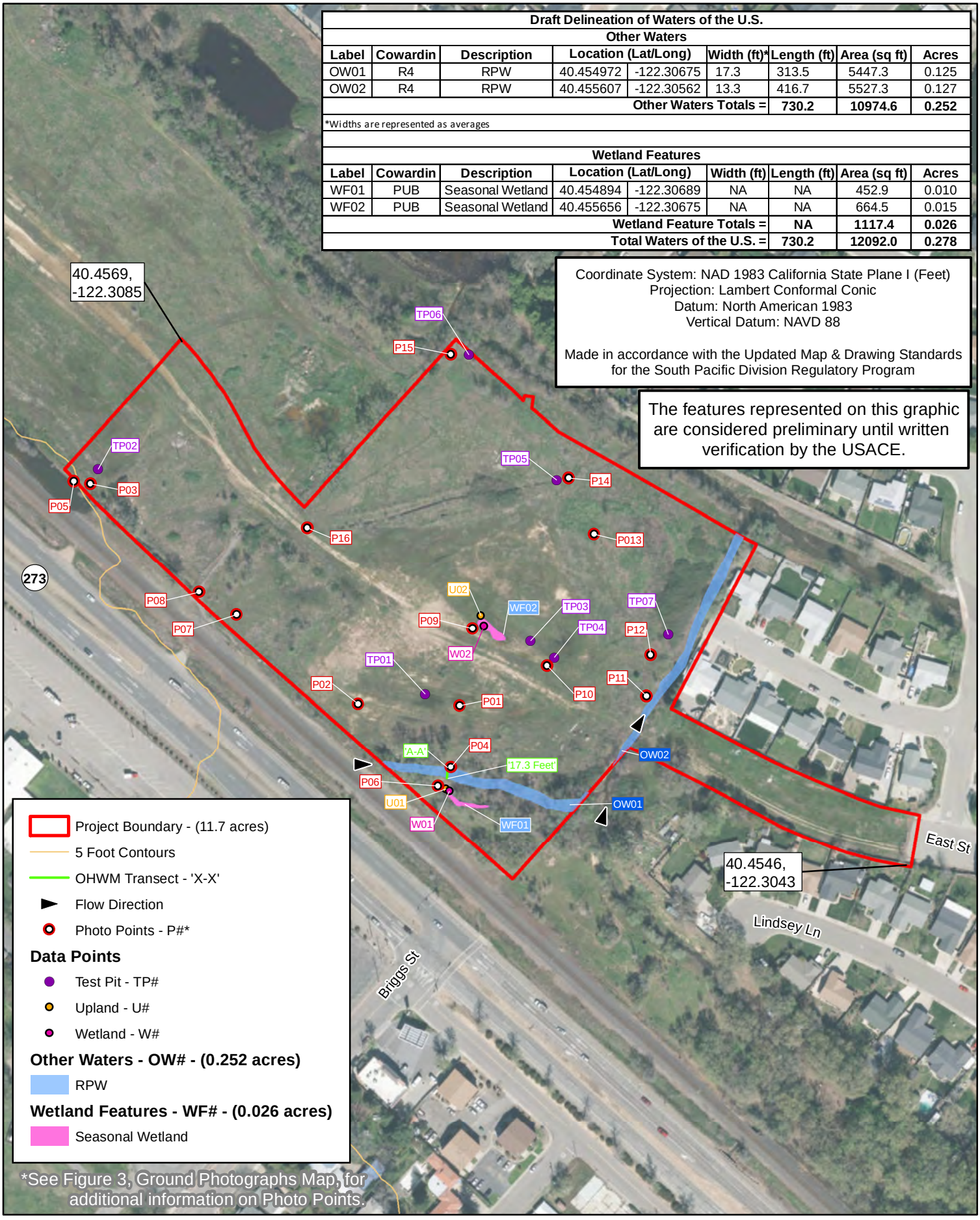
Table 1 Summarizes the area calculations for the pre-jurisdictional features within the Project. A complete Draft Delineation of WOTUS map, utilizing a 1" to 200' scale, is included as **Figure 4**.

Table 1. Results Summary from the Draft Delineation of Waters of the United States for the East Street Industrial Park Frontage Project.

Draft Delineation of Waters of the U.S.						
Other Waters						
Label	**Cowardin**	**Description**	**Width (ft)**	**Length (ft)**	**Area (sq ft)**	**Acres**
OW01	R4	RPW	17.3	313.5	5447.3	0.125
OW02	R4	RPW	13.3	416.7	5527.3	0.127
			Other Waters Totals =	**730.2**	**10974.6**	**0.252**
Wetland Features						
Label	**Cowardin**	**Description**	**Width (ft)**	**Length (ft)**	**Area (sq ft)**	**Acres**
WF01	PUB	Seasonal Wetland	NA	NA	452.9	0.010
WF02	PUB	Seasonal Wetland	NA	NA	664.5	0.015
			Wetland Feature Totals =	**NA**	**1117.4**	**0.026**
			Total Waters of the U.S. =	**730.2**	**12092.0**	**0.278**

Waters of the United States: Other Waters

There are a total of two features that are identified as other waters of the United States within the Project. Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, ephemeral and intermittent drainages, ponds, and other surface water features that exhibit an ordinary high-water mark, but lack positive indicators for one or more of the three wetland parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4). The boundaries



Draft Delineation of Waters of the U.S.

Other Waters

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)*	Length (ft)	Area (sq ft)	Acres
OW01	R4	RPW	40.454972	-122.30675	17.3	313.5	5447.3	0.125
OW02	R4	RPW	40.455607	-122.30562	13.3	416.7	5527.3	0.127
				Other Waters Totals =		**730.2**	**10974.6**	**0.252**

*Widths are represented as averages

Wetland Features

Label	Cowardin	Description	Location (Lat/Long)		Width (ft)	Length (ft)	Area (sq ft)	Acres
WF01	PUB	Seasonal Wetland	40.454894	-122.30689	NA	NA	452.9	0.010
WF02	PUB	Seasonal Wetland	40.455656	-122.30675	NA	NA	664.5	0.015
				Wetland Feature Totals =		**NA**	**1117.4**	**0.026**
				Total Waters of the U.S. =		**730.2**	**12092.0**	**0.278**

Coordinate System: NAD 1983 California State Plane I (Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88

Made in accordance with the Updated Map & Drawing Standards for the South Pacific Division Regulatory Program

The features represented on this graphic are considered preliminary until written verification by the USACE.

NORTH

1:2,400 1 inch = 200 feet
0 75 150 Feet

Data Sources: ESRI, City of Redding GIS, SRTA 3/17/2016

East Street Industrial Park Frontage Project
Draft Delineation of Waters of the U.S.
Figure 4

Delineation by: E. Gregg
Map by: C. Davis

gallaway ENTERPRISES

GE: #19-120 Map Date: 02/25/20

of all other waters identified within the survey area were delineated based on the observed OHWM, including physical characteristics such as natural lines impressed on the bank, shelving, changes in the character of the soil, the destruction of terrestrial vegetation, debris lines and other appropriate indicators.

The two other water features present within the Project site (**Figure 4**) have been identified as a Relatively Permanent Waters (RPW). Relatively Permanent Waters are defined as tributaries that typically flow for at least 3 months of the year and have a documented hydrologic connection to a Traditionally Navigable Water (TNW). The RPWs within the Project are portions of the same unnamed tributary to what is locally referred to as Tormey Drain. Flowing water was observed within the RPWs during the September field visit. All of the other water features identified within the Project site contain appropriate morphology of bed, bank and scour.

Waters of the United States: Wetlands

Two wetlands occur on the site, which are characterized as seasonal wetlands (**Figure 4**). Seasonal wetlands are depressional features that typically stay ponded or saturated throughout the spring months and are vegetated by generalist wetland plant species. This wetland exhibited all three of the wetland parameters (**Appendix A**). A total of 0.026 acre of wetlands has been identified within the Project.

During the aerial photography review of the Project site conducted prior to the field visit, a few areas were identified that exhibited dark or unusual signatures. Where aerial photographs identified dark signatures, but were found to lack wetland parameters when ground-truthed, representative test pits were taken (**Appendix A**, **Figure 4**). Photo points were taken at test pits, wetlands and other locations throughout the Project to depict the site conditions (**Figure 3**).

Soils

Gallaway collected soil data at various locations throughout the Project site. Field observations of soil characteristics included soil color, texture, structure, and the visual assessment of soil features (e.g. the presence, or absence of redoximorphic features and the depth of restrictive layers such as hardpans). Gallaway's soil texture evaluations rendered gravely loams. Iron concentrations and depletions were found along root channels, pore spaces, and as soft masses in the soil matrix at varying depths within the surface horizons. Field observations of soil characteristics at the test pit sites are included in the data sheet forms presented in **Appendix A**.

The geographic region in which the Project is found is often characterized as having a naturally occurring deep hardpan, or duripan that undulates throughout the region. Hardpans restrict root growth, limit water infiltration, and result in a perching of the water table in certain locations. Within the Project site, the duripan is typically found at a depth of 80 inches or greater. However, within the portion of the Project site that had historically been scraped, there was a highly restrictive layer observed at a depth of 2-5 inches below the ground surface. The depth of the hand dug soil pits were dug deep enough to determine or rule out the presence/absence of hydric soil indicators.

Gallaway queried the National Cooperative Soil Survey database to further evaluate the current soil conditions. A copy of the soil survey map and a description of mapped soil units for the Project site are included as **Appendix B**. Two soil map units occur within the Project. The map units are listed below in **Table 2**. Based on Gallaway's review, the majority of the Project site is dominated by the Churn gravelly loam soil map unit, which contains only minor amounts (5%) of hydric components that are typically found in drainages. The remaining soil map unit found on the Project site contains major amounts of hydric components (85%) that are associated with floodplains, however, no part of the Project site

currently functions as a floodplain due to the construction and channelization of the adjacent Tormey Drain. A copy of the soil survey map and a description of mapped soil units for the Project site are included as **Appendix B**.

Table 2. Soil Map Units, NRCS hydric soil designation, and approximate totals for the East Street Industrial Park Frontage Project.

Map Unit Symbol	Map Unit Name	% Hydric Component in Map Unit	Landform of Hydric Component	% Map Unit in Survey Area
CfA	Churn gravelly loam, 0 to 3 percent slopes	5	Drainageways	88.0%
RmA	Reiff loam, seeped, 0 to 3 percent slopes	85	Floodplains	12.0%

Vegetation

During the site visit, the dominant vegetation present within the OHWM of the drainages included Oregon ash (*Fraxinus latifolia*) (FACW), Himalayan blackberry (*Rubus armeniacus*) (FAC), dalisgrass (*Paspalum dilatatum*) (FAC), Pacific rush (*Juncus effusus*) (FACW), smartweed (*Persicaria* sp.) (FACW), tall nutsedge (*Cyperus eragrostis*) (FACW), yellow waterweed (*Ludwigia peploides*) (OBL), and a variety of willow species (*Salix* sp.). The dominant vegetation along the top of the banks of the drainages included a tree canopy of valley oaks (*Quercus lobata*) (FACU) and a few non-native trees including privet (*Ligustrum lucidum*) (NL) and cherry plum (*Prunus cerasifera*) (NL) and an understory dominated by periwinkle (*Vinca* sp.) (NL), Himalayan blackberry, bedstraw (*Galium aparine*) (FACU), and rip-gut brome (*Bromus diandrus*) (UPL). The disturbed annual grassland habitat present was dominated largely by Spanish lotus (*Acmispon americanus*) (FACU), Fitch's spikeweed (*Centromadia fitchii*) (FACU), doveweed (*Croton setiger*) (NL), wild oats (*Avena fatua*) (UPL), yellow star-thistle (*Centaurea solstitialis*) (UPL), soft chess (*Bromus hordeaceous*) (FACU), Bermuda grass (*Cynodon dactylon*) (FACU), chicory (*Cichorium intybus*) (NL), rose clover (*Trifolium hirtum*) (UPL) and tall willowerb (*Epilobium brachycarpum*) (NL).

Hydrology

Precipitation and capture of runoff from developed land and residential irrigation are the main hydrological inputs for the RPW within the Project site. The RPW present within the site is an unnamed tributary of Tormey Drain (OW 01 and OW 02) that is used by the City of Anderson as an open stormwater channel. Tormey Drain is a direct tributary of the Sacramento River, a TNW. Two wetlands occur within the Project site. One, WF 01, occurs at the toe of a low levee/berm associated with OW 01. The other wetland, WF 02, is highly isolated and occurs within the scraped and highly disturbed portion of the Project site. There is no direct surface hydrologic connection between either of these wetlands and a jurisdictional feature; however, it is likely that the water table associated with OW 01 affects the hydrology of WF 01.

Flowing water was observed within OW 01 and OW 02 during the September and February field visits.

Site Photos Taken on September 10, 2019

P 01 – Test Pit 01 looking northwest

P 04 – OW 01 looking slightly northwest

P 02 – Close-up of scraped area looking east

P 05 – Offsite wetland in railroad easement looking northwest

P 03 – Test Pit 02 looking northeast

P 05 – Edge of railroad easement looking southeast

Site Photos Taken on February 12, 2020

P 06 – WF 01 looking southeast (note berm/levee and lack of surface connection)

P 07 – Upland overview looking east

P 08 – Upland isolated ditch looking northwest

P 09 – WF02 looking southeast

P 10 – TP04 looking northeast

P 11 – OW02 and levee-like bank looking north

P 11 – OW02 looking east

P 11 – OW01 looking south

P 11 – Upland overview looking west

P 12 – TP07 (blackberry patch) looking northeast

P 13 – Upland overview looking southeast

P 14 – Upland ditch/TP05 looking southwest

P 14 – End of upland ditch looking northeast

P 16 – End of upland ditch looking southeast

P 15 – TP06 looking east

P 16 – Upland overview looking northwest

Glossary

Abutting: When referring to wetlands that are adjacent to a tributary, abutting defines those wetlands that are not separated from the tributary by an upland feature, such as a berm or dike.

Adjacent: Adjacent as used in "Adjacent to traditional navigable water," is defined in Corps and EPA regulations as "bordering, contiguous, or neighboring." Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands. A wetland "abuts" a tributary if it is not separated from the tributary by uplands, a berm, dike, or similar feature.

While all wetlands that meet the agencies' definitions are considered adjacent wetlands, only those adjacent wetlands that have a continuous surface connection because they directly abut the tributary (e.g., they are not separated by uplands, a berm, dike, or similar feature) are considered jurisdictional under the plurality standard. (CWA Jurisdiction Following Rapanos v US and Carabell v US 12-02-08).

The regulations define "adjacent" as follows: "[t]he term adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands.'" Under this definition, a wetland does not need to meet all criteria to be considered adjacent. The agencies consider wetlands to be bordering, contiguous, or neighboring, and therefore "adjacent" if at least one of following three criteria is satisfied:

(1) There is an unbroken surface or shallow sub-surface hydrologic connection between the wetland and jurisdictional waters; or

(2) The wetlands are physically separated from jurisdictional waters by "manmade dikes or barriers, natural river berms, beach dunes, and the like;" or,

(3) Where a wetland's physical proximity to a jurisdictional water is reasonably close, that wetland is "neighboring" and thus adjacent. For example, wetlands located within the riparian area or floodplain of a jurisdictional water will generally be considered neighboring, and thus adjacent. One test for whether a wetland is sufficiently proximate to be considered "neighboring" is whether there is a demonstrable ecological interconnection between the wetland and the jurisdictional waterbody. For example, if resident aquatic species (e.g., amphibians, reptiles, fish, mammals, or waterfowl) rely on both the wetland and the jurisdictional waterbody for all or part of their life cycles (e.g., nesting, rearing, feeding, etc.), that may demonstrate that the wetland is neighboring and thus adjacent. The agencies recognize that as the distance between the wetland and jurisdictional water increases, the potential ecological interconnection between the waters is likely to decrease.

The agencies will also continue to assert jurisdiction over wetlands "adjacent" to traditional navigable waters as defined in the agencies' regulations. Under EPA and Corps regulations and as used in this guidance, "adjacent" means "bordering, contiguous, or neighboring." Finding a continuous surface connection is not required to establish adjacency under this definition. The Rapanos decision does not affect the scope of jurisdiction over wetlands that are adjacent to traditional navigable waters. The agencies will assert jurisdiction over those adjacent wetlands that have a continuous surface connection with a relatively permanent, non-navigable tributary, without the legal obligation to make a significant nexus finding.

Atypical situation (significantly disturbed): In an atypical (significantly disturbed) situation, recent human activities or natural events have created conditions where positive indicators for hydrophytic vegetation, hydric soil, or wetland hydrology are not present or observable.

Channel. "An open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water" (Langbein and Iseri 1960:5).

Channel bank. The sloping land bordering a channel. The bank has steeper slope than the bottom of the channel and is usually steeper than the land surrounding the channel.

Cobbles. Rock fragments 7.6 cm (3 inches) to 25 .4 cm (10 inches) in diameter.

Debris flow. A moving mass of rock fragments, soil, and mud where more than 50% of the particles are larger than sand-sized.

Drift. Organic debris oriented to flow direction(s) (larger than small twigs).

Effective discharge. Discharge that is capable of carrying a large proportion of sediment over time.

Ephemeral stream. An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Facultative wetland (FACW). Wetland indicator category; species usually occurs in wetlands (estimated probability 67–99%) but occasionally found in non-wetlands.

Flat. A level landform composed of unconsolidated sediments usually mud or sand. Flats may be irregularly shaped or elongate and continuous with the shore, whereas bars are generally elongate, parallel to the shore, and separated from the shore by water.

Gravel. A mixture composed primarily of rock fragments 2mm (0 .08 inch) to 7.6 cm (3 inches) in diameter. Usually contains much sand.

Growing season The frost-free period of the year (see U.S. Department of Interior, National Atlas 1970:110-111 for generalized regional delineation).

Herbaceous. With the characteristics of an herb; a plant with no persistent woody stem above ground.

Hydric soil. Soil is hydric that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic (oxygen-depleted) conditions in its upper part (i.e., within the shallow rooting zone of herbaceous plants).

Hydrophyte, **hydrophytic.** Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Intermittent stream. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Jurisdictional Wetland. Sites that meet the definition of wetland provided below and that fall under COE regulations pursuant to Section 404 of the CWA are considered jurisdictional wetlands.

Litter. Organic debris oriented to flow direction(s) (small twigs and leaves).

Man-induced wetlands. A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities.

Mesophyte, mesophytic. Any plant growing where moisture and aeration conditions lie between extremes. (Plants typically found in habitats with average moisture conditions, not usually dry or wet.)

Non-Relatively Permanent Water: A non-relatively permanent water (NRPW) is defined as a tributary that is not a TNW and that typically flows for periods for less than 3 months. NRPWs are jurisdictional when they have a documented significant nexus to TNWs. All NRPWs must also contain appropriate morphology of bed, bank and scour and be clearly connected to a TNW.

Normal circumstances. This term refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed.

Obligate hydrophytes. Species that are found only in wetlands e.g., cattail (*Typha latifolia*) as opposed to ubiquitous species that grow either in wetland or on upland-e .g., red maple (*Acer rubrum*).

Obligate wetland (OBL). Wetland indicator category; species occurs almost always (estimated probability 99%) under natural conditions in wetlands.

Other Waters of the United States. Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

Palustrine the Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 m (6.6 feet) at low water; and (4) salinity due to ocean-derived salts is less than 0.5 parts per thousand.

Perennial stream. A perennial stream has flowing water year-round during atypical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Pioneer species. A species that colonizes a previously uncolonized area.

Ponded. Ponding is a condition in which free water covers the soil surface (e.g., in a closed depression) and is removed only by percolation, evaporation, or transpiration.

Problem area. Problem areas are those where one or more wetland parameters may be lacking because of normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events**.**

Relatively Permanent Waters of the U.S. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)

Ruderals. Disturbance-adapted herbaceous plant.

Scour. Soil and debris movement.

Sheetflood. Sheet of unconfined floodwater moving down a slope; a relatively low-frequency, high-magnitude event.

Sheetflow. Overland flow occurring in a continuous sheet; a relatively high-frequency, low-magnitude event.

Shrub. A woody plant which at maturity is usually less than 6 m(20 feet) tall and generally exhibits several erect, spreading, or prostrate stems and has a bushy appearance ; e.g., speckled alder (*Alnus rugosa*) or buttonbush (*Cephalanthus occidentalis*).

Succession. Changes in the composition or structure of an ecological community.

Stone. Rock fragments larger than 25 .4 cm (10 inches) but less than 60 .4 cm (24 inches).

Traditional Navigable Waters (TNWs)."[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." These waters are referred to in this guidance as traditional navigable waters. The traditional navigable waters include all of the "navigable waters of the United States," as defined in 33 C.F.R. Part 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact (for example, the Great Salt Lake, UT, and Lake Minnetonka, MN). Thus, the traditional navigable waters include, but are not limited to, the "navigable waters of the United States" within the meaning of Section 10 of the Rivers and Harbors Act of 1899 (also known as "Section 10 waters").

Tree. A woody plant which at maturity is usually 6 m (20 feet) or more in height and generally has a single trunk, unbranched for 1 m or more above the ground, and a more or less definite crown; e.g., red maple (*Acer rubrum*), northern white cedar (*Thuja occidentalis*).

Water table. The upper surface of a zone of saturation . No water table exists where that surface is formed by an impermeable body (Langbein and Iseri 1960:21).

Waters of the United States (WOTUS). This is the encompassing term for areas under federal jurisdiction pursuant to Section 404 of the CWA. Waters of the United States are divided into "wetlands" and "other waters of the United States".

Watershed (drainage basin). An area of land that drains to a single outlet and is separated from other watersheds by a divide.

Wetland. Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 [b], 40 CFR 230.3). To be considered under federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology.

Woody plant. A seed plant (gymnosperm or angiosperm) that develops persistent, hard, fibrous tissues, basically xylem; e.g., trees and shrubs.

Xeric. Relating or adapted to an extremely dry habitat

References

Cheatham, N.H., and J.R. Haller. 1975. An annotated list of California habitat types. Univ. of California Natural Land and Water Reserve System, unpubl. manuscript.

Cowardin, Lewis M., Virginia Carter, Francis C. Golet and Edward T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C.

Curtis, Katherine E., Robert W. Lichvar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TN-10-1. U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH

Curtis, Katherine E., Robert W. Lichvar, Lindsey E. Dixon. 2011. Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region (Technical Report). U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH

Environmental Laboratory 1987. U.S. Army Corps of Engineers wetlands delineation manual. (Technical Report Y-87-1). U.S. Army Waterways Experiment Station. Vicksburg, MS.

Lichvar, R.W., and J.S. Wakeley, ed. 2004. Review of Ordinary High Water Mark indicators for delineating arid streams in the southwestern United States. ERDC/CRREL TR-04-1. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. (http://www.crrel.usace.army.mil/techpub/CRREL _Reports/reports/TR04-21.pdf).

Lichvar, R.W., D. Finnegan, M. Ericsson, and W. Ochs. 2006. Distribution of Ordinary High Water Mark (OHWM) indicators and their reliability in identifying the limits of "Waters of the United States" in arid southwestern channels. ERDC/CRREL TR-06-5. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. (http://www.crrel.usace.army.mil/techpub/CRREL_Reports/ reports/TR06-5.pdf).

Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Western Region of the Western United States. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. State of California 2016 Wetland Plant List: The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. U.S. Army Corps of Engineers. ISSN 2153 733X.

Mayer, K.E. and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection. Sacramento, CA.

National Oceanic and Atmospheric Administration (NOAA). 2019. National Integrated Drought Information System. U.S. Drought Monitor. Accessed online through the U.S. Drought Portal (www.drought.gov).

Natural Resources Conservation Service (NRCS). 2019. Custom Soil Resource Report for Shasta County Area, California. Accessed through the NRCS Web Soil Survey website (http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm).

Soil Survey Staff. 2010. Keys to Soil Taxonomy, 11th ed. USDA-Natural Resources Conservation Service, Washington, DC.

U.S. Army Corps of Engineers (Corps). 2008. Regional supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. J.S. Wakeley, R.W. Lichvar, and C.V. Noble, ed. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center, Environmental Laboratory.

U.S. Army Corps of Engineers, South Pacific Division. 2001. Final summary report: Guidelines for jurisdictional determinations for water of the United States in the arid Southwest. San Francisco, CA: U.S. Army Corps of Engineers, South Pacific Division. (http://www.spl.usace.army.mil/regulatory/lad.htm).

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

Western Regional Climate Center, Desert Research Institute. 2019. http://www.wrcc.dri.edu. Local Climate Summary for the Redding Muni AP, California (047304) NOAA Cooperative Station.

Wetland Training Institute. 1995. Field guide for wetland delineation: 1987 Corps of Engineers manual. (WTI 95-3). Poolsville, MD.

Appendix A: Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 9-27-19

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: W 01

Investigator(s): E. Gregg and S. Morford Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): concave Slope (%): 0.5

Subregion (LRR): C - Mediterranean California Lat: 40.454945 Long: -122.306979 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Area was a distinct depression abutting a berm/levee associated with the main drainage on the site.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Festuca perennis*	65	Yes	FAC
2. *Hordeum marinum ssp. gussoneanum*	10	No	FAC
3. *Rumex crispus*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust 5 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	80	x 3 =	240
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks: leaf debris present in bare ground stratum.

SOIL

Sampling Point: W 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	98	2.5YR 4/8	2	C	PL	silty loam	duff and organic debris present
4-11	10YR 4/2	30	2.5YR 4/8	20	C	M	gravelly loam	
	10YR 3/3	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ◉ No ○

Remarks: Test pit was dug deep enough to determine the presence/absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 9-27-19

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: U 01

Investigator(s): E. Gregg and S. Morford Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): convex Slope (%): 1.5

Subregion (LRR): C - Mediterranean California Lat: 40.454954 Long: -122.306998 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks: Area was abutting a berm/levee associated with the main drainage on the site.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Torilis arvensis*	20	Yes	UPL
2. *Bromus hordeaceus*	20	Yes	FACU
3. *Acmispon americanus*	20	Yes	FACU
4. *Festuca perennis*	10	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	70 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	10	x 3 =	30
FACU species	40	x 4 =	160
UPL species	20	x 5 =	100
Column Totals:	70 (A)		290 (B)

Prevalence Index = B/A = 4.14

Hydrophytic Vegetation Indicators:

- [•] Dominance Test is >50%
- [•] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks: leaf debris present in bare ground stratum.

SOIL

Sampling Point: U 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/4	98	5YR 5/8	2	C	PL	gravelly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ○ No ◉

Remarks: Test pit was dug deep enough to determine the presence/absence of hydric soil indicators. No hydric soil indicators met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: There were no wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 2-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: W 02

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): concave Slope (%): 0.3

Subregion (LRR): C - Mediterranean California Lat: 40.455671 Long: -122.306783 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Area was shallow depression within an area that has been historically scraped and disturbed adjacent to a dirt access road.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia fitchii*	20	Yes	FACU
2. *Juncus sp.*	20	Yes	FACW
3. *Festuca perennis*	15	Yes	FAC
4. *Lythrum hyssopifolia*	5	No	OBL
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % % Cover of Biotic Crust 40 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	15	x 3 =	45
FACU species	20	x 4 =	80
UPL species		x 5 =	0
Column Totals:	60 (A)		170 (B)

Prevalence Index = B/A = 2.83

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: W 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 5/4	75	5YR 5/8	25	C	PL	sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: unknown hardpan

Depth (inches): 8

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: U 02

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): slighlty concave Slope (%): 0.3

Subregion (LRR): C - Mediterranean California Lat: 40.455716 Long: -122.306801 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Area was a very slightly depressed in a highly disturbed, historically scraped area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia fitchii*	25	Yes	FACU
2. *Festuca perennis*	20	Yes	FAC
3. *Leontodon saxatilis*	20	Yes	FACU
4. *Acmispon americanus*	15	No	FACU
5. *Deschampsia danthonioides*	5	No	FACW
6.			
7.			
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % % Cover of Biotic Crust 20 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	60	x 4 =	240
UPL species		x 5 =	0
Column Totals:	85 (A)		310 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: U 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR 4/4	98	5YR 5/8	5	C	PL	sandy loam	texture was course sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: unknown hardpan

Depth (inches): 9

Hydric Soil Present? Yes ◉ No ○

Remarks: Area is arguably a closed depression.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project | City/County: City of Anderson | Sampling Date: 9-27-19

Applicant/Owner: Insignia Builders, Inc. | State: CA | Sampling Point: TP 01

Investigator(s): E. Gregg and S. Morford | Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor | Local relief (concave, convex, none): slightly concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 40.455371 | Long: -122.30712 | Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Area was historically scraped, which resulted in a few areas with slight, shallow depressions, like this sample test pit area. Although the area was scraped, it was evident that this occurred a long time ago and so the scraped condition in this portion of the property is now considered "Normal Circumstances".

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia fitchii*	40	Yes	FACU
2. *Lythrum hyssopifolia*	5	No	OBL
3. *Deschampsia danthonioides*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % | % Cover of Biotic Crust 10 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species		x 3 =	0
FACU species	40	x 4 =	160
UPL species		x 5 =	0
Column Totals:	50 (A)		175 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: TP 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1.5	10YR 5/4	63	5YR 5/8	7	C	PL	gravelly loam	lots of exposed gravel
	7.5YR 5/6	30						
1.5-7	10YR 5/4	35					gravelly loam	
	7.5YR 5/6	65						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ○ No ◉

Remarks: Test pit was dug deep enough to determine the presence/absence of hydric soil indicators. Redox features did not occur past 1.5 inches, therefore, indicator F8 was not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Some algal matting was the only wetland hydrology indicator observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 9-27-19

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 02

Investigator(s): E. Gregg and S. Morford Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 40.456354 Long: -122.309007 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Area was relatively flat but with uneven micro-depressions and appears to have had some historical human disturbance. The area is adjacent to an old access road.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Cynodon dactylon*	35	Yes	FACU
2. *Bromus hordeaceus*	30	Yes	FACU
3. *Festuca perennis*	20	Yes	FAC
4. *Leontodon saxatilis*	5	No	FACU
5. *Rumex pulcher*	5	No	FAC
6. *Epilobium brachycarpum*	5	No	Not Listed
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	25	x 3 =	75
FACU species	70	x 4 =	280
UPL species	5	x 5 =	25
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: TP 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	68	5YR 4/6	7	C	PL	gravelly loam	
	10YR 5/3	25						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ○ No ◉

Remarks: Test pit was dug deep enough to determine the presence/absence of hydric soil indicators. Area was not a closed depression, therefore, indicator F8 was not met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: There were no wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 03

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): slighlty concave Slope (%): 0.3

Subregion (LRR): C - Mediterranean California Lat: 40.455606 Long: -122.306515 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Area was a very slightly depressed in a highly disturbed, historically scraped area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia fitchii*	30	Yes	FACU
2. *Festuca perennis*	20	Yes	FAC
3. *Leontodon saxatilis*	20	Yes	FACU
4. *Lythrum hyssopifolia*	5	No	OBL
5. *Deschampsia danthonioides*	5	No	FACW
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust 30 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	50	x 4 =	200
UPL species		x 5 =	0
Column Totals:	80 (A)		275 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: TP 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/4	54	7.5YR 4/6	4	C	PL	sandy loam	sand was course to gravelly
	10YR 4/4	40	2.5YR 4/8	1	C	PL		
			2.5Y 6/8	1	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: unknown hardpan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ○

Remarks: Area is arguably a closed depression.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 04

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): slighlty concave Slope (%): 0.3

Subregion (LRR): C - Mediterranean California Lat: 40.455534 Long: -122.306379 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Area was a very slightly depressed in a highly disturbed, historically scraped area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia fitchii*	15	Yes	FACU
2. *Lythrum hyssopifolia*	5	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 80 % % Cover of Biotic Crust 25 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	15	x 4 =	60
UPL species		x 5 =	0
Column Totals:	20 (A)		65 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

- [•] Dominance Test is >50%
- [•] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks:

SOIL

Sampling Point: TP 04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 5/4	84	5YR 4/6	5	C	PL	sandy loam	sand was course to gravelly
	10YR 6/2	10	5YR 5/8	1	C	PL		
1-5	10YR 5/4	91	5YR 4/6	4	C	PL	gravelly loam	
	10YR 6/2	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: unknown hardpan

Depth (inches): 5

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 05

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): concave Slope (%): 0.5

Subregion (LRR): C - Mediterranean California Lat: 40.456314 Long: -122.306367 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Area was within a historically man-made cross drainage ditch that no longer functions to drain anything. There were no indicators of an OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Cichorium intybus*	30	Yes	FACU
2. *Polygonum aviculare*	30	Yes	FAC
3. *Festuca perennis*	15	No	FAC
4. *Bromus hordeaceus*	10	No	FACU
5. *Rumex crispus*	5	No	FAC
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	50	x 3 =	150
FACU species	40	x 4 =	160
UPL species		x 5 =	0
Column Totals:	90 (A)		310 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: TP 05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					sandy loam	
5-10	10YR 3/3	82	5YR 4/6	3	C	PL	gravelly loam	
	10YR 5/1	15						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pit dug deep enough to determine the presence/absence of hydric soil indicators. No hydric soil indicators met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology observed other than a few sparse drainage patterns.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 06

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): slightly concave Slope (%): 0.5

Subregion (LRR): C - Mediterranean California Lat: 40.456864 Long: -122.306875 Datum: NAD 83

Soil Map Unit Name: Reiff loam, seeped, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Area was at the toe of the raised bank/levee of Tormey Drain and a man-made elevated area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus lobata*	30	Yes	FACU
2.			
3.			
4.			
Total Cover:	30 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rubus armeniacus*	25	Yes	FAC
2. *Juncus sp.*	10	No	FACW
3. *Cynodon dactylon*	5	No	FACU
4. *Rumex crispus*	5	No	FAC
5. *Geranium dissectum*	5	No	Not Listed
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	35	x 4 =	140
UPL species	5	x 5 =	25
Column Totals:	80 (A)		275 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: leaf litter present in bare ground.

SOIL

Sampling Point: TP 06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	95	7.5YR 4/6	5	C	PL	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ◉ No ○

Remarks: Soil pit dug deep enough to determine the presence/absence of hydric soil indicators. Area was arguably a closed depression.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: East Street Industrial Park Frontage Project City/County: City of Anderson Sampling Date: 02-12-20

Applicant/Owner: Insignia Builders, Inc. State: CA Sampling Point: TP 07

Investigator(s): E. Gregg Section, Township, Range: Section 15, Township 30 N, Range 4 W

Landform (hillslope, terrace, etc.): fan remnant/basin floor Local relief (concave, convex, none): none Slope (%): 0.5

Subregion (LRR): C - Mediterranean California Lat: 40.455636 Long: -122.305722 Datum: NAD 83

Soil Map Unit Name: Churn gravelly loam, deep, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Area was a flat, wide, levee-like area adjacent to the drainage.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rubus armeniacus*	85	Yes	FAC
2. *Geranium dissectum*	5	No	Not Listed
3. *Bromus hordeaceus*	5	No	FACU
4. *Rumex crispus*	3	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	98 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 2 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	88	x 3 =	264
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column Totals:	98 (A)		309 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: TP 07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	99	7.5YR 4/6	1	C	PL	clay loam	
5-10	10YR 4/3	58	5YR 4/6	2	C	PL	cobbly clay loam	
	7.5YR 5/2	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. CS=Covered or Coated Sand Grains

[2] Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils: [3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present. unless distributed or problematic

Restrictive Layer (if present):

Type: none

Depth (inches): --

Hydric Soil Present? Yes ○ No ◉

Remarks: Soil pit dug deep enough to determine the presence/absence of hydric soil indicators. No hydric soil indicators met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology observed.

Appendix B: NRCS Soils Map and Soil Series Description

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Shasta County Area, California

February 25, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shasta County Area, California
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 26, 2015—Jun 26, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CfA	Churn gravelly loam, deep, 0 to 3 percent slopes	10.3	88.0%
RmA	Reiff loam, seeped, 0 to 3 percent slopes	1.4	12.0%
Totals for Area of Interest		**11.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Shasta County Area, California

CfA—Churn gravelly loam, deep, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hfmf
Elevation: 400 to 800 feet
Mean annual precipitation: 35 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Churn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Churn

Setting

Landform: Terraces
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 13 inches: gravelly loam
H2 - 13 to 40 inches: gravelly loam
H3 - 40 to 60 inches: stratified gravelly loam to gravelly clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Cobbly alluvial land

Percent of map unit: 5 percent
Landform: Drainageways
Hydric soil rating: Yes

Honcut
Percent of map unit: 4 percent
Hydric soil rating: No

Perkins
Percent of map unit: 3 percent
Hydric soil rating: No

Tahama
Percent of map unit: 3 percent
Hydric soil rating: No

RmA—Reiff loam, seeped, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: hfs7
Elevation: 30 to 1,500 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 240 to 275 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition
Reiff and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reiff

Setting
Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile
H1 - 0 to 18 inches: loam
H2 - 18 to 62 inches: loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None

Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Honcut

Percent of map unit: 10 percent
Hydric soil rating: No

Tujunga

Percent of map unit: 5 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C: Arid West Intermittent Streams OHWM Datasheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: East Street Industrial Park
Project Number: 19-120
Stream: Unnamed Tributary of Tormey Drain
Investigator(s): E. Gregg

Date: 9-10-19 **Time:** 10:50am
Town: Anderson **State:** CA
Photo begin file#: **Photo end file#:**

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: East of HWY 273 and P.R tracks and NW of Lyndsey Ln. / end of East St.

Projection: Google Earth **Datum:** WGS 84
Coordinates: 40.454978°, -122.306962°

Potential anthropogenic influences on the channel system:
This unnamed drainage is part of the City's stormwater and irrigation system and is highly influenced by runoff from residential and commercial developments and agriculture.

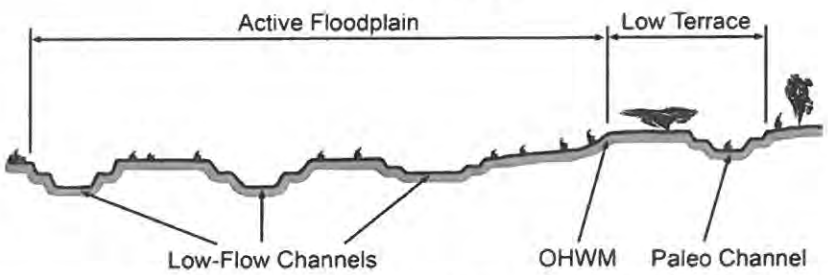
Brief site description: This drainage has been channelized with the construction of low berms/levees and is highly vegetated. Water was observed flowing in the drainage during the September field visit.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

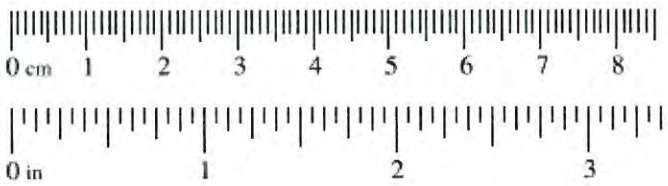


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

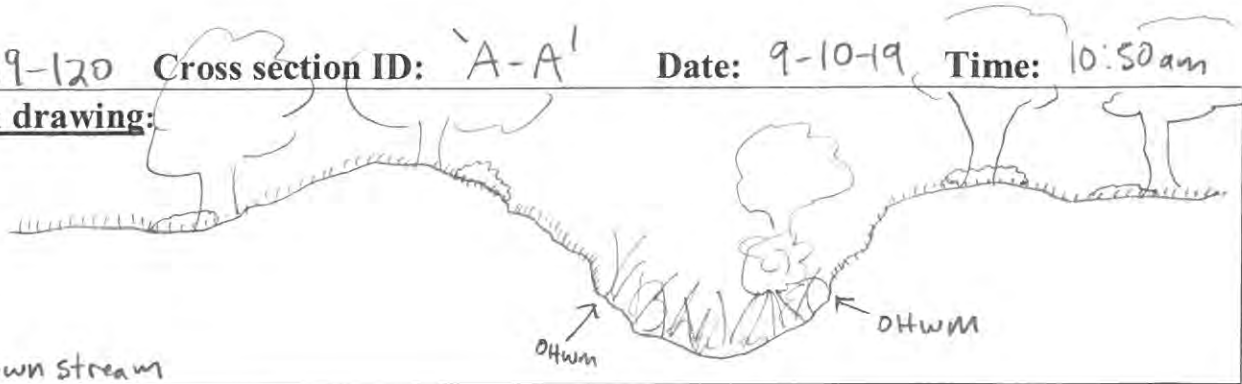
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
		Pebble	
0.157	4		
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
		Coarse sand	
0.020	0.50		
		Medium sand	Sand
1/2 0.0098	0.25		
		Fine sand	
1/4 0.005	0.125		
		Very fine sand	
1/8 0.0025	0.0625		
		Coarse silt	
1/16 0.0012	0.031		
		Medium silt	
1/32 0.00061	0.0156		Silt
		Fine silt	
1/64 0.00031	0.0078		
		Very fine silt	
1/128 0.00015	0.0039		
		Clay	Mud



Project ID: 19-120 **Cross section ID:** `A-A' **Date:** 9-10-19 **Time:** 10:50 am

Cross section drawing:



looking downstream

OHWM

GPS point: transect `A-A' → see map

Indicators:

- ☐ Change in average sediment texture
- ☒ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: exposed roots
- ☒ Other: surface relief

Comments:

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: —

Characteristics of the floodplain unit:

Average sediment texture: fine silt

Total veg cover: 190 % Tree: 90 % Shrub: 20 % Herb: 80 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: 19-120 **Cross section ID:** A-A' **Date:** 9-10-19 **Time:** 10:50 am

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: ~

Characteristics of the floodplain unit:

Average sediment texture: silt

Total veg cover: 210 % Tree: 100 % Shrub: 20 % Herb: 90 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: exposed roots
- ☒ Other: sediment deposits
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: ~

Characteristics of the floodplain unit:

Average sediment texture: gravelly loam/silt

Total veg cover: 200 % Tree: 100 % Shrub: _____ % Herb: 100 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☒ Surface relief
- ☒ Other: change in vegetation species
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appendix C

Tentative Subdivision Map No. 19-01 – East Street Industrial Park Unit 2 Project Energy Consumption Outputs

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Action	Carbon Dioxide Equivalents (CO_2e) in Metric Tons	Conversion of Metric Tons to Kilograms	Construction Equipment Emission Factor[1]	Total Gallons of Fuel Consumed
Project Construction	**819**	**819000**	**10.15**	**80,690**
	Per CalEEMod Output Files.	Per Climate Registry Equation 13e	Per Climate Registry Equation 13e	

Total Gallons Consumed During Project Construction: 80,690

Notes:

[1]Fuel used by all construction equipment, including vehicle hauling trucks, assumed to be diesel.

Sources:

Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.
http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

ECORP Consulting. 2020. Air Quality & Greenhouse Gas Impact Analysis for the Anderson East St. Project

Total Gallons During Project Operations

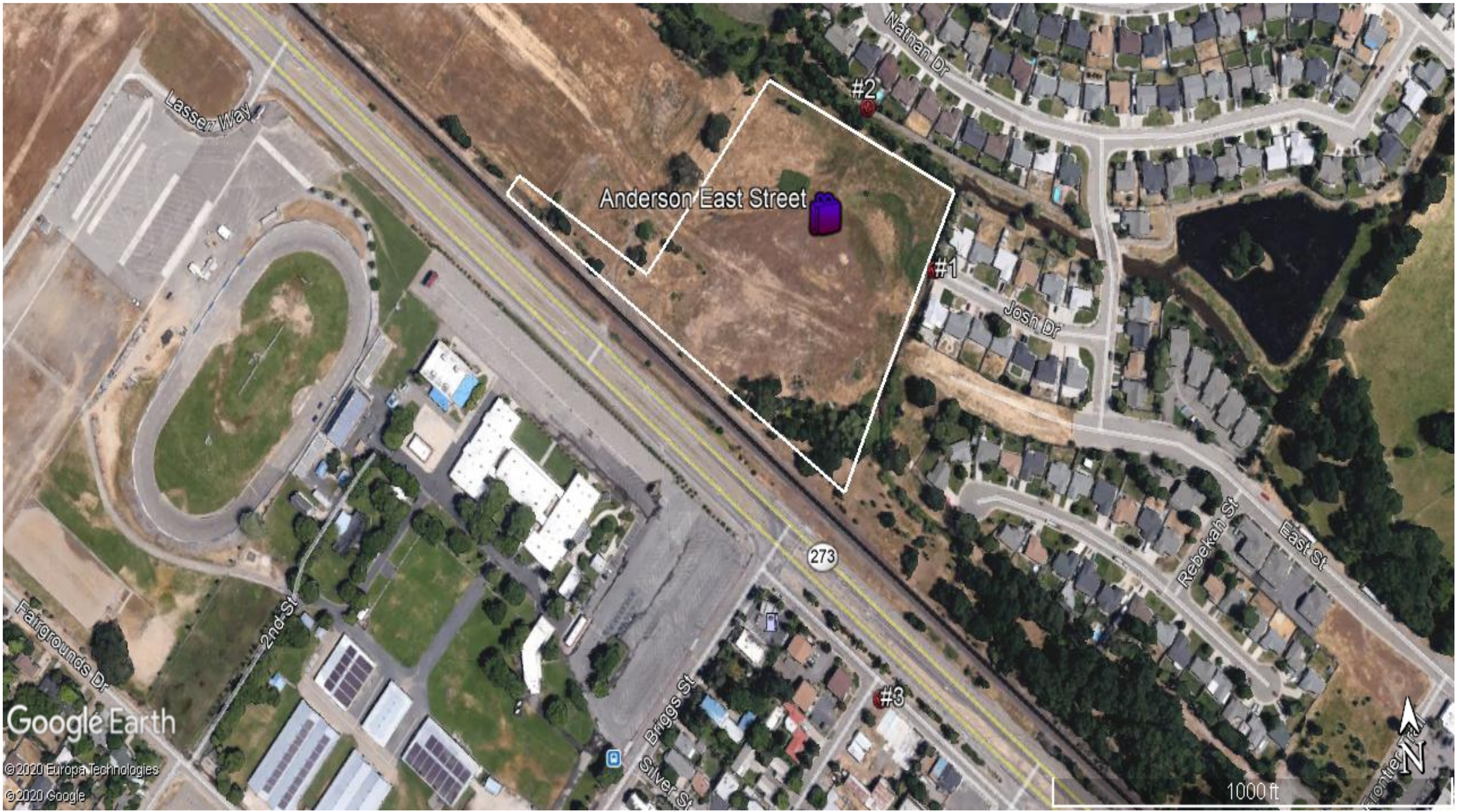
Area	Sub-Area	Cal. Year	Season	Veh_tech	EMFAC AC2007 Category	Fuel_GAS	Fuel_DSL	Daily Total	ANNUAL TOTAL
Sub-Areas	Shasta County	2022	Annual	All Vehicles	All Vehicles	203	107	310	113150

Sources:

Californai Air Resource Board. 2017. EMFAC2017 Mobile Emissions Model.

Appendix D1

Tentative Subdivision Map No. 19-01 – East Street Industrial Park Unit 2 Project Noise Measurements



Map Date: *9/21/2020*
Photo (or Base) Source: *Google Earth Pro 2020*

Anderson East Street Baseline Noise Measurement Locations

2020-157 Anderson East Street

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Site Number: 1			
Recorded By: Claire Lester			
Job Number: 2029-157			
Date: 9/23/2020			
Time: 9:59 AM			
Location: At dead end of Josh Road, in a neighborhood			
Source of Peak Noise: Cars in distance, birds chirping, and train approaching at end			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
43.3	35.5	59.5	88.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 min.		**Sky:**
	Note: dBA Offset =		**Sensor Height (ft):**
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	N 2 mph	64 F	1018 hpa

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.018	Computer's File Name	SLM_0006133_LxT_Data_018.00.ldbin
Meter	LxT1		
Firmware	2.402		
User		Location	
Description			
Note			
Start Time	2020-09-23 09:58:14	Duration	0:15:00.0
End Time	2020-09-23 10:13:14	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	43.3 dB		
LAE	72.8 dB	SEA	--- dB
EA	2.1 µPa²h		
EA8	68.2 µPa²h		
EA40	341.0 µPa²h		
LZS_{peak}	88.3 dB	2020-09-23 10:10:02	
LAS_{max}	59.5 dB	2020-09-23 10:11:42	
LAS_{min}	35.5 dB	2020-09-23 10:00:02	
LA_{eq}	43.3 dB		
LC_{eq}	57.0 dB	LC_{eq} - LA_{eq}	13.7 dB
LAI_{eq}	51.6 dB	LAI_{eq} - LA_{eq}	8.3 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
43.3 dB	43.3 dB	0.0 dB

LDEN	LDay	LEve	LNight
43.3 dB	43.3 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	43.3 dB		--- dB		--- dB	
$LS_{(max)}$	59.5 dB	2020-09-23 10:11:42	--- dB		--- dB	
$LS_{(min)}$	35.5 dB	2020-09-23 10:00:02	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		88.3 dB	2020-09-23 10:10:02

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	48.4 dB
LAS 10.0	46.0 dB
LAS 33.3	41.2 dB
LAS 50.0	39.5 dB
LAS 66.6	38.2 dB
LAS 90.0	36.9 dB

Site Number: 2			
Recorded By: Claire Lester			
Job Number: 2020-157			
Date: 9/23/2020			
Time: 9:23 AM			
Location: Bike trail near Nathan Dr.			
Source of Peak Noise: Cars in distance, birds chirping, dog barking, and AC unit from adjacent home			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
43.5	34.3	54.9	81.2

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 min.	**Sky:**	
	Note: dBA Offset =	**Sensor Height (ft):**	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	NNE 1 mph	68 F	1017 hpa

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.019	Computer's File Name	SLM_0006133_LxT_Data_019.00.ldbin
Meter	LxT1		
Firmware	2.402		
User		Location	
Description			
Note			
Start Time	2020-09-23 10:24:07	Duration	0:15:00.0
End Time	2020-09-23 10:39:07	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	43.5 dB		
LAE	73.0 dB	SEA	--- dB
EA	2.2 µPa²h		
EA8	71.4 µPa²h		
EA40	357.1 µPa²h		
LZS_{peak}	81.2 dB	2020-09-23 10:29:37	
LAS_{max}	54.9 dB	2020-09-23 10:29:27	
LAS_{min}	34.3 dB	2020-09-23 10:25:54	
LA_{eq}	43.5 dB		
LC_{eq}	58.7 dB	LC_{eq} - LA_{eq}	15.2 dB
LAI_{eq}	47.0 dB	LAI_{eq} - LA_{eq}	3.5 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	43.5 dB	43.5 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	43.5 dB	43.5 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	43.5 dB		--- dB		--- dB	
$LS_{(max)}$	54.9 dB	2020-09-23 10:29:27	--- dB		--- dB	
$LS_{(min)}$	34.3 dB	2020-09-23 10:25:54	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		81.2 dB	2020-09-23 10:29:37

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	49.5 dB
LAS 10.0	46.4 dB
LAS 33.3	42.2 dB
LAS 50.0	40.4 dB
LAS 66.6	38.7 dB
LAS 90.0	36.7 dB

Site Number: 3			
Recorded By: Claire Lester			
Job Number: 2020-157			
Date: 9/23/2020			
Time: 10:51 AM			
Location: West of Highway 273, near Chevron			
Source of Peak Noise: Cars and trucks on 273 and along adjacent frontage road. Two sports cars drove by separately.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
65.3	40.2	87.7	107.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**315201**	**9/23/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**099947**	**10/10/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**10/18/2019**	

Weather Data			
Est.	**Duration:** 15 min.	**Sky:**	
	Note: dBA Offset =	**Sensor Height (ft):**	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	E 1 mph	73 F	1017 hpa

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.020	Computer's File Name	SLM_0006133_LxT_Data_020.00.ldbin
Meter	LxT1		
Firmware	2.402		
User		Location	
Description			
Note			
Start Time	2020-09-23 10:50:46	Duration	0:15:00.0
End Time	2020-09-23 11:05:46	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.3 dB		
LAE	94.8 dB	SEA	--- dB
EA	338.8 µPa²h		
EA8	10.8 mPa²h		
EA40	54.2 mPa²h		
LZS_{peak}	107.3 dB	2020-09-23 11:02:45	
LAS_{max}	87.7 dB	2020-09-23 11:02:45	
LAS_{min}	40.2 dB	2020-09-23 10:54:08	
LA_{eq}	65.3 dB		
LC_{eq}	75.4 dB	LC_{eq} - LA_{eq}	10.1 dB
LAI_{eq}	67.5 dB	LAI_{eq} - LA_{eq}	2.2 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:02.4
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
65.3 dB	65.3 dB	0.0 dB

LDEN	LDay	LEve	LNight
65.3 dB	65.3 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.3 dB		--- dB		--- dB	
$LS_{(max)}$	87.7 dB	2020-09-23 11:02:45	--- dB		--- dB	
$LS_{(min)}$	40.2 dB	2020-09-23 10:54:08	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		107.3 dB	2020-09-23 11:02:45

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	69.3 dB
LAS 10.0	66.2 dB
LAS 33.3	60.7 dB
LAS 50.0	57.2 dB
LAS 66.6	53.5 dB
LAS 90.0	46.4 dB

Appendix D2

Tentative Subdivision Map No. 19-01 –

East Street Industrial Park Unit 2 Project

FHWA Highway Traffic Noise Prediction Model

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-157
Project Name: Anderson East Street

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Caltrans 2017
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Traffic Volumes: Calc Dist	Day	Eve
Existing															
Highway 273															
Alexander Avenue	4	11	8,900	45	0.5	1.8%	0.7%	**60.9**	-	53	115	247	100	6,915	1,130
North Street	4	11	8,900	45	0.5	1.8%	0.7%	**60.9**	-	53	115	247	100	6,915	1,130

Appendix D3

Tentative Subdivision Map No. 19-01 –
East Street Industrial Park Unit 2 Project
Roadway Construction Noise Model

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/29/2020
Case Description: Site Preparation

Description	**Sensitive Land Use**
Site Prep	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Dozer	No	40		81.7	318	0
Dozer	No	40		81.7	318	0
Dozer	No	40		81.7	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Dozer	65.6	61.6
Dozer	65.6	61.6
Dozer	65.6	61.6
Backhoe	61.5	57.5
Backhoe	61.5	57.5
Backhoe	61.5	57.5
Backhoe	61.5	57.5
Total	**65.6**	**68.2**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/29/2020
Case Description: Grading

Description	**Sensitive Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Grader	No	40	85		318	0
Dozer	No	40		81.7	318	0
Backhoe	No	40		77.6	318	0
Excavator	No	40		80.7	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Grader	68.9	65
Dozer	65.6	61.6
Backhoe	61.5	57.5
Excavator	64.6	60.7
Backhoe	61.5	57.5
Backhoe	61.5	57.5
Total	**68.9**	**68.7**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/29/2020
Case Description: Construction, Paving, and Painting

Description	**Sensitive Land Use**
Construction	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Crane	No	16		80.6	318	0
Gradall	No	40		83.4	318	0
Gradall	No	40		83.4	318	0
Gradall	No	40		83.4	318	0
Generator	No	50		80.6	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0
Backhoe	No	40		77.6	318	0
Welder / Torch	No	40		74	318	0
Paver	No	50		77.2	318	0
Paver	No	50		77.2	318	0
Paver	No	50		77.2	318	0
Paver	No	50		77.2	318	0
Roller	No	20		80	318	0
Roller	No	20		80	318	0
Compressor (air)	No	40		77.7	318	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		64.5	56.5
Gradall		67.3	63.4
Gradall		67.3	63.4
Gradall		67.3	63.4
Generator		64.6	61.6
Backhoe		61.5	57.5
Backhoe		61.5	57.5
Backhoe		61.5	57.5
Welder / Torch		57.9	54
Paver		61.2	58.1
Paver		61.2	58.1
Paver		61.2	58.1
Paver		61.2	58.1
Roller		63.9	56.9
Roller		63.9	56.9
Compressor (air)		61.6	57.6
	Total	**67.3**	**71.6**

*Calculated Lmax is the Loudest value.

Appendix D4

Tentative Subdivision Map No. 19-01 –

East Street Industrial Park Unit 2 Project

SoundPLAN 3D Noise Model

SoundPLAN

Output Source Information

Number	Reciever Name	Floor	Level at Receiver
	Anderson East Street Onsite Noise		
1	Seventh house from Willow Glenn Drive, along Nathan Drive	Ground Floor	55.2 dBA
2	Sixth house from Willow Glenn Drive, along Nathan Drive	Ground Floor	55.2 dBA
3	Fifth house from Willow Glenn Drive, along Nathan Drive	Ground Floor	53.3 dBA
4	Fourth house from Willow Glenn Drive, along Nathan Drive	Ground Floor	50.8 dBA
5	House at dead end on north side of Josh Drive	Ground Floor	57.1 dBA
6	House at dead end on south side of Josh Drive	Ground Floor	52.3 dBA
7	House located at the end of residential area, between East Street and Lindsey Lane	Ground Floor	44.5 dBA
8	Multi-family residential unit located across Hwy 273 from the Project site	Ground Floor	39.7 dBA

Number	Noise Source Information	Citation	Level at Source
1	Onsite truck noise, including backup beeper	City of San Jose 2014 Midpoint at 237 Loading Dock Noise Study	79.0 dBA

Appendix E

Tentative Subdivision Map No. 19-01 –

East Street Industrial Park Unit 2 Project

CalEEMod Greenhouse Gas Emission Outputs

Anderson East St. Industrial Project

Shasta County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	70.00	1000sqft	1.61	70,000.00	0
Parking Lot	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	2.24	Acre	2.24	97,574.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The latest PG&E CO2 intensity factor is 290 lb/MWh.

Land Use - Two parcels will be rezoed and redesignated for industrial use on 5.85 acres.

Construction Phase - Building construction, paving, and painting will occur simultaneously.

Vehicle Trips - 780 daily weekday trips (GHD 2020).

Energy Use -

Construction Off-road Equipment Mitigation - SCAQMD Rule 3-16, Fugitive, Indirect, or Non-traditional Sources.

Water Mitigation - CA water conservation standards.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	PhaseEndDate	6/22/2022	4/27/2022
tblConstructionPhase	PhaseEndDate	5/25/2022	4/27/2022
tblConstructionPhase	PhaseStartDate	5/26/2022	6/10/2021
tblConstructionPhase	PhaseStartDate	4/28/2022	6/10/2021
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	WD_TR	6.83	11.16

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					
2021	0.9040	3.1700	3.0749	6.0800e-003	0.2599	0.1507	0.4106	0.1115	0.1406	0.2522	0.0000	538.1923	538.1923	0.1128	0.0000	541.0124
2022	0.4689	1.3679	1.5520	3.1300e-003	0.0577	0.0614	0.1191	0.0156	0.0575	0.0731	0.0000	276.9245	276.9245	0.0554	0.0000	278.3085
Maximum	**0.9040**	**3.1700**	**3.0749**	**6.0800e-003**	**0.2599**	**0.1507**	**0.4106**	**0.1115**	**0.1406**	**0.2522**	**0.0000**	**538.1923**	**538.1923**	**0.1128**	**0.0000**	**541.0124**

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					
2021	0.9040	3.1700	3.0749	6.0800e-003	0.2020	0.1507	0.3526	0.0905	0.1406	0.2312	0.0000	538.1919	538.1919	0.1128	0.0000	541.0119
2022	0.4689	1.3679	1.5520	3.1300e-003	0.0385	0.0614	0.0999	0.0109	0.0575	0.0684	0.0000	276.9243	276.9243	0.0554	0.0000	278.3082
Maximum	**0.9040**	**3.1700**	**3.0749**	**6.0800e-003**	**0.2020**	**0.1507**	**0.3526**	**0.0905**	**0.1406**	**0.2312**	**0.0000**	**538.1919**	**538.1919**	**0.1128**	**0.0000**	**541.0119**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.29**	**0.00**	**14.56**	**20.21**	**0.00**	**7.90**	**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	4-1-2021	6-30-2021	0.8594	0.8594
2	7-1-2021	9-30-2021	1.6008	1.6008
3	10-1-2021	12-31-2021	1.6032	1.6032
4	1-1-2022	3-31-2022	1.4250	1.4250
5	4-1-2022	6-30-2022	0.4269	0.4269
		Highest	1.6032	1.6032

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3729	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003
Energy	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	136.7351	136.7351	9.7300e-003	2.7100e-003	137.7872
Mobile	0.2201	1.9319	2.1915	8.7700e-003	0.5439	9.2200e-003	0.5531	0.1464	8.7100e-003	0.1551	0.0000	811.4373	811.4373	0.0550	0.0000	812.8124
Waste						0.0000	0.0000		0.0000	0.0000	17.6196	0.0000	17.6196	1.0413	0.0000	43.6519
Water						0.0000	0.0000		0.0000	0.0000	5.1356	11.5218	16.6574	0.5286	0.0127	33.6555
Total	**0.5980**	**1.9767**	**2.2298**	**9.0400e-003**	**0.5439**	**0.0126**	**0.5565**	**0.1464**	**0.0121**	**0.1585**	**22.7552**	**959.6955**	**982.4507**	**1.6347**	**0.0154**	**1,027.9084**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3729	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003
Energy	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	136.7351	136.7351	9.7300e-003	2.7100e-003	137.7872
Mobile	0.2201	1.9319	2.1915	8.7700e-003	0.5439	9.2200e-003	0.5531	0.1464	8.7100e-003	0.1551	0.0000	811.4373	811.4373	0.0550	0.0000	812.8124
Waste						0.0000	0.0000		0.0000	0.0000	17.6196	0.0000	17.6196	1.0413	0.0000	43.6519
Water						0.0000	0.0000		0.0000	0.0000	4.5008	10.0977	14.5985	0.4633	0.0111	29.4956
Total	**0.5980**	**1.9767**	**2.2298**	**9.0400e-003**	**0.5439**	**0.0126**	**0.5565**	**0.1464**	**0.0121**	**0.1585**	**22.1204**	**958.2714**	**980.3919**	**1.5693**	**0.0138**	**1,023.7486**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.79**	**0.15**	**0.21**	**4.00**	**10.19**	**0.40**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/29/2021	5/12/2021	5	10	
2	Grading	Grading	5/13/2021	6/9/2021	5	20	
3	Building Construction	Building Construction	6/10/2021	4/27/2022	5	230	
4	Paving	Paving	6/10/2021	4/27/2022	5	230	
5	Architectural Coating	Architectural Coating	6/10/2021	4/27/2022	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 4.24

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 105,000; Non-Residential Outdoor: 35,000; Striped Parking Area: 11,082 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	107.00	42.00	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	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2021

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

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	3.5000e-004	2.7000e-004	2.5800e-003	1.0000e-005	7.0000e-004	1.0000e-005	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6287	0.6287	2.0000e-005	0.0000	0.6292
Total	**3.5000e-004**	**2.7000e-004**	**2.5800e-003**	**1.0000e-005**	**7.0000e-004**	**1.0000e-005**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6287**	**0.6287**	**2.0000e-005**	**0.0000**	**0.6292**

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					0.0768	0.0000	0.0768	0.0422	0.0000	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0768**	**0.0102**	**0.0870**	**0.0422**	**9.4000e-003**	**0.0516**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

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	3.5000e-004	2.7000e-004	2.5800e-003	1.0000e-005	4.6000e-004	1.0000e-005	4.7000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.6287	0.6287	2.0000e-005	0.0000	0.6292
Total	**3.5000e-004**	**2.7000e-004**	**2.5800e-003**	**1.0000e-005**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.6287**	**0.6287**	**2.0000e-005**	**0.0000**	**0.6292**

3.3 Grading - 2021

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2474	0.1586	3.0000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2644
Total	**0.0229**	**0.2474**	**0.1586**	**3.0000e-004**	**0.0655**	**0.0116**	**0.0771**	**0.0337**	**0.0107**	**0.0443**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2644**

3.3 Grading - 2021

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	5.8000e-004	4.4000e-004	4.2900e-003	1.0000e-005	1.1700e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0479	1.0479	3.0000e-005	0.0000	1.0487
Total	**5.8000e-004**	**4.4000e-004**	**4.2900e-003**	**1.0000e-005**	**1.1700e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0479**	**1.0479**	**3.0000e-005**	**0.0000**	**1.0487**

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					0.0557	0.0000	0.0557	0.0286	0.0000	0.0286	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2474	0.1586	3.0000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2643
Total	**0.0229**	**0.2474**	**0.1586**	**3.0000e-004**	**0.0557**	**0.0116**	**0.0673**	**0.0286**	**0.0107**	**0.0393**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2643**

3.3 Grading - 2021

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	5.8000e-004	4.4000e-004	4.2900e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.8000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	1.0479	1.0479	3.0000e-005	0.0000	1.0487
Total	**5.8000e-004**	**4.4000e-004**	**4.2900e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.8000e-004**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**1.0479**	**1.0479**	**3.0000e-005**	**0.0000**	**1.0487**

3.4 Building Construction - 2021

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	0.1397	1.2813	1.2183	1.9800e-003		0.0705	0.0705		0.0662	0.0662	0.0000	170.2534	170.2534	0.0411	0.0000	171.2803
Total	**0.1397**	**1.2813**	**1.2183**	**1.9800e-003**		**0.0705**	**0.0705**		**0.0662**	**0.0662**	**0.0000**	**170.2534**	**170.2534**	**0.0411**	**0.0000**	**171.2803**

3.4 Building Construction - 2021

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	0.0112	0.3453	0.0738	8.9000e-004	0.0201	1.0600e-003	0.0212	5.8200e-003	1.0200e-003	6.8400e-003	0.0000	84.1284	84.1284	6.6300e-003	0.0000	84.2942
Worker	0.0302	0.0233	0.2252	6.1000e-004	0.0615	4.5000e-004	0.0619	0.0164	4.1000e-004	0.0168	0.0000	54.9392	54.9392	1.7400e-003	0.0000	54.9826
Total	**0.0414**	**0.3686**	**0.2990**	**1.5000e-003**	**0.0815**	**1.5100e-003**	**0.0831**	**0.0222**	**1.4300e-003**	**0.0236**	**0.0000**	**139.0676**	**139.0676**	**8.3700e-003**	**0.0000**	**139.2769**

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	0.1397	1.2813	1.2183	1.9800e-003		0.0705	0.0705		0.0662	0.0662	0.0000	170.2532	170.2532	0.0411	0.0000	171.2801
Total	**0.1397**	**1.2813**	**1.2183**	**1.9800e-003**		**0.0705**	**0.0705**		**0.0662**	**0.0662**	**0.0000**	**170.2532**	**170.2532**	**0.0411**	**0.0000**	**171.2801**

3.4 Building Construction - 2021

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	0.0112	0.3453	0.0738	8.9000e-004	0.0145	1.0600e-003	0.0155	4.4400e-003	1.0200e-003	5.4500e-003	0.0000	84.1284	84.1284	6.6300e-003	0.0000	84.2942
Worker	0.0302	0.0233	0.2252	6.1000e-004	0.0403	4.5000e-004	0.0407	0.0112	4.1000e-004	0.0116	0.0000	54.9392	54.9392	1.7400e-003	0.0000	54.9826
Total	**0.0414**	**0.3686**	**0.2990**	**1.5000e-003**	**0.0547**	**1.5100e-003**	**0.0562**	**0.0156**	**1.4300e-003**	**0.0170**	**0.0000**	**139.0676**	**139.0676**	**8.3700e-003**	**0.0000**	**139.2769**

3.4 Building Construction - 2022

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	0.0708	0.6481	0.6791	1.1200e-003		0.0336	0.0336		0.0316	0.0316	0.0000	96.1660	96.1660	0.0230	0.0000	96.7419
Total	**0.0708**	**0.6481**	**0.6791**	**1.1200e-003**		**0.0336**	**0.0336**		**0.0316**	**0.0316**	**0.0000**	**96.1660**	**96.1660**	**0.0230**	**0.0000**	**96.7419**

3.4 Building Construction - 2022

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	5.8800e-003	0.1841	0.0384	5.0000e-004	0.0113	5.2000e-004	0.0119	3.2900e-003	5.0000e-004	3.7900e-003	0.0000	47.0916	47.0916	3.5900e-003	0.0000	47.1813
Worker	0.0158	0.0117	0.1153	3.3000e-004	0.0347	2.4000e-004	0.0349	9.2400e-003	2.2000e-004	9.4600e-003	0.0000	29.8976	29.8976	8.7000e-004	0.0000	29.9193
Total	**0.0217**	**0.1957**	**0.1537**	**8.3000e-004**	**0.0460**	**7.6000e-004**	**0.0468**	**0.0125**	**7.2000e-004**	**0.0133**	**0.0000**	**76.9892**	**76.9892**	**4.4600e-003**	**0.0000**	**77.1006**

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	0.0708	0.6481	0.6791	1.1200e-003		0.0336	0.0336		0.0316	0.0316	0.0000	96.1659	96.1659	0.0230	0.0000	96.7418
Total	**0.0708**	**0.6481**	**0.6791**	**1.1200e-003**		**0.0336**	**0.0336**		**0.0316**	**0.0316**	**0.0000**	**96.1659**	**96.1659**	**0.0230**	**0.0000**	**96.7418**

3.4 Building Construction - 2022

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	5.8800e-003	0.1841	0.0384	5.0000e-004	8.1700e-003	5.2000e-004	8.6900e-003	2.5100e-003	5.0000e-004	3.0100e-003	0.0000	47.0916	47.0916	3.5900e-003	0.0000	47.1813
Worker	0.0158	0.0117	0.1153	3.3000e-004	0.0227	2.4000e-004	0.0230	6.3000e-003	2.2000e-004	6.5300e-003	0.0000	29.8976	29.8976	8.7000e-004	0.0000	29.9193
Total	**0.0217**	**0.1957**	**0.1537**	**8.3000e-004**	**0.0309**	**7.6000e-004**	**0.0317**	**8.8100e-003**	**7.2000e-004**	**9.5400e-003**	**0.0000**	**76.9892**	**76.9892**	**4.4600e-003**	**0.0000**	**77.1006**

3.5 Paving - 2021

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	0.0923	0.9496	1.0770	1.6800e-003		0.0498	0.0498		0.0458	0.0458	0.0000	147.1726	147.1726	0.0476	0.0000	148.3625
Paving	1.6700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0940**	**0.9496**	**1.0770**	**1.6800e-003**		**0.0498**	**0.0498**		**0.0458**	**0.0458**	**0.0000**	**147.1726**	**147.1726**	**0.0476**	**0.0000**	**148.3625**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2300e-003	3.2600e-003	0.0316	9.0000e-005	8.6100e-003	6.0000e-005	8.6800e-003	2.2900e-003	6.0000e-005	2.3500e-003	0.0000	7.7018	7.7018	2.4000e-004	0.0000	7.7078
Total	**4.2300e-003**	**3.2600e-003**	**0.0316**	**9.0000e-005**	**8.6100e-003**	**6.0000e-005**	**8.6800e-003**	**2.2900e-003**	**6.0000e-005**	**2.3500e-003**	**0.0000**	**7.7018**	**7.7018**	**2.4000e-004**	**0.0000**	**7.7078**

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	0.0923	0.9496	1.0770	1.6800e-003		0.0498	0.0498		0.0458	0.0458	0.0000	147.1724	147.1724	0.0476	0.0000	148.3624
Paving	1.6700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0940**	**0.9496**	**1.0770**	**1.6800e-003**		**0.0498**	**0.0498**		**0.0458**	**0.0458**	**0.0000**	**147.1724**	**147.1724**	**0.0476**	**0.0000**	**148.3624**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2300e-003	3.2600e-003	0.0316	9.0000e-005	5.6400e-003	6.0000e-005	5.7100e-003	1.5600e-003	6.0000e-005	1.6200e-003	0.0000	7.7018	7.7018	2.4000e-004	0.0000	7.7078
Total	**4.2300e-003**	**3.2600e-003**	**0.0316**	**9.0000e-005**	**5.6400e-003**	**6.0000e-005**	**5.7100e-003**	**1.5600e-003**	**6.0000e-005**	**1.6200e-003**	**0.0000**	**7.7018**	**7.7018**	**2.4000e-004**	**0.0000**	**7.7078**

3.5 Paving - 2022

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	0.0458	0.4617	0.6051	9.5000e-004		0.0236	0.0236		0.0217	0.0217	0.0000	83.1144	83.1144	0.0269	0.0000	83.7864
Paving	9.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0467**	**0.4617**	**0.6051**	**9.5000e-004**		**0.0236**	**0.0236**		**0.0217**	**0.0217**	**0.0000**	**83.1144**	**83.1144**	**0.0269**	**0.0000**	**83.7864**

3.5 Paving - 2022

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	2.2200e-003	1.6400e-003	0.0162	5.0000e-005	4.8600e-003	3.0000e-005	4.9000e-003	1.3000e-003	3.0000e-005	1.3300e-003	0.0000	4.1913	4.1913	1.2000e-004	0.0000	4.1943
Total	**2.2200e-003**	**1.6400e-003**	**0.0162**	**5.0000e-005**	**4.8600e-003**	**3.0000e-005**	**4.9000e-003**	**1.3000e-003**	**3.0000e-005**	**1.3300e-003**	**0.0000**	**4.1913**	**4.1913**	**1.2000e-004**	**0.0000**	**4.1943**

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	0.0458	0.4617	0.6051	9.5000e-004		0.0236	0.0236		0.0217	0.0217	0.0000	83.1143	83.1143	0.0269	0.0000	83.7863
Paving	9.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0467**	**0.4617**	**0.6051**	**9.5000e-004**		**0.0236**	**0.0236**		**0.0217**	**0.0217**	**0.0000**	**83.1143**	**83.1143**	**0.0269**	**0.0000**	**83.7863**

3.5 Paving - 2022

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	2.2200e-003	1.6400e-003	0.0162	5.0000e-005	3.1900e-003	3.0000e-005	3.2200e-003	8.8000e-004	3.0000e-005	9.1000e-004	0.0000	4.1913	4.1913	1.2000e-004	0.0000	4.1943
Total	**2.2200e-003**	**1.6400e-003**	**0.0162**	**5.0000e-005**	**3.1900e-003**	**3.0000e-005**	**3.2200e-003**	**8.8000e-004**	**3.0000e-005**	**9.1000e-004**	**0.0000**	**4.1913**	**4.1913**	**1.2000e-004**	**0.0000**	**4.1943**

3.6 Architectural Coating - 2021

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	0.5595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0161	0.1122	0.1336	2.2000e-004		6.9200e-003	6.9200e-003		6.9200e-003	6.9200e-003	0.0000	18.7664	18.7664	1.2900e-003	0.0000	18.7986
Total	**0.5755**	**0.1122**	**0.1336**	**2.2000e-004**		**6.9200e-003**	**6.9200e-003**		**6.9200e-003**	**6.9200e-003**	**0.0000**	**18.7664**	**18.7664**	**1.2900e-003**	**0.0000**	**18.7986**

3.6 Architectural Coating - 2021

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	5.9300e-003	4.5600e-003	0.0442	1.2000e-004	0.0121	9.0000e-005	0.0122	3.2100e-003	8.0000e-005	3.2900e-003	0.0000	10.7825	10.7825	3.4000e-004	0.0000	10.7910
Total	**5.9300e-003**	**4.5600e-003**	**0.0442**	**1.2000e-004**	**0.0121**	**9.0000e-005**	**0.0122**	**3.2100e-003**	**8.0000e-005**	**3.2900e-003**	**0.0000**	**10.7825**	**10.7825**	**3.4000e-004**	**0.0000**	**10.7910**

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	0.5595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0161	0.1122	0.1336	2.2000e-004		6.9200e-003	6.9200e-003		6.9200e-003	6.9200e-003	0.0000	18.7664	18.7664	1.2900e-003	0.0000	18.7986
Total	**0.5755**	**0.1122**	**0.1336**	**2.2000e-004**		**6.9200e-003**	**6.9200e-003**		**6.9200e-003**	**6.9200e-003**	**0.0000**	**18.7664**	**18.7664**	**1.2900e-003**	**0.0000**	**18.7986**

3.6 Architectural Coating - 2021

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	5.9300e-003	4.5600e-003	0.0442	1.2000e-004	7.9000e-003	9.0000e-005	7.9900e-003	2.1900e-003	8.0000e-005	2.2700e-003	0.0000	10.7825	10.7825	3.4000e-004	0.0000	10.7910
Total	**5.9300e-003**	**4.5600e-003**	**0.0442**	**1.2000e-004**	**7.9000e-003**	**9.0000e-005**	**7.9900e-003**	**2.1900e-003**	**8.0000e-005**	**2.2700e-003**	**0.0000**	**10.7825**	**10.7825**	**3.4000e-004**	**0.0000**	**10.7910**

3.6 Architectural Coating - 2022

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	0.3159					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4900e-003	0.0585	0.0753	1.2000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	10.5960	10.5960	6.9000e-004	0.0000	10.6133
Total	**0.3244**	**0.0585**	**0.0753**	**1.2000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**10.5960**	**10.5960**	**6.9000e-004**	**0.0000**	**10.6133**

3.6 Architectural Coating - 2022

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	3.1100e-003	2.2900e-003	0.0226	6.0000e-005	6.8100e-003	5.0000e-005	6.8600e-003	1.8100e-003	4.0000e-005	1.8600e-003	0.0000	5.8678	5.8678	1.7000e-004	0.0000	5.8720
Total	**3.1100e-003**	**2.2900e-003**	**0.0226**	**6.0000e-005**	**6.8100e-003**	**5.0000e-005**	**6.8600e-003**	**1.8100e-003**	**4.0000e-005**	**1.8600e-003**	**0.0000**	**5.8678**	**5.8678**	**1.7000e-004**	**0.0000**	**5.8720**

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	0.3159					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4900e-003	0.0585	0.0753	1.2000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	10.5960	10.5960	6.9000e-004	0.0000	10.6132
Total	**0.3244**	**0.0585**	**0.0753**	**1.2000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**10.5960**	**10.5960**	**6.9000e-004**	**0.0000**	**10.6132**

3.6 Architectural Coating - 2022

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	3.1100e-003	2.2900e-003	0.0226	6.0000e-005	4.4600e-003	5.0000e-005	4.5100e-003	1.2400e-003	4.0000e-005	1.2800e-003	0.0000	5.8678	5.8678	1.7000e-004	0.0000	5.8720
Total	**3.1100e-003**	**2.2900e-003**	**0.0226**	**6.0000e-005**	**4.4600e-003**	**5.0000e-005**	**4.5100e-003**	**1.2400e-003**	**4.0000e-005**	**1.2800e-003**	**0.0000**	**5.8678**	**5.8678**	**1.7000e-004**	**0.0000**	**5.8720**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2201	1.9319	2.1915	8.7700e-003	0.5439	9.2200e-003	0.5531	0.1464	8.7100e-003	0.1551	0.0000	811.4373	811.4373	0.0550	0.0000	812.8124
Unmitigated	0.2201	1.9319	2.1915	8.7700e-003	0.5439	9.2200e-003	0.5531	0.1464	8.7100e-003	0.1551	0.0000	811.4373	811.4373	0.0550	0.0000	812.8124

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	781.20	0.00	0.00	1,462,980	1,462,980
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	781.20	0.00	0.00	1,462,980	1,462,980

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
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Non-Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	87.9873	87.9873	8.8000e-003	1.8200e-003	88.7497
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	87.9873	87.9873	8.8000e-003	1.8200e-003	88.7497
NaturalGas Mitigated	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	48.7478	48.7478	9.3000e-004	8.9000e-004	49.0375
NaturalGas Unmitigated	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	48.7478	48.7478	9.3000e-004	8.9000e-004	49.0375

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					
Industrial Park	913500	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	48.7478	48.7478	9.3000e-004	8.9000e-004	49.0375
Other Non-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
Parking Lot	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		**4.9300e-003**	**0.0448**	**0.0376**	**2.7000e-004**		**3.4000e-003**	**3.4000e-003**		**3.4000e-003**	**3.4000e-003**	**0.0000**	**48.7478**	**48.7478**	**9.3000e-004**	**8.9000e-004**	**49.0375**

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					
Industrial Park	913500	4.9300e-003	0.0448	0.0376	2.7000e-004		3.4000e-003	3.4000e-003		3.4000e-003	3.4000e-003	0.0000	48.7478	48.7478	9.3000e-004	8.9000e-004	49.0375
Other Non-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
Parking Lot	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		**4.9300e-003**	**0.0448**	**0.0376**	**2.7000e-004**		**3.4000e-003**	**3.4000e-003**		**3.4000e-003**	**3.4000e-003**	**0.0000**	**48.7478**	**48.7478**	**9.3000e-004**	**8.9000e-004**	**49.0375**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	638400	83.9763	8.4000e-003	1.7400e-003	84.7040
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	30492	4.0110	4.0000e-004	8.0000e-005	4.0457
Total		**87.9873**	**8.8000e-003**	**1.8200e-003**	**88.7497**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	638400	83.9763	8.4000e-003	1.7400e-003	84.7040
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	30492	4.0110	4.0000e-004	8.0000e-005	4.0457
Total		**87.9873**	**8.8000e-003**	**1.8200e-003**	**88.7497**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3729	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003
Unmitigated	0.3729	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2853					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003
Total	**0.3729**	**1.0000e-005**	**6.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3300e-003**	**1.3300e-003**	**0.0000**	**0.0000**	**1.4100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2853					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3300e-003	1.3300e-003	0.0000	0.0000	1.4100e-003
Total	**0.3729**	**1.0000e-005**	**6.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3300e-003**	**1.3300e-003**	**0.0000**	**0.0000**	**1.4100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.5985	0.4633	0.0111	29.4956
Unmitigated	16.6574	0.5286	0.0127	33.6555

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	16.1875 / 0	16.6574	0.5286	0.0127	33.6555
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**16.6574**	**0.5286**	**0.0127**	**33.6555**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	14.1867 / 0	14.5985	0.4633	0.0111	29.4956
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.5985**	**0.4633**	**0.0111**	**29.4956**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.6196	1.0413	0.0000	43.6519
Unmitigated	17.6196	1.0413	0.0000	43.6519

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	86.8	17.6196	1.0413	0.0000	43.6519
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6196**	**1.0413**	**0.0000**	**43.6519**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	86.8	17.6196	1.0413	0.0000	43.6519
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.6196**	**1.0413**	**0.0000**	**43.6519**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix F

East Street Industrial Park Unit 2 (TM 19-01)

Traffic Impact Review

March 23, 2020

Reference No. P8612LTR001

City of Anderson
Development Services Department
1887 Howard Street
Anderson, CA 96007

Original Sent Via Email

Re: East Street Industrial Park Unit 2 (TM 19-01)
Traffic Impact Review

1. Introduction

The project proposal consists of a General Plan Amendment, Tentative Subdivision Map, Rezone to Heavy Commercial and creation of 18 parcels. The project is located along East Street in the City of Anderson.

On December 10, 2019, City staff indicated the project application was incomplete and requested a traffic impact memorandum.

This memorandum provides a qualitative review of the impact on transportation facilities in the City of Anderson, specifically:

1. Quantification of the vehicular trip generation associated with the project for typical weekday AM and PM peak hours.

2. A review of bicycle and pedestrian facilities and project impacts.

3. Recommendations related to mitigating project impacts.

2. General Plan Goals and Objectives

The City of Anderson's 2007-2027 General Plan Circulation Element contains the following goals and objectives that relate to transportation and this project:

Objectives, Circulation: To ensure the development of a multimodal circulation system which will be both safe and efficient.

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Streets and Roadways Policies (SP):

SP-1 Provide a street system which will adequately serve homes, business, industry, recreation and other uses as they develop in accordance with the Land Use Plan.

SP-4 Provide an overall street pattern that has a functional relationship to land uses, accommodates future traffic volumes, and includes a wide variety of street types and designs to foster connectivity and walkability. (Land Use Element) (Health and Safety Element)

SP-5 Provide bicycle and pedestrian trails and facilities within and between residential areas. (Health and Safety Element)

SP-8 Strive to maintain Level of Service (LOS) D as the minimum acceptable service standard for intersections during peak periods.

SP-9 Provide easy access for trucks and employees from employment centers to major through routes. Provide signage to direct trucks to appropriate truck routes. Direct non-local traffic onto collector streets and arterials.

SP-10 Monitor, improve and enhance traffic safety and reduce the potential for traffic accidents.

SP-11 Maintain traffic speeds and volumes on neighborhood streets consistent with residential land uses through design and use of traffic calming measures.

SP-12 Provide adequate capacity (such as bike lanes and bus turn-outs) on collector and arterial streets to accommodate multi-modal travel within the City.

SP-13 Address future roadway needs through both new road construction and management of existing and planned roadway capacity.

SP-14 Maintain an infrastructure fees and other funding programs adequate to assure sufficient financing and land to maintain and achieve prescribed Levels of Service.

SP-16 Review all new development proposals with public safety personnel to ensure adequate emergency access during construction and operation of the development.

Bicycle and Pedestrian Circulation Policies (BP)

BP-1 Provide bicycle and pedestrian transportation areas on all arterial and collector streets.

BP-2 Bicycle and pedestrian routes shall lead to schools, shopping centers, recreational areas and connect with regional bikeway systems.

BP-3 Provide maximum opportunities for bicycle and pedestrian circulation on existing and new roadway facilities.

BP-4 Enhance opportunities for bicycle and pedestrian activity in new public and private development projects.

BP-5 Create a bicycle and pedestrian system that provides connections throughout Anderson and with neighboring areas, and serves both recreational and commuter users.

BP-6 Design new roadway facilities to accommodate bicycle and pedestrian traffic. Include Class I, II or III bicycle facilities as appropriate. Through the Design Review process, provide sidewalks to all roads, except in cases where very low pedestrian volumes and/or safety considerations preclude sidewalks.

Parking Policies (PP):

PP-1 Parking requirements shall ensure attractive, safe and adequate parking for each type of land use.

PP-2 Parking facilities should be used to encourage car-pools.

PP-3 Designs for shaded pedestrian connections should be included in all parking facilities.

Public Transportation Policies (TP):

TP-1 Ensure that new roadways and facilities can accommodate public transit.

TP-2 Ensure that new public and private development supports public transit.

Figure 3.5.1 Circulation Plan:

East Street, between South Street and Alexander Avenue, is designated as a Collector or Future Collector.

Figure 3.5.2 Truck Routes:

East Street is not a designated truck route.

Figure 3.5.3 Bicycle Routes:

A portion of existing East Street, which connects to Alexander Avenue, is designated as a Bike Route.

3. Vehicular Trip Generation

The project proposes 18 parcels that will range from approximately 0.5 to 0.6 acres. The net developable acreage is approximately 8.0. A review of similar heavy commercial developments in the vicinity of the project found floor area ratios (the ratio of building areas to total lot acreage) to range from 10% - 33% with a weighted average of 20%. Thus, the estimated cumulative building area for the project is ~70,000 square feet.

The *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition,* was used to estimate the vehicular trip generation for full development of the project. ITE Land Use Code 130, Industrial Park, was used to estimate vehicular trip generation. Vehicular trip generation is estimated to be:

- Weekday AM Peak Hour: 86 trips
- Weekday PM Peak Hour: 106 trips
- Weekday Daily: 780 trips

Note: The above Weekday AM Peak Hour and Weekday PM Peak Hour trips were estimated based on data for developments with less than 200,000 square feet of gross floor area. The Weekday Daily trips was estimated using the fitted curve equation.

4. Non-Motorized Transportation

4.1 Pedestrian Transportation

The project proposes to extend East Street, from its current terminus at Willow Glen Drive, for approximately ¼ mile northwesterly in the general direction of the existing East Street stub that connects to Alexander Avenue. The City's development ordinances will require construction of City-standard sidewalks along development frontages and the Tentative Map (dated 2/4/2020) shows construction of sidewalk to connect to existing facilities at Willow Glen Drive.

The City of Anderson's Active Transportation Plan (ATP) is embedded in the 2018 Go Shasta Regional Active Transportation Plan. The Go Shasta plan does not make any project recommendations related to the immediate area of the project.

4.2 Bicycle Transportation

The Go Shasta plan (referenced in the "Pedestrian Transportation" section) recommends East Street have bike lanes in the future. The Tentative Map (dated 2/4/2020) shows East Street will be constructed with a curb-to-curb width of 46-feet. In the future, when East Street is extended to Alexander Avenue, the City may consider striping a bike lane on East Street within the project limits.

5. Project Vehicular Impacts

5.1 Background Context

Numerous traffic studies have been performed over the last 20 years that considered the traffic conditions on North Street. Some examples include:

- Tormey Estates, Approved 2004
- Premier West Bank, Approved 2006

- Willow Glen Estates, Approved 2006
- The Vinyards at Anderson, Approved 2010
- TLF Ventures Condo Project at North/Stingy, Approved 2010

The population in Anderson has nominally grown as indicated below (https://www.census.gov/quickfacts/andersoncitycalifornia):

- Year 2000: 9,022 persons
- Year 2010: 9,932 persons
- Year 2018, 10,476 persons

Note: The above population figures result in approximately 18% projected total growth from Year 2000 to Year 2020.

While the overall growth in Anderson has been nominal, approximately 250 dwelling units have been constructed in the last 20+/- years that take their access from East Street or Oak Street.

5.2 Vehicle Traffic Thresholds and Levels of Service (LOS)

Pursuant to the City of Anderson's General Plan Policy SP-8, the City strives to maintain Level of Service (LOS) D as the minimum acceptable service standard for intersections during peak periods.

A review of previous traffic studies and the current context indicates that the primary access point to the project, the East Street / North Street intersection, operates at LOS D or better during weekday peak periods and will continue to do so under the *Existing Plus Project Conditions.*

Pursuant to the City of Anderson's General Plan Right of Way Requirements table, the maximum daily traffic on East Street should be limited to 12,000 vehicles per day.

A review of previous traffic studies and the current context indicates that East Street has far less than 12,000 vehicles per day and will continue to do so under the *Existing Plus Project Conditions.*

For *Cumulative* and *Cumulative Plus Project Conditions* (Year 2040+/-), East Street can be assumed to be directly connected between North Street and Alexander Avenue.

The zoning for the future extension of East Street (to Alexander Avenue) is Heavy Commercial, Light Industrial and Heavy Industrial.

East Street, can be expected to serve less than 12,000 vehicles per day upon buildout of the corridor under the *Cumulative Plus Project Conditions.*

The East Street / North Street intersection can be expected to operate at worse than LOS D during weekday peal periods under the *Cumulative Plus Project Conditions.* As the City continues to grow, and

further development occurs along an extension of East Street, a traffic signal or modern roundabout will be needed for the East Street / North Street intersection.

The City has a Traffic Impact Fee (TIF) program intended to have each new development pay fees to mitigate their cumulative traffic impacts. At the time of occupancy of buildings on the parcels created by this project, payment of the required TIF will mitigate the project's cumulative traffic impacts.

6. Conclusions and Recommendations

1. The projects traffic impact may be significant in the cumulative conditions. Payment of City TIF's will mitigate the cumulative traffic impact of the project.
2. The City's Public Works Director will need to ascertain the acceptability of the minimum centerline radii and minimum tangent distances proposed for East Street.
3. At the time of improvement plan review, the corner sight distance at the East Street / Josh Drive intersection will need to be reviewed and parking restrictions implemented if necessary to provide appropriate corner sight distance.

Sincerely,

GHD

Russell A. Wenham, PE, TE, PTOE

RW/rw/P8612LTR001.docx

cc: Duane K. Miller Civil Engineer, Inc.
Insigna Builders
City of Anderson Public Works Department