TECHNICAL DETAIL

Oak Knoll Mixed Use Community Plan
Health Risk Assessment

Prepared by:

RCH Group
11060 White Rock Road
Rancho Cordova, California 95670

July 14, 2016

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Phase I (Off-Site Hauling)
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2017	0.080	0.104	1,090	10.0	0.85	14.6
2	2018	0.090	0.075	1,090	10.0	0.85	10.5
3	2019	0.061	0.064	745	4.75	0.72	2.45
4	2020	0.098	0.069	745	3.00	0.72	1.66
5	2021	0.064	0.047	745	3.00	0.72	1.13
6	2022	0.036	0.011	745	3.00	0.72	0.26
7	2023	0.008	0.001	745	3.00	0.72	0.02
8	2024			745	3.00	0.72	-
9	2025			745	3.00	0.72	-
10	2026			745	3.00	0.72	-
11	2027			745	3.00	0.72	-
12	2028			745	3.00	0.72	-
13	2029			745	3.00	0.72	-
14	2030			745	3.00	0.72	-
15	2031			745	3.00	0.72	-
16	2032			745	3.00	0.72	-
17	2033			335	1.70	0.73	-
18	2034			335	1.00	0.73	-
19	2035			335	1.00	0.73	-
20	2036			335	1.00	0.73	-
21	2037			335	1.00	0.73	-
22	2038			335	1.00	0.73	-
23	2039			335	1.00	0.73	-
24	2040			335	1.00	0.73	-
25	2041			335	1.00	0.73	-
26	2042			335	1.00	0.73	-
27	2043			335	1.00	0.73	-
28	2044			335	1.00	0.73	-
29	2045			335	1.00	0.73	-
30	2046			335	1.00	0.73	-

0.1	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
30.6	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.65	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
30.6	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

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2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Phase II
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.090	0.075	1,090	10.0	0.85	10.5
2	2019	0.061	0.064	1,090	10.0	0.85	8.89
3	2020	0.098	0.069	745	4.75	0.72	2.63
4	2021	0.064	0.047	745	3.00	0.72	1.13
5	2022	0.036	0.011	745	3.00	0.72	0.26
6	2023	0.008	0.001	745	3.00	0.72	0.02
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.1	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.01	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
23.4	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.47	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
23.4	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

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2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
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745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Phase III
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2020	0.098	0.069	1,090	10.0	0.85	9.6
2	2021	0.064	0.047	1,090	10.0	0.85	6.5
3	2022	0.036	0.011	745	4.75	0.72	0.42
4	2023	0.008	0.001	745	3.00	0.72	0.02
5	2024			745	3.00	0.72	-
6	2025			745	3.00	0.72	-
7	2026			745	3.00	0.72	-
8	2027			745	3.00	0.72	-
9	2028			745	3.00	0.72	-
10	2029			745	3.00	0.72	-
11	2030			745	3.00	0.72	-
12	2031			745	3.00	0.72	-
13	2032			745	3.00	0.72	-
14	2033			745	3.00	0.72	-
15	2034			745	3.00	0.72	-
16	2035			745	3.00	0.72	-
17	2036			335	1.70	0.73	-
18	2037			335	1.00	0.73	-
19	2038			335	1.00	0.73	-
20	2039			335	1.00	0.73	-
21	2040			335	1.00	0.73	-
22	2041			335	1.00	0.73	-
23	2042			335	1.00	0.73	-
24	2043			335	1.00	0.73	-
25	2044			335	1.00	0.73	-
26	2045			335	1.00	0.73	-
27	2046			335	1.00	0.73	-
28	2047			335	1.00	0.73	-
29	2048			335	1.00	0.73	-
30	2049			335	1.00	0.73	-

0.1	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.01	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
16.5	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.43	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
16.5	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase I (Off-Site Hauling)
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2017	0.012	0.016	1,090	10.0	0.85	2.21
2	2018	0.008	0.007	1,090	10.0	0.85	1.00
3	2019	0.007	0.007	745	4.75	0.72	0.27
4	2020	0.011	0.008	745	3.00	0.72	0.20
5	2021	0.010	0.007	745	3.00	0.72	0.17
6	2022	0.006	0.002	745	3.00	0.72	0.05
7	2023	0.002	0.000	745	3.00	0.72	0.00
8	2024			745	3.00	0.72	-
9	2025			745	3.00	0.72	-
10	2026			745	3.00	0.72	-
11	2027			745	3.00	0.72	-
12	2028			745	3.00	0.72	-
13	2029			745	3.00	0.72	-
14	2030			745	3.00	0.72	-
15	2031			745	3.00	0.72	-
16	2032			745	3.00	0.72	-
17	2033			335	1.70	0.73	-
18	2034			335	1.00	0.73	-
19	2035			335	1.00	0.73	-
20	2036			335	1.00	0.73	-
21	2037			335	1.00	0.73	-
22	2038			335	1.00	0.73	-
23	2039			335	1.00	0.73	-
24	2040			335	1.00	0.73	-
25	2041			335	1.00	0.73	-
26	2042			335	1.00	0.73	-
27	2043			335	1.00	0.73	-
28	2044			335	1.00	0.73	-
29	2045			335	1.00	0.73	-
30	2046			335	1.00	0.73	-

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
3.90	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.10	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
3.90	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase II
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.008	0.007	1,090	10.0	0.85	1.00
2	2019	0.007	0.007	1,090	10.0	0.85	1.00
3	2020	0.011	0.008	745	4.75	0.72	0.32
4	2021	0.010	0.007	745	3.00	0.72	0.17
5	2022	0.006	0.002	745	3.00	0.72	0.05
6	2023	0.002	0.000	745	3.00	0.72	0.00
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.54	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.05	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
2.54	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

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2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
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0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase III
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2020	0.011	0.008	1,090	10.0	0.85	1.18
2	2021	0.010	0.007	1,090	10.0	0.85	0.98
3	2022	0.006	0.002	745	4.75	0.72	0.07
4	2023	0.002	0.000	745	3.00	0.72	0.00
5	2024			745	3.00	0.72	-
6	2025			745	3.00	0.72	-
7	2026			745	3.00	0.72	-
8	2027			745	3.00	0.72	-
9	2028			745	3.00	0.72	-
10	2029			745	3.00	0.72	-
11	2030			745	3.00	0.72	-
12	2031			745	3.00	0.72	-
13	2032			745	3.00	0.72	-
14	2033			745	3.00	0.72	-
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23	2042			335	1.00	0.73	-
24	2043			335	1.00	0.73	-
25	2044			335	1.00	0.73	-
26	2045			335	1.00	0.73	-
27	2046			335	1.00	0.73	-
28	2047			335	1.00	0.73	-
29	2048			335	1.00	0.73	-
30	2049			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.23	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.05	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
2.23	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

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Episode:	Phase I (On-Site Processing)
Receptor:	Existing

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12	2028			745	3.00	0.72	-
13	2029			745	3.00	0.72	-
14	2030			745	3.00	0.72	-
15	2031			745	3.00	0.72	-
16	2032			745	3.00	0.72	-
17	2033			335	1.70	0.73	-
18	2034			335	1.00	0.73	-
19	2035			335	1.00	0.73	-
20	2036			335	1.00	0.73	-
21	2037			335	1.00	0.73	-
22	2038			335	1.00	0.73	-
23	2039			335	1.00	0.73	-
24	2040			335	1.00	0.73	-
25	2041			335	1.00	0.73	-
26	2042			335	1.00	0.73	-
27	2043			335	1.00	0.73	-
28	2044			335	1.00	0.73	-
29	2045			335	1.00	0.73	-
30	2046			335	1.00	0.73	-

0.14	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.03	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
35.9	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.89	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
35.9	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Phase II
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.090	0.075	1,090	10.0	0.85	10.5
2	2019	0.061	0.064	1,090	10.0	0.85	8.89
3	2020	0.098	0.069	745	4.75	0.72	2.63
4	2021	0.064	0.047	745	3.00	0.72	1.13
5	2022	0.036	0.011	745	3.00	0.72	0.26
6	2023	0.008	0.001	745	3.00	0.72	0.02
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.07	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.01	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
23.4	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.47	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
23.4	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Phase III
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2020	0.098	0.069	1,090	10.0	0.85	9.6
2	2021	0.064	0.047	1,090	10.0	0.85	6.5
3	2022	0.036	0.011	745	4.75	0.72	0.42
4	2023	0.008	0.001	745	3.00	0.72	0.02
5	2024			745	3.00	0.72	-
6	2025			745	3.00	0.72	-
7	2026			745	3.00	0.72	-
8	2027			745	3.00	0.72	-
9	2028			745	3.00	0.72	-
10	2029			745	3.00	0.72	-
11	2030			745	3.00	0.72	-
12	2031			745	3.00	0.72	-
13	2032			745	3.00	0.72	-
14	2033			745	3.00	0.72	-
15	2034			745	3.00	0.72	-
16	2035			745	3.00	0.72	-
17	2036			335	1.70	0.73	-
18	2037			335	1.00	0.73	-
19	2038			335	1.00	0.73	-
20	2039			335	1.00	0.73	-
21	2040			335	1.00	0.73	-
22	2041			335	1.00	0.73	-
23	2042			335	1.00	0.73	-
24	2043			335	1.00	0.73	-
25	2044			335	1.00	0.73	-
26	2045			335	1.00	0.73	-
27	2046			335	1.00	0.73	-
28	2047			335	1.00	0.73	-
29	2048			335	1.00	0.73	-
30	2049			335	1.00	0.73	-

0.07	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.01	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.04	Acute Hazard Impact
1	Significance Threshold
No	Significant?
16.5	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
0.43	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
16.5	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase I (On-Site Processing)
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2017	0.008	0.011	1,090	10.0	0.85	1.51
2	2018	0.008	0.007	1,090	10.0	0.85	1.00
3	2019	0.007	0.007	745	4.75	0.72	0.27
4	2020	0.011	0.008	745	3.00	0.72	0.20
5	2021	0.010	0.007	745	3.00	0.72	0.17
6	2022	0.006	0.002	745	3.00	0.72	0.05
7	2023	0.002	0.000	745	3.00	0.72	0.00
8	2024			745	3.00	0.72	-
9	2025			745	3.00	0.72	-
10	2026			745	3.00	0.72	-
11	2027			745	3.00	0.72	-
12	2028			745	3.00	0.72	-
13	2029			745	3.00	0.72	-
14	2030			745	3.00	0.72	-
15	2031			745	3.00	0.72	-
16	2032			745	3.00	0.72	-
17	2033			335	1.70	0.73	-
18	2034			335	1.00	0.73	-
19	2035			335	1.00	0.73	-
20	2036			335	1.00	0.73	-
21	2037			335	1.00	0.73	-
22	2038			335	1.00	0.73	-
23	2039			335	1.00	0.73	-
24	2040			335	1.00	0.73	-
25	2041			335	1.00	0.73	-
26	2042			335	1.00	0.73	-
27	2043			335	1.00	0.73	-
28	2044			335	1.00	0.73	-
29	2045			335	1.00	0.73	-
30	2046			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
3.20	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.07	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
3.20	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase II
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.008	0.007	1,090	10.0	0.85	1.00
2	2019	0.007	0.007	1,090	10.0	0.85	1.00
3	2020	0.011	0.008	745	4.75	0.72	0.32
4	2021	0.010	0.007	745	3.00	0.72	0.17
5	2022	0.006	0.002	745	3.00	0.72	0.05
6	2023	0.002	0.000	745	3.00	0.72	0.00
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.54	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.05	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
2.54	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Phase III
Receptor:	Existing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2020	0.011	0.008	1,090	10.0	0.85	1.18
2	2021	0.010	0.007	1,090	10.0	0.85	0.98
3	2022	0.006	0.002	745	4.75	0.72	0.07
4	2023	0.002	0.000	745	3.00	0.72	0.00
5	2024			745	3.00	0.72	-
6	2025			745	3.00	0.72	-
7	2026			745	3.00	0.72	-
8	2027			745	3.00	0.72	-
9	2028			745	3.00	0.72	-
10	2029			745	3.00	0.72	-
11	2030			745	3.00	0.72	-
12	2031			745	3.00	0.72	-
13	2032			745	3.00	0.72	-
14	2033			745	3.00	0.72	-
15	2034			745	3.00	0.72	-
16	2035			745	3.00	0.72	-
17	2036			335	1.70	0.73	-
18	2037			335	1.00	0.73	-
19	2038			335	1.00	0.73	-
20	2039			335	1.00	0.73	-
21	2040			335	1.00	0.73	-
22	2041			335	1.00	0.73	-
23	2042			335	1.00	0.73	-
24	2043			335	1.00	0.73	-
25	2044			335	1.00	0.73	-
26	2045			335	1.00	0.73	-
27	2046			335	1.00	0.73	-
28	2047			335	1.00	0.73	-
29	2048			335	1.00	0.73	-
30	2049			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.23	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.05	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
2.23	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Unmitigated
Episode:	Phase I, II, and III
Condition:	Off-Site Hauling
Receptor:	Proposed

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.10	0.205	1,090	10.0	0.85	28.6
2	2019	0.07	0.108	1,090	10.0	0.85	15.1
3	2020	0.12	0.104	745	4.75	0.72	4.00
4	2021	0.07	0.091	745	3.00	0.72	2.21
5	2022	0.04	0.009	745	3.00	0.72	0.21
6	2023	0.01	0.001	745	3.00	0.72	0.01
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.20	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.04	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.05	Acute Hazard Impact
1	Significance Threshold
No	Significant?
50.1	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
1.28	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
50.1	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Mitigated
Episode:	Phase I, II, and III
Condition:	Off-Site Hauling
Receptor:	Proposed

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.009	0.030	1,090	10.0	0.85	4.18
2	2019	0.008	0.010	1,090	10.0	0.85	1.46
3	2020	0.013	0.012	745	4.75	0.72	0.45
4	2021	0.011	0.012	745	3.00	0.72	0.29
5	2022	0.006	0.002	745	3.00	0.72	0.04
6	2023	0.002	0.000	745	3.00	0.72	0.00
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.03	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.01	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.01	Acute Hazard Impact
1	Significance Threshold
No	Significant?
6.43	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.19	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
6.43	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Mitigated
Episode:	Phase I, II, and III
Receptor:	Proposed Phase II

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.008	0.010	1,090	10.0	0.85	1.40
2	2019	0.013	0.011	1,090	10.0	0.85	1.51
3	2020	0.011	0.011	745	4.75	0.72	0.43
4	2021	0.006	0.001	745	3.00	0.72	0.03
5	2022	0.002	0.000	745	3.00	0.72	0.00
6	2023			745	3.00	0.72	-
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.01	Acute Hazard Impact
1	Significance Threshold
No	Significant?
3.38	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.07	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
3.38	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Mitigated
Episode:	Phase I, II, and III
Receptor:	Proposed Phase III

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2020	0.011	0.017	1,090	10.0	0.85	2.37
2	2021	0.006	0.016	1,090	10.0	0.85	2.30
3	2022	0.002	0.001	745	4.75	0.72	0.05
4	2023			745	3.00	0.72	-
5	2024			745	3.00	0.72	-
6	2025			745	3.00	0.72	-
7	2026			745	3.00	0.72	-
8	2027			745	3.00	0.72	-
9	2028			745	3.00	0.72	-
10	2029			745	3.00	0.72	-
11	2030			745	3.00	0.72	-
12	2031			745	3.00	0.72	-
13	2032			745	3.00	0.72	-
14	2033			745	3.00	0.72	-
15	2034			745	3.00	0.72	-
16	2035			745	3.00	0.72	-
17	2036			335	1.70	0.73	-
18	2037			335	1.00	0.73	-
19	2038			335	1.00	0.73	-
20	2039			335	1.00	0.73	-
21	2040			335	1.00	0.73	-
22	2041			335	1.00	0.73	-
23	2042			335	1.00	0.73	-
24	2043			335	1.00	0.73	-
25	2044			335	1.00	0.73	-
26	2045			335	1.00	0.73	-
27	2046			335	1.00	0.73	-
28	2047			335	1.00	0.73	-
29	2048			335	1.00	0.73	-
30	2049			335	1.00	0.73	-

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
4.71	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.11	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
4.71	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Unmitigated
Episode:	Phase I, II, and III
Condition:	On-Site Processing
Receptor:	Proposed

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.10	0.274	1,090	10.0	0.85	38.3
2	2019	0.07	0.108	1,090	10.0	0.85	15.0
3	2020	0.12	0.104	745	4.75	0.72	4.00
4	2021	0.07	0.091	745	3.00	0.72	2.21
5	2022	0.04	0.009	745	3.00	0.72	0.22
6	2023	0.01	0.001	745	3.00	0.72	0.01
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.27	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.05	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.05	Acute Hazard Impact
1	Significance Threshold
No	Significant?
59.8	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
1.72	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
59.8	30-Year Exposure Cancer Risk
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 16, 2016
Condition:	Mitigated
Episode:	Phase I, II, and III
Condition:	On-Site Processing
Receptor:	Proposed

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2018	0.009	0.021	1,090	10.0	0.85	2.89
2	2019	0.008	0.010	1,090	10.0	0.85	1.46
3	2020	0.013	0.012	745	4.75	0.72	0.45
4	2021	0.011	0.012	745	3.00	0.72	0.30
5	2022	0.006	0.002	745	3.00	0.72	0.04
6	2023	0.002	0.000	745	3.00	0.72	0.00
7	2024			745	3.00	0.72	-
8	2025			745	3.00	0.72	-
9	2026			745	3.00	0.72	-
10	2027			745	3.00	0.72	-
11	2028			745	3.00	0.72	-
12	2029			745	3.00	0.72	-
13	2030			745	3.00	0.72	-
14	2031			745	3.00	0.72	-
15	2032			745	3.00	0.72	-
16	2033			745	3.00	0.72	-
17	2034			335	1.70	0.73	-
18	2035			335	1.00	0.73	-
19	2036			335	1.00	0.73	-
20	2037			335	1.00	0.73	-
21	2038			335	1.00	0.73	-
22	2039			335	1.00	0.73	-
23	2040			335	1.00	0.73	-
24	2041			335	1.00	0.73	-
25	2042			335	1.00	0.73	-
26	2043			335	1.00	0.73	-
27	2044			335	1.00	0.73	-
28	2045			335	1.00	0.73	-
29	2046			335	1.00	0.73	-
30	2047			335	1.00	0.73	-

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.01	Acute Hazard Impact
1	Significance Threshold
No	Significant?
5.14	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.13	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?
5.14	30-Year Exposure Cancer Risk
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Preschool
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	1,090	10.0	0.42	7.90
2	2021	0.049	0.108	1,090	10.0	0.42	7.40
3	2022	0.031	0.087	745	4.75	0.42	1.93
4	2023	0.007	0.006	745	3.00	0.42	0.08
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
17.3	Cancer Risk (Preschool Child)
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	K-12
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	745	3.00	0.42	1.62
2	2021	0.049	0.108	745	10.0	0.42	5.06
3	2022	0.031	0.087	745	4.75	0.42	1.93
4	2023	0.007	0.006	745	3.00	0.42	0.08
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
8.69	Cancer Risk (K-12 Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM		
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien		
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM		
240	days per year		
25,550	days per lifetime		
1.3	% Acrolien in Diesel		
1090	95th Percentile Daily Breathing Rates (L/kg-day)		0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)		2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)		2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)		16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)		16<70 Years
0.85	fraction of time at home	0<2 Years	
0.72	fraction of time at home	2<16 Years	
0.73	fraction of time at home	16<70 Years	

Project: Oak Knoll
Date: May 18, 2016
Condition: Unmitigated
Episode: Teacher
Receptor: Seneca Center
Condition: Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	335	1.70	0.42	0.41
2	2021	0.049	0.108	335	1.70	0.42	0.39
3	2022	0.031	0.087	335	1.70	0.42	0.31
4	2023	0.007	0.006	335	1.70	0.42	0.02
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
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				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
1.13	Cancer Risk (Teacher Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Residence
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	335	3.00	0.73	1.28
2	2021	0.049	0.108	335	3.00	0.73	1.19
3	2022	0.031	0.087	335	3.00	0.73	0.96
4	2023	0.007	0.006	335	3.00	0.73	0.06
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
3.43	Cancer Risk (Resident)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Preschool
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	1,090	10.0	0.42	7.90
2	2021	0.049	0.108	1,090	10.0	0.42	7.40
3	2022	0.031	0.087	745	4.75	0.42	1.93
4	2023	0.007	0.006	745	3.00	0.42	0.08
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
17.3	Cancer Risk (Preschool Child)
10	Significance Threshold
Yes	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	K-12
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	745	3.00	0.42	1.62
2	2021	0.049	0.108	745	10.0	0.42	5.06
3	2022	0.031	0.087	745	4.75	0.42	1.93
4	2023	0.007	0.006	745	3.00	0.42	0.08
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
8.69	Cancer Risk (K-12 Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Teacher
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	335	1.70	0.42	0.41
2	2021	0.049	0.108	335	1.70	0.42	0.39
3	2022	0.031	0.087	335	1.70	0.42	0.31
4	2023	0.007	0.006	335	1.70	0.42	0.02
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
1.13	Cancer Risk (Teacher Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Unmitigated
Episode:	Residence
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.081	0.115	335	3.00	0.73	1.28
2	2021	0.049	0.108	335	3.00	0.73	1.19
3	2022	0.031	0.087	335	3.00	0.73	0.96
4	2023	0.007	0.006	335	3.00	0.73	0.06
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	

0.12	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.02	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.03	Acute Hazard Impact
1	Significance Threshold
No	Significant?
3.43	Cancer Risk (Resident)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Preschool
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	1,090	10.0	0.42	0.78
2	2021	0.007	0.016	1,090	10.0	0.42	1.12
3	2022	0.006	0.015	745	4.75	0.42	0.34
4	2023	0.001	0.001	745	3.00	0.42	0.02
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.26	Cancer Risk (Preschool Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	K-12
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	745	3.00	0.42	0.16
2	2021	0.007	0.016	745	10.0	0.42	0.76
3	2022	0.006	0.015	745	4.75	0.42	0.34
4	2023	0.001	0.001	745	3.00	0.42	0.02
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
1.28	Cancer Risk (K-12 Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Teacher
Receptor:	Seneca Center
Condition:	Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	335	1.70	0.42	0.04
2	2021	0.007	0.016	335	1.70	0.42	0.06
3	2022	0.006	0.015	335	1.70	0.42	0.06
4	2023	0.001	0.001	335	1.70	0.42	0.00
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
0.16	Cancer Risk (Teacher Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM
240	days per year
25,550	days per lifetime
1.3	% Acrolien in Diesel

1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years

0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project: Oak Knoll
Date: May 18, 2016
Condition: Mitigated
Episode: Residence
Receptor: Seneca Center
Condition: Off-Site Hauling

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	335	3.00	0.73	0.13
2	2021	0.007	0.016	335	3.00	0.73	0.18
3	2022	0.006	0.015	335	3.00	0.73	0.17
4	2023	0.001	0.001	335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
0.48	Cancer Risk (Resident)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Preschool
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	1,090	10.0	0.42	0.78
2	2021	0.007	0.016	1,090	10.0	0.42	1.12
3	2022	0.006	0.015	745	4.75	0.42	0.34
4	2023	0.001	0.001	745	3.00	0.42	0.02
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
2.26	Cancer Risk (Preschool Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	K-12
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	745	3.00	0.42	0.16
2	2021	0.007	0.016	745	10.0	0.42	0.76
3	2022	0.006	0.015	745	4.75	0.42	0.34
4	2023	0.001	0.001	745	3.00	0.42	0.02
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				745	3.00	0.42	
				335	1.70	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	
				335	1.00	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
1.28	Cancer Risk (K-12 Child)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project:	Oak Knoll
Date:	May 18, 2016
Condition:	Mitigated
Episode:	Teacher
Receptor:	Seneca Center
Condition:	On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	335	1.70	0.42	0.04
2	2021	0.007	0.016	335	1.70	0.42	0.06
3	2022	0.006	0.015	335	1.70	0.42	0.06
4	2023	0.001	0.001	335	1.70	0.42	0.00
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	
				335	1.70	0.42	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
0.16	Cancer Risk (Teacher Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
240	days per year	
25,550	days per lifetime	
1.3	% Acrolien in Diesel	
1090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	16<70 Years
0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project: Oak Knoll
Date: May 18, 2016
Condition: Mitigated
Episode: Residence
Receptor: Seneca Center
Condition: On-Site Processing

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	Fraction of time	Cancer Risk
1	2020	0.009	0.011	335	3.00	0.73	0.13
2	2021	0.007	0.016	335	3.00	0.73	0.18
3	2022	0.006	0.015	335	3.00	0.73	0.17
4	2023	0.001	0.001	335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	
				335	3.00	0.73	

0.02	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Acute Hazard Impact
1	Significance Threshold
No	Significant?
0.48	Cancer Risk (Resident)
10	Significance Threshold
No	Significant?

Attachment B

Construction and Operational Emissions

CalEEMod Output Files

- Phase I Off-Site Hauling
- Phase I On-Site Processing
- Phase II
- Phase III

Oak Knoll Phase I - Off-Site Hauling

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	10.30	Acre	10.30	448,668.00	0
Parking Lot	87.21	1000sqft	2.00	87,210.00	0
City Park	23.90	Acre	23.90	1,041,084.00	0
Health Club	14.00	1000sqft	2.80	14,000.00	0
High Turnover (Sit Down Restaurant)	6.00	1000sqft	0.55	6,000.00	0
Condo/Townhouse	232.00	Dwelling Unit	13.00	232,000.00	664
Single Family Housing	100.00	Dwelling Unit	9.20	180,000.00	286
Supermarket	66.00	1000sqft	6.05	66,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Updated project specific data.

Construction Phase - Project specific construction schedule.

Off-road Equipment - Project specific info for on-site material crushing.

Trips and VMT - Hauling trips provided by applicant.

Demolition -

Grading - Project specific information.

Architectural Coating -

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	1,110.00	1,116.00
tblConstructionPhase	NumDays	70.00	90.00

tblConstructionPhase	NumDays	110.00	111.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	8/30/2017	8/7/2017
tblConstructionPhase	PhaseStartDate	7/15/2017	6/22/2017
tblGrading	AcresOfGrading	277.50	67.60
tblGrading	AcresOfGrading	0.00	67.60
tblGrading	MaterialExported	0.00	5,500.00
tblLandUse	LotAcreage	0.32	2.80
tblLandUse	LotAcreage	0.14	0.55
tblLandUse	LotAcreage	14.50	13.00
tblLandUse	LotAcreage	32.47	9.20
tblLandUse	LotAcreage	1.52	6.05
tblProjectCharacteristics	OperationalYear	2014	2024
tblSequestration	NumberOfNewTrees	0.00	910.00
tblTripsAndVMT	HaulingTripNumber	10,877.00	7,610.00
tblTripsAndVMT	HaulingTripNumber	688.00	780.00
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	3.45	3.16
tblVehicleEF	HHD	1.09	1.18
tblVehicleEF	HHD	60.69	70.28
tblVehicleEF	HHD	527.63	528.30
tblVehicleEF	HHD	1,551.39	1,562.90

tblVehicleEF	HHD	49.32	49.33
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	3.27	3.98
tblVehicleEF	HHD	2.13	3.95
tblVehicleEF	HHD	3.88	4.42
tblVehicleEF	HHD	9.0910e-003	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	8.3800e-004	1.3290e-003
tblVehicleEF	HHD	8.3640e-003	9.4890e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7720e-003	8.7660e-003
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	7.7700e-004	1.2320e-003
tblVehicleEF	HHD	1.2500e-003	1.4640e-003
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.61	0.56
tblVehicleEF	HHD	8.9000e-004	1.0080e-003
tblVehicleEF	HHD	0.22	0.24
tblVehicleEF	HHD	0.40	0.53
tblVehicleEF	HHD	1.60	2.31
tblVehicleEF	HHD	5.5930e-003	5.6000e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.5500e-003	1.7230e-003
tblVehicleEF	HHD	1.2500e-003	1.4640e-003
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.70	0.64

tblVehicleEF	HHD	8.9000e-004	1.0080e-003
tblVehicleEF	HHD	0.25	0.27
tblVehicleEF	HHD	0.40	0.53
tblVehicleEF	HHD	1.71	2.47
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.50	2.29
tblVehicleEF	HHD	1.09	1.19
tblVehicleEF	HHD	41.34	46.57
tblVehicleEF	HHD	558.98	559.68
tblVehicleEF	HHD	1,551.39	1,562.90
tblVehicleEF	HHD	49.32	49.33
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	3.37	4.10
tblVehicleEF	HHD	2.05	3.81
tblVehicleEF	HHD	3.60	4.10
tblVehicleEF	HHD	7.6640e-003	8.6950e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	8.3800e-004	1.3290e-003
tblVehicleEF	HHD	7.0510e-003	8.0000e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7720e-003	8.7660e-003
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	7.7700e-004	1.2320e-003
tblVehicleEF	HHD	3.1140e-003	3.8410e-003
tblVehicleEF	HHD	0.08	0.10

tblVehicleEF	HHD	0.58	0.53
tblVehicleEF	HHD	1.9820e-003	2.4480e-003
tblVehicleEF	HHD	0.22	0.24
tblVehicleEF	HHD	0.39	0.52
tblVehicleEF	HHD	1.27	1.77
tblVehicleEF	HHD	5.9250e-003	5.9330e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2360e-003	1.3340e-003
tblVehicleEF	HHD	3.1140e-003	3.8410e-003
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	HHD	0.66	0.60
tblVehicleEF	HHD	1.9820e-003	2.4480e-003
tblVehicleEF	HHD	0.25	0.27
tblVehicleEF	HHD	0.39	0.52
tblVehicleEF	HHD	1.36	1.88
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	4.75	4.35
tblVehicleEF	HHD	1.08	1.18
tblVehicleEF	HHD	77.65	91.37
tblVehicleEF	HHD	484.34	484.95
tblVehicleEF	HHD	1,551.39	1,562.90
tblVehicleEF	HHD	49.32	49.33
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	3.12	3.80
tblVehicleEF	HHD	2.16	4.02
tblVehicleEF	HHD	4.09	4.66
tblVehicleEF	HHD	0.01	0.01

tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	8.3800e-004	1.3290e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7720e-003	8.7660e-003
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	7.7700e-004	1.2320e-003
tblVehicleEF	HHD	5.6900e-004	6.0300e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	HHD	0.66	0.61
tblVehicleEF	HHD	4.2800e-004	4.4100e-004
tblVehicleEF	HHD	0.22	0.24
tblVehicleEF	HHD	0.45	0.59
tblVehicleEF	HHD	1.87	2.78
tblVehicleEF	HHD	5.1340e-003	5.1410e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.8240e-003	2.0690e-003
tblVehicleEF	HHD	5.6900e-004	6.0300e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	HHD	0.75	0.69
tblVehicleEF	HHD	4.2800e-004	4.4100e-004
tblVehicleEF	HHD	0.25	0.27
tblVehicleEF	HHD	0.45	0.59
tblVehicleEF	HHD	2.00	2.97
tblVehicleEF	LDA	8.3230e-003	9.4700e-003
tblVehicleEF	LDA	4.6860e-003	6.4620e-003

tblVehicleEF	LDA	0.62	0.75
tblVehicleEF	LDA	1.29	1.69
tblVehicleEF	LDA	219.18	235.84
tblVehicleEF	LDA	48.27	52.23
tblVehicleEF	LDA	0.54	0.54
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	1.8980e-003	1.8390e-003
tblVehicleEF	LDA	4.2000e-003	3.5030e-003
tblVehicleEF	LDA	1.7600e-003	1.7040e-003
tblVehicleEF	LDA	3.8970e-003	3.2490e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.20	0.23
tblVehicleEF	LDA	0.08	0.11
tblVehicleEF	LDA	3.4120e-003	3.4130e-003
tblVehicleEF	LDA	7.5900e-004	7.6500e-004
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.20	0.23
tblVehicleEF	LDA	0.09	0.12
tblVehicleEF	LDA	8.3230e-003	9.4700e-003
tblVehicleEF	LDA	4.6860e-003	6.4620e-003
tblVehicleEF	LDA	0.73	0.88

tblVehicleEF	LDA	0.85	1.11
tblVehicleEF	LDA	237.03	254.99
tblVehicleEF	LDA	48.27	52.23
tblVehicleEF	LDA	0.54	0.54
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	1.8980e-003	1.8390e-003
tblVehicleEF	LDA	4.2000e-003	3.5030e-003
tblVehicleEF	LDA	1.7600e-003	1.7040e-003
tblVehicleEF	LDA	3.8970e-003	3.2490e-003
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.18	0.22
tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	3.6920e-003	3.6940e-003
tblVehicleEF	LDA	7.5200e-004	7.5500e-004
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.18	0.22
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	8.3230e-003	9.4700e-003
tblVehicleEF	LDA	4.6860e-003	6.4620e-003
tblVehicleEF	LDA	0.61	0.74
tblVehicleEF	LDA	1.59	2.08

tblVehicleEF	LDA	217.40	233.93
tblVehicleEF	LDA	48.27	52.23
tblVehicleEF	LDA	0.54	0.54
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	1.8980e-003	1.8390e-003
tblVehicleEF	LDA	4.2000e-003	3.5030e-003
tblVehicleEF	LDA	1.7600e-003	1.7040e-003
tblVehicleEF	LDA	3.8970e-003	3.2490e-003
tblVehicleEF	LDA	9.3570e-003	0.01
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.23	0.27
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	3.3840e-003	3.3850e-003
tblVehicleEF	LDA	7.6500e-004	7.7200e-004
tblVehicleEF	LDA	9.3570e-003	0.01
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.23	0.27
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.41	1.91
tblVehicleEF	LDT1	3.19	4.43
tblVehicleEF	LDT1	271.84	288.91

tblVehicleEF	LDT1	59.80	63.56
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.16	0.22
tblVehicleEF	LDT1	0.17	0.23
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.21	0.25
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.74	0.87
tblVehicleEF	LDT1	0.22	0.32
tblVehicleEF	LDT1	3.9580e-003	3.9590e-003
tblVehicleEF	LDT1	9.0700e-004	9.2400e-004
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.21	0.25
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.74	0.87
tblVehicleEF	LDT1	0.24	0.34
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.63	2.20
tblVehicleEF	LDT1	2.12	2.94
tblVehicleEF	LDT1	292.76	310.88
tblVehicleEF	LDT1	59.80	63.56

tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.14	0.19
tblVehicleEF	LDT1	0.15	0.21
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.22	0.26
tblVehicleEF	LDT1	0.24	0.29
tblVehicleEF	LDT1	0.16	0.19
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.67	0.80
tblVehicleEF	LDT1	0.17	0.24
tblVehicleEF	LDT1	4.2680e-003	4.2660e-003
tblVehicleEF	LDT1	8.8800e-004	8.9800e-004
tblVehicleEF	LDT1	0.22	0.26
tblVehicleEF	LDT1	0.24	0.29
tblVehicleEF	LDT1	0.16	0.19
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.67	0.80
tblVehicleEF	LDT1	0.18	0.25
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.40	1.91
tblVehicleEF	LDT1	3.91	5.44
tblVehicleEF	LDT1	269.75	286.71
tblVehicleEF	LDT1	59.80	63.56
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.17	0.24
tblVehicleEF	LDT1	0.18	0.25
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.23	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.91	1.08
tblVehicleEF	LDT1	0.26	0.37
tblVehicleEF	LDT1	3.9270e-003	3.9280e-003
tblVehicleEF	LDT1	9.2000e-004	9.4100e-004
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.23	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.91	1.08
tblVehicleEF	LDT1	0.28	0.40
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.81	1.03
tblVehicleEF	LDT2	1.82	2.51
tblVehicleEF	LDT2	334.46	352.05
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.10	0.13

tblVehicleEF	LDT2	0.13	0.20
tblVehicleEF	LDT2	1.8300e-003	1.7470e-003
tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.39	0.44
tblVehicleEF	LDT2	0.12	0.17
tblVehicleEF	LDT2	4.6410e-003	4.6450e-003
tblVehicleEF	LDT2	1.0380e-003	1.0470e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.39	0.44
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.95	1.20
tblVehicleEF	LDT2	1.20	1.66
tblVehicleEF	LDT2	360.96	379.89
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.12	0.18

tblVehicleEF	LDT2	1.8300e-003	1.7470e-003
tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.36	0.40
tblVehicleEF	LDT2	0.09	0.13
tblVehicleEF	LDT2	5.0120e-003	5.0160e-003
tblVehicleEF	LDT2	1.0270e-003	1.0330e-003
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.36	0.40
tblVehicleEF	LDT2	0.09	0.13
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.80	1.02
tblVehicleEF	LDT2	2.23	3.08
tblVehicleEF	LDT2	331.81	349.26
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.11	0.14
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	1.8300e-003	1.7470e-003

tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.47	0.53
tblVehicleEF	LDT2	0.14	0.20
tblVehicleEF	LDT2	4.6040e-003	4.6080e-003
tblVehicleEF	LDT2	1.0450e-003	1.0570e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.47	0.53
tblVehicleEF	LDT2	0.15	0.21
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	1.07	1.58
tblVehicleEF	LHD1	3.85	4.68
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.81	1.09

tblVehicleEF	LHD1	1.19	1.31
tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004
tblVehicleEF	LHD1	1.8220e-003	2.0040e-003
tblVehicleEF	LHD1	0.07	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1450e-003	1.1820e-003
tblVehicleEF	LHD1	0.10	0.15
tblVehicleEF	LHD1	0.43	0.45
tblVehicleEF	LHD1	0.31	0.40
tblVehicleEF	LHD1	8.3820e-003	8.3950e-003
tblVehicleEF	LHD1	5.1400e-004	5.2500e-004
tblVehicleEF	LHD1	1.8220e-003	2.0040e-003
tblVehicleEF	LHD1	0.07	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1450e-003	1.1820e-003
tblVehicleEF	LHD1	0.12	0.17
tblVehicleEF	LHD1	0.43	0.45
tblVehicleEF	LHD1	0.33	0.43
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18

tblVehicleEF	LHD1	1.10	1.63
tblVehicleEF	LHD1	2.63	3.17
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.76	1.03
tblVehicleEF	LHD1	1.11	1.22
tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004
tblVehicleEF	LHD1	4.4840e-003	5.0680e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4580e-003	2.6460e-003
tblVehicleEF	LHD1	0.10	0.15
tblVehicleEF	LHD1	0.41	0.44
tblVehicleEF	LHD1	0.25	0.32
tblVehicleEF	LHD1	8.3820e-003	8.3960e-003
tblVehicleEF	LHD1	4.9300e-004	4.9900e-004
tblVehicleEF	LHD1	4.4840e-003	5.0680e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4580e-003	2.6460e-003

tblVehicleEF	LHD1	0.12	0.18
tblVehicleEF	LHD1	0.41	0.44
tblVehicleEF	LHD1	0.27	0.34
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	1.05	1.55
tblVehicleEF	LHD1	4.94	6.02
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.83	1.12
tblVehicleEF	LHD1	1.25	1.39
tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004
tblVehicleEF	LHD1	7.7500e-004	7.8900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	5.6100e-004	5.5300e-004
tblVehicleEF	LHD1	0.10	0.14
tblVehicleEF	LHD1	0.48	0.50

tblVehicleEF	LHD1	0.36	0.47
tblVehicleEF	LHD1	8.3820e-003	8.3940e-003
tblVehicleEF	LHD1	5.3300e-004	5.4800e-004
tblVehicleEF	LHD1	7.7500e-004	7.8900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	5.6100e-004	5.5300e-004
tblVehicleEF	LHD1	0.12	0.17
tblVehicleEF	LHD1	0.48	0.50
tblVehicleEF	LHD1	0.39	0.50
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.79	1.09
tblVehicleEF	LHD2	2.22	2.76
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60
tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.16	1.59
tblVehicleEF	LHD2	0.73	0.82
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003

tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	9.8400e-004	1.1630e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.3700e-004	6.8900e-004
tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.24	0.30
tblVehicleEF	LHD2	0.17	0.23
tblVehicleEF	LHD2	7.1750e-003	7.1900e-003
tblVehicleEF	LHD2	3.3900e-004	3.4600e-004
tblVehicleEF	LHD2	9.8400e-004	1.1630e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.3700e-004	6.8900e-004
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	0.24	0.30
tblVehicleEF	LHD2	0.18	0.25
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.80	1.11
tblVehicleEF	LHD2	1.52	1.89
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60

tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.11	1.53
tblVehicleEF	LHD2	0.67	0.76
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	2.4020e-003	2.9310e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3550e-003	1.5390e-003
tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.24	0.29
tblVehicleEF	LHD2	0.14	0.19
tblVehicleEF	LHD2	7.1750e-003	7.1910e-003
tblVehicleEF	LHD2	3.2700e-004	3.3100e-004
tblVehicleEF	LHD2	2.4020e-003	2.9310e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3550e-003	1.5390e-003
tblVehicleEF	LHD2	0.11	0.15

tblVehicleEF	LHD2	0.24	0.29
tblVehicleEF	LHD2	0.15	0.20
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.79	1.08
tblVehicleEF	LHD2	2.84	3.54
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60
tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.18	1.63
tblVehicleEF	LHD2	0.77	0.86
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	4.3500e-004	4.6700e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1800e-004	3.2900e-004

tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.27	0.34
tblVehicleEF	LHD2	0.20	0.27
tblVehicleEF	LHD2	7.1750e-003	7.1900e-003
tblVehicleEF	LHD2	3.5000e-004	3.5900e-004
tblVehicleEF	LHD2	4.3500e-004	4.6700e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1800e-004	3.2900e-004
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	0.27	0.34
tblVehicleEF	LHD2	0.21	0.29
tblVehicleEF	MCY	24.39	25.63
tblVehicleEF	MCY	11.21	11.07
tblVehicleEF	MCY	150.64	148.31
tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.23	1.24
tblVehicleEF	MCY	0.32	0.32
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003
tblVehicleEF	MCY	2.4500e-004	3.1100e-004
tblVehicleEF	MCY	6.6600e-004	8.8300e-004
tblVehicleEF	MCY	0.59	0.59
tblVehicleEF	MCY	0.35	0.37
tblVehicleEF	MCY	0.33	0.33
tblVehicleEF	MCY	2.67	2.71
tblVehicleEF	MCY	1.22	1.34

tblVehicleEF	MCY	2.23	2.27
tblVehicleEF	MCY	2.1400e-003	2.1350e-003
tblVehicleEF	MCY	6.6000e-004	6.7200e-004
tblVehicleEF	MCY	0.59	0.59
tblVehicleEF	MCY	0.35	0.37
tblVehicleEF	MCY	0.33	0.33
tblVehicleEF	MCY	2.92	2.97
tblVehicleEF	MCY	1.22	1.34
tblVehicleEF	MCY	2.39	2.43
tblVehicleEF	MCY	22.97	24.10
tblVehicleEF	MCY	8.82	8.79
tblVehicleEF	MCY	150.64	148.31
tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.07	1.08
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003
tblVehicleEF	MCY	2.4500e-004	3.1100e-004
tblVehicleEF	MCY	6.6600e-004	8.8300e-004
tblVehicleEF	MCY	1.80	1.81
tblVehicleEF	MCY	0.52	0.54
tblVehicleEF	MCY	1.10	1.11
tblVehicleEF	MCY	2.57	2.60
tblVehicleEF	MCY	1.10	1.22
tblVehicleEF	MCY	1.79	1.81
tblVehicleEF	MCY	2.1150e-003	2.1080e-003
tblVehicleEF	MCY	6.0900e-004	6.2200e-004

tblVehicleEF	MCY	1.80	1.81
tblVehicleEF	MCY	0.52	0.54
tblVehicleEF	MCY	1.10	1.11
tblVehicleEF	MCY	2.81	2.85
tblVehicleEF	MCY	1.10	1.22
tblVehicleEF	MCY	1.92	1.94
tblVehicleEF	MCY	26.55	27.96
tblVehicleEF	MCY	13.38	13.16
tblVehicleEF	MCY	150.64	148.31
tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.31	1.33
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003
tblVehicleEF	MCY	2.4500e-004	3.1100e-004
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tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	0.41	0.43
tblVehicleEF	MCY	0.10	0.10
tblVehicleEF	MCY	2.77	2.83
tblVehicleEF	MCY	1.53	1.66
tblVehicleEF	MCY	2.61	2.66
tblVehicleEF	MCY	2.1770e-003	2.1750e-003
tblVehicleEF	MCY	7.0600e-004	7.1800e-004
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	0.41	0.43
tblVehicleEF	MCY	0.10	0.10

tblVehicleEF	MCY	3.03	3.09
tblVehicleEF	MCY	1.53	1.66
tblVehicleEF	MCY	2.80	2.86
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.38	1.86
tblVehicleEF	MDV	3.86	5.08
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tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.27
tblVehicleEF	MDV	0.32	0.43
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003
tblVehicleEF	MDV	3.7240e-003	3.4600e-003
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.03	0.05
tblVehicleEF	MDV	0.64	0.68
tblVehicleEF	MDV	0.30	0.41
tblVehicleEF	MDV	5.9290e-003	5.9270e-003
tblVehicleEF	MDV	1.3450e-003	1.3610e-003
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.05	0.07

tblVehicleEF	MDV	0.64	0.68
tblVehicleEF	MDV	0.32	0.44
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.62	2.15
tblVehicleEF	MDV	2.55	3.38
tblVehicleEF	MDV	482.76	505.78
tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.17	0.23
tblVehicleEF	MDV	0.28	0.38
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003
tblVehicleEF	MDV	3.7240e-003	3.4600e-003
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.22	0.23
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.60	0.63
tblVehicleEF	MDV	0.23	0.31
tblVehicleEF	MDV	6.3980e-003	6.3950e-003
tblVehicleEF	MDV	1.3220e-003	1.3310e-003
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.22	0.23
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.60	0.63

tblVehicleEF	MDV	0.24	0.33
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.36	1.87
tblVehicleEF	MDV	4.74	6.23
tblVehicleEF	MDV	444.10	465.49
tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.35	0.47
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003
tblVehicleEF	MDV	3.7240e-003	3.4600e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.21	0.22
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.03	0.05
tblVehicleEF	MDV	0.78	0.82
tblVehicleEF	MDV	0.35	0.48
tblVehicleEF	MDV	5.8820e-003	5.8810e-003
tblVehicleEF	MDV	1.3600e-003	1.3810e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.21	0.22
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.78	0.82
tblVehicleEF	MDV	0.38	0.52

tblVehicleEF	MH	1.01	2.33
tblVehicleEF	MH	6.18	8.22
tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	1.03	1.34
tblVehicleEF	MH	0.67	0.81
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	0.56	0.77
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.06	0.10
tblVehicleEF	MH	1.29	1.92
tblVehicleEF	MH	0.32	0.44
tblVehicleEF	MH	7.3310e-003	7.3500e-003
tblVehicleEF	MH	4.2600e-004	4.6400e-004
tblVehicleEF	MH	0.56	0.77
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.29	1.92
tblVehicleEF	MH	0.34	0.47
tblVehicleEF	MH	1.05	2.42

tblVehicleEF	MH	4.17	5.43
tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	0.96	1.24
tblVehicleEF	MH	0.62	0.75
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	1.37	1.92
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.66
tblVehicleEF	MH	0.06	0.11
tblVehicleEF	MH	1.25	1.86
tblVehicleEF	MH	0.25	0.34
tblVehicleEF	MH	7.3320e-003	7.3510e-003
tblVehicleEF	MH	3.9300e-004	4.1700e-004
tblVehicleEF	MH	1.37	1.92
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.66
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.25	1.86
tblVehicleEF	MH	0.27	0.36
tblVehicleEF	MH	0.98	2.28
tblVehicleEF	MH	7.96	10.73

tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	1.07	1.39
tblVehicleEF	MH	0.71	0.85
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	0.23	0.28
tblVehicleEF	MH	0.06	0.09
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.06	0.10
tblVehicleEF	MH	1.40	2.07
tblVehicleEF	MH	0.37	0.52
tblVehicleEF	MH	7.3310e-003	7.3490e-003
tblVehicleEF	MH	4.5600e-004	5.0600e-004
tblVehicleEF	MH	0.23	0.28
tblVehicleEF	MH	0.06	0.09
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.40	2.07
tblVehicleEF	MH	0.40	0.56
tblVehicleEF	MHD	8.2190e-003	7.6250e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	2.09	1.91

tblVehicleEF	MHD	0.49	0.68
tblVehicleEF	MHD	13.77	18.36
tblVehicleEF	MHD	572.65	572.01
tblVehicleEF	MHD	1,004.94	1,006.95
tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.33	4.63
tblVehicleEF	MHD	0.99	1.86
tblVehicleEF	MHD	1.43	1.81
tblVehicleEF	MHD	7.6380e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	7.0270e-003	0.01
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	1.5750e-003	1.8870e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.18	0.16
tblVehicleEF	MHD	9.7900e-004	1.0890e-003
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.44	0.50
tblVehicleEF	MHD	0.76	1.03
tblVehicleEF	MHD	6.0700e-003	6.0640e-003
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	7.8700e-004	8.7200e-004
tblVehicleEF	MHD	1.5750e-003	1.8870e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.20	0.19
tblVehicleEF	MHD	9.7900e-004	1.0890e-003
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.44	0.50
tblVehicleEF	MHD	0.81	1.10
tblVehicleEF	MHD	7.7450e-003	7.1860e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	1.52	1.39
tblVehicleEF	MHD	0.50	0.69
tblVehicleEF	MHD	9.39	12.44
tblVehicleEF	MHD	606.67	605.99
tblVehicleEF	MHD	1,004.94	1,006.95
tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.43	4.78
tblVehicleEF	MHD	0.95	1.78
tblVehicleEF	MHD	1.33	1.68
tblVehicleEF	MHD	6.4380e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	5.9230e-003	9.2440e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003

tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	3.9820e-003	4.9690e-003
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.17	0.15
tblVehicleEF	MHD	2.1900e-003	2.6080e-003
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.42	0.48
tblVehicleEF	MHD	0.61	0.81
tblVehicleEF	MHD	6.4310e-003	6.4240e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.1400e-004	7.7200e-004
tblVehicleEF	MHD	3.9820e-003	4.9690e-003
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.19	0.18
tblVehicleEF	MHD	2.1900e-003	2.6080e-003
tblVehicleEF	MHD	0.13	0.15
tblVehicleEF	MHD	0.42	0.48
tblVehicleEF	MHD	0.65	0.87
tblVehicleEF	MHD	8.8720e-003	8.2320e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	2.88	2.63
tblVehicleEF	MHD	0.49	0.67
tblVehicleEF	MHD	17.59	23.57
tblVehicleEF	MHD	525.67	525.08
tblVehicleEF	MHD	1,004.94	1,006.95
tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02

tblVehicleEF	MHD	3.18	4.43
tblVehicleEF	MHD	1.01	1.90
tblVehicleEF	MHD	1.51	1.91
tblVehicleEF	MHD	9.2930e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	8.5500e-003	0.01
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	6.4200e-004	6.8900e-004
tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	0.19	0.18
tblVehicleEF	MHD	4.5900e-004	4.7200e-004
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.49	0.56
tblVehicleEF	MHD	0.88	1.21
tblVehicleEF	MHD	5.5720e-003	5.5660e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	8.5100e-004	9.5900e-004
tblVehicleEF	MHD	6.4200e-004	6.8900e-004
tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	0.22	0.20
tblVehicleEF	MHD	4.5900e-004	4.7200e-004
tblVehicleEF	MHD	0.12	0.15

tblVehicleEF	MHD	0.49	0.56
tblVehicleEF	MHD	0.94	1.29
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	3.30	2.74
tblVehicleEF	OBUS	0.83	1.17
tblVehicleEF	OBUS	9.00	11.14
tblVehicleEF	OBUS	533.48	534.88
tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.20	4.65
tblVehicleEF	OBUS	1.12	2.32
tblVehicleEF	OBUS	1.18	1.44
tblVehicleEF	OBUS	8.7920e-003	9.5470e-003
tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004
tblVehicleEF	OBUS	8.0890e-003	8.7830e-003
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.56	0.47
tblVehicleEF	OBUS	3.4900e-004	3.3500e-004
tblVehicleEF	OBUS	0.12	0.14

tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	0.52	0.64
tblVehicleEF	OBUS	5.6550e-003	5.6700e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.2100e-004	5.5900e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.64	0.53
tblVehicleEF	OBUS	3.4900e-004	3.3500e-004
tblVehicleEF	OBUS	0.15	0.17
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	0.55	0.69
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	2.40	1.99
tblVehicleEF	OBUS	0.84	1.20
tblVehicleEF	OBUS	6.14	7.60
tblVehicleEF	OBUS	565.17	566.66
tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.30	4.79
tblVehicleEF	OBUS	1.06	2.21
tblVehicleEF	OBUS	1.09	1.34
tblVehicleEF	OBUS	7.4120e-003	8.0480e-003
tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004

tblVehicleEF	OBUS	6.8190e-003	7.4040e-003
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	1.6210e-003	1.6590e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.53	0.44
tblVehicleEF	OBUS	7.4200e-004	7.4100e-004
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.30	0.30
tblVehicleEF	OBUS	0.42	0.52
tblVehicleEF	OBUS	5.9910e-003	6.0070e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	4.7300e-004	5.0000e-004
tblVehicleEF	OBUS	1.6210e-003	1.6590e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.60	0.50
tblVehicleEF	OBUS	7.4200e-004	7.4100e-004
tblVehicleEF	OBUS	0.15	0.17
tblVehicleEF	OBUS	0.30	0.30
tblVehicleEF	OBUS	0.44	0.55
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	4.55	3.78
tblVehicleEF	OBUS	0.82	1.15
tblVehicleEF	OBUS	11.51	14.25
tblVehicleEF	OBUS	489.71	491.00

tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.06	4.44
tblVehicleEF	OBUS	1.14	2.37
tblVehicleEF	OBUS	1.24	1.52
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004
tblVehicleEF	OBUS	9.8420e-003	0.01
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	3.2900e-004	3.1100e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.60	0.50
tblVehicleEF	OBUS	1.8300e-004	1.7100e-004
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	0.34	0.34
tblVehicleEF	OBUS	0.60	0.75
tblVehicleEF	OBUS	5.1910e-003	5.2050e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.6300e-004	6.1100e-004
tblVehicleEF	OBUS	3.2900e-004	3.1100e-004
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	0.69	0.57
tblVehicleEF	OBUS	1.8300e-004	1.7100e-004
tblVehicleEF	OBUS	0.14	0.17
tblVehicleEF	OBUS	0.34	0.34
tblVehicleEF	OBUS	0.64	0.80
tblVehicleEF	SBUS	4.8570e-003	4.4530e-003
tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	1.19	1.05
tblVehicleEF	SBUS	2.64	5.36
tblVehicleEF	SBUS	25.41	37.29
tblVehicleEF	SBUS	556.14	547.00
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	7.12	7.58
tblVehicleEF	SBUS	5.53	6.35
tblVehicleEF	SBUS	2.38	2.88
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	0.02	0.03

tblVehicleEF	SBUS	0.19	0.25
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	8.0390e-003	0.01
tblVehicleEF	SBUS	0.26	0.47
tblVehicleEF	SBUS	2.54	2.91
tblVehicleEF	SBUS	1.49	2.21
tblVehicleEF	SBUS	5.8950e-003	5.7980e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.7250e-003	1.9480e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.19	0.25
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	8.0390e-003	0.01
tblVehicleEF	SBUS	0.30	0.53
tblVehicleEF	SBUS	2.54	2.91
tblVehicleEF	SBUS	1.59	2.36
tblVehicleEF	SBUS	4.5770e-003	4.1970e-003
tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	0.87	0.76
tblVehicleEF	SBUS	2.74	5.51
tblVehicleEF	SBUS	19.93	28.48
tblVehicleEF	SBUS	589.19	579.49
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	7.35	7.82
tblVehicleEF	SBUS	5.27	6.03
tblVehicleEF	SBUS	2.18	2.64

tblVehicleEF	SBUS	9.6400e-003	0.01
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	8.8690e-003	0.01
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	0.05	0.08
tblVehicleEF	SBUS	0.19	0.26
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.27	0.49
tblVehicleEF	SBUS	2.24	2.58
tblVehicleEF	SBUS	1.29	1.83
tblVehicleEF	SBUS	6.2460e-003	6.1430e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.6320e-003	1.7980e-003
tblVehicleEF	SBUS	0.05	0.08
tblVehicleEF	SBUS	0.19	0.26
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.31	0.55
tblVehicleEF	SBUS	2.24	2.58
tblVehicleEF	SBUS	1.38	1.96
tblVehicleEF	SBUS	5.2430e-003	4.8080e-003

tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	1.64	1.45
tblVehicleEF	SBUS	2.58	5.31
tblVehicleEF	SBUS	30.21	45.42
tblVehicleEF	SBUS	510.52	502.12
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	6.81	7.24
tblVehicleEF	SBUS	5.65	6.50
tblVehicleEF	SBUS	2.52	3.05
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	7.5090e-003	9.9620e-003
tblVehicleEF	SBUS	0.21	0.29
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	3.8800e-003	5.0810e-003
tblVehicleEF	SBUS	0.26	0.46
tblVehicleEF	SBUS	3.14	3.57
tblVehicleEF	SBUS	1.66	2.53

tblVehicleEF	SBUS	5.4120e-003	5.3230e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.8050e-003	2.0860e-003
tblVehicleEF	SBUS	7.5090e-003	9.9620e-003
tblVehicleEF	SBUS	0.21	0.29
tblVehicleEF	SBUS	0.13	0.12
tblVehicleEF	SBUS	3.8800e-003	5.0810e-003
tblVehicleEF	SBUS	0.30	0.51
tblVehicleEF	SBUS	3.14	3.57
tblVehicleEF	SBUS	1.77	2.71
tblVehicleEF	UBUS	3.48	3.54
tblVehicleEF	UBUS	4.88	4.94
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003
tblVehicleEF	UBUS	13.62	14.14
tblVehicleEF	UBUS	0.63	0.63
tblVehicleEF	UBUS	0.23	0.24
tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004
tblVehicleEF	UBUS	1.6400e-003	1.5960e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	7.8000e-004	7.6300e-004
tblVehicleEF	UBUS	0.60	0.62
tblVehicleEF	UBUS	0.39	0.34
tblVehicleEF	UBUS	0.37	0.37
tblVehicleEF	UBUS	0.02	0.02

tblVehicleEF	UBUS	1.9800e-004	1.9900e-004
tblVehicleEF	UBUS	1.6400e-003	1.5960e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	7.8000e-004	7.6300e-004
tblVehicleEF	UBUS	0.68	0.70
tblVehicleEF	UBUS	0.39	0.34
tblVehicleEF	UBUS	0.39	0.39
tblVehicleEF	UBUS	3.53	3.59
tblVehicleEF	UBUS	3.59	3.64
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003
tblVehicleEF	UBUS	13.06	13.56
tblVehicleEF	UBUS	0.58	0.58
tblVehicleEF	UBUS	0.23	0.24
tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004
tblVehicleEF	UBUS	4.1930e-003	4.1030e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.6980e-003	1.6920e-003
tblVehicleEF	UBUS	0.61	0.63
tblVehicleEF	UBUS	0.36	0.31
tblVehicleEF	UBUS	0.31	0.30
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.7600e-004	1.7700e-004
tblVehicleEF	UBUS	4.1930e-003	4.1030e-003
tblVehicleEF	UBUS	0.04	0.04

tblVehicleEF	UBUS	1.6980e-003	1.6920e-003
tblVehicleEF	UBUS	0.69	0.71
tblVehicleEF	UBUS	0.36	0.31
tblVehicleEF	UBUS	0.33	0.32
tblVehicleEF	UBUS	3.45	3.51
tblVehicleEF	UBUS	6.00	6.08
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003
tblVehicleEF	UBUS	13.85	14.37
tblVehicleEF	UBUS	0.67	0.66
tblVehicleEF	UBUS	0.23	0.24
tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004
tblVehicleEF	UBUS	5.9400e-004	5.7400e-004
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	3.5600e-004	3.4400e-004
tblVehicleEF	UBUS	0.60	0.61
tblVehicleEF	UBUS	0.48	0.41
tblVehicleEF	UBUS	0.42	0.42
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	2.1700e-004	2.1900e-004
tblVehicleEF	UBUS	5.9400e-004	5.7400e-004
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	3.5600e-004	3.4400e-004
tblVehicleEF	UBUS	0.67	0.69
tblVehicleEF	UBUS	0.48	0.41

tblVehicleEF	UBUS	0.45	0.44

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					
2017	0.7815	8.3700	6.7417	0.0108	2.1056	0.3653	2.4708	0.6121	0.3374	0.9495	0.0000	969.5546	969.5546	0.1750	0.0000	973.2296
2018	1.3486	8.2341	15.1510	0.0309	1.5830	0.3026	1.8856	0.4277	0.2832	0.7109	0.0000	2,456.6310	2,456.6310	0.1535	0.0000	2,459.8538
2019	1.2171	7.4717	14.1831	0.0309	1.5830	0.2655	1.8484	0.4277	0.2484	0.6761	0.0000	2,396.5059	2,396.5059	0.1479	0.0000	2,399.6117
2020	1.1165	6.6179	13.4596	0.0309	1.5880	0.2333	1.8213	0.4291	0.2183	0.6473	0.0000	2,334.0844	2,334.0844	0.1439	0.0000	2,337.1061
2021	11.7584	3.5267	7.5233	0.0177	0.8854	0.1340	1.0193	0.2389	0.1251	0.3641	0.0000	1,328.1867	1,328.1867	0.0993	0.0000	1,330.2709
Total	**16.2221**	**34.2205**	**57.0586**	**0.1212**	**7.7449**	**1.3006**	**9.0455**	**2.1355**	**1.2123**	**3.3478**	**0.0000**	**9,484.9625**	**9,484.9625**	**0.7195**	**0.0000**	**9,500.0720**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2927	4.3517	5.5394	0.0108	1.0361	0.0664	1.1025	0.2995	0.0650	0.3645	0.0000	969.5539	969.5539	0.1750	0.0000	973.2289
2018	1.0360	6.8121	15.1952	0.0309	1.5830	0.0900	1.6729	0.4277	0.0845	0.5122	0.0000	2,456.6306	2,456.6306	0.1535	0.0000	2,459.8533
2019	0.9541	6.4090	14.2919	0.0309	1.5830	0.0855	1.6685	0.4277	0.0804	0.5081	0.0000	2,396.5055	2,396.5055	0.1479	0.0000	2,399.6112
2020	0.8904	5.8471	13.6177	0.0309	1.5880	0.0798	1.6678	0.4291	0.0752	0.5042	0.0000	2,334.0839	2,334.0839	0.1439	0.0000	2,337.1057
2021	11.6278	3.2040	7.7239	0.0177	0.8854	0.0430	0.9283	0.2389	0.0408	0.2797	0.0000	1,328.1864	1,328.1864	0.0993	0.0000	1,330.2706
Total	**14.8011**	**26.6239**	**56.3682**	**0.1212**	**6.6754**	**0.3647**	**7.0401**	**1.8229**	**0.3459**	**2.1688**	**0.0000**	**9,484.9602**	**9,484.9602**	**0.7195**	**0.0000**	**9,500.0697**

	ROG	NOx	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	**8.76**	**22.20**	**1.21**	**0.00**	**13.81**	**71.96**	**22.17**	**14.64**	**71.47**	**35.22**	**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	tons/yr										MT/yr					
Area	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Energy	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	2,127.3199	2,127.3199	0.0758	0.0269	2,137.2586
Mobile	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Waste						0.0000	0.0000		0.0000	0.0000	152.7182	0.0000	152.7182	9.0254	0.0000	342.2514
Water						0.0000	0.0000		0.0000	0.0000	10.2841	94.7976	105.0817	1.0606	0.0258	135.3602
Total	**15.6873**	**12.4939**	**56.7228**	**0.1024**	**6.1535**	**0.3999**	**6.5534**	**1.6538**	**0.3872**	**2.0409**	**180.6320**	**9,127.5116**	**9,308.1436**	**10.4538**	**0.0538**	**9,544.3523**

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	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Energy	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	2,127.3199	2,127.3199	0.0758	0.0269	2,137.2586
Mobile	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Waste						0.0000	0.0000		0.0000	0.0000	152.7182	0.0000	152.7182	9.0254	0.0000	342.2514
Water						0.0000	0.0000		0.0000	0.0000	10.2841	94.7976	105.0817	1.0604	0.0258	135.3437
Total	**15.6873**	**12.4939**	**56.7228**	**0.1024**	**6.1535**	**0.3999**	**6.5534**	**1.6538**	**0.3872**	**2.0409**	**180.6320**	**9,127.5116**	**9,308.1436**	**10.4537**	**0.0538**	**9,544.3359**

	ROG	NOx	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**	**0.07**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	667.9400
Vegetation Land Change	-299.9760
Total	**367.9640**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2017	7/14/2017	6	90	Demo and Off-Site Hauling
2	Site Preparation	Site Preparation	6/22/2017	8/7/2017	6	40	
3	Grading	Grading	8/8/2017	12/14/2017	6	111	
4	Building Construction	Building Construction	12/15/2017	7/8/2021	6	1116	
5	Paving	Paving	7/9/2021	10/4/2021	6	75	
6	Architectural Coating	Architectural Coating	10/5/2021	12/30/2021	6	75	

Acres of Grading (Site Preparation Phase): 67.6

Acres of Grading (Grading Phase): 67.6

Acres of Paving: 0

Residential Indoor: 834,300; Residential Outdoor: 278,100; Non-Residential Indoor: 2,367,552; Non-Residential Outdoor: 789,184 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	0	0.00	85	0.78
Demolition	Excavators	3	8.00	162	0.38
Demolition	Generator Sets	0	0.00	84	0.74
Demolition	Off-Highway Trucks	0	0.00	400	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Demolition	Rubber Tired Loaders	0	0.00	199	0.36
Demolition	Skid Steer Loaders	0	0.00	64	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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	125	0.42
Paving	Paving Equipment	2	8.00	130	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
Demolition	6	15.00	0.00	7,610.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	780.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	895.00	308.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	179.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

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					1.1769	0.0000	1.1769	0.1782	0.0000	0.1782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1822	1.9214	1.5252	1.8000e-003		0.0956	0.0956		0.0891	0.0891	0.0000	164.7820	164.7820	0.0452	0.0000	165.7313
Total	**0.1822**	**1.9214**	**1.5252**	**1.8000e-003**	**1.1769**	**0.0956**	**1.2726**	**0.1782**	**0.0891**	**0.2673**	**0.0000**	**164.7820**	**164.7820**	**0.0452**	**0.0000**	**165.7313**

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	0.0813	1.0235	0.9065	2.8700e-003	0.0642	0.0132	0.0774	0.0177	0.0121	0.0298	0.0000	258.0702	258.0702	1.8800e-003	0.0000	258.1097
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	2.2900e-003	3.4200e-003	0.0328	7.0000e-005	6.1300e-003	5.0000e-005	6.1800e-003	1.6300e-003	5.0000e-005	1.6800e-003	0.0000	5.3608	5.3608	2.9000e-004	0.0000	5.3668
Total	**0.0836**	**1.0269**	**0.9393**	**2.9400e-003**	**0.0703**	**0.0132**	**0.0836**	**0.0193**	**0.0122**	**0.0315**	**0.0000**	**263.4310**	**263.4310**	**2.1700e-003**	**0.0000**	**263.4765**

3.2 Demolition - 2017

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					0.5296	0.0000	0.5296	0.0802	0.0000	0.0802	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0427	0.8443	1.1369	1.8000e-003		0.0181	0.0181		0.0181	0.0181	0.0000	164.7818	164.7818	0.0452	0.0000	165.7311
Total	**0.0427**	**0.8443**	**1.1369**	**1.8000e-003**	**0.5296**	**0.0181**	**0.5477**	**0.0802**	**0.0181**	**0.0983**	**0.0000**	**164.7818**	**164.7818**	**0.0452**	**0.0000**	**165.7311**

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	0.0813	1.0235	0.9065	2.8700e-003	0.0642	0.0132	0.0774	0.0177	0.0121	0.0298	0.0000	258.0702	258.0702	1.8800e-003	0.0000	258.1097
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	2.2900e-003	3.4200e-003	0.0328	7.0000e-005	6.1300e-003	5.0000e-005	6.1800e-003	1.6300e-003	5.0000e-005	1.6800e-003	0.0000	5.3608	5.3608	2.9000e-004	0.0000	5.3668
Total	**0.0836**	**1.0269**	**0.9393**	**2.9400e-003**	**0.0703**	**0.0132**	**0.0836**	**0.0193**	**0.0122**	**0.0315**	**0.0000**	**263.4310**	**263.4310**	**2.1700e-003**	**0.0000**	**263.4765**

3.3 Site Preparation - 2017

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					0.3972	0.0000	0.3972	0.2025	0.0000	0.2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0968	1.0351	0.7879	7.8000e-004		0.0551	0.0551		0.0507	0.0507	0.0000	72.6308	72.6308	0.0223	0.0000	73.0981
Total	**0.0968**	**1.0351**	**0.7879**	**7.8000e-004**	**0.3972**	**0.0551**	**0.4523**	**0.2025**	**0.0507**	**0.2532**	**0.0000**	**72.6308**	**72.6308**	**0.0223**	**0.0000**	**73.0981**

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	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

3.3 Site Preparation - 2017

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					0.1787	0.0000	0.1787	0.0911	0.0000	0.0911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0190	0.3892	0.4680	7.8000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	72.6307	72.6307	0.0223	0.0000	73.0980
Total	**0.0190**	**0.3892**	**0.4680**	**7.8000e-004**	**0.1787**	**0.0110**	**0.1897**	**0.0911**	**0.0110**	**0.1021**	**0.0000**	**72.6307**	**72.6307**	**0.0223**	**0.0000**	**73.0980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

3.4 Grading - 2017

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					0.3704	0.0000	0.3704	0.1876	0.0000	0.1876	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3385	3.8624	2.5977	3.4200e-003		0.1841	0.1841		0.1694	0.1694	0.0000	317.8703	317.8703	0.0974	0.0000	319.9156
Total	**0.3385**	**3.8624**	**2.5977**	**3.4200e-003**	**0.3704**	**0.1841**	**0.5545**	**0.1876**	**0.1694**	**0.3570**	**0.0000**	**317.8703**	**317.8703**	**0.0974**	**0.0000**	**319.9156**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.3400e-003	0.1049	0.0929	2.9000e-004	6.5800e-003	1.3500e-003	7.9300e-003	1.8100e-003	1.2400e-003	3.0500e-003	0.0000	26.4514	26.4514	1.9000e-004	0.0000	26.4554
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	3.7600e-003	5.6200e-003	0.0539	1.2000e-004	0.0101	8.0000e-005	0.0102	2.6800e-003	8.0000e-005	2.7600e-003	0.0000	8.8155	8.8155	4.7000e-004	0.0000	8.8254
Total	**0.0121**	**0.1105**	**0.1468**	**4.1000e-004**	**0.0167**	**1.4300e-003**	**0.0181**	**4.4900e-003**	**1.3200e-003**	**5.8100e-003**	**0.0000**	**35.2668**	**35.2668**	**6.6000e-004**	**0.0000**	**35.2808**

3.4 Grading - 2017

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					0.1667	0.0000	0.1667	0.0844	0.0000	0.0844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0840	1.6528	2.1059	3.4200e-003		0.0185	0.0185		0.0185	0.0185	0.0000	317.8699	317.8699	0.0974	0.0000	319.9152
Total	**0.0840**	**1.6528**	**2.1059**	**3.4200e-003**	**0.1667**	**0.0185**	**0.1852**	**0.0844**	**0.0185**	**0.1029**	**0.0000**	**317.8699**	**317.8699**	**0.0974**	**0.0000**	**319.9152**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.3400e-003	0.1049	0.0929	2.9000e-004	6.5800e-003	1.3500e-003	7.9300e-003	1.8100e-003	1.2400e-003	3.0500e-003	0.0000	26.4514	26.4514	1.9000e-004	0.0000	26.4554
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	3.7600e-003	5.6200e-003	0.0539	1.2000e-004	0.0101	8.0000e-005	0.0102	2.6800e-003	8.0000e-005	2.7600e-003	0.0000	8.8155	8.8155	4.7000e-004	0.0000	8.8254
Total	**0.0121**	**0.1105**	**0.1468**	**4.1000e-004**	**0.0167**	**1.4300e-003**	**0.0181**	**4.4900e-003**	**1.3200e-003**	**5.8100e-003**	**0.0000**	**35.2668**	**35.2668**	**6.6000e-004**	**0.0000**	**35.2808**

3.5 Building Construction - 2017

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	0.0217	0.1848	0.1269	1.9000e-004		0.0125	0.0125		0.0117	0.0117	0.0000	16.7635	16.7635	4.1300e-003	0.0000	16.8502
Total	**0.0217**	**0.1848**	**0.1269**	**1.9000e-004**		**0.0125**	**0.0125**		**0.0117**	**0.0117**	**0.0000**	**16.7635**	**16.7635**	**4.1300e-003**	**0.0000**	**16.8502**

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	0.0242	0.1953	0.2962	5.2000e-004	0.0139	2.8400e-003	0.0168	4.0000e-003	2.6100e-003	6.6200e-003	0.0000	46.1953	46.1953	3.6000e-004	0.0000	46.2029
Worker	0.0212	0.0317	0.3042	6.8000e-004	0.0569	4.6000e-004	0.0573	0.0151	4.3000e-004	0.0156	0.0000	49.7558	49.7558	2.6700e-003	0.0000	49.8120
Total	**0.0455**	**0.2271**	**0.6004**	**1.2000e-003**	**0.0708**	**3.3000e-003**	**0.0741**	**0.0191**	**3.0400e-003**	**0.0222**	**0.0000**	**95.9511**	**95.9511**	**3.0300e-003**	**0.0000**	**96.0149**

3.5 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7000e-003	0.0992	0.1247	1.9000e-004		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	16.7635	16.7635	4.1300e-003	0.0000	16.8502
Total	**4.7000e-003**	**0.0992**	**0.1247**	**1.9000e-004**		**9.5000e-004**	**9.5000e-004**		**9.5000e-004**	**9.5000e-004**	**0.0000**	**16.7635**	**16.7635**	**4.1300e-003**	**0.0000**	**16.8502**

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	0.0242	0.1953	0.2962	5.2000e-004	0.0139	2.8400e-003	0.0168	4.0000e-003	2.6100e-003	6.6200e-003	0.0000	46.1953	46.1953	3.6000e-004	0.0000	46.2029
Worker	0.0212	0.0317	0.3042	6.8000e-004	0.0569	4.6000e-004	0.0573	0.0151	4.3000e-004	0.0156	0.0000	49.7558	49.7558	2.6700e-003	0.0000	49.8120
Total	**0.0455**	**0.2271**	**0.6004**	**1.2000e-003**	**0.0708**	**3.3000e-003**	**0.0741**	**0.0191**	**3.0400e-003**	**0.0222**	**0.0000**	**95.9511**	**95.9511**	**3.0300e-003**	**0.0000**	**96.0149**

3.5 Building Construction - 2018

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	0.4177	3.6403	2.7439	4.1900e-003		0.2339	0.2339		0.2199	0.2199	0.0000	370.5446	370.5446	0.0907	0.0000	372.4488
Total	**0.4177**	**3.6403**	**2.7439**	**4.1900e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**370.5446**	**370.5446**	**0.0907**	**0.0000**	**372.4488**

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	0.5100	3.9562	6.3421	0.0115	0.3116	0.0588	0.3705	0.0895	0.0541	0.1436	0.0000	1,015.0022	1,015.0022	7.9200e-003	0.0000	1,015.1684
Worker	0.4210	0.6377	6.0650	0.0152	1.2713	9.9600e-003	1.2813	0.3382	9.2100e-003	0.3474	0.0000	1,071.0843	1,071.0843	0.0549	0.0000	1,072.2366
Total	**0.9309**	**4.5938**	**12.4071**	**0.0267**	**1.5830**	**0.0688**	**1.6518**	**0.4277**	**0.0633**	**0.4910**	**0.0000**	**2,086.0865**	**2,086.0865**	**0.0628**	**0.0000**	**2,087.4050**

3.5 Building Construction - 2018

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	0.1051	2.2183	2.7881	4.1900e-003		0.0212	0.0212		0.0212	0.0212	0.0000	370.5441	370.5441	0.0907	0.0000	372.4484
Total	**0.1051**	**2.2183**	**2.7881**	**4.1900e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**370.5441**	**370.5441**	**0.0907**	**0.0000**	**372.4484**

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	0.5100	3.9562	6.3421	0.0115	0.3116	0.0588	0.3705	0.0895	0.0541	0.1436	0.0000	1,015.0022	1,015.0022	7.9200e-003	0.0000	1,015.1684
Worker	0.4210	0.6377	6.0650	0.0152	1.2713	9.9600e-003	1.2813	0.3382	9.2100e-003	0.3474	0.0000	1,071.0843	1,071.0843	0.0549	0.0000	1,072.2366
Total	**0.9309**	**4.5938**	**12.4071**	**0.0267**	**1.5830**	**0.0688**	**1.6518**	**0.4277**	**0.0633**	**0.4910**	**0.0000**	**2,086.0865**	**2,086.0865**	**0.0628**	**0.0000**	**2,087.4050**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3680	3.2810	2.6793	4.1900e-003		0.2011	0.2011		0.1891	0.1891	0.0000	366.4021	366.4021	0.0892	0.0000	368.2742
Total	**0.3680**	**3.2810**	**2.6793**	**4.1900e-003**		**0.2011**	**0.2011**		**0.1891**	**0.1891**	**0.0000**	**366.4021**	**366.4021**	**0.0892**	**0.0000**	**368.2742**

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	0.4662	3.6099	5.9999	0.0115	0.3116	0.0546	0.3663	0.0895	0.0502	0.1398	0.0000	997.4701	997.4701	7.7300e-003	0.0000	997.6324
Worker	0.3829	0.5808	5.5039	0.0152	1.2713	9.7300e-003	1.2811	0.3382	9.0200e-003	0.3472	0.0000	1,032.6337	1,032.6337	0.0510	0.0000	1,033.7051
Total	**0.8491**	**4.1907**	**11.5038**	**0.0267**	**1.5830**	**0.0644**	**1.6473**	**0.4277**	**0.0593**	**0.4870**	**0.0000**	**2,030.1038**	**2,030.1038**	**0.0588**	**0.0000**	**2,031.3375**

3.5 Building Construction - 2019

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	0.1051	2.2183	2.7881	4.1900e-003		0.0212	0.0212		0.0212	0.0212	0.0000	366.4017	366.4017	0.0892	0.0000	368.2738
Total	**0.1051**	**2.2183**	**2.7881**	**4.1900e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**366.4017**	**366.4017**	**0.0892**	**0.0000**	**368.2738**

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	0.4662	3.6099	5.9999	0.0115	0.3116	0.0546	0.3663	0.0895	0.0502	0.1398	0.0000	997.4701	997.4701	7.7300e-003	0.0000	997.6324
Worker	0.3829	0.5808	5.5039	0.0152	1.2713	9.7300e-003	1.2811	0.3382	9.0200e-003	0.3472	0.0000	1,032.6337	1,032.6337	0.0510	0.0000	1,033.7051
Total	**0.8491**	**4.1907**	**11.5038**	**0.0267**	**1.5830**	**0.0644**	**1.6473**	**0.4277**	**0.0593**	**0.4870**	**0.0000**	**2,030.1038**	**2,030.1038**	**0.0588**	**0.0000**	**2,031.3375**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3315	2.9962	2.6389	4.2100e-003		0.1747	0.1747		0.1643	0.1643	0.0000	362.1203	362.1203	0.0882	0.0000	363.9731
Total	**0.3315**	**2.9962**	**2.6389**	**4.2100e-003**		**0.1747**	**0.1747**		**0.1643**	**0.1643**	**0.0000**	**362.1203**	**362.1203**	**0.0882**	**0.0000**	**363.9731**

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	0.4277	3.0850	5.7285	0.0115	0.3126	0.0489	0.3615	0.0898	0.0450	0.1348	0.0000	977.5734	977.5734	7.5100e-003	0.0000	977.7312
Worker	0.3573	0.5368	5.0921	0.0152	1.2754	9.6400e-003	1.2850	0.3393	8.9400e-003	0.3482	0.0000	994.3906	994.3906	0.0482	0.0000	995.4018
Total	**0.7850**	**3.6217**	**10.8206**	**0.0267**	**1.5880**	**0.0586**	**1.6466**	**0.4291**	**0.0540**	**0.4830**	**0.0000**	**1,971.9640**	**1,971.9640**	**0.0557**	**0.0000**	**1,973.1330**

3.5 Building Construction - 2020

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	0.1054	2.2253	2.7970	4.2100e-003		0.0212	0.0212		0.0212	0.0212	0.0000	362.1199	362.1199	0.0882	0.0000	363.9726
Total	**0.1054**	**2.2253**	**2.7970**	**4.2100e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**362.1199**	**362.1199**	**0.0882**	**0.0000**	**363.9726**

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	0.4277	3.0850	5.7285	0.0115	0.3126	0.0489	0.3615	0.0898	0.0450	0.1348	0.0000	977.5734	977.5734	7.5100e-003	0.0000	977.7312
Worker	0.3573	0.5368	5.0921	0.0152	1.2754	9.6400e-003	1.2850	0.3393	8.9400e-003	0.3482	0.0000	994.3906	994.3906	0.0482	0.0000	995.4018
Total	**0.7850**	**3.6217**	**10.8206**	**0.0267**	**1.5880**	**0.0586**	**1.6466**	**0.4291**	**0.0540**	**0.4830**	**0.0000**	**1,971.9640**	**1,971.9640**	**0.0557**	**0.0000**	**1,973.1330**

3.5 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	0.1533	1.4046	1.3396	2.1700e-003		0.0774	0.0774		0.0727	0.0727	0.0000	186.8486	186.8486	0.0450	0.0000	187.7939
Total	**0.1533**	**1.4046**	**1.3396**	**2.1700e-003**		**0.0774**	**0.0774**		**0.0727**	**0.0727**	**0.0000**	**186.8486**	**186.8486**	**0.0450**	**0.0000**	**187.7939**

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	0.2128	1.3066	2.8796	5.9300e-003	0.1613	0.0227	0.1840	0.0464	0.0209	0.0672	0.0000	503.6483	503.6483	3.8700e-003	0.0000	503.7295
Worker	0.1739	0.2577	2.4517	7.8500e-003	0.6580	4.9500e-003	0.6630	0.1750	4.5900e-003	0.1796	0.0000	504.0429	504.0429	0.0236	0.0000	504.5380
Total	**0.3866**	**1.5643**	**5.3313**	**0.0138**	**0.8193**	**0.0276**	**0.8470**	**0.2214**	**0.0255**	**0.2468**	**0.0000**	**1,007.6912**	**1,007.6912**	**0.0274**	**0.0000**	**1,008.2675**

3.5 Building Construction - 2021

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	0.0544	1.1481	1.4431	2.1700e-003		0.0110	0.0110		0.0110	0.0110	0.0000	186.8484	186.8484	0.0450	0.0000	187.7937
Total	**0.0544**	**1.1481**	**1.4431**	**2.1700e-003**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**186.8484**	**186.8484**	**0.0450**	**0.0000**	**187.7937**

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	0.2128	1.3066	2.8796	5.9300e-003	0.1613	0.0227	0.1840	0.0464	0.0209	0.0672	0.0000	503.6483	503.6483	3.8700e-003	0.0000	503.7295
Worker	0.1739	0.2577	2.4517	7.8500e-003	0.6580	4.9500e-003	0.6630	0.1750	4.5900e-003	0.1796	0.0000	504.0429	504.0429	0.0236	0.0000	504.5380
Total	**0.3866**	**1.5643**	**5.3313**	**0.0138**	**0.8193**	**0.0276**	**0.8470**	**0.2214**	**0.0255**	**0.2468**	**0.0000**	**1,007.6912**	**1,007.6912**	**0.0274**	**0.0000**	**1,008.2675**

3.6 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	0.0462	0.4748	0.5382	8.4000e-004		0.0249	0.0249		0.0230	0.0230	0.0000	73.4906	73.4906	0.0238	0.0000	73.9897
Paving	0.0161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0623**	**0.4748**	**0.5382**	**8.4000e-004**		**0.0249**	**0.0249**		**0.0230**	**0.0230**	**0.0000**	**73.4906**	**73.4906**	**0.0238**	**0.0000**	**73.9897**

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	1.3500e-003	2.0000e-003	0.0190	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.9110	3.9110	1.8000e-004	0.0000	3.9148
Total	**1.3500e-003**	**2.0000e-003**	**0.0190**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.9110**	**3.9110**	**1.8000e-004**	**0.0000**	**3.9148**

3.6 Paving - 2021

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	0.0206	0.4149	0.6348	8.4000e-004		3.3600e-003	3.3600e-003		3.3600e-003	3.3600e-003	0.0000	73.4905	73.4905	0.0238	0.0000	73.9896
Paving	0.0161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0367**	**0.4149**	**0.6348**	**8.4000e-004**		**3.3600e-003**	**3.3600e-003**		**3.3600e-003**	**3.3600e-003**	**0.0000**	**73.4905**	**73.4905**	**0.0238**	**0.0000**	**73.9896**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	2.0000e-003	0.0190	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.9110	3.9110	1.8000e-004	0.0000	3.9148
Total	**1.3500e-003**	**2.0000e-003**	**0.0190**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.9110**	**3.9110**	**1.8000e-004**	**0.0000**	**3.9148**

3.7 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	11.1304					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2100e-003	0.0573	0.0682	1.1000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003	0.0000	9.5747	9.5747	6.6000e-004	0.0000	9.5885
Total	**11.1387**	**0.0573**	**0.0682**	**1.1000e-004**		**3.5300e-003**	**3.5300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**9.5747**	**9.5747**	**6.6000e-004**	**0.0000**	**9.5885**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0161	0.0239	0.2270	7.3000e-004	0.0609	4.6000e-004	0.0614	0.0162	4.2000e-004	0.0166	0.0000	46.6706	46.6706	2.1800e-003	0.0000	46.7165
Total	**0.0161**	**0.0239**	**0.2270**	**7.3000e-004**	**0.0609**	**4.6000e-004**	**0.0614**	**0.0162**	**4.2000e-004**	**0.0166**	**0.0000**	**46.6706**	**46.6706**	**2.1800e-003**	**0.0000**	**46.7165**

3.7 Architectural Coating - 2021

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	11.1304					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2300e-003	0.0509	0.0687	1.1000e-004		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	9.5747	9.5747	6.6000e-004	0.0000	9.5885
Total	**11.1327**	**0.0509**	**0.0687**	**1.1000e-004**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**9.5747**	**9.5747**	**6.6000e-004**	**0.0000**	**9.5885**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0161	0.0239	0.2270	7.3000e-004	0.0609	4.6000e-004	0.0614	0.0162	4.2000e-004	0.0166	0.0000	46.6706	46.6706	2.1800e-003	0.0000	46.7165
Total	**0.0161**	**0.0239**	**0.2270**	**7.3000e-004**	**0.0609**	**4.6000e-004**	**0.0614**	**0.0162**	**4.2000e-004**	**0.0166**	**0.0000**	**46.6706**	**46.6706**	**2.1800e-003**	**0.0000**	**46.7165**

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	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Unmitigated	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	38.00	38.00	38.00	81,127	81,127
Condo/Townhouse	1,528.88	1,661.12	1408.24	3,416,719	3,416,719
Health Club	461.02	292.18	374.22	733,394	733,394
High Turnover (Sit Down Restaurant)	762.90	950.22	791.04	920,879	920,879
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	957.00	1,008.00	877.00	2,127,126	2,127,126
Supermarket	6,747.84	11,720.94	10985.04	9,171,887	9,171,887
Total	10,495.64	15,670.46	14,473.54	16,451,132	16,451,132

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Other 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
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.543091	0.062201	0.166716	0.110184	0.030625	0.004564	0.019041	0.050825	0.001789	0.003661	0.005684	0.000199	0.001418

5.0 Energy Detail

4.4 Fleet Mix

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	1,345.0949	1,345.0949	0.0608	0.0126	1,350.2731
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,345.0949	1,345.0949	0.0608	0.0126	1,350.2731
NaturalGas Mitigated	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	782.2250	782.2250	0.0150	0.0143	786.9855
NaturalGas Unmitigated	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	782.2250	782.2250	0.0150	0.0143	786.9855

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					
Condo/Townhouse	5.6351e+006	0.0304	0.2597	0.1105	1.6600e-003		0.0210	0.0210		0.0210	0.0210	0.0000	300.7106	300.7106	5.7600e-003	5.5100e-003	302.5407
Health Club	359520	1.9400e-003	0.0176	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1854	19.1854	3.7000e-004	3.5000e-004	19.3021
High Turnover (Sit Down Restaurant)	1.02006e+006	5.5000e-003	0.0500	0.0420	3.0000e-004		3.8000e-003	3.8000e-003		3.8000e-003	3.8000e-003	0.0000	54.4343	54.4343	1.0400e-003	1.0000e-003	54.7656
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	5.102e+006	0.0275	0.2351	0.1000	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	272.2622	272.2622	5.2200e-003	4.9900e-003	273.9191
Supermarket	2.54166e+006	0.0137	0.1246	0.1047	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.6327	135.6327	2.6000e-003	2.4900e-003	136.4581
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0791**	**0.6870**	**0.3720**	**4.3200e-003**		**0.0546**	**0.0546**		**0.0546**	**0.0546**	**0.0000**	**782.2251**	**782.2251**	**0.0150**	**0.0143**	**786.9855**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Health Club	359520	1.9400e-003	0.0176	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1854	19.1854	3.7000e-004	3.5000e-004	19.3021
High Turnover (Sit Down Restaurant)	1.02006e+006	5.5000e-003	0.0500	0.0420	3.0000e-004		3.8000e-003	3.8000e-003		3.8000e-003	3.8000e-003	0.0000	54.4343	54.4343	1.0400e-003	1.0000e-003	54.7656
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	5.102e+006	0.0275	0.2351	0.1000	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	272.2622	272.2622	5.2200e-003	4.9900e-003	273.9191
Supermarket	2.54166e+006	0.0137	0.1246	0.1047	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.6327	135.6327	2.6000e-003	2.4900e-003	136.4581
City Park	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
Condo/Townhouse	5.6351e+006	0.0304	0.2597	0.1105	1.6600e-003		0.0210	0.0210		0.0210	0.0210	0.0000	300.7106	300.7106	5.7600e-003	5.5100e-003	302.5407
Total		**0.0791**	**0.6870**	**0.3720**	**4.3200e-003**		**0.0546**	**0.0546**		**0.0546**	**0.0546**	**0.0000**	**782.2251**	**782.2251**	**0.0150**	**0.0143**	**786.9855**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	988944	287.6952	0.0130	2.6900e-003	288.8027
Health Club	115780	33.6817	1.5200e-003	3.2000e-004	33.8114
High Turnover (Sit Down Restaurant)	181440	52.7830	2.3900e-003	4.9000e-004	52.9862
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	76744.8	22.3259	1.0100e-003	2.1000e-004	22.4119
Single Family Housing	695397	202.2990	9.1500e-003	1.8900e-003	203.0778
Supermarket	2.56542e+006	746.3101	0.0338	6.9800e-003	749.1832
Total		**1,345.0949**	**0.0608**	**0.0126**	**1,350.2731**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	988944	287.6952	0.0130	2.6900e-003	288.8027
Health Club	115780	33.6817	1.5200e-003	3.2000e-004	33.8114
High Turnover (Sit Down Restaurant)	181440	52.7830	2.3900e-003	4.9000e-004	52.9862
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	76744.8	22.3259	1.0100e-003	2.1000e-004	22.4119
Single Family Housing	695397	202.2990	9.1500e-003	1.8900e-003	203.0778
Supermarket	2.56542e+006	746.3101	0.0338	6.9800e-003	749.1832
Total		**1,345.0949**	**0.0608**	**0.0126**	**1,350.2731**

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	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Unmitigated	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1130					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7678	0.0141	1.1609	1.1700e-003		0.1691	0.1691		0.1691	0.1691	17.6297	10.0113	27.6410	0.0368	1.0500e-003	28.7389
Landscaping	0.0743	0.0284	2.4660	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0305	4.0305	3.8700e-003	0.0000	4.1118
Total	**10.0588**	**0.0425**	**3.6269**	**1.3000e-003**		**0.1828**	**0.1828**		**0.1827**	**0.1827**	**17.6297**	**14.0418**	**31.6715**	**0.0407**	**1.0500e-003**	**32.8507**

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	1.1130					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7678	0.0141	1.1609	1.1700e-003		0.1691	0.1691		0.1691	0.1691	17.6297	10.0113	27.6410	0.0368	1.0500e-003	28.7389
Landscaping	0.0743	0.0284	2.4660	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0305	4.0305	3.8700e-003	0.0000	4.1118
Total	**10.0588**	**0.0425**	**3.6269**	**1.3000e-003**		**0.1828**	**0.1828**		**0.1827**	**0.1827**	**17.6297**	**14.0418**	**31.6715**	**0.0407**	**1.0500e-003**	**32.8507**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	105.0817	1.0604	0.0258	135.3437
Unmitigated	105.0817	1.0606	0.0258	135.3602

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 28.4764	28.9944	1.3100e-003	2.7000e-004	29.1060
Condo/Townhouse	15.1157 / 9.52948	38.2924	0.4941	0.0119	52.3701
Health Club	0.828004 / 0.507486	2.0828	0.0271	6.5000e-004	2.8539
High Turnover (Sit Down Restaurant)	1.8212 / 0.116247	3.5629	0.0595	1.4300e-003	5.2550
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.5154 / 4.10754	16.5053	0.2130	5.1500e-003	22.5733
Supermarket	8.1357 / 0.25162	15.6439	0.2657	6.3800e-003	23.2018
Total		**105.0817**	**1.0606**	**0.0258**	**135.3601**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 28.4764	28.9944	1.3100e-003	2.7000e-004	29.1060
Condo/Townhouse	15.1157 / 9.52948	38.2924	0.4940	0.0119	52.3625
Health Club	0.828004 / 0.507486	2.0828	0.0271	6.5000e-004	2.8535
High Turnover (Sit Down Restaurant)	1.8212 / 0.116247	3.5629	0.0595	1.4300e-003	5.2541
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.5154 / 4.10754	16.5053	0.2129	5.1400e-003	22.5700
Supermarket	8.1357 / 0.25162	15.6439	0.2656	6.3700e-003	23.1977
Total		**105.0817**	**1.0604**	**0.0258**	**135.3437**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	152.7182	9.0254	0.0000	342.2514
Unmitigated	152.7182	9.0254	0.0000	342.2514

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	2.06	0.4182	0.0247	0.0000	0.9371
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	48.5486
Health Club	79.8	16.1987	0.9573	0.0000	36.3023
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	120.12	24.3833	1.4410	0.0000	54.6445
Supermarket	372.24	75.5614	4.4656	0.0000	169.3379
Total		**152.7182**	**9.0254**	**0.0000**	**342.2514**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	2.06	0.4182	0.0247	0.0000	0.9371
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	48.5486
Health Club	79.8	16.1987	0.9573	0.0000	36.3023
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	120.12	24.3833	1.4410	0.0000	54.6445
Supermarket	372.24	75.5614	4.4656	0.0000	169.3379
Total		**152.7182**	**9.0254**	**0.0000**	**342.2514**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	367.9640	0.0000	0.0000	367.9640

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	69.6 / 0	-299.9760	0.0000	0.0000	-299.9760
Total		**-299.9760**	**0.0000**	**0.0000**	**-299.9760**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Mixed Hardwood	910	667.9400	0.0000	0.0000	667.9400
Total		**667.9400**	**0.0000**	**0.0000**	**667.9400**

Oak Knoll Phase I - Onsite Crushing

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	10.30	Acre	10.30	448,668.00	0
Parking Lot	87.21	1000sqft	2.00	87,210.00	0
City Park	23.90	Acre	23.90	1,041,084.00	0
Health Club	14.00	1000sqft	2.80	14,000.00	0
High Turnover (Sit Down Restaurant)	6.00	1000sqft	0.55	6,000.00	0
Condo/Townhouse	232.00	Dwelling Unit	13.00	232,000.00	664
Single Family Housing	100.00	Dwelling Unit	9.20	180,000.00	286
Supermarket	66.00	1000sqft	6.05	66,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Updated project specific data.

Construction Phase - Project specific construction schedule.

Off-road Equipment - Project specific info for on-site material crushing.

Trips and VMT - No hauling trips for on-site processing.

Demolition -

Grading - Project specific information.

Architectural Coating -

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation.

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstructionPhase	PhaseStartDate	8/19/2017	6/22/2017
tblGrading	AcresOfGrading	277.50	67.60
tblGrading	AcresOfGrading	0.00	67.60
tblLandUse	LotAcreage	0.32	2.80
tblLandUse	LotAcreage	0.14	0.55
tblLandUse	LotAcreage	14.50	13.00
tblLandUse	LotAcreage	32.47	9.20

tblLandUse	LotAcreage	1.52	6.05
tblOffRoadEquipment	HorsePower	85.00	340.00
tblOffRoadEquipment	HorsePower	84.00	134.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2024
tblTripsAndVMT	HaulingTripNumber	10,877.00	0.00
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tblVehicleEF	LDA	0.07	0.10
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tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.01	0.02

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tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.20	0.23
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tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.18	0.22

tblVehicleEF	LDA	0.06	0.09
tblVehicleEF	LDA	3.6920e-003	3.6940e-003
tblVehicleEF	LDA	7.5200e-004	7.5500e-004
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.18	0.22
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	8.3230e-003	9.4700e-003
tblVehicleEF	LDA	4.6860e-003	6.4620e-003
tblVehicleEF	LDA	0.61	0.74
tblVehicleEF	LDA	1.59	2.08
tblVehicleEF	LDA	217.40	233.93
tblVehicleEF	LDA	48.27	52.23
tblVehicleEF	LDA	0.54	0.54
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	1.8980e-003	1.8390e-003
tblVehicleEF	LDA	4.2000e-003	3.5030e-003
tblVehicleEF	LDA	1.7600e-003	1.7040e-003
tblVehicleEF	LDA	3.8970e-003	3.2490e-003
tblVehicleEF	LDA	9.3570e-003	0.01
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.23	0.27
tblVehicleEF	LDA	0.10	0.14

tblVehicleEF	LDA	3.3840e-003	3.3850e-003
tblVehicleEF	LDA	7.6500e-004	7.7200e-004
tblVehicleEF	LDA	9.3570e-003	0.01
tblVehicleEF	LDA	0.08	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.23	0.27
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.41	1.91
tblVehicleEF	LDT1	3.19	4.43
tblVehicleEF	LDT1	271.84	288.91
tblVehicleEF	LDT1	59.80	63.56
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.16	0.22
tblVehicleEF	LDT1	0.17	0.23
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.21	0.25
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.74	0.87
tblVehicleEF	LDT1	0.22	0.32
tblVehicleEF	LDT1	3.9580e-003	3.9590e-003

tblVehicleEF	LDT1	9.0700e-004	9.2400e-004
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.21	0.25
tblVehicleEF	LDT1	0.08	0.08
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.74	0.87
tblVehicleEF	LDT1	0.24	0.34
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.63	2.20
tblVehicleEF	LDT1	2.12	2.94
tblVehicleEF	LDT1	292.76	310.88
tblVehicleEF	LDT1	59.80	63.56
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.14	0.19
tblVehicleEF	LDT1	0.15	0.21
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.22	0.26
tblVehicleEF	LDT1	0.24	0.29
tblVehicleEF	LDT1	0.16	0.19
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.67	0.80
tblVehicleEF	LDT1	0.17	0.24
tblVehicleEF	LDT1	4.2680e-003	4.2660e-003
tblVehicleEF	LDT1	8.8800e-004	8.9800e-004

tblVehicleEF	LDT1	0.22	0.26
tblVehicleEF	LDT1	0.24	0.29
tblVehicleEF	LDT1	0.16	0.19
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.67	0.80
tblVehicleEF	LDT1	0.18	0.25
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.40	1.91
tblVehicleEF	LDT1	3.91	5.44
tblVehicleEF	LDT1	269.75	286.71
tblVehicleEF	LDT1	59.80	63.56
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.17	0.24
tblVehicleEF	LDT1	0.18	0.25
tblVehicleEF	LDT1	2.8090e-003	3.3250e-003
tblVehicleEF	LDT1	4.6960e-003	4.7660e-003
tblVehicleEF	LDT1	2.6050e-003	3.0830e-003
tblVehicleEF	LDT1	4.3570e-003	4.4200e-003
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.23	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.91	1.08
tblVehicleEF	LDT1	0.26	0.37
tblVehicleEF	LDT1	3.9270e-003	3.9280e-003
tblVehicleEF	LDT1	9.2000e-004	9.4100e-004
tblVehicleEF	LDT1	0.03	0.04

tblVehicleEF	LDT1	0.23	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.91	1.08
tblVehicleEF	LDT1	0.28	0.40
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.81	1.03
tblVehicleEF	LDT2	1.82	2.51
tblVehicleEF	LDT2	334.46	352.05
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.13	0.20
tblVehicleEF	LDT2	1.8300e-003	1.7470e-003
tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.39	0.44
tblVehicleEF	LDT2	0.12	0.17
tblVehicleEF	LDT2	4.6410e-003	4.6450e-003
tblVehicleEF	LDT2	1.0380e-003	1.0470e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.13

tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.39	0.44
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.95	1.20
tblVehicleEF	LDT2	1.20	1.66
tblVehicleEF	LDT2	360.96	379.89
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.12	0.18
tblVehicleEF	LDT2	1.8300e-003	1.7470e-003
tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.36	0.40
tblVehicleEF	LDT2	0.09	0.13
tblVehicleEF	LDT2	5.0120e-003	5.0160e-003
tblVehicleEF	LDT2	1.0270e-003	1.0330e-003
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.09	0.10

tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.36	0.40
tblVehicleEF	LDT2	0.09	0.13
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	6.6260e-003	9.4410e-003
tblVehicleEF	LDT2	0.80	1.02
tblVehicleEF	LDT2	2.23	3.08
tblVehicleEF	LDT2	331.81	349.26
tblVehicleEF	LDT2	73.52	77.51
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.11	0.14
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	1.8300e-003	1.7470e-003
tblVehicleEF	LDT2	4.0760e-003	3.3870e-003
tblVehicleEF	LDT2	1.6980e-003	1.6200e-003
tblVehicleEF	LDT2	3.7820e-003	3.1420e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.47	0.53
tblVehicleEF	LDT2	0.14	0.20
tblVehicleEF	LDT2	4.6040e-003	4.6080e-003
tblVehicleEF	LDT2	1.0450e-003	1.0570e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.03	0.03

tblVehicleEF	LDT2	0.47	0.53
tblVehicleEF	LDT2	0.15	0.21
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	1.07	1.58
tblVehicleEF	LHD1	3.85	4.68
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.81	1.09
tblVehicleEF	LHD1	1.19	1.31
tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004
tblVehicleEF	LHD1	1.8220e-003	2.0040e-003
tblVehicleEF	LHD1	0.07	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1450e-003	1.1820e-003
tblVehicleEF	LHD1	0.10	0.15
tblVehicleEF	LHD1	0.43	0.45
tblVehicleEF	LHD1	0.31	0.40

tblVehicleEF	LHD1	8.3820e-003	8.3950e-003
tblVehicleEF	LHD1	5.1400e-004	5.2500e-004
tblVehicleEF	LHD1	1.8220e-003	2.0040e-003
tblVehicleEF	LHD1	0.07	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1450e-003	1.1820e-003
tblVehicleEF	LHD1	0.12	0.17
tblVehicleEF	LHD1	0.43	0.45
tblVehicleEF	LHD1	0.33	0.43
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	1.10	1.63
tblVehicleEF	LHD1	2.63	3.17
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
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tblVehicleEF	LHD1	0.76	1.03
tblVehicleEF	LHD1	1.11	1.22
tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004

tblVehicleEF	LHD1	4.4840e-003	5.0680e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4580e-003	2.6460e-003
tblVehicleEF	LHD1	0.10	0.15
tblVehicleEF	LHD1	0.41	0.44
tblVehicleEF	LHD1	0.25	0.32
tblVehicleEF	LHD1	8.3820e-003	8.3960e-003
tblVehicleEF	LHD1	4.9300e-004	4.9900e-004
tblVehicleEF	LHD1	4.4840e-003	5.0680e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4580e-003	2.6460e-003
tblVehicleEF	LHD1	0.12	0.18
tblVehicleEF	LHD1	0.41	0.44
tblVehicleEF	LHD1	0.27	0.34
tblVehicleEF	LHD1	1.1880e-003	1.2340e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	1.05	1.55
tblVehicleEF	LHD1	4.94	6.02
tblVehicleEF	LHD1	760.22	760.62
tblVehicleEF	LHD1	40.00	39.57
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.83	1.12
tblVehicleEF	LHD1	1.25	1.39

tblVehicleEF	LHD1	5.5800e-004	5.7600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.7200e-004	9.3700e-004
tblVehicleEF	LHD1	5.1400e-004	5.3000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	6.2400e-004	8.6700e-004
tblVehicleEF	LHD1	7.7500e-004	7.8900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	5.6100e-004	5.5300e-004
tblVehicleEF	LHD1	0.10	0.14
tblVehicleEF	LHD1	0.48	0.50
tblVehicleEF	LHD1	0.36	0.47
tblVehicleEF	LHD1	8.3820e-003	8.3940e-003
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tblVehicleEF	LHD1	7.7500e-004	7.8900e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	5.6100e-004	5.5300e-004
tblVehicleEF	LHD1	0.12	0.17
tblVehicleEF	LHD1	0.48	0.50
tblVehicleEF	LHD1	0.39	0.50
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.79	1.09

tblVehicleEF	LHD2	2.22	2.76
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60
tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.16	1.59
tblVehicleEF	LHD2	0.73	0.82
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	9.8400e-004	1.1630e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.3700e-004	6.8900e-004
tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.24	0.30
tblVehicleEF	LHD2	0.17	0.23
tblVehicleEF	LHD2	7.1750e-003	7.1900e-003
tblVehicleEF	LHD2	3.3900e-004	3.4600e-004
tblVehicleEF	LHD2	9.8400e-004	1.1630e-003
tblVehicleEF	LHD2	0.04	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.3700e-004	6.8900e-004
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	0.24	0.30
tblVehicleEF	LHD2	0.18	0.25
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.80	1.11
tblVehicleEF	LHD2	1.52	1.89
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60
tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.11	1.53
tblVehicleEF	LHD2	0.67	0.76
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	2.4020e-003	2.9310e-003

tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3550e-003	1.5390e-003
tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.24	0.29
tblVehicleEF	LHD2	0.14	0.19
tblVehicleEF	LHD2	7.1750e-003	7.1910e-003
tblVehicleEF	LHD2	3.2700e-004	3.3100e-004
tblVehicleEF	LHD2	2.4020e-003	2.9310e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3550e-003	1.5390e-003
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	0.24	0.29
tblVehicleEF	LHD2	0.15	0.20
tblVehicleEF	LHD2	9.3200e-004	9.6400e-004
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.7060e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.79	1.08
tblVehicleEF	LHD2	2.84	3.54
tblVehicleEF	LHD2	657.39	658.41
tblVehicleEF	LHD2	26.95	26.60
tblVehicleEF	LHD2	4.5480e-003	4.5640e-003
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.18	1.63
tblVehicleEF	LHD2	0.77	0.86
tblVehicleEF	LHD2	1.1160e-003	1.1420e-003

tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1900e-004	5.0100e-004
tblVehicleEF	LHD2	1.0270e-003	1.0510e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	2.5360e-003	2.5350e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	2.9600e-004	4.6400e-004
tblVehicleEF	LHD2	4.3500e-004	4.6700e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1800e-004	3.2900e-004
tblVehicleEF	LHD2	0.09	0.13
tblVehicleEF	LHD2	0.27	0.34
tblVehicleEF	LHD2	0.20	0.27
tblVehicleEF	LHD2	7.1750e-003	7.1900e-003
tblVehicleEF	LHD2	3.5000e-004	3.5900e-004
tblVehicleEF	LHD2	4.3500e-004	4.6700e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1800e-004	3.2900e-004
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	0.27	0.34
tblVehicleEF	LHD2	0.21	0.29
tblVehicleEF	MCY	24.39	25.63
tblVehicleEF	MCY	11.21	11.07
tblVehicleEF	MCY	150.64	148.31

tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.23	1.24
tblVehicleEF	MCY	0.32	0.32
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003
tblVehicleEF	MCY	2.4500e-004	3.1100e-004
tblVehicleEF	MCY	6.6600e-004	8.8300e-004
tblVehicleEF	MCY	0.59	0.59
tblVehicleEF	MCY	0.35	0.37
tblVehicleEF	MCY	0.33	0.33
tblVehicleEF	MCY	2.67	2.71
tblVehicleEF	MCY	1.22	1.34
tblVehicleEF	MCY	2.23	2.27
tblVehicleEF	MCY	2.1400e-003	2.1350e-003
tblVehicleEF	MCY	6.6000e-004	6.7200e-004
tblVehicleEF	MCY	0.59	0.59
tblVehicleEF	MCY	0.35	0.37
tblVehicleEF	MCY	0.33	0.33
tblVehicleEF	MCY	2.92	2.97
tblVehicleEF	MCY	1.22	1.34
tblVehicleEF	MCY	2.39	2.43
tblVehicleEF	MCY	22.97	24.10
tblVehicleEF	MCY	8.82	8.79
tblVehicleEF	MCY	150.64	148.31
tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.07	1.08

tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003
tblVehicleEF	MCY	2.4500e-004	3.1100e-004
tblVehicleEF	MCY	6.6600e-004	8.8300e-004
tblVehicleEF	MCY	1.80	1.81
tblVehicleEF	MCY	0.52	0.54
tblVehicleEF	MCY	1.10	1.11
tblVehicleEF	MCY	2.57	2.60
tblVehicleEF	MCY	1.10	1.22
tblVehicleEF	MCY	1.79	1.81
tblVehicleEF	MCY	2.1150e-003	2.1080e-003
tblVehicleEF	MCY	6.0900e-004	6.2200e-004
tblVehicleEF	MCY	1.80	1.81
tblVehicleEF	MCY	0.52	0.54
tblVehicleEF	MCY	1.10	1.11
tblVehicleEF	MCY	2.81	2.85
tblVehicleEF	MCY	1.10	1.22
tblVehicleEF	MCY	1.92	1.94
tblVehicleEF	MCY	26.55	27.96
tblVehicleEF	MCY	13.38	13.16
tblVehicleEF	MCY	150.64	148.31
tblVehicleEF	MCY	37.25	38.43
tblVehicleEF	MCY	5.6760e-003	5.6840e-003
tblVehicleEF	MCY	1.31	1.33
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	2.8600e-004	3.7200e-004
tblVehicleEF	MCY	7.7900e-004	1.0700e-003

tblVehicleEF	MCY	2.4500e-004	3.1100e-004
tblVehicleEF	MCY	6.6600e-004	8.8300e-004
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	0.41	0.43
tblVehicleEF	MCY	0.10	0.10
tblVehicleEF	MCY	2.77	2.83
tblVehicleEF	MCY	1.53	1.66
tblVehicleEF	MCY	2.61	2.66
tblVehicleEF	MCY	2.1770e-003	2.1750e-003
tblVehicleEF	MCY	7.0600e-004	7.1800e-004
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	0.41	0.43
tblVehicleEF	MCY	0.10	0.10
tblVehicleEF	MCY	3.03	3.09
tblVehicleEF	MCY	1.53	1.66
tblVehicleEF	MCY	2.80	2.86
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.38	1.86
tblVehicleEF	MDV	3.86	5.08
tblVehicleEF	MDV	447.62	469.15
tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.27
tblVehicleEF	MDV	0.32	0.43
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003

tblVehicleEF	MDV	3.7240e-003	3.4600e-003
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.03	0.05
tblVehicleEF	MDV	0.64	0.68
tblVehicleEF	MDV	0.30	0.41
tblVehicleEF	MDV	5.9290e-003	5.9270e-003
tblVehicleEF	MDV	1.3450e-003	1.3610e-003
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.21	0.21
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.64	0.68
tblVehicleEF	MDV	0.32	0.44
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.62	2.15
tblVehicleEF	MDV	2.55	3.38
tblVehicleEF	MDV	482.76	505.78
tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.17	0.23
tblVehicleEF	MDV	0.28	0.38
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003
tblVehicleEF	MDV	3.7240e-003	3.4600e-003

tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.22	0.23
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.60	0.63
tblVehicleEF	MDV	0.23	0.31
tblVehicleEF	MDV	6.3980e-003	6.3950e-003
tblVehicleEF	MDV	1.3220e-003	1.3310e-003
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.22	0.23
tblVehicleEF	MDV	0.15	0.15
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.60	0.63
tblVehicleEF	MDV	0.24	0.33
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.36	1.87
tblVehicleEF	MDV	4.74	6.23
tblVehicleEF	MDV	444.10	465.49
tblVehicleEF	MDV	98.69	103.16
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.35	0.47
tblVehicleEF	MDV	2.0280e-003	2.1340e-003
tblVehicleEF	MDV	4.0140e-003	3.7390e-003
tblVehicleEF	MDV	1.8810e-003	1.9730e-003
tblVehicleEF	MDV	3.7240e-003	3.4600e-003
tblVehicleEF	MDV	0.03	0.03

tblVehicleEF	MDV	0.21	0.22
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.03	0.05
tblVehicleEF	MDV	0.78	0.82
tblVehicleEF	MDV	0.35	0.48
tblVehicleEF	MDV	5.8820e-003	5.8810e-003
tblVehicleEF	MDV	1.3600e-003	1.3810e-003
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.21	0.22
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.05	0.07
tblVehicleEF	MDV	0.78	0.82
tblVehicleEF	MDV	0.38	0.52
tblVehicleEF	MH	1.01	2.33
tblVehicleEF	MH	6.18	8.22
tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	1.03	1.34
tblVehicleEF	MH	0.67	0.81
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	0.56	0.77
tblVehicleEF	MH	0.05	0.07

tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.06	0.10
tblVehicleEF	MH	1.29	1.92
tblVehicleEF	MH	0.32	0.44
tblVehicleEF	MH	7.3310e-003	7.3500e-003
tblVehicleEF	MH	4.2600e-004	4.6400e-004
tblVehicleEF	MH	0.56	0.77
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.29	1.92
tblVehicleEF	MH	0.34	0.47
tblVehicleEF	MH	1.05	2.42
tblVehicleEF	MH	4.17	5.43
tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	0.96	1.24
tblVehicleEF	MH	0.62	0.75
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	1.37	1.92
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.66

tblVehicleEF	MH	0.06	0.11
tblVehicleEF	MH	1.25	1.86
tblVehicleEF	MH	0.25	0.34
tblVehicleEF	MH	7.3320e-003	7.3510e-003
tblVehicleEF	MH	3.9300e-004	4.1700e-004
tblVehicleEF	MH	1.37	1.92
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.66
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.25	1.86
tblVehicleEF	MH	0.27	0.36
tblVehicleEF	MH	0.98	2.28
tblVehicleEF	MH	7.96	10.73
tblVehicleEF	MH	665.11	664.76
tblVehicleEF	MH	28.78	28.97
tblVehicleEF	MH	1.4000e-003	1.4180e-003
tblVehicleEF	MH	1.07	1.39
tblVehicleEF	MH	0.71	0.85
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.5900e-004	8.2600e-004
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	4.2600e-004	7.5600e-004
tblVehicleEF	MH	0.23	0.28
tblVehicleEF	MH	0.06	0.09
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.06	0.10

tblVehicleEF	MH	1.40	2.07
tblVehicleEF	MH	0.37	0.52
tblVehicleEF	MH	7.3310e-003	7.3490e-003
tblVehicleEF	MH	4.5600e-004	5.0600e-004
tblVehicleEF	MH	0.23	0.28
tblVehicleEF	MH	0.06	0.09
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.08	0.13
tblVehicleEF	MH	1.40	2.07
tblVehicleEF	MH	0.40	0.56
tblVehicleEF	MHD	8.2190e-003	7.6250e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	2.09	1.91
tblVehicleEF	MHD	0.49	0.68
tblVehicleEF	MHD	13.77	18.36
tblVehicleEF	MHD	572.65	572.01
tblVehicleEF	MHD	1,004.94	1,006.95
tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.33	4.63
tblVehicleEF	MHD	0.99	1.86
tblVehicleEF	MHD	1.43	1.81
tblVehicleEF	MHD	7.6380e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	7.0270e-003	0.01

tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	1.5750e-003	1.8870e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.18	0.16
tblVehicleEF	MHD	9.7900e-004	1.0890e-003
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.44	0.50
tblVehicleEF	MHD	0.76	1.03
tblVehicleEF	MHD	6.0700e-003	6.0640e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.8700e-004	8.7200e-004
tblVehicleEF	MHD	1.5750e-003	1.8870e-003
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.20	0.19
tblVehicleEF	MHD	9.7900e-004	1.0890e-003
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.44	0.50
tblVehicleEF	MHD	0.81	1.10
tblVehicleEF	MHD	7.7450e-003	7.1860e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	1.52	1.39
tblVehicleEF	MHD	0.50	0.69
tblVehicleEF	MHD	9.39	12.44
tblVehicleEF	MHD	606.67	605.99
tblVehicleEF	MHD	1,004.94	1,006.95

tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.43	4.78
tblVehicleEF	MHD	0.95	1.78
tblVehicleEF	MHD	1.33	1.68
tblVehicleEF	MHD	6.4380e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	5.9230e-003	9.2440e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	3.9820e-003	4.9690e-003
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.17	0.15
tblVehicleEF	MHD	2.1900e-003	2.6080e-003
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.42	0.48
tblVehicleEF	MHD	0.61	0.81
tblVehicleEF	MHD	6.4310e-003	6.4240e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.1400e-004	7.7200e-004
tblVehicleEF	MHD	3.9820e-003	4.9690e-003
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.19	0.18

tblVehicleEF	MHD	2.1900e-003	2.6080e-003
tblVehicleEF	MHD	0.13	0.15
tblVehicleEF	MHD	0.42	0.48
tblVehicleEF	MHD	0.65	0.87
tblVehicleEF	MHD	8.8720e-003	8.2320e-003
tblVehicleEF	MHD	4.7320e-003	5.4130e-003
tblVehicleEF	MHD	2.88	2.63
tblVehicleEF	MHD	0.49	0.67
tblVehicleEF	MHD	17.59	23.57
tblVehicleEF	MHD	525.67	525.08
tblVehicleEF	MHD	1,004.94	1,006.95
tblVehicleEF	MHD	49.32	49.71
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.18	4.43
tblVehicleEF	MHD	1.01	1.90
tblVehicleEF	MHD	1.51	1.91
tblVehicleEF	MHD	9.2930e-003	0.01
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	1.0610e-003	1.6720e-003
tblVehicleEF	MHD	8.5500e-003	0.01
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	2.8910e-003	2.8860e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.8500e-004	1.5290e-003
tblVehicleEF	MHD	6.4200e-004	6.8900e-004
tblVehicleEF	MHD	0.08	0.10

tblVehicleEF	MHD	0.19	0.18
tblVehicleEF	MHD	4.5900e-004	4.7200e-004
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.49	0.56
tblVehicleEF	MHD	0.88	1.21
tblVehicleEF	MHD	5.5720e-003	5.5660e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	8.5100e-004	9.5900e-004
tblVehicleEF	MHD	6.4200e-004	6.8900e-004
tblVehicleEF	MHD	0.08	0.10
tblVehicleEF	MHD	0.22	0.20
tblVehicleEF	MHD	4.5900e-004	4.7200e-004
tblVehicleEF	MHD	0.12	0.15
tblVehicleEF	MHD	0.49	0.56
tblVehicleEF	MHD	0.94	1.29
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	3.30	2.74
tblVehicleEF	OBUS	0.83	1.17
tblVehicleEF	OBUS	9.00	11.14
tblVehicleEF	OBUS	533.48	534.88
tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.20	4.65
tblVehicleEF	OBUS	1.12	2.32
tblVehicleEF	OBUS	1.18	1.44
tblVehicleEF	OBUS	8.7920e-003	9.5470e-003

tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004
tblVehicleEF	OBUS	8.0890e-003	8.7830e-003
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.56	0.47
tblVehicleEF	OBUS	3.4900e-004	3.3500e-004
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	0.52	0.64
tblVehicleEF	OBUS	5.6550e-003	5.6700e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.2100e-004	5.5900e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.64	0.53
tblVehicleEF	OBUS	3.4900e-004	3.3500e-004
tblVehicleEF	OBUS	0.15	0.17
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	0.55	0.69
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	2.40	1.99
tblVehicleEF	OBUS	0.84	1.20

tblVehicleEF	OBUS	6.14	7.60
tblVehicleEF	OBUS	565.17	566.66
tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.30	4.79
tblVehicleEF	OBUS	1.06	2.21
tblVehicleEF	OBUS	1.09	1.34
tblVehicleEF	OBUS	7.4120e-003	8.0480e-003
tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004
tblVehicleEF	OBUS	6.8190e-003	7.4040e-003
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	1.6210e-003	1.6590e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.53	0.44
tblVehicleEF	OBUS	7.4200e-004	7.4100e-004
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.30	0.30
tblVehicleEF	OBUS	0.42	0.52
tblVehicleEF	OBUS	5.9910e-003	6.0070e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	4.7300e-004	5.0000e-004

tblVehicleEF	OBUS	1.6210e-003	1.6590e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.60	0.50
tblVehicleEF	OBUS	7.4200e-004	7.4100e-004
tblVehicleEF	OBUS	0.15	0.17
tblVehicleEF	OBUS	0.30	0.30
tblVehicleEF	OBUS	0.44	0.55
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	2.9530e-003	2.9570e-003
tblVehicleEF	OBUS	4.55	3.78
tblVehicleEF	OBUS	0.82	1.15
tblVehicleEF	OBUS	11.51	14.25
tblVehicleEF	OBUS	489.71	491.00
tblVehicleEF	OBUS	1,045.10	1,039.91
tblVehicleEF	OBUS	32.73	32.82
tblVehicleEF	OBUS	1.8110e-003	1.7890e-003
tblVehicleEF	OBUS	3.06	4.44
tblVehicleEF	OBUS	1.14	2.37
tblVehicleEF	OBUS	1.24	1.52
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.10	0.09
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	4.5100e-004	6.0300e-004
tblVehicleEF	OBUS	9.8420e-003	0.01
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	2.6290e-003	2.6130e-003
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	4.1900e-004	5.5500e-004
tblVehicleEF	OBUS	3.2900e-004	3.1100e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.60	0.50
tblVehicleEF	OBUS	1.8300e-004	1.7100e-004
tblVehicleEF	OBUS	0.12	0.14
tblVehicleEF	OBUS	0.34	0.34
tblVehicleEF	OBUS	0.60	0.75
tblVehicleEF	OBUS	5.1910e-003	5.2050e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.6300e-004	6.1100e-004
tblVehicleEF	OBUS	3.2900e-004	3.1100e-004
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.69	0.57
tblVehicleEF	OBUS	1.8300e-004	1.7100e-004
tblVehicleEF	OBUS	0.14	0.17
tblVehicleEF	OBUS	0.34	0.34
tblVehicleEF	OBUS	0.64	0.80
tblVehicleEF	SBUS	4.8570e-003	4.4530e-003
tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	1.19	1.05
tblVehicleEF	SBUS	2.64	5.36
tblVehicleEF	SBUS	25.41	37.29
tblVehicleEF	SBUS	556.14	547.00
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	7.12	7.58

tblVehicleEF	SBUS	5.53	6.35
tblVehicleEF	SBUS	2.38	2.88
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.19	0.25
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	8.0390e-003	0.01
tblVehicleEF	SBUS	0.26	0.47
tblVehicleEF	SBUS	2.54	2.91
tblVehicleEF	SBUS	1.49	2.21
tblVehicleEF	SBUS	5.8950e-003	5.7980e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.7250e-003	1.9480e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.19	0.25
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	8.0390e-003	0.01
tblVehicleEF	SBUS	0.30	0.53
tblVehicleEF	SBUS	2.54	2.91

tblVehicleEF	SBUS	1.59	2.36
tblVehicleEF	SBUS	4.5770e-003	4.1970e-003
tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	0.87	0.76
tblVehicleEF	SBUS	2.74	5.51
tblVehicleEF	SBUS	19.93	28.48
tblVehicleEF	SBUS	589.19	579.49
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	7.35	7.82
tblVehicleEF	SBUS	5.27	6.03
tblVehicleEF	SBUS	2.18	2.64
tblVehicleEF	SBUS	9.6400e-003	0.01
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	8.8690e-003	0.01
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	0.05	0.08
tblVehicleEF	SBUS	0.19	0.26
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.27	0.49

tblVehicleEF	SBUS	2.24	2.58
tblVehicleEF	SBUS	1.29	1.83
tblVehicleEF	SBUS	6.2460e-003	6.1430e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.6320e-003	1.7980e-003
tblVehicleEF	SBUS	0.05	0.08
tblVehicleEF	SBUS	0.19	0.26
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.31	0.55
tblVehicleEF	SBUS	2.24	2.58
tblVehicleEF	SBUS	1.38	1.96
tblVehicleEF	SBUS	5.2430e-003	4.8080e-003
tblVehicleEF	SBUS	5.1600e-003	4.6520e-003
tblVehicleEF	SBUS	1.64	1.45
tblVehicleEF	SBUS	2.58	5.31
tblVehicleEF	SBUS	30.21	45.42
tblVehicleEF	SBUS	510.52	502.12
tblVehicleEF	SBUS	966.46	975.49
tblVehicleEF	SBUS	115.30	116.58
tblVehicleEF	SBUS	1.8900e-004	1.9900e-004
tblVehicleEF	SBUS	6.81	7.24
tblVehicleEF	SBUS	5.65	6.50
tblVehicleEF	SBUS	2.52	3.05
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04

tblVehicleEF	SBUS	3.0800e-003	5.6600e-003
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.20	0.20
tblVehicleEF	SBUS	2.6090e-003	2.6220e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	2.8580e-003	5.1250e-003
tblVehicleEF	SBUS	7.5090e-003	9.9620e-003
tblVehicleEF	SBUS	0.21	0.29
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	3.8800e-003	5.0810e-003
tblVehicleEF	SBUS	0.26	0.46
tblVehicleEF	SBUS	3.14	3.57
tblVehicleEF	SBUS	1.66	2.53
tblVehicleEF	SBUS	5.4120e-003	5.3230e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.8050e-003	2.0860e-003
tblVehicleEF	SBUS	7.5090e-003	9.9620e-003
tblVehicleEF	SBUS	0.21	0.29
tblVehicleEF	SBUS	0.13	0.12
tblVehicleEF	SBUS	3.8800e-003	5.0810e-003
tblVehicleEF	SBUS	0.30	0.51
tblVehicleEF	SBUS	3.14	3.57
tblVehicleEF	SBUS	1.77	2.71
tblVehicleEF	UBUS	3.48	3.54
tblVehicleEF	UBUS	4.88	4.94
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003

tblVehicleEF	UBUS	13.62	14.14
tblVehicleEF	UBUS	0.63	0.63
tblVehicleEF	UBUS	0.23	0.24
tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004
tblVehicleEF	UBUS	1.6400e-003	1.5960e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	7.8000e-004	7.6300e-004
tblVehicleEF	UBUS	0.60	0.62
tblVehicleEF	UBUS	0.39	0.34
tblVehicleEF	UBUS	0.37	0.37
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.9800e-004	1.9900e-004
tblVehicleEF	UBUS	1.6400e-003	1.5960e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	7.8000e-004	7.6300e-004
tblVehicleEF	UBUS	0.68	0.70
tblVehicleEF	UBUS	0.39	0.34
tblVehicleEF	UBUS	0.39	0.39
tblVehicleEF	UBUS	3.53	3.59
tblVehicleEF	UBUS	3.59	3.64
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003
tblVehicleEF	UBUS	13.06	13.56
tblVehicleEF	UBUS	0.58	0.58
tblVehicleEF	UBUS	0.23	0.24

tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004
tblVehicleEF	UBUS	4.1930e-003	4.1030e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.6980e-003	1.6920e-003
tblVehicleEF	UBUS	0.61	0.63
tblVehicleEF	UBUS	0.36	0.31
tblVehicleEF	UBUS	0.31	0.30
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.7600e-004	1.7700e-004
tblVehicleEF	UBUS	4.1930e-003	4.1030e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.6980e-003	1.6920e-003
tblVehicleEF	UBUS	0.69	0.71
tblVehicleEF	UBUS	0.36	0.31
tblVehicleEF	UBUS	0.33	0.32
tblVehicleEF	UBUS	3.45	3.51
tblVehicleEF	UBUS	6.00	6.08
tblVehicleEF	UBUS	2,139.09	2,150.04
tblVehicleEF	UBUS	9.91	9.91
tblVehicleEF	UBUS	3.5990e-003	3.6610e-003
tblVehicleEF	UBUS	13.85	14.37
tblVehicleEF	UBUS	0.67	0.66
tblVehicleEF	UBUS	0.23	0.24
tblVehicleEF	UBUS	2.1800e-004	2.2200e-004
tblVehicleEF	UBUS	0.21	0.22
tblVehicleEF	UBUS	2.0200e-004	2.0600e-004

tblVehicleEF	UBUS	5.9400e-004	5.7400e-004
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	3.5600e-004	3.4400e-004
tblVehicleEF	UBUS	0.60	0.61
tblVehicleEF	UBUS	0.48	0.41
tblVehicleEF	UBUS	0.42	0.42
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	2.1700e-004	2.1900e-004
tblVehicleEF	UBUS	5.9400e-004	5.7400e-004
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	3.5600e-004	3.4400e-004
tblVehicleEF	UBUS	0.67	0.69
tblVehicleEF	UBUS	0.48	0.41
tblVehicleEF	UBUS	0.45	0.44

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					
2017	0.9934	10.2430	7.6036	0.0120	2.0447	0.4737	2.5184	0.5953	0.4408	1.0361	0.0000	1,095.7459	1,095.7459	0.2443	0.0000	1,100.8756
2018	1.3486	8.2341	15.1510	0.0309	1.5830	0.3026	1.8856	0.4277	0.2832	0.7109	0.0000	2,456.6310	2,456.6310	0.1535	0.0000	2,459.8538
2019	1.2171	7.4717	14.1831	0.0309	1.5830	0.2655	1.8484	0.4277	0.2484	0.6761	0.0000	2,396.5059	2,396.5059	0.1479	0.0000	2,399.6117
2020	1.1165	6.6179	13.4596	0.0309	1.5880	0.2333	1.8213	0.4291	0.2183	0.6473	0.0000	2,334.0844	2,334.0844	0.1439	0.0000	2,337.1061
2021	11.7584	3.5267	7.5233	0.0177	0.8854	0.1340	1.0193	0.2389	0.1251	0.3641	0.0000	1,328.1867	1,328.1867	0.0993	0.0000	1,330.2709
Total	**16.4339**	**36.0935**	**57.9206**	**0.1224**	**7.6840**	**1.4091**	**9.0930**	**2.1187**	**1.3157**	**3.4344**	**0.0000**	**9,611.1538**	**9,611.1538**	**0.7888**	**0.0000**	**9,627.7180**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.3066	5.1738	7.0406	0.0120	0.9754	0.0367	1.0121	0.2828	0.0365	0.3192	0.0000	1,095.7447	1,095.7447	0.2443	0.0000	1,100.8744
2018	1.0360	6.8121	15.1952	0.0309	1.5830	0.0900	1.6729	0.4277	0.0845	0.5122	0.0000	2,456.6306	2,456.6306	0.1535	0.0000	2,459.8533
2019	0.9541	6.4090	14.2919	0.0309	1.5830	0.0855	1.6685	0.4277	0.0804	0.5081	0.0000	2,396.5055	2,396.5055	0.1479	0.0000	2,399.6112
2020	0.8904	5.8471	13.6177	0.0309	1.5880	0.0798	1.6678	0.4291	0.0752	0.5042	0.0000	2,334.0839	2,334.0839	0.1439	0.0000	2,337.1057
2021	11.6278	3.2040	7.7239	0.0177	0.8854	0.0430	0.9283	0.2389	0.0408	0.2797	0.0000	1,328.1864	1,328.1864	0.0993	0.0000	1,330.2706
Total	**14.8149**	**27.4460**	**57.8694**	**0.1224**	**6.6147**	**0.3350**	**6.9497**	**1.8062**	**0.3173**	**2.1235**	**0.0000**	**9,611.1510**	**9,611.1510**	**0.7888**	**0.0000**	**9,627.7152**

	ROG	NOx	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	**9.85**	**23.96**	**0.09**	**0.00**	**13.92**	**76.23**	**23.57**	**14.75**	**75.88**	**38.17**	**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	tons/yr										MT/yr					
Area	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Energy	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	2,127.3199	2,127.3199	0.0758	0.0269	2,137.2586
Mobile	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Waste						0.0000	0.0000		0.0000	0.0000	152.7182	0.0000	152.7182	9.0254	0.0000	342.2514
Water						0.0000	0.0000		0.0000	0.0000	10.2841	94.7976	105.0817	1.0606	0.0258	135.3602
Total	**15.6873**	**12.4939**	**56.7228**	**0.1024**	**6.1535**	**0.3999**	**6.5534**	**1.6538**	**0.3872**	**2.0409**	**180.6320**	**9,127.5116**	**9,308.1436**	**10.4538**	**0.0538**	**9,544.3523**

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	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Energy	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	2,127.3199	2,127.3199	0.0758	0.0269	2,137.2586
Mobile	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Waste						0.0000	0.0000		0.0000	0.0000	152.7182	0.0000	152.7182	9.0254	0.0000	342.2514
Water						0.0000	0.0000		0.0000	0.0000	10.2841	94.7976	105.0817	1.0604	0.0258	135.3437
Total	**15.6873**	**12.4939**	**56.7228**	**0.1024**	**6.1535**	**0.3999**	**6.5534**	**1.6538**	**0.3872**	**2.0409**	**180.6320**	**9,127.5116**	**9,308.1436**	**10.4537**	**0.0538**	**9,544.3359**

	ROG	NOx	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**	**0.07**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2017	8/18/2017	6	120	Demo and On-site asphalt/concrete crushing-processing
2	Site Preparation	Site Preparation	6/22/2017	8/7/2017	6	40	
3	Grading	Grading	8/8/2017	12/14/2017	6	111	
4	Building Construction	Building Construction	12/15/2017	7/8/2021	6	1116	
5	Paving	Paving	7/9/2021	10/4/2021	6	75	
6	Architectural Coating	Architectural Coating	10/5/2021	12/30/2021	6	75	

Acres of Grading (Site Preparation Phase): 67.6

Acres of Grading (Grading Phase): 67.6

Acres of Paving: 0

Residential Indoor: 834,300; Residential Outdoor: 278,100; Non-Residential Indoor: 2,367,552; Non-Residential Outdoor: 789,184 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	1	8.00	340	0.78
Demolition	Excavators	4	8.00	162	0.38
Demolition	Generator Sets	1	8.00	134	0.74
Demolition	Off-Highway Trucks	1	8.00	400	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Demolition	Rubber Tired Loaders	1	8.00	199	0.36
Demolition	Skid Steer Loaders	1	8.00	64	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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	125	0.42
Paving	Paving Equipment	2	8.00	130	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
Demolition	12	30.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	895.00	308.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	179.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

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					1.1769	0.0000	1.1769	0.1782	0.0000	0.1782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4799	4.9171	3.3319	6.0200e-003		0.2185	0.2185		0.2058	0.2058	0.0000	566.5602	566.5602	0.1161	0.0000	568.9977
Total	**0.4799**	**4.9171**	**3.3319**	**6.0200e-003**	**1.1769**	**0.2185**	**1.3955**	**0.1782**	**0.2058**	**0.3840**	**0.0000**	**566.5602**	**566.5602**	**0.1161**	**0.0000**	**568.9977**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-003	9.1200e-003	0.0874	1.9000e-004	0.0163	1.3000e-004	0.0165	4.3500e-003	1.2000e-004	4.4700e-003	0.0000	14.2954	14.2954	7.7000e-004	0.0000	14.3115
Total	**6.1000e-003**	**9.1200e-003**	**0.0874**	**1.9000e-004**	**0.0163**	**1.3000e-004**	**0.0165**	**4.3500e-003**	**1.2000e-004**	**4.4700e-003**	**0.0000**	**14.2954**	**14.2954**	**7.7000e-004**	**0.0000**	**14.3115**

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					0.5296	0.0000	0.5296	0.0802	0.0000	0.0802	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1424	2.7891	3.5829	6.0200e-003		0.0183	0.0183		0.0183	0.0183	0.0000	566.5596	566.5596	0.1161	0.0000	568.9970
Total	**0.1424**	**2.7891**	**3.5829**	**6.0200e-003**	**0.5296**	**0.0183**	**0.5480**	**0.0802**	**0.0183**	**0.0985**	**0.0000**	**566.5596**	**566.5596**	**0.1161**	**0.0000**	**568.9970**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-003	9.1200e-003	0.0874	1.9000e-004	0.0163	1.3000e-004	0.0165	4.3500e-003	1.2000e-004	4.4700e-003	0.0000	14.2954	14.2954	7.7000e-004	0.0000	14.3115
Total	**6.1000e-003**	**9.1200e-003**	**0.0874**	**1.9000e-004**	**0.0163**	**1.3000e-004**	**0.0165**	**4.3500e-003**	**1.2000e-004**	**4.4700e-003**	**0.0000**	**14.2954**	**14.2954**	**7.7000e-004**	**0.0000**	**14.3115**

3.3 Site Preparation - 2017

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					0.3972	0.0000	0.3972	0.2025	0.0000	0.2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0968	1.0351	0.7879	7.8000e-004		0.0551	0.0551		0.0507	0.0507	0.0000	72.6308	72.6308	0.0223	0.0000	73.0981
Total	**0.0968**	**1.0351**	**0.7879**	**7.8000e-004**	**0.3972**	**0.0551**	**0.4523**	**0.2025**	**0.0507**	**0.2532**	**0.0000**	**72.6308**	**72.6308**	**0.0223**	**0.0000**	**73.0981**

3.3 Site Preparation - 2017

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	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

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					0.1787	0.0000	0.1787	0.0911	0.0000	0.0911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0190	0.3892	0.4680	7.8000e-004		2.8800e-003	2.8800e-003		2.8800e-003	2.8800e-003	0.0000	72.6307	72.6307	0.0223	0.0000	73.0980
Total	**0.0190**	**0.3892**	**0.4680**	**7.8000e-004**	**0.1787**	**2.8800e-003**	**0.1816**	**0.0911**	**2.8800e-003**	**0.0940**	**0.0000**	**72.6307**	**72.6307**	**0.0223**	**0.0000**	**73.0980**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

3.4 Grading - 2017

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					0.3701	0.0000	0.3701	0.1876	0.0000	0.1876	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3385	3.8624	2.5977	3.4200e-003		0.1841	0.1841		0.1694	0.1694	0.0000	317.8703	317.8703	0.0974	0.0000	319.9156
Total	**0.3385**	**3.8624**	**2.5977**	**3.4200e-003**	**0.3701**	**0.1841**	**0.5542**	**0.1876**	**0.1694**	**0.3570**	**0.0000**	**317.8703**	**317.8703**	**0.0974**	**0.0000**	**319.9156**

3.4 Grading - 2017

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	3.7600e-003	5.6200e-003	0.0539	1.2000e-004	0.0101	8.0000e-005	0.0102	2.6800e-003	8.0000e-005	2.7600e-003	0.0000	8.8155	8.8155	4.7000e-004	0.0000	8.8254
Total	**3.7600e-003**	**5.6200e-003**	**0.0539**	**1.2000e-004**	**0.0101**	**8.0000e-005**	**0.0102**	**2.6800e-003**	**8.0000e-005**	**2.7600e-003**	**0.0000**	**8.8155**	**8.8155**	**4.7000e-004**	**0.0000**	**8.8254**

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					0.1665	0.0000	0.1665	0.0844	0.0000	0.0844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0840	1.6528	2.1059	3.4200e-003		0.0110	0.0110		0.0110	0.0110	0.0000	317.8699	317.8699	0.0974	0.0000	319.9152
Total	**0.0840**	**1.6528**	**2.1059**	**3.4200e-003**	**0.1665**	**0.0110**	**0.1776**	**0.0844**	**0.0110**	**0.0954**	**0.0000**	**317.8699**	**317.8699**	**0.0974**	**0.0000**	**319.9152**

3.4 Grading - 2017

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	3.7600e-003	5.6200e-003	0.0539	1.2000e-004	0.0101	8.0000e-005	0.0102	2.6800e-003	8.0000e-005	2.7600e-003	0.0000	8.8155	8.8155	4.7000e-004	0.0000	8.8254
Total	**3.7600e-003**	**5.6200e-003**	**0.0539**	**1.2000e-004**	**0.0101**	**8.0000e-005**	**0.0102**	**2.6800e-003**	**8.0000e-005**	**2.7600e-003**	**0.0000**	**8.8155**	**8.8155**	**4.7000e-004**	**0.0000**	**8.8254**

3.5 Building Construction - 2017

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	0.0217	0.1848	0.1269	1.9000e-004		0.0125	0.0125		0.0117	0.0117	0.0000	16.7635	16.7635	4.1300e-003	0.0000	16.8502
Total	**0.0217**	**0.1848**	**0.1269**	**1.9000e-004**		**0.0125**	**0.0125**		**0.0117**	**0.0117**	**0.0000**	**16.7635**	**16.7635**	**4.1300e-003**	**0.0000**	**16.8502**

3.5 Building Construction - 2017

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	0.0242	0.1953	0.2962	5.2000e-004	0.0139	2.8400e-003	0.0168	4.0000e-003	2.6100e-003	6.6200e-003	0.0000	46.1953	46.1953	3.6000e-004	0.0000	46.2029
Worker	0.0212	0.0317	0.3042	6.8000e-004	0.0569	4.6000e-004	0.0573	0.0151	4.3000e-004	0.0156	0.0000	49.7558	49.7558	2.6700e-003	0.0000	49.8120
Total	**0.0455**	**0.2271**	**0.6004**	**1.2000e-003**	**0.0708**	**3.3000e-003**	**0.0741**	**0.0191**	**3.0400e-003**	**0.0222**	**0.0000**	**95.9511**	**95.9511**	**3.0300e-003**	**0.0000**	**96.0149**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7000e-003	0.0992	0.1247	1.9000e-004		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	16.7635	16.7635	4.1300e-003	0.0000	16.8502
Total	**4.7000e-003**	**0.0992**	**0.1247**	**1.9000e-004**		**9.5000e-004**	**9.5000e-004**		**9.5000e-004**	**9.5000e-004**	**0.0000**	**16.7635**	**16.7635**	**4.1300e-003**	**0.0000**	**16.8502**

3.5 Building Construction - 2017

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	0.0242	0.1953	0.2962	5.2000e-004	0.0139	2.8400e-003	0.0168	4.0000e-003	2.6100e-003	6.6200e-003	0.0000	46.1953	46.1953	3.6000e-004	0.0000	46.2029
Worker	0.0212	0.0317	0.3042	6.8000e-004	0.0569	4.6000e-004	0.0573	0.0151	4.3000e-004	0.0156	0.0000	49.7558	49.7558	2.6700e-003	0.0000	49.8120
Total	**0.0455**	**0.2271**	**0.6004**	**1.2000e-003**	**0.0708**	**3.3000e-003**	**0.0741**	**0.0191**	**3.0400e-003**	**0.0222**	**0.0000**	**95.9511**	**95.9511**	**3.0300e-003**	**0.0000**	**96.0149**

3.5 Building Construction - 2018

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	0.4177	3.6403	2.7439	4.1900e-003		0.2339	0.2339		0.2199	0.2199	0.0000	370.5446	370.5446	0.0907	0.0000	372.4488
Total	**0.4177**	**3.6403**	**2.7439**	**4.1900e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**370.5446**	**370.5446**	**0.0907**	**0.0000**	**372.4488**

3.5 Building Construction - 2018

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	0.5100	3.9562	6.3421	0.0115	0.3116	0.0588	0.3705	0.0895	0.0541	0.1436	0.0000	1,015.0022	1,015.0022	7.9200e-003	0.0000	1,015.1684
Worker	0.4210	0.6377	6.0650	0.0152	1.2713	9.9600e-003	1.2813	0.3382	9.2100e-003	0.3474	0.0000	1,071.0843	1,071.0843	0.0549	0.0000	1,072.2366
Total	**0.9309**	**4.5938**	**12.4071**	**0.0267**	**1.5830**	**0.0688**	**1.6518**	**0.4277**	**0.0633**	**0.4910**	**0.0000**	**2,086.0865**	**2,086.0865**	**0.0628**	**0.0000**	**2,087.4050**

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	0.1051	2.2183	2.7881	4.1900e-003		0.0212	0.0212		0.0212	0.0212	0.0000	370.5441	370.5441	0.0907	0.0000	372.4484
Total	**0.1051**	**2.2183**	**2.7881**	**4.1900e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**370.5441**	**370.5441**	**0.0907**	**0.0000**	**372.4484**

3.5 Building Construction - 2018

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	0.5100	3.9562	6.3421	0.0115	0.3116	0.0588	0.3705	0.0895	0.0541	0.1436	0.0000	1,015.0022	1,015.0022	7.9200e-003	0.0000	1,015.1684
Worker	0.4210	0.6377	6.0650	0.0152	1.2713	9.9600e-003	1.2813	0.3382	9.2100e-003	0.3474	0.0000	1,071.0843	1,071.0843	0.0549	0.0000	1,072.2366
Total	**0.9309**	**4.5938**	**12.4071**	**0.0267**	**1.5830**	**0.0688**	**1.6518**	**0.4277**	**0.0633**	**0.4910**	**0.0000**	**2,086.0865**	**2,086.0865**	**0.0628**	**0.0000**	**2,087.4050**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3680	3.2810	2.6793	4.1900e-003		0.2011	0.2011		0.1891	0.1891	0.0000	366.4021	366.4021	0.0892	0.0000	368.2742
Total	**0.3680**	**3.2810**	**2.6793**	**4.1900e-003**		**0.2011**	**0.2011**		**0.1891**	**0.1891**	**0.0000**	**366.4021**	**366.4021**	**0.0892**	**0.0000**	**368.2742**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4662	3.6099	5.9999	0.0115	0.3116	0.0546	0.3663	0.0895	0.0502	0.1398	0.0000	997.4701	997.4701	7.7300e-003	0.0000	997.6324
Worker	0.3829	0.5808	5.5039	0.0152	1.2713	9.7300e-003	1.2811	0.3382	9.0200e-003	0.3472	0.0000	1,032.6337	1,032.6337	0.0510	0.0000	1,033.7051
Total	**0.8491**	**4.1907**	**11.5038**	**0.0267**	**1.5830**	**0.0644**	**1.6473**	**0.4277**	**0.0593**	**0.4870**	**0.0000**	**2,030.1038**	**2,030.1038**	**0.0588**	**0.0000**	**2,031.3375**

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	0.1051	2.2183	2.7881	4.1900e-003		0.0212	0.0212		0.0212	0.0212	0.0000	366.4017	366.4017	0.0892	0.0000	368.2738
Total	**0.1051**	**2.2183**	**2.7881**	**4.1900e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**366.4017**	**366.4017**	**0.0892**	**0.0000**	**368.2738**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.4662	3.6099	5.9999	0.0115	0.3116	0.0546	0.3663	0.0895	0.0502	0.1398	0.0000	997.4701	997.4701	7.7300e-003	0.0000	997.6324
Worker	0.3829	0.5808	5.5039	0.0152	1.2713	9.7300e-003	1.2811	0.3382	9.0200e-003	0.3472	0.0000	1,032.6337	1,032.6337	0.0510	0.0000	1,033.7051
Total	**0.8491**	**4.1907**	**11.5038**	**0.0267**	**1.5830**	**0.0644**	**1.6473**	**0.4277**	**0.0593**	**0.4870**	**0.0000**	**2,030.1038**	**2,030.1038**	**0.0588**	**0.0000**	**2,031.3375**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3315	2.9962	2.6389	4.2100e-003		0.1747	0.1747		0.1643	0.1643	0.0000	362.1203	362.1203	0.0882	0.0000	363.9731
Total	**0.3315**	**2.9962**	**2.6389**	**4.2100e-003**		**0.1747**	**0.1747**		**0.1643**	**0.1643**	**0.0000**	**362.1203**	**362.1203**	**0.0882**	**0.0000**	**363.9731**

3.5 Building Construction - 2020

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	0.4277	3.0850	5.7285	0.0115	0.3126	0.0489	0.3615	0.0898	0.0450	0.1348	0.0000	977.5734	977.5734	7.5100e-003	0.0000	977.7312
Worker	0.3573	0.5368	5.0921	0.0152	1.2754	9.6400e-003	1.2850	0.3393	8.9400e-003	0.3482	0.0000	994.3906	994.3906	0.0482	0.0000	995.4018
Total	**0.7850**	**3.6217**	**10.8206**	**0.0267**	**1.5880**	**0.0586**	**1.6466**	**0.4291**	**0.0540**	**0.4830**	**0.0000**	**1,971.9640**	**1,971.9640**	**0.0557**	**0.0000**	**1,973.1330**

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	0.1054	2.2253	2.7970	4.2100e-003		0.0212	0.0212		0.0212	0.0212	0.0000	362.1199	362.1199	0.0882	0.0000	363.9726
Total	**0.1054**	**2.2253**	**2.7970**	**4.2100e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**362.1199**	**362.1199**	**0.0882**	**0.0000**	**363.9726**

3.5 Building Construction - 2020

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	0.4277	3.0850	5.7285	0.0115	0.3126	0.0489	0.3615	0.0898	0.0450	0.1348	0.0000	977.5734	977.5734	7.5100e-003	0.0000	977.7312
Worker	0.3573	0.5368	5.0921	0.0152	1.2754	9.6400e-003	1.2850	0.3393	8.9400e-003	0.3482	0.0000	994.3906	994.3906	0.0482	0.0000	995.4018
Total	**0.7850**	**3.6217**	**10.8206**	**0.0267**	**1.5880**	**0.0586**	**1.6466**	**0.4291**	**0.0540**	**0.4830**	**0.0000**	**1,971.9640**	**1,971.9640**	**0.0557**	**0.0000**	**1,973.1330**

3.5 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	0.1533	1.4046	1.3396	2.1700e-003		0.0774	0.0774		0.0727	0.0727	0.0000	186.8486	186.8486	0.0450	0.0000	187.7939
Total	**0.1533**	**1.4046**	**1.3396**	**2.1700e-003**		**0.0774**	**0.0774**		**0.0727**	**0.0727**	**0.0000**	**186.8486**	**186.8486**	**0.0450**	**0.0000**	**187.7939**

3.5 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	0.2128	1.3066	2.8796	5.9300e-003	0.1613	0.0227	0.1840	0.0464	0.0209	0.0672	0.0000	503.6483	503.6483	3.8700e-003	0.0000	503.7295
Worker	0.1739	0.2577	2.4517	7.8500e-003	0.6580	4.9500e-003	0.6630	0.1750	4.5900e-003	0.1796	0.0000	504.0429	504.0429	0.0236	0.0000	504.5380
Total	**0.3866**	**1.5643**	**5.3313**	**0.0138**	**0.8193**	**0.0276**	**0.8470**	**0.2214**	**0.0255**	**0.2468**	**0.0000**	**1,007.6912**	**1,007.6912**	**0.0274**	**0.0000**	**1,008.2675**

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	0.0544	1.1481	1.4431	2.1700e-003		0.0110	0.0110		0.0110	0.0110	0.0000	186.8484	186.8484	0.0450	0.0000	187.7937
Total	**0.0544**	**1.1481**	**1.4431**	**2.1700e-003**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**186.8484**	**186.8484**	**0.0450**	**0.0000**	**187.7937**

3.5 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	0.2128	1.3066	2.8796	5.9300e-003	0.1613	0.0227	0.1840	0.0464	0.0209	0.0672	0.0000	503.6483	503.6483	3.8700e-003	0.0000	503.7295
Worker	0.1739	0.2577	2.4517	7.8500e-003	0.6580	4.9500e-003	0.6630	0.1750	4.5900e-003	0.1796	0.0000	504.0429	504.0429	0.0236	0.0000	504.5380
Total	**0.3866**	**1.5643**	**5.3313**	**0.0138**	**0.8193**	**0.0276**	**0.8470**	**0.2214**	**0.0255**	**0.2468**	**0.0000**	**1,007.6912**	**1,007.6912**	**0.0274**	**0.0000**	**1,008.2675**

3.6 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	0.0462	0.4748	0.5382	8.4000e-004		0.0249	0.0249		0.0230	0.0230	0.0000	73.4906	73.4906	0.0238	0.0000	73.9897
Paving	0.0161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0623**	**0.4748**	**0.5382**	**8.4000e-004**		**0.0249**	**0.0249**		**0.0230**	**0.0230**	**0.0000**	**73.4906**	**73.4906**	**0.0238**	**0.0000**	**73.9897**

3.6 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	1.3500e-003	2.0000e-003	0.0190	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.9110	3.9110	1.8000e-004	0.0000	3.9148
Total	**1.3500e-003**	**2.0000e-003**	**0.0190**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.9110**	**3.9110**	**1.8000e-004**	**0.0000**	**3.9148**

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	0.0206	0.4149	0.6348	8.4000e-004		3.3600e-003	3.3600e-003		3.3600e-003	3.3600e-003	0.0000	73.4905	73.4905	0.0238	0.0000	73.9896
Paving	0.0161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0367**	**0.4149**	**0.6348**	**8.4000e-004**		**3.3600e-003**	**3.3600e-003**		**3.3600e-003**	**3.3600e-003**	**0.0000**	**73.4905**	**73.4905**	**0.0238**	**0.0000**	**73.9896**

3.6 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	1.3500e-003	2.0000e-003	0.0190	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.9110	3.9110	1.8000e-004	0.0000	3.9148
Total	**1.3500e-003**	**2.0000e-003**	**0.0190**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.9110**	**3.9110**	**1.8000e-004**	**0.0000**	**3.9148**

3.7 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	11.1304					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2100e-003	0.0573	0.0682	1.1000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003	0.0000	9.5747	9.5747	6.6000e-004	0.0000	9.5885
Total	**11.1387**	**0.0573**	**0.0682**	**1.1000e-004**		**3.5300e-003**	**3.5300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**9.5747**	**9.5747**	**6.6000e-004**	**0.0000**	**9.5885**

3.7 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	0.0161	0.0239	0.2270	7.3000e-004	0.0609	4.6000e-004	0.0614	0.0162	4.2000e-004	0.0166	0.0000	46.6706	46.6706	2.1800e-003	0.0000	46.7165
Total	**0.0161**	**0.0239**	**0.2270**	**7.3000e-004**	**0.0609**	**4.6000e-004**	**0.0614**	**0.0162**	**4.2000e-004**	**0.0166**	**0.0000**	**46.6706**	**46.6706**	**2.1800e-003**	**0.0000**	**46.7165**

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	11.1304					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2300e-003	0.0509	0.0687	1.1000e-004		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	9.5747	9.5747	6.6000e-004	0.0000	9.5885
Total	**11.1327**	**0.0509**	**0.0687**	**1.1000e-004**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**9.5747**	**9.5747**	**6.6000e-004**	**0.0000**	**9.5885**

3.7 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	0.0161	0.0239	0.2270	7.3000e-004	0.0609	4.6000e-004	0.0614	0.0162	4.2000e-004	0.0166	0.0000	46.6706	46.6706	2.1800e-003	0.0000	46.7165
Total	**0.0161**	**0.0239**	**0.2270**	**7.3000e-004**	**0.0609**	**4.6000e-004**	**0.0614**	**0.0162**	**4.2000e-004**	**0.0166**	**0.0000**	**46.6706**	**46.6706**	**2.1800e-003**	**0.0000**	**46.7165**

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	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314
Unmitigated	5.5494	11.7645	52.7239	0.0968	6.1535	0.1625	6.3160	1.6538	0.1498	1.8036	0.0000	6,891.3523	6,891.3523	0.2514	0.0000	6,896.6314

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	38.00	38.00	38.00	81,127	81,127
Condo/Townhouse	1,528.88	1,661.12	1408.24	3,416,719	3,416,719
Health Club	461.02	292.18	374.22	733,394	733,394
High Turnover (Sit Down Restaurant)	762.90	950.22	791.04	920,879	920,879
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	957.00	1,008.00	877.00	2,127,126	2,127,126
Supermarket	6,747.84	11,720.94	10985.04	9,171,887	9,171,887
Total	10,495.64	15,670.46	14,473.54	16,451,132	16,451,132

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Other 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
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.543091	0.062201	0.166716	0.110184	0.030625	0.004564	0.019041	0.050825	0.001789	0.003661	0.005684	0.000199	0.001418

5.0 Energy Detail

4.4 Fleet Mix

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	1,345.0949	1,345.0949	0.0608	0.0126	1,350.2731
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,345.0949	1,345.0949	0.0608	0.0126	1,350.2731
NaturalGas Mitigated	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	782.2250	782.2250	0.0150	0.0143	786.9855
NaturalGas Unmitigated	0.0790	0.6870	0.3720	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	782.2250	782.2250	0.0150	0.0143	786.9855

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					
City Park	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
Condo/Townhouse	5.6351e+006	0.0304	0.2597	0.1105	1.6600e-003		0.0210	0.0210		0.0210	0.0210	0.0000	300.7106	300.7106	5.7600e-003	5.5100e-003	302.5407
Health Club	359520	1.9400e-003	0.0176	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1854	19.1854	3.7000e-004	3.5000e-004	19.3021
High Turnover (Sit Down Restaurant)	1.02006e+006	5.5000e-003	0.0500	0.0420	3.0000e-004		3.8000e-003	3.8000e-003		3.8000e-003	3.8000e-003	0.0000	54.4343	54.4343	1.0400e-003	1.0000e-003	54.7656
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	5.102e+006	0.0275	0.2351	0.1000	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	272.2622	272.2622	5.2200e-003	4.9900e-003	273.9191
Supermarket	2.54166e+006	0.0137	0.1246	0.1047	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.6327	135.6327	2.6000e-003	2.4900e-003	136.4581
Total		**0.0791**	**0.6870**	**0.3720**	**4.3200e-003**		**0.0546**	**0.0546**		**0.0546**	**0.0546**	**0.0000**	**782.2251**	**782.2251**	**0.0150**	**0.0143**	**786.9855**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	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
Condo/Townhouse	5.6351e+006	0.0304	0.2597	0.1105	1.6600e-003		0.0210	0.0210		0.0210	0.0210	0.0000	300.7106	300.7106	5.7600e-003	5.5100e-003	302.5407
Health Club	359520	1.9400e-003	0.0176	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1854	19.1854	3.7000e-004	3.5000e-004	19.3021
High Turnover (Sit Down Restaurant)	1.02006e+006	5.5000e-003	0.0500	0.0420	3.0000e-004		3.8000e-003	3.8000e-003		3.8000e-003	3.8000e-003	0.0000	54.4343	54.4343	1.0400e-003	1.0000e-003	54.7656
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	5.102e+006	0.0275	0.2351	0.1000	1.5000e-003		0.0190	0.0190		0.0190	0.0190	0.0000	272.2622	272.2622	5.2200e-003	4.9900e-003	273.9191
Supermarket	2.54166e+006	0.0137	0.1246	0.1047	7.5000e-004		9.4700e-003	9.4700e-003		9.4700e-003	9.4700e-003	0.0000	135.6327	135.6327	2.6000e-003	2.4900e-003	136.4581
Total		**0.0791**	**0.6870**	**0.3720**	**4.3200e-003**		**0.0546**	**0.0546**		**0.0546**	**0.0546**	**0.0000**	**782.2251**	**782.2251**	**0.0150**	**0.0143**	**786.9855**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	988944	287.6952	0.0130	2.6900e-003	288.8027
Health Club	115780	33.6817	1.5200e-003	3.2000e-004	33.8114
High Turnover (Sit Down Restaurant)	181440	52.7830	2.3900e-003	4.9000e-004	52.9862
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	76744.8	22.3259	1.0100e-003	2.1000e-004	22.4119
Single Family Housing	695397	202.2990	9.1500e-003	1.8900e-003	203.0778
Supermarket	2.56542e+006	746.3101	0.0338	6.9800e-003	749.1832
Total		**1,345.0949**	**0.0608**	**0.0126**	**1,350.2731**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	988944	287.6952	0.0130	2.6900e-003	288.8027
Health Club	115780	33.6817	1.5200e-003	3.2000e-004	33.8114
High Turnover (Sit Down Restaurant)	181440	52.7830	2.3900e-003	4.9000e-004	52.9862
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	76744.8	22.3259	1.0100e-003	2.1000e-004	22.4119
Single Family Housing	695397	202.2990	9.1500e-003	1.8900e-003	203.0778
Supermarket	2.56542e+006	746.3101	0.0338	6.9800e-003	749.1832
Total		**1,345.0949**	**0.0608**	**0.0126**	**1,350.2731**

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	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507
Unmitigated	10.0588	0.0425	3.6269	1.3000e-003		0.1828	0.1828		0.1828	0.1828	17.6297	14.0418	31.6714	0.0407	1.0500e-003	32.8507

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1130					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7678	0.0141	1.1609	1.1700e-003		0.1691	0.1691		0.1691	0.1691	17.6297	10.0113	27.6410	0.0368	1.0500e-003	28.7389
Landscaping	0.0743	0.0284	2.4660	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0305	4.0305	3.8700e-003	0.0000	4.1118
Total	**10.0588**	**0.0425**	**3.6269**	**1.3000e-003**		**0.1828**	**0.1828**		**0.1827**	**0.1827**	**17.6297**	**14.0418**	**31.6715**	**0.0407**	**1.0500e-003**	**32.8507**

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	1.1130					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7678	0.0141	1.1609	1.1700e-003		0.1691	0.1691		0.1691	0.1691	17.6297	10.0113	27.6410	0.0368	1.0500e-003	28.7389
Landscaping	0.0743	0.0284	2.4660	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0305	4.0305	3.8700e-003	0.0000	4.1118
Total	**10.0588**	**0.0425**	**3.6269**	**1.3000e-003**		**0.1828**	**0.1828**		**0.1827**	**0.1827**	**17.6297**	**14.0418**	**31.6715**	**0.0407**	**1.0500e-003**	**32.8507**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	105.0817	1.0604	0.0258	135.3437
Unmitigated	105.0817	1.0606	0.0258	135.3602

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 28.4764	28.9944	1.3100e-003	2.7000e-004	29.1060
Condo/Townhouse	15.1157 / 9.52948	38.2924	0.4941	0.0119	52.3701
Health Club	0.828004 / 0.507486	2.0828	0.0271	6.5000e-004	2.8539
High Turnover (Sit Down Restaurant)	1.8212 / 0.116247	3.5629	0.0595	1.4300e-003	5.2550
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.5154 / 4.10754	16.5053	0.2130	5.1500e-003	22.5733
Supermarket	8.1357 / 0.25162	15.6439	0.2657	6.3800e-003	23.2018
Total		**105.0817**	**1.0606**	**0.0258**	**135.3601**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 28.4764	28.9944	1.3100e-003	2.7000e-004	29.1060
Condo/Townhouse	15.1157 / 9.52948	38.2924	0.4940	0.0119	52.3625
Health Club	0.828004 / 0.507486	2.0828	0.0271	6.5000e-004	2.8535
High Turnover (Sit Down Restaurant)	1.8212 / 0.116247	3.5629	0.0595	1.4300e-003	5.2541
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.5154 / 4.10754	16.5053	0.2129	5.1400e-003	22.5700
Supermarket	8.1357 / 0.25162	15.6439	0.2656	6.3700e-003	23.1977
Total		**105.0817**	**1.0604**	**0.0258**	**135.3437**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	152.7182	9.0254	0.0000	342.2514
Unmitigated	152.7182	9.0254	0.0000	342.2514

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	2.06	0.4182	0.0247	0.0000	0.9371
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	48.5486
Health Club	79.8	16.1987	0.9573	0.0000	36.3023
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	120.12	24.3833	1.4410	0.0000	54.6445
Supermarket	372.24	75.5614	4.4656	0.0000	169.3379
Total		**152.7182**	**9.0254**	**0.0000**	**342.2514**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	2.06	0.4182	0.0247	0.0000	0.9371
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	48.5486
Health Club	79.8	16.1987	0.9573	0.0000	36.3023
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	120.12	24.3833	1.4410	0.0000	54.6445
Supermarket	372.24	75.5614	4.4656	0.0000	169.3379
Total		**152.7182**	**9.0254**	**0.0000**	**342.2514**

9.0 Operational Offroad

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

10.0 Vegetation

Oak Knoll - Phase II

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	12.20	Acre	12.20	531,432.00	0
City Park	9.60	Acre	9.60	418,176.00	0
Single Family Housing	263.00	Dwelling Unit	27.20	473,400.00	752

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project specifc data.

Construction Phase - Project specific construction schedule

Off-road Equipment -

Trips and VMT -

Grading - Project specific information.

Architectural Coating -

Land Use Change -

Construction Off-road Equipment Mitigation - BAAQMD Basic Construction Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	55.00	78.00
tblConstructionPhase	NumDays	740.00	1,056.00
tblConstructionPhase	NumDays	50.00	71.00

tblConstructionPhase	NumDays	75.00	110.00
tblConstructionPhase	NumDays	55.00	78.00
tblConstructionPhase	NumDays	30.00	43.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	275.00	49.00
tblGrading	AcresOfGrading	0.00	49.00
tblLandUse	LotAcreage	85.39	27.20
tblProjectCharacteristics	OperationalYear	2014	2024

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					
2018	0.7048	6.8306	6.2767	9.7200e-003	0.9658	0.3229	1.2887	0.4536	0.2988	0.7524	0.0000	841.1724	841.1724	0.1816	0.0000	844.9857
2019	0.8579	5.7582	9.3016	0.0194	0.8879	0.2391	1.1270	0.2401	0.2241	0.4642	0.0000	1,532.2610	1,532.2610	0.1219	0.0000	1,534.8214
2020	0.7842	5.1354	8.8718	0.0195	0.8907	0.2093	1.1000	0.2409	0.1961	0.4370	0.0000	1,494.9844	1,494.9844	0.1193	0.0000	1,497.4896
2021	0.7273	4.4967	8.5265	0.0194	0.8879	0.1809	1.0688	0.2402	0.1695	0.4097	0.0000	1,479.8690	1,479.8690	0.1166	0.0000	1,482.3171
2022	8.4769	1.1887	2.1774	4.8200e-003	0.1936	0.0524	0.2459	0.0522	0.0489	0.1011	0.0000	370.5426	370.5426	0.0466	0.0000	371.5206
Total	**11.5510**	**23.4096**	**35.1539**	**0.0729**	**3.8259**	**1.0046**	**4.8304**	**1.2270**	**0.9374**	**2.1644**	**0.0000**	**5,718.8293**	**5,718.8293**	**0.5860**	**0.0000**	**5,731.1344**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2706	3.7087	5.5402	9.7200e-003	0.5414	0.0311	0.5725	0.2330	0.0305	0.2634	0.0000	841.1717	841.1717	0.1816	0.0000	844.9850
2019	0.5949	4.6954	9.4104	0.0194	0.8879	0.0592	0.9471	0.2401	0.0562	0.2963	0.0000	1,532.2606	1,532.2606	0.1219	0.0000	1,534.8210
2020	0.5581	4.3646	9.0299	0.0195	0.8907	0.0558	0.9465	0.2409	0.0531	0.2940	0.0000	1,494.9840	1,494.9840	0.1193	0.0000	1,497.4891
2021	0.5361	4.0012	8.7265	0.0194	0.8879	0.0526	0.9405	0.2402	0.0502	0.2903	0.0000	1,479.8685	1,479.8685	0.1166	0.0000	1,482.3166
2022	8.4227	1.1559	2.3215	4.8200e-003	0.1936	0.0134	0.2069	0.0522	0.0129	0.0651	0.0000	370.5424	370.5424	0.0466	0.0000	371.5205
Total	**10.3824**	**17.9258**	**35.0284**	**0.0729**	**3.4015**	**0.2120**	**3.6135**	**1.0063**	**0.2027**	**1.2091**	**0.0000**	**5,718.8272**	**5,718.8272**	**0.5860**	**0.0000**	**5,731.1322**

	ROG	NOx	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	**10.12**	**23.43**	**0.36**	**0.00**	**11.09**	**78.89**	**25.19**	**17.98**	**78.37**	**44.14**	**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	tons/yr										MT/yr					
Area	7.9908	0.0516	4.3287	2.6000e-003		0.3571	0.3571		0.3571	0.3571	36.3884	13.3864	49.7748	0.0814	1.9200e-003	52.0800
Energy	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	1,248.0957	1,248.0957	0.0378	0.0181	1,254.5017
Mobile	1.1113	2.5614	11.6936	0.0325	2.1059	0.0515	2.1573	0.5660	0.0475	0.6135	0.0000	2,234.1414	2,234.1414	0.0667	0.0000	2,235.5420
Waste						0.0000	0.0000		0.0000	0.0000	64.2812	0.0000	64.2812	3.7989	0.0000	144.0582
Water						0.0000	0.0000		0.0000	0.0000	5.4363	49.6190	55.0553	0.5606	0.0137	71.0590
Total	**9.1744**	**3.2313**	**16.2854**	**0.0390**	**2.1059**	**0.4586**	**2.5644**	**0.5660**	**0.4545**	**1.0205**	**106.1059**	**3,545.2425**	**3,651.3484**	**4.5454**	**0.0337**	**3,757.2409**

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	7.9908	0.0516	4.3287	2.6000e-003		0.3571	0.3571		0.3571	0.3571	36.3884	13.3864	49.7748	0.0814	1.9200e-003	52.0800
Energy	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	1,248.0957	1,248.0957	0.0378	0.0181	1,254.5017
Mobile	1.1113	2.5614	11.6936	0.0325	2.1059	0.0515	2.1573	0.5660	0.0475	0.6135	0.0000	2,234.1414	2,234.1414	0.0667	0.0000	2,235.5420
Waste						0.0000	0.0000		0.0000	0.0000	64.2812	0.0000	64.2812	3.7989	0.0000	144.0582
Water						0.0000	0.0000		0.0000	0.0000	5.4363	49.6190	55.0553	0.5605	0.0136	71.0503
Total	**9.1744**	**3.2313**	**16.2854**	**0.0390**	**2.1059**	**0.4586**	**2.5644**	**0.5660**	**0.4545**	**1.0205**	**106.1059**	**3,545.2425**	**3,651.3484**	**4.5453**	**0.0337**	**3,757.2322**

	ROG	NOx	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**	**0.06**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-211.1900
Total	**-211.1900**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	4/24/2018	6	71	
2	Site Preparation	Site Preparation	4/25/2018	6/13/2018	6	43	
3	Grading	Grading	6/14/2018	10/19/2018	6	110	
4	Building Construction	Building Construction	10/20/2018	3/4/2022	6	1056	
5	Paving	Paving	3/5/2022	6/3/2022	6	78	
6	Architectural Coating	Architectural Coating	6/4/2022	9/2/2022	6	78	

Acres of Grading (Site Preparation Phase): 49

Acres of Grading (Grading Phase): 49

Acres of Paving: 0

Residential Indoor: 958,635; Residential Outdoor: 319,545; Non-Residential Indoor: 1,424,412; Non-Residential Outdoor: 474,804 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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	125	0.42
Paving	Paving Equipment	2	8.00	130	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
Demolition	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	494.00	184.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	99.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

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	0.1264	1.3075	1.1262	1.4200e-003		0.0642	0.0642		0.0598	0.0598	0.0000	128.2833	128.2833	0.0355	0.0000	129.0282
Total	**0.1264**	**1.3075**	**1.1262**	**1.4200e-003**		**0.0642**	**0.0642**		**0.0598**	**0.0598**	**0.0000**	**128.2833**	**128.2833**	**0.0355**	**0.0000**	**129.0282**

3.2 Demolition - 2018

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	1.6000e-003	2.4200e-003	0.0231	6.0000e-005	4.8300e-003	4.0000e-005	4.8700e-003	1.2900e-003	4.0000e-005	1.3200e-003	0.0000	4.0720	4.0720	2.1000e-004	0.0000	4.0764
Total	**1.6000e-003**	**2.4200e-003**	**0.0231**	**6.0000e-005**	**4.8300e-003**	**4.0000e-005**	**4.8700e-003**	**1.2900e-003**	**4.0000e-005**	**1.3200e-003**	**0.0000**	**4.0720**	**4.0720**	**2.1000e-004**	**0.0000**	**4.0764**

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	0.0337	0.6660	0.8969	1.4200e-003		4.6900e-003	4.6900e-003		4.6900e-003	4.6900e-003	0.0000	128.2832	128.2832	0.0355	0.0000	129.0281
Total	**0.0337**	**0.6660**	**0.8969**	**1.4200e-003**		**4.6900e-003**	**4.6900e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**128.2832**	**128.2832**	**0.0355**	**0.0000**	**129.0281**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-003	2.4200e-003	0.0231	6.0000e-005	4.8300e-003	4.0000e-005	4.8700e-003	1.2900e-003	4.0000e-005	1.3200e-003	0.0000	4.0720	4.0720	2.1000e-004	0.0000	4.0764
Total	**1.6000e-003**	**2.4200e-003**	**0.0231**	**6.0000e-005**	**4.8300e-003**	**4.0000e-005**	**4.8700e-003**	**1.2900e-003**	**4.0000e-005**	**1.3200e-003**	**0.0000**	**4.0720**	**4.0720**	**2.1000e-004**	**0.0000**	**4.0764**

3.3 Site Preparation - 2018

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					0.4144	0.0000	0.4144	0.2163	0.0000	0.2163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0923	0.9806	0.7790	8.4000e-004		0.0509	0.0509		0.0468	0.0468	0.0000	76.8432	76.8432	0.0239	0.0000	77.3456
Total	**0.0923**	**0.9806**	**0.7790**	**8.4000e-004**	**0.4144**	**0.0509**	**0.4653**	**0.2163**	**0.0468**	**0.2631**	**0.0000**	**76.8432**	**76.8432**	**0.0239**	**0.0000**	**77.3456**

3.3 Site Preparation - 2018

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	1.1600e-003	1.7600e-003	0.0168	4.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	3.0000e-005	9.6000e-004	0.0000	2.9594	2.9594	1.5000e-004	0.0000	2.9625
Total	**1.1600e-003**	**1.7600e-003**	**0.0168**	**4.0000e-005**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**9.3000e-004**	**3.0000e-005**	**9.6000e-004**	**0.0000**	**2.9594**	**2.9594**	**1.5000e-004**	**0.0000**	**2.9625**

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					0.1865	0.0000	0.1865	0.0973	0.0000	0.0973	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0205	0.4184	0.5031	8.4000e-004		3.1000e-003	3.1000e-003		3.1000e-003	3.1000e-003	0.0000	76.8431	76.8431	0.0239	0.0000	77.3455
Total	**0.0205**	**0.4184**	**0.5031**	**8.4000e-004**	**0.1865**	**3.1000e-003**	**0.1896**	**0.0973**	**3.1000e-003**	**0.1004**	**0.0000**	**76.8431**	**76.8431**	**0.0239**	**0.0000**	**77.3455**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	1.7600e-003	0.0168	4.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	3.0000e-005	9.6000e-004	0.0000	2.9594	2.9594	1.5000e-004	0.0000	2.9625
Total	**1.1600e-003**	**1.7600e-003**	**0.0168**	**4.0000e-005**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**9.3000e-004**	**3.0000e-005**	**9.6000e-004**	**0.0000**	**2.9594**	**2.9594**	**1.5000e-004**	**0.0000**	**2.9625**

3.4 Grading - 2018

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					0.3572	0.0000	0.3572	0.1849	0.0000	0.1849	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2909	3.2744	2.3269	3.3900e-003		0.1533	0.1533		0.1411	0.1411	0.0000	309.9889	309.9889	0.0965	0.0000	312.0154
Total	**0.2909**	**3.2744**	**2.3269**	**3.3900e-003**	**0.3572**	**0.1533**	**0.5105**	**0.1849**	**0.1411**	**0.3259**	**0.0000**	**309.9889**	**309.9889**	**0.0965**	**0.0000**	**312.0154**

3.4 Grading - 2018

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	3.3100e-003	5.0100e-003	0.0476	1.2000e-004	9.9800e-003	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	8.4116	8.4116	4.3000e-004	0.0000	8.4207
Total	**3.3100e-003**	**5.0100e-003**	**0.0476**	**1.2000e-004**	**9.9800e-003**	**8.0000e-005**	**0.0101**	**2.6600e-003**	**7.0000e-005**	**2.7300e-003**	**0.0000**	**8.4116**	**8.4116**	**4.3000e-004**	**0.0000**	**8.4207**

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					0.1607	0.0000	0.1607	0.0832	0.0000	0.0832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0832	1.6379	2.0869	3.3900e-003		0.0109	0.0109		0.0109	0.0109	0.0000	309.9885	309.9885	0.0965	0.0000	312.0151
Total	**0.0832**	**1.6379**	**2.0869**	**3.3900e-003**	**0.1607**	**0.0109**	**0.1717**	**0.0832**	**0.0109**	**0.0941**	**0.0000**	**309.9885**	**309.9885**	**0.0965**	**0.0000**	**312.0151**

3.4 Grading - 2018

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	3.3100e-003	5.0100e-003	0.0476	1.2000e-004	9.9800e-003	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	8.4116	8.4116	4.3000e-004	0.0000	8.4207
Total	**3.3100e-003**	**5.0100e-003**	**0.0476**	**1.2000e-004**	**9.9800e-003**	**8.0000e-005**	**0.0101**	**2.6600e-003**	**7.0000e-005**	**2.7300e-003**	**0.0000**	**8.4116**	**8.4116**	**4.3000e-004**	**0.0000**	**8.4207**

3.5 Building Construction - 2018

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	0.0827	0.7211	0.5435	8.3000e-004		0.0463	0.0463		0.0436	0.0436	0.0000	73.3986	73.3986	0.0180	0.0000	73.7758
Total	**0.0827**	**0.7211**	**0.5435**	**8.3000e-004**		**0.0463**	**0.0463**		**0.0436**	**0.0436**	**0.0000**	**73.3986**	**73.3986**	**0.0180**	**0.0000**	**73.7758**

3.5 Building Construction - 2018

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	0.0604	0.4682	0.7505	1.3600e-003	0.0369	6.9600e-003	0.0438	0.0106	6.4000e-003	0.0170	0.0000	120.1106	120.1106	9.4000e-004	0.0000	120.1303
Worker	0.0460	0.0697	0.6631	1.6600e-003	0.1390	1.0900e-003	0.1401	0.0370	1.0100e-003	0.0380	0.0000	117.1049	117.1049	6.0000e-003	0.0000	117.2308
Total	**0.1064**	**0.5379**	**1.4136**	**3.0200e-003**	**0.1759**	**8.0500e-003**	**0.1839**	**0.0476**	**7.4100e-003**	**0.0550**	**0.0000**	**237.2155**	**237.2155**	**6.9400e-003**	**0.0000**	**237.3611**

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	0.0208	0.4394	0.5523	8.3000e-004		4.1900e-003	4.1900e-003		4.1900e-003	4.1900e-003	0.0000	73.3985	73.3985	0.0180	0.0000	73.7757
Total	**0.0208**	**0.4394**	**0.5523**	**8.3000e-004**		**4.1900e-003**	**4.1900e-003**		**4.1900e-003**	**4.1900e-003**	**0.0000**	**73.3985**	**73.3985**	**0.0180**	**0.0000**	**73.7757**

3.5 Building Construction - 2018

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	0.0604	0.4682	0.7505	1.3600e-003	0.0369	6.9600e-003	0.0438	0.0106	6.4000e-003	0.0170	0.0000	120.1106	120.1106	9.4000e-004	0.0000	120.1303
Worker	0.0460	0.0697	0.6631	1.6600e-003	0.1390	1.0900e-003	0.1401	0.0370	1.0100e-003	0.0380	0.0000	117.1049	117.1049	6.0000e-003	0.0000	117.2308
Total	**0.1064**	**0.5379**	**1.4136**	**3.0200e-003**	**0.1759**	**8.0500e-003**	**0.1839**	**0.0476**	**7.4100e-003**	**0.0550**	**0.0000**	**237.2155**	**237.2155**	**6.9400e-003**	**0.0000**	**237.3611**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3680	3.2810	2.6793	4.1900e-003		0.2011	0.2011		0.1891	0.1891	0.0000	366.4021	366.4021	0.0892	0.0000	368.2742
Total	**0.3680**	**3.2810**	**2.6793**	**4.1900e-003**		**0.2011**	**0.2011**		**0.1891**	**0.1891**	**0.0000**	**366.4021**	**366.4021**	**0.0892**	**0.0000**	**368.2742**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2785	2.1566	3.5844	6.8700e-003	0.1862	0.0326	0.2188	0.0535	0.0300	0.0835	0.0000	595.8912	595.8912	4.6200e-003	0.0000	595.9882
Worker	0.2113	0.3206	3.0379	8.3700e-003	0.7017	5.3700e-003	0.7071	0.1867	4.9800e-003	0.1916	0.0000	569.9676	569.9676	0.0282	0.0000	570.5590
Total	**0.4898**	**2.4772**	**6.6223**	**0.0152**	**0.8879**	**0.0380**	**0.9259**	**0.2401**	**0.0350**	**0.2751**	**0.0000**	**1,165.8589**	**1,165.8589**	**0.0328**	**0.0000**	**1,166.5472**

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	0.1051	2.2183	2.7881	4.1900e-003		0.0212	0.0212		0.0212	0.0212	0.0000	366.4017	366.4017	0.0892	0.0000	368.2738
Total	**0.1051**	**2.2183**	**2.7881**	**4.1900e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**366.4017**	**366.4017**	**0.0892**	**0.0000**	**368.2738**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2785	2.1566	3.5844	6.8700e-003	0.1862	0.0326	0.2188	0.0535	0.0300	0.0835	0.0000	595.8912	595.8912	4.6200e-003	0.0000	595.9882
Worker	0.2113	0.3206	3.0379	8.3700e-003	0.7017	5.3700e-003	0.7071	0.1867	4.9800e-003	0.1916	0.0000	569.9676	569.9676	0.0282	0.0000	570.5590
Total	**0.4898**	**2.4772**	**6.6223**	**0.0152**	**0.8879**	**0.0380**	**0.9259**	**0.2401**	**0.0350**	**0.2751**	**0.0000**	**1,165.8589**	**1,165.8589**	**0.0328**	**0.0000**	**1,166.5472**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3315	2.9962	2.6389	4.2100e-003		0.1747	0.1747		0.1643	0.1643	0.0000	362.1203	362.1203	0.0882	0.0000	363.9731
Total	**0.3315**	**2.9962**	**2.6389**	**4.2100e-003**		**0.1747**	**0.1747**		**0.1643**	**0.1643**	**0.0000**	**362.1203**	**362.1203**	**0.0882**	**0.0000**	**363.9731**

3.5 Building Construction - 2020

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	0.2555	1.8430	3.4222	6.8800e-003	0.1868	0.0292	0.2160	0.0537	0.0269	0.0805	0.0000	584.0049	584.0049	4.4900e-003	0.0000	584.0992
Worker	0.1972	0.2963	2.8106	8.3900e-003	0.7040	5.3200e-003	0.7093	0.1873	4.9300e-003	0.1922	0.0000	548.8592	548.8592	0.0266	0.0000	549.4173
Total	**0.4527**	**2.1392**	**6.2329**	**0.0153**	**0.8907**	**0.0346**	**0.9253**	**0.2409**	**0.0318**	**0.2727**	**0.0000**	**1,132.8641**	**1,132.8641**	**0.0311**	**0.0000**	**1,133.5165**

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	0.1054	2.2253	2.7970	4.2100e-003		0.0212	0.0212		0.0212	0.0212	0.0000	362.1199	362.1199	0.0882	0.0000	363.9726
Total	**0.1054**	**2.2253**	**2.7970**	**4.2100e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**362.1199**	**362.1199**	**0.0882**	**0.0000**	**363.9726**

3.5 Building Construction - 2020

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	0.2555	1.8430	3.4222	6.8800e-003	0.1868	0.0292	0.2160	0.0537	0.0269	0.0805	0.0000	584.0049	584.0049	4.4900e-003	0.0000	584.0992
Worker	0.1972	0.2963	2.8106	8.3900e-003	0.7040	5.3200e-003	0.7093	0.1873	4.9300e-003	0.1922	0.0000	548.8592	548.8592	0.0266	0.0000	549.4173
Total	**0.4527**	**2.1392**	**6.2329**	**0.0153**	**0.8907**	**0.0346**	**0.9253**	**0.2409**	**0.0318**	**0.2727**	**0.0000**	**1,132.8641**	**1,132.8641**	**0.0311**	**0.0000**	**1,133.5165**

3.5 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	0.2963	2.7138	2.5881	4.2000e-003		0.1494	0.1494		0.1405	0.1405	0.0000	361.0099	361.0099	0.0870	0.0000	362.8364
Total	**0.2963**	**2.7138**	**2.5881**	**4.2000e-003**		**0.1494**	**0.1494**		**0.1405**	**0.1405**	**0.0000**	**361.0099**	**361.0099**	**0.0870**	**0.0000**	**362.8364**

3.5 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	0.2456	1.5082	3.3238	6.8500e-003	0.1862	0.0262	0.2124	0.0535	0.0241	0.0776	0.0000	581.3314	581.3314	4.4700e-003	0.0000	581.4252
Worker	0.1854	0.2748	2.6146	8.3700e-003	0.7017	5.2800e-003	0.7070	0.1867	4.8900e-003	0.1916	0.0000	537.5276	537.5276	0.0251	0.0000	538.0555
Total	**0.4310**	**1.7829**	**5.9383**	**0.0152**	**0.8879**	**0.0315**	**0.9194**	**0.2402**	**0.0290**	**0.2691**	**0.0000**	**1,118.8590**	**1,118.8590**	**0.0296**	**0.0000**	**1,119.4807**

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	0.1051	2.2183	2.7881	4.2000e-003		0.0212	0.0212		0.0212	0.0212	0.0000	361.0095	361.0095	0.0870	0.0000	362.8359
Total	**0.1051**	**2.2183**	**2.7881**	**4.2000e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**361.0095**	**361.0095**	**0.0870**	**0.0000**	**362.8359**

3.5 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	0.2456	1.5082	3.3238	6.8500e-003	0.1862	0.0262	0.2124	0.0535	0.0241	0.0776	0.0000	581.3314	581.3314	4.4700e-003	0.0000	581.4252
Worker	0.1854	0.2748	2.6146	8.3700e-003	0.7017	5.2800e-003	0.7070	0.1867	4.8900e-003	0.1916	0.0000	537.5276	537.5276	0.0251	0.0000	538.0555
Total	**0.4310**	**1.7829**	**5.9383**	**0.0152**	**0.8879**	**0.0315**	**0.9194**	**0.2402**	**0.0290**	**0.2691**	**0.0000**	**1,118.8590**	**1,118.8590**	**0.0296**	**0.0000**	**1,119.4807**

3.5 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	0.0459	0.4195	0.4408	7.2000e-004		0.0218	0.0218		0.0205	0.0205	0.0000	62.3066	62.3066	0.0149	0.0000	62.6196
Total	**0.0459**	**0.4195**	**0.4408**	**7.2000e-004**		**0.0218**	**0.0218**		**0.0205**	**0.0205**	**0.0000**	**62.3066**	**62.3066**	**0.0149**	**0.0000**	**62.6196**

3.5 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	0.0405	0.2297	0.5465	1.1800e-003	0.0321	4.4500e-003	0.0366	9.2300e-003	4.0900e-003	0.0133	0.0000	100.2017	100.2017	7.9000e-004	0.0000	100.2183
Worker	0.0302	0.0443	0.4217	1.4400e-003	0.1211	9.1000e-004	0.1220	0.0322	8.4000e-004	0.0330	0.0000	91.2233	91.2233	4.1300e-003	0.0000	91.3101
Total	**0.0708**	**0.2740**	**0.9682**	**2.6200e-003**	**0.1532**	**5.3600e-003**	**0.1586**	**0.0414**	**4.9300e-003**	**0.0464**	**0.0000**	**191.4250**	**191.4250**	**4.9200e-003**	**0.0000**	**191.5283**

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	0.0181	0.3827	0.4810	7.2000e-004		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	62.3065	62.3065	0.0149	0.0000	62.6195
Total	**0.0181**	**0.3827**	**0.4810**	**7.2000e-004**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**62.3065**	**62.3065**	**0.0149**	**0.0000**	**62.6195**

3.5 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	0.0405	0.2297	0.5465	1.1800e-003	0.0321	4.4500e-003	0.0366	9.2300e-003	4.0900e-003	0.0133	0.0000	100.2017	100.2017	7.9000e-004	0.0000	100.2183
Worker	0.0302	0.0443	0.4217	1.4400e-003	0.1211	9.1000e-004	0.1220	0.0322	8.4000e-004	0.0330	0.0000	91.2233	91.2233	4.1300e-003	0.0000	91.3101
Total	**0.0708**	**0.2740**	**0.9682**	**2.6200e-003**	**0.1532**	**5.3600e-003**	**0.1586**	**0.0414**	**4.9300e-003**	**0.0464**	**0.0000**	**191.4250**	**191.4250**	**4.9200e-003**	**0.0000**	**191.5283**

3.6 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	0.0422	0.4255	0.5570	8.7000e-004		0.0218	0.0218		0.0200	0.0200	0.0000	76.4455	76.4455	0.0247	0.0000	76.9648
Paving	0.0160					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0582**	**0.4255**	**0.5570**	**8.7000e-004**		**0.0218**	**0.0218**		**0.0200**	**0.0200**	**0.0000**	**76.4455**	**76.4455**	**0.0247**	**0.0000**	**76.9648**

3.6 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	1.3300e-003	1.9400e-003	0.0185	6.0000e-005	5.3100e-003	4.0000e-005	5.3500e-003	1.4100e-003	4.0000e-005	1.4500e-003	0.0000	4.0010	4.0010	1.8000e-004	0.0000	4.0048
Total	**1.3300e-003**	**1.9400e-003**	**0.0185**	**6.0000e-005**	**5.3100e-003**	**4.0000e-005**	**5.3500e-003**	**1.4100e-003**	**4.0000e-005**	**1.4500e-003**	**0.0000**	**4.0010**	**4.0010**	**1.8000e-004**	**0.0000**	**4.0048**

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	0.0214	0.4315	0.6602	8.7000e-004		3.5000e-003	3.5000e-003		3.5000e-003	3.5000e-003	0.0000	76.4455	76.4455	0.0247	0.0000	76.9647
Paving	0.0160					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0374**	**0.4315**	**0.6602**	**8.7000e-004**		**3.5000e-003**	**3.5000e-003**		**3.5000e-003**	**3.5000e-003**	**0.0000**	**76.4455**	**76.4455**	**0.0247**	**0.0000**	**76.9647**

3.6 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	1.3300e-003	1.9400e-003	0.0185	6.0000e-005	5.3100e-003	4.0000e-005	5.3500e-003	1.4100e-003	4.0000e-005	1.4500e-003	0.0000	4.0010	4.0010	1.8000e-004	0.0000	4.0048
Total	**1.3300e-003**	**1.9400e-003**	**0.0185**	**6.0000e-005**	**5.3100e-003**	**4.0000e-005**	**5.3500e-003**	**1.4100e-003**	**4.0000e-005**	**1.4500e-003**	**0.0000**	**4.0010**	**4.0010**	**1.8000e-004**	**0.0000**	**4.0048**

3.7 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	8.2841					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9800e-003	0.0549	0.0707	1.2000e-004		3.1900e-003	3.1900e-003		3.1900e-003	3.1900e-003	0.0000	9.9577	9.9577	6.5000e-004	0.0000	9.9713
Total	**8.2921**	**0.0549**	**0.0707**	**1.2000e-004**		**3.1900e-003**	**3.1900e-003**		**3.1900e-003**	**3.1900e-003**	**0.0000**	**9.9577**	**9.9577**	**6.5000e-004**	**0.0000**	**9.9713**

3.7 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	8.7500e-003	0.0128	0.1221	4.2000e-004	0.0350	2.6000e-004	0.0353	9.3200e-003	2.4000e-004	9.5700e-003	0.0000	26.4067	26.4067	1.2000e-003	0.0000	26.4319
Total	**8.7500e-003**	**0.0128**	**0.1221**	**4.2000e-004**	**0.0350**	**2.6000e-004**	**0.0353**	**9.3200e-003**	**2.4000e-004**	**9.5700e-003**	**0.0000**	**26.4067**	**26.4067**	**1.2000e-003**	**0.0000**	**26.4319**

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	8.2841					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0529	0.0715	1.2000e-004		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004	0.0000	9.9577	9.9577	6.5000e-004	0.0000	9.9713
Total	**8.2864**	**0.0529**	**0.0715**	**1.2000e-004**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**	**0.0000**	**9.9577**	**9.9577**	**6.5000e-004**	**0.0000**	**9.9713**

3.7 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	8.7500e-003	0.0128	0.1221	4.2000e-004	0.0350	2.6000e-004	0.0353	9.3200e-003	2.4000e-004	9.5700e-003	0.0000	26.4067	26.4067	1.2000e-003	0.0000	26.4319
Total	**8.7500e-003**	**0.0128**	**0.1221**	**4.2000e-004**	**0.0350**	**2.6000e-004**	**0.0353**	**9.3200e-003**	**2.4000e-004**	**9.5700e-003**	**0.0000**	**26.4067**	**26.4067**	**1.2000e-003**	**0.0000**	**26.4319**

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	1.1113	2.5614	11.6936	0.0325	2.1059	0.0515	2.1573	0.5660	0.0475	0.6135	0.0000	2,234.1414	2,234.1414	0.0667	0.0000	2,235.5420
Unmitigated	1.1113	2.5614	11.6936	0.0325	2.1059	0.0515	2.1573	0.5660	0.0475	0.6135	0.0000	2,234.1414	2,234.1414	0.0667	0.0000	2,235.5420

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	15.26	15.26	15.26	32,586	32,586
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	2,516.91	2,651.04	2306.51	5,594,341	5,594,341
Total	2,532.17	2,666.30	2,321.77	5,626,928	5,626,928

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.540708	0.062029	0.166535	0.109313	0.030530	0.004548	0.019619	0.054044	0.001811	0.003599	0.005676	0.000189	0.001400

4.4 Fleet Mix

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	532.0463	532.0463	0.0241	4.9800e-003	534.0945
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	532.0463	532.0463	0.0241	4.9800e-003	534.0945
NaturalGas Mitigated	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	716.0495	716.0495	0.0137	0.0131	720.4072
NaturalGas Unmitigated	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	716.0495	716.0495	0.0137	0.0131	720.4072

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					
City Park	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
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.34183e+007	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	716.0495	716.0495	0.0137	0.0131	720.4072
Total		**0.0724**	**0.6183**	**0.2631**	**3.9500e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**	**0.0000**	**716.0495**	**716.0495**	**0.0137**	**0.0131**	**720.4072**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.34183e+007	0.0724	0.6183	0.2631	3.9500e-003		0.0500	0.0500		0.0500	0.0500	0.0000	716.0495	716.0495	0.0137	0.0131	720.4072
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0724**	**0.6183**	**0.2631**	**3.9500e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**	**0.0000**	**716.0495**	**716.0495**	**0.0137**	**0.0131**	**720.4072**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.82889e+006	532.0463	0.0241	4.9800e-003	534.0945
Total		**532.0463**	**0.0241**	**4.9800e-003**	**534.0945**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.82889e+006	532.0463	0.0241	4.9800e-003	534.0945
Total		**532.0463**	**0.0241**	**4.9800e-003**	**534.0945**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.9908	0.0516	4.3287	2.6000e-003		0.3571	0.3571		0.3571	0.3571	36.3884	13.3864	49.7748	0.0814	1.9200e-003	52.0800
Unmitigated	7.9908	0.0516	4.3287	2.6000e-003		0.3571	0.3571		0.3571	0.3571	36.3884	13.3864	49.7748	0.0814	1.9200e-003	52.0800

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	0.8284					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.5576					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5461	0.0291	2.3765	2.5000e-003		0.3462	0.3462		0.3462	0.3462	36.3884	10.1961	46.5845	0.0783	1.9200e-003	48.8255
Landscaping	0.0587	0.0225	1.9522	1.0000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	3.1903	3.1903	3.0600e-003	0.0000	3.2546
Total	**7.9908**	**0.0516**	**4.3287**	**2.6000e-003**		**0.3571**	**0.3571**		**0.3571**	**0.3571**	**36.3884**	**13.3864**	**49.7748**	**0.0814**	**1.9200e-003**	**52.0800**

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	0.8284					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.5576					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5461	0.0291	2.3765	2.5000e-003		0.3462	0.3462		0.3462	0.3462	36.3884	10.1961	46.5845	0.0783	1.9200e-003	48.8255
Landscaping	0.0587	0.0225	1.9522	1.0000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	3.1903	3.1903	3.0600e-003	0.0000	3.2546
Total	**7.9908**	**0.0516**	**4.3287**	**2.6000e-003**		**0.3571**	**0.3571**		**0.3571**	**0.3571**	**36.3884**	**13.3864**	**49.7748**	**0.0814**	**1.9200e-003**	**52.0800**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	55.0553	0.5605	0.0136	71.0503
Unmitigated	55.0553	0.5606	0.0137	71.0590

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.4382	11.6463	5.3000e-004	1.1000e-004	11.6911
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.1355 / 10.8028	43.4090	0.5601	0.0135	59.3679
Total		**55.0553**	**0.5606**	**0.0137**	**71.0590**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.4382	11.6463	5.3000e-004	1.1000e-004	11.6911
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.1355 / 10.8028	43.4090	0.5600	0.0135	59.3592
Total		**55.0553**	**0.5605**	**0.0136**	**71.0503**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	64.2812	3.7989	0.0000	144.0582
Unmitigated	64.2812	3.7989	0.0000	144.0582

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.83	0.1685	9.9600e-003	0.0000	0.3776
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	315.84	64.1127	3.7890	0.0000	143.6806
Total		**64.2812**	**3.7989**	**0.0000**	**144.0582**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.83	0.1685	9.9600e-003	0.0000	0.3776
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	315.84	64.1127	3.7890	0.0000	143.6806
Total		**64.2812**	**3.7989**	**0.0000**	**144.0582**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-211.1900	0.0000	0.0000	-211.1900

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	49 / 0	-211.1900	0.0000	0.0000	-211.1900
Total		**-211.1900**	**0.0000**	**0.0000**	**-211.1900**

Oak Knoll - Phase III

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.20	Acre	3.20	139,392.00	0
City Park	3.60	Acre	3.60	156,816.00	0
Condo/Townhouse	340.00	Dwelling Unit	21.00	340,000.00	972

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project specific data.

Construction Phase - Project specific schedule.

Grading - Project specific data.

Architectural Coating -

Construction Off-road Equipment Mitigation - Construction Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	30.00	44.00
tblConstructionPhase	NumDays	45.00	66.00
tblConstructionPhase	NumDays	35.00	51.00
tblConstructionPhase	NumDays	20.00	29.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	165.00	27.80
tblGrading	AcresOfGrading	0.00	27.80
tblLandUse	LotAcreage	21.25	21.00

tblProjectCharacteristics	OperationalYear	2014	2024

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3610	3.4634	3.3479	5.5800e-003	0.5893	0.1631	0.7523	0.2830	0.1509	0.4339	0.0000	463.9882	463.9882	0.1121	0.0000	466.3411
2021	0.5482	3.6157	6.0766	0.0136	0.6102	0.1655	0.7757	0.1641	0.1553	0.3194	0.0000	1,031.0733	1,031.0733	0.1078	0.0000	1,033.3374
2022	0.4800	3.1118	5.5508	0.0128	0.5613	0.1374	0.6987	0.1510	0.1289	0.2798	0.0000	966.1340	966.1340	0.1059	0.0000	968.3570
2023	3.9620	0.1647	0.2862	5.8000e-004	0.0188	8.2100e-003	0.0270	5.0100e-003	7.7000e-003	0.0127	0.0000	44.9862	44.9862	8.9300e-003	0.0000	45.1737
Total	**5.3512**	**10.3556**	**15.2615**	**0.0326**	**1.7795**	**0.4741**	**2.2537**	**0.6032**	**0.4427**	**1.0459**	**0.0000**	**2,506.1817**	**2,506.1817**	**0.3347**	**0.0000**	**2,513.2092**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1409	2.1551	3.1209	5.5800e-003	0.3197	0.0172	0.3368	0.1420	0.0170	0.1590	0.0000	463.9877	463.9877	0.1121	0.0000	466.3407
2021	0.3570	3.1202	6.2766	0.0136	0.6102	0.0372	0.6474	0.1641	0.0360	0.2001	0.0000	1,031.0729	1,031.0729	0.1078	0.0000	1,033.3370
2022	0.3256	2.9183	5.7988	0.0128	0.5613	0.0351	0.5964	0.1510	0.0340	0.1850	0.0000	966.1336	966.1336	0.1059	0.0000	968.3566
2023	3.9528	0.1794	0.3198	5.8000e-004	0.0188	1.6300e-003	0.0205	5.0100e-003	1.6200e-003	6.6200e-003	0.0000	44.9862	44.9862	8.9300e-003	0.0000	45.1737
Total	**4.7763**	**8.3729**	**15.5160**	**0.0326**	**1.5099**	**0.0911**	**1.6011**	**0.4621**	**0.0885**	**0.5506**	**0.0000**	**2,506.1804**	**2,506.1804**	**0.3347**	**0.0000**	**2,513.2079**

	ROG	NOx	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	**10.74**	**19.15**	**-1.67**	**0.00**	**15.15**	**80.78**	**28.96**	**23.38**	**80.01**	**47.35**	**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	tons/yr										MT/yr					
Area	3.2181	0.0336	2.9008	4.6000e-004		0.0689	0.0689		0.0689	0.0689	5.5649	13.1140	18.6790	0.0143	4.6000e-004	19.1229
Energy	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	862.3188	862.3188	0.0275	0.0120	866.6239
Mobile	0.9912	2.2848	10.4305	0.0290	1.8785	0.0459	1.9245	0.5049	0.0424	0.5473	0.0000	1,992.9455	1,992.9455	0.0595	0.0000	1,994.1948
Waste						0.0000	0.0000		0.0000	0.0000	31.8107	0.0000	31.8107	1.8800	0.0000	71.2899
Water						0.0000	0.0000		0.0000	0.0000	7.0279	53.4576	60.4855	0.7243	0.0175	81.1335
Total	**4.2538**	**2.6989**	**13.4932**	**0.0319**	**1.8785**	**0.1456**	**2.0241**	**0.5049**	**0.1420**	**0.6469**	**44.4036**	**2,921.8358**	**2,966.2394**	**2.7055**	**0.0300**	**3,032.3650**

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	3.2181	0.0336	2.9008	4.6000e-004		0.0689	0.0689		0.0689	0.0689	5.5649	13.1140	18.6790	0.0143	4.6000e-004	19.1229
Energy	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	862.3188	862.3188	0.0275	0.0120	866.6239
Mobile	0.9912	2.2848	10.4305	0.0290	1.8785	0.0459	1.9245	0.5049	0.0424	0.5473	0.0000	1,992.9455	1,992.9455	0.0595	0.0000	1,994.1948
Waste						0.0000	0.0000		0.0000	0.0000	31.8107	0.0000	31.8107	1.8800	0.0000	71.2899
Water						0.0000	0.0000		0.0000	0.0000	7.0279	53.4576	60.4855	0.7241	0.0175	81.1223
Total	**4.2538**	**2.6989**	**13.4932**	**0.0319**	**1.8785**	**0.1456**	**2.0241**	**0.5049**	**0.1420**	**0.6469**	**44.4036**	**2,921.8358**	**2,966.2394**	**2.7054**	**0.0300**	**3,032.3538**

	ROG	NOx	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**	**0.07**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2020	7/21/2020	6	44	
2	Site Preparation	Site Preparation	7/22/2020	8/24/2020	6	29	
3	Grading	Grading	8/25/2020	11/9/2020	6	66	
4	Building Construction	Building Construction	11/10/2020	12/1/2022	6	645	
5	Paving	Paving	12/2/2022	1/30/2023	6	51	
6	Architectural Coating	Architectural Coating	1/31/2023	3/30/2023	6	51	

Acres of Grading (Site Preparation Phase): 27.8

Acres of Grading (Grading Phase): 27.8

Acres of Paving: 0

Residential Indoor: 688,500; Residential Outdoor: 229,500; Non-Residential Indoor: 444,312; Non-Residential Outdoor: 148,104 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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	125	0.42
Paving	Paving Equipment	2	8.00	130	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
Demolition	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	369.00	85.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	74.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0681	0.6823	0.6514	8.8000e-004		0.0328	0.0328		0.0305	0.0305	0.0000	76.9811	76.9811	0.0218	0.0000	77.4393
Total	**0.0681**	**0.6823**	**0.6514**	**8.8000e-004**		**0.0328**	**0.0328**		**0.0305**	**0.0305**	**0.0000**	**76.9811**	**76.9811**	**0.0218**	**0.0000**	**77.4393**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	1.2600e-003	0.0120	4.0000e-005	3.0000e-003	2.0000e-005	3.0200e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.3353	2.3353	1.1000e-004	0.0000	2.3377
Total	**8.4000e-004**	**1.2600e-003**	**0.0120**	**4.0000e-005**	**3.0000e-003**	**2.0000e-005**	**3.0200e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.3353**	**2.3353**	**1.1000e-004**	**0.0000**	**2.3377**

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	0.0209	0.4128	0.5558	8.8000e-004		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	76.9810	76.9810	0.0218	0.0000	77.4392
Total	**0.0209**	**0.4128**	**0.5558**	**8.8000e-004**		**2.9100e-003**	**2.9100e-003**		**2.9100e-003**	**2.9100e-003**	**0.0000**	**76.9810**	**76.9810**	**0.0218**	**0.0000**	**77.4392**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	1.2600e-003	0.0120	4.0000e-005	3.0000e-003	2.0000e-005	3.0200e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.3353	2.3353	1.1000e-004	0.0000	2.3377
Total	**8.4000e-004**	**1.2600e-003**	**0.0120**	**4.0000e-005**	**3.0000e-003**	**2.0000e-005**	**3.0200e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.3353**	**2.3353**	**1.1000e-004**	**0.0000**	**2.3377**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2767	0.0000	0.2767	0.1456	0.0000	0.1456	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.5635	0.4774	5.7000e-004		0.0280	0.0280		0.0258	0.0258	0.0000	49.8844	49.8844	0.0161	0.0000	50.2232
Total	**0.0540**	**0.5635**	**0.4774**	**5.7000e-004**	**0.2767**	**0.0280**	**0.3047**	**0.1456**	**0.0258**	**0.1714**	**0.0000**	**49.8844**	**49.8844**	**0.0161**	**0.0000**	**50.2232**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	1.0000e-003	9.4600e-003	3.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	1.8470	1.8470	9.0000e-005	0.0000	1.8489
Total	**6.6000e-004**	**1.0000e-003**	**9.4600e-003**	**3.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.8470**	**1.8470**	**9.0000e-005**	**0.0000**	**1.8489**

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					0.1245	0.0000	0.1245	0.0655	0.0000	0.0655	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0138	0.2822	0.3393	5.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	49.8843	49.8843	0.0161	0.0000	50.2231
Total	**0.0138**	**0.2822**	**0.3393**	**5.7000e-004**	**0.1245**	**2.0900e-003**	**0.1266**	**0.0655**	**2.0900e-003**	**0.0676**	**0.0000**	**49.8843**	**49.8843**	**0.0161**	**0.0000**	**50.2231**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	1.0000e-003	9.4600e-003	3.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	1.8470	1.8470	9.0000e-005	0.0000	1.8489
Total	**6.6000e-004**	**1.0000e-003**	**9.4600e-003**	**3.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.8470**	**1.8470**	**9.0000e-005**	**0.0000**	**1.8489**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2135	0.0000	0.2135	0.1108	0.0000	0.1108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1502	1.6297	1.2681	2.0400e-003		0.0746	0.0746		0.0687	0.0687	0.0000	178.9553	178.9553	0.0579	0.0000	180.1707
Total	**0.1502**	**1.6297**	**1.2681**	**2.0400e-003**	**0.2135**	**0.0746**	**0.2881**	**0.1108**	**0.0687**	**0.1795**	**0.0000**	**178.9553**	**178.9553**	**0.0579**	**0.0000**	**180.1707**

3.4 Grading - 2020

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	1.6800e-003	2.5200e-003	0.0239	7.0000e-005	5.9900e-003	5.0000e-005	6.0400e-003	1.5900e-003	4.0000e-005	1.6400e-003	0.0000	4.6707	4.6707	2.3000e-004	0.0000	4.6754
Total	**1.6800e-003**	**2.5200e-003**	**0.0239**	**7.0000e-005**	**5.9900e-003**	**5.0000e-005**	**6.0400e-003**	**1.5900e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**4.6707**	**4.6707**	**2.3000e-004**	**0.0000**	**4.6754**

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					0.0961	0.0000	0.0961	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0499	0.9827	1.2521	2.0400e-003		6.5500e-003	6.5500e-003		6.5500e-003	6.5500e-003	0.0000	178.9550	178.9550	0.0579	0.0000	180.1705
Total	**0.0499**	**0.9827**	**1.2521**	**2.0400e-003**	**0.0961**	**6.5500e-003**	**0.1026**	**0.0499**	**6.5500e-003**	**0.0564**	**0.0000**	**178.9550**	**178.9550**	**0.0579**	**0.0000**	**180.1705**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	2.5200e-003	0.0239	7.0000e-005	5.9900e-003	5.0000e-005	6.0400e-003	1.5900e-003	4.0000e-005	1.6400e-003	0.0000	4.6707	4.6707	2.3000e-004	0.0000	4.6754
Total	**1.6800e-003**	**2.5200e-003**	**0.0239**	**7.0000e-005**	**5.9900e-003**	**5.0000e-005**	**6.0400e-003**	**1.5900e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**4.6707**	**4.6707**	**2.3000e-004**	**0.0000**	**4.6754**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0475	0.4294	0.3782	6.0000e-004		0.0250	0.0250		0.0236	0.0236	0.0000	51.8962	51.8962	0.0126	0.0000	52.1617
Total	**0.0475**	**0.4294**	**0.3782**	**6.0000e-004**		**0.0250**	**0.0250**		**0.0236**	**0.0236**	**0.0000**	**51.8962**	**51.8962**	**0.0126**	**0.0000**	**52.1617**

3.5 Building Construction - 2020

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	0.0169	0.1220	0.2266	4.6000e-004	0.0124	1.9300e-003	0.0143	3.5500e-003	1.7800e-003	5.3300e-003	0.0000	38.6634	38.6634	3.0000e-004	0.0000	38.6697
Worker	0.0211	0.0317	0.3009	9.0000e-004	0.0754	5.7000e-004	0.0759	0.0201	5.3000e-004	0.0206	0.0000	58.7548	58.7548	2.8500e-003	0.0000	58.8145
Total	**0.0380**	**0.1537**	**0.5274**	**1.3600e-003**	**0.0877**	**2.5000e-003**	**0.0902**	**0.0236**	**2.3100e-003**	**0.0259**	**0.0000**	**97.4182**	**97.4182**	**3.1500e-003**	**0.0000**	**97.4842**

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	0.0151	0.3189	0.4009	6.0000e-004		3.0400e-003	3.0400e-003		3.0400e-003	3.0400e-003	0.0000	51.8962	51.8962	0.0126	0.0000	52.1617
Total	**0.0151**	**0.3189**	**0.4009**	**6.0000e-004**		**3.0400e-003**	**3.0400e-003**		**3.0400e-003**	**3.0400e-003**	**0.0000**	**51.8962**	**51.8962**	**0.0126**	**0.0000**	**52.1617**

3.5 Building Construction - 2020

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	0.0169	0.1220	0.2266	4.6000e-004	0.0124	1.9300e-003	0.0143	3.5500e-003	1.7800e-003	5.3300e-003	0.0000	38.6634	38.6634	3.0000e-004	0.0000	38.6697
Worker	0.0211	0.0317	0.3009	9.0000e-004	0.0754	5.7000e-004	0.0759	0.0201	5.3000e-004	0.0206	0.0000	58.7548	58.7548	2.8500e-003	0.0000	58.8145
Total	**0.0380**	**0.1537**	**0.5274**	**1.3600e-003**	**0.0877**	**2.5000e-003**	**0.0902**	**0.0236**	**2.3100e-003**	**0.0259**	**0.0000**	**97.4182**	**97.4182**	**3.1500e-003**	**0.0000**	**97.4842**

3.5 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	0.2963	2.7138	2.5881	4.2000e-003		0.1494	0.1494		0.1405	0.1405	0.0000	361.0099	361.0099	0.0870	0.0000	362.8364
Total	**0.2963**	**2.7138**	**2.5881**	**4.2000e-003**		**0.1494**	**0.1494**		**0.1405**	**0.1405**	**0.0000**	**361.0099**	**361.0099**	**0.0870**	**0.0000**	**362.8364**

3.5 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	0.1135	0.6967	1.5354	3.1600e-003	0.0860	0.0121	0.0981	0.0247	0.0111	0.0358	0.0000	268.5498	268.5498	2.0600e-003	0.0000	268.5932
Worker	0.1385	0.2053	1.9530	6.2500e-003	0.5242	3.9400e-003	0.5281	0.1394	3.6500e-003	0.1431	0.0000	401.5135	401.5135	0.0188	0.0000	401.9079
Total	**0.2520**	**0.9020**	**3.4884**	**9.4100e-003**	**0.6102**	**0.0160**	**0.6262**	**0.1641**	**0.0148**	**0.1789**	**0.0000**	**670.0634**	**670.0634**	**0.0208**	**0.0000**	**670.5010**

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	0.1051	2.2183	2.7881	4.2000e-003		0.0212	0.0212		0.0212	0.0212	0.0000	361.0095	361.0095	0.0870	0.0000	362.8359
Total	**0.1051**	**2.2183**	**2.7881**	**4.2000e-003**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**361.0095**	**361.0095**	**0.0870**	**0.0000**	**362.8359**

3.5 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	0.1135	0.6967	1.5354	3.1600e-003	0.0860	0.0121	0.0981	0.0247	0.0111	0.0358	0.0000	268.5498	268.5498	2.0600e-003	0.0000	268.5932
Worker	0.1385	0.2053	1.9530	6.2500e-003	0.5242	3.9400e-003	0.5281	0.1394	3.6500e-003	0.1431	0.0000	401.5135	401.5135	0.0188	0.0000	401.9079
Total	**0.2520**	**0.9020**	**3.4884**	**9.4100e-003**	**0.6102**	**0.0160**	**0.6262**	**0.1641**	**0.0148**	**0.1789**	**0.0000**	**670.0634**	**670.0634**	**0.0208**	**0.0000**	**670.5010**

3.5 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	0.2438	2.2295	2.3430	3.8500e-003		0.1156	0.1156		0.1088	0.1088	0.0000	331.1479	331.1479	0.0792	0.0000	332.8115
Total	**0.2438**	**2.2295**	**2.3430**	**3.8500e-003**		**0.1156**	**0.1156**		**0.1088**	**0.1088**	**0.0000**	**331.1479**	**331.1479**	**0.0792**	**0.0000**	**332.8115**

3.5 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	0.0995	0.5640	1.3418	2.9000e-003	0.0789	0.0109	0.0898	0.0227	0.0101	0.0327	0.0000	246.0166	246.0166	1.9300e-003	0.0000	246.0572
Worker	0.1200	0.1758	1.6742	5.7300e-003	0.4806	3.6000e-003	0.4842	0.1278	3.3400e-003	0.1312	0.0000	362.1540	362.1540	0.0164	0.0000	362.4985
Total	**0.2195**	**0.7399**	**3.0160**	**8.6300e-003**	**0.5595**	**0.0145**	**0.5740**	**0.1505**	**0.0134**	**0.1639**	**0.0000**	**608.1706**	**608.1706**	**0.0183**	**0.0000**	**608.5557**

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	0.0963	2.0340	2.5565	3.8500e-003		0.0194	0.0194		0.0194	0.0194	0.0000	331.1475	331.1475	0.0792	0.0000	332.8111
Total	**0.0963**	**2.0340**	**2.5565**	**3.8500e-003**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**331.1475**	**331.1475**	**0.0792**	**0.0000**	**332.8111**

3.5 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	0.0995	0.5640	1.3418	2.9000e-003	0.0789	0.0109	0.0898	0.0227	0.0101	0.0327	0.0000	246.0166	246.0166	1.9300e-003	0.0000	246.0572
Worker	0.1200	0.1758	1.6742	5.7300e-003	0.4806	3.6000e-003	0.4842	0.1278	3.3400e-003	0.1312	0.0000	362.1540	362.1540	0.0164	0.0000	362.4985
Total	**0.2195**	**0.7399**	**3.0160**	**8.6300e-003**	**0.5595**	**0.0145**	**0.5740**	**0.1505**	**0.0134**	**0.1639**	**0.0000**	**608.1706**	**608.1706**	**0.0183**	**0.0000**	**608.5557**

3.6 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	0.0141	0.1418	0.1857	2.9000e-004		7.2500e-003	7.2500e-003		6.6700e-003	6.6700e-003	0.0000	25.4819	25.4819	8.2400e-003	0.0000	25.6549
Paving	2.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0162**	**0.1418**	**0.1857**	**2.9000e-004**		**7.2500e-003**	**7.2500e-003**		**6.6700e-003**	**6.6700e-003**	**0.0000**	**25.4819**	**25.4819**	**8.2400e-003**	**0.0000**	**25.6549**

3.6 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	4.4000e-004	6.5000e-004	6.1700e-003	2.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3337	1.3337	6.0000e-005	0.0000	1.3349
Total	**4.4000e-004**	**6.5000e-004**	**6.1700e-003**	**2.0000e-005**	**1.7700e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3337**	**1.3337**	**6.0000e-005**	**0.0000**	**1.3349**

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	7.1400e-003	0.1438	0.2201	2.9000e-004		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	25.4818	25.4818	8.2400e-003	0.0000	25.6549
Paving	2.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2800e-003**	**0.1438**	**0.2201**	**2.9000e-004**		**1.1700e-003**	**1.1700e-003**		**1.1700e-003**	**1.1700e-003**	**0.0000**	**25.4818**	**25.4818**	**8.2400e-003**	**0.0000**	**25.6549**

3.6 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	4.4000e-004	6.5000e-004	6.1700e-003	2.0000e-005	1.7700e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3337	1.3337	6.0000e-005	0.0000	1.3349
Total	**4.4000e-004**	**6.5000e-004**	**6.1700e-003**	**2.0000e-005**	**1.7700e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3337**	**1.3337**	**6.0000e-005**	**0.0000**	**1.3349**

3.6 Paving - 2023

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	0.0127	0.1250	0.1786	2.8000e-004		6.2600e-003	6.2600e-003		5.7600e-003	5.7600e-003	0.0000	24.5010	24.5010	7.9200e-003	0.0000	24.6674
Paving	2.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0147**	**0.1250**	**0.1786**	**2.8000e-004**		**6.2600e-003**	**6.2600e-003**		**5.7600e-003**	**5.7600e-003**	**0.0000**	**24.5010**	**24.5010**	**7.9200e-003**	**0.0000**	**24.6674**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	5.8000e-004	5.5500e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.2631	1.2631	6.0000e-005	0.0000	1.2642
Total	**4.0000e-004**	**5.8000e-004**	**5.5500e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.2631**	**1.2631**	**6.0000e-005**	**0.0000**	**1.2642**

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	6.8600e-003	0.1383	0.2116	2.8000e-004		1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003	0.0000	24.5009	24.5009	7.9200e-003	0.0000	24.6673
Paving	2.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9100e-003**	**0.1383**	**0.2116**	**2.8000e-004**		**1.1200e-003**	**1.1200e-003**		**1.1200e-003**	**1.1200e-003**	**0.0000**	**24.5009**	**24.5009**	**7.9200e-003**	**0.0000**	**24.6673**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	5.8000e-004	5.5500e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.2631	1.2631	6.0000e-005	0.0000	1.2642
Total	**4.0000e-004**	**5.8000e-004**	**5.5500e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.2631**	**1.2631**	**6.0000e-005**	**0.0000**	**1.2642**

3.7 Architectural Coating - 2023

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	3.9379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8900e-003	0.0332	0.0462	8.0000e-005		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003	0.0000	6.5108	6.5108	3.9000e-004	0.0000	6.5190
Total	**3.9428**	**0.0332**	**0.0462**	**8.0000e-005**		**1.8100e-003**	**1.8100e-003**		**1.8100e-003**	**1.8100e-003**	**0.0000**	**6.5108**	**6.5108**	**3.9000e-004**	**0.0000**	**6.5190**

3.7 Architectural Coating - 2023

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	4.0500e-003	5.8800e-003	0.0559	2.0000e-004	0.0171	1.3000e-004	0.0173	4.5600e-003	1.2000e-004	4.6700e-003	0.0000	12.7114	12.7114	5.6000e-004	0.0000	12.7231
Total	**4.0500e-003**	**5.8800e-003**	**0.0559**	**2.0000e-004**	**0.0171**	**1.3000e-004**	**0.0173**	**4.5600e-003**	**1.2000e-004**	**4.6700e-003**	**0.0000**	**12.7114**	**12.7114**	**5.6000e-004**	**0.0000**	**12.7231**

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	3.9379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5200e-003	0.0346	0.0467	8.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	6.5108	6.5108	3.9000e-004	0.0000	6.5190
Total	**3.9395**	**0.0346**	**0.0467**	**8.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**6.5108**	**6.5108**	**3.9000e-004**	**0.0000**	**6.5190**

3.7 Architectural Coating - 2023

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	4.0500e-003	5.8800e-003	0.0559	2.0000e-004	0.0171	1.3000e-004	0.0173	4.5600e-003	1.2000e-004	4.6700e-003	0.0000	12.7114	12.7114	5.6000e-004	0.0000	12.7231
Total	**4.0500e-003**	**5.8800e-003**	**0.0559**	**2.0000e-004**	**0.0171**	**1.3000e-004**	**0.0173**	**4.5600e-003**	**1.2000e-004**	**4.6700e-003**	**0.0000**	**12.7114**	**12.7114**	**5.6000e-004**	**0.0000**	**12.7231**

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	0.9912	2.2848	10.4305	0.0290	1.8785	0.0459	1.9245	0.5049	0.0424	0.5473	0.0000	1,992.9455	1,992.9455	0.0595	0.0000	1,994.1948
Unmitigated	0.9912	2.2848	10.4305	0.0290	1.8785	0.0459	1.9245	0.5049	0.0424	0.5473	0.0000	1,992.9455	1,992.9455	0.0595	0.0000	1,994.1948

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	5.72	5.72	5.72	12,220	12,220
Condo/Townhouse	2,240.60	2,434.40	2063.80	5,007,261	5,007,261
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	2,246.32	2,440.12	2,069.52	5,019,481	5,019,481

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.540708	0.062029	0.166535	0.109313	0.030530	0.004548	0.019619	0.054044	0.001811	0.003599	0.005676	0.000189	0.001400

4.4 Fleet Mix

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	421.6222	421.6222	0.0191	3.9400e-003	423.2454
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	421.6222	421.6222	0.0191	3.9400e-003	423.2454
NaturalGas Mitigated	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	440.6966	440.6966	8.4500e-003	8.0800e-003	443.3786
NaturalGas Unmitigated	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	440.6966	440.6966	8.4500e-003	8.0800e-003	443.3786

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					
Condo/Townhouse	8.25834e+006	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	440.6966	440.6966	8.4500e-003	8.0800e-003	443.3786
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0445**	**0.3805**	**0.1619**	**2.4300e-003**		**0.0308**	**0.0308**		**0.0308**	**0.0308**	**0.0000**	**440.6966**	**440.6966**	**8.4500e-003**	**8.0800e-003**	**443.3786**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	8.25834e+006	0.0445	0.3805	0.1619	2.4300e-003		0.0308	0.0308		0.0308	0.0308	0.0000	440.6966	440.6966	8.4500e-003	8.0800e-003	443.3786
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0445**	**0.3805**	**0.1619**	**2.4300e-003**		**0.0308**	**0.0308**		**0.0308**	**0.0308**	**0.0000**	**440.6966**	**440.6966**	**8.4500e-003**	**8.0800e-003**	**443.3786**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.44931e+006	421.6222	0.0191	3.9400e-003	423.2454
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**421.6222**	**0.0191**	**3.9400e-003**	**423.2454**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.44931e+006	421.6222	0.0191	3.9400e-003	423.2454
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**421.6222**	**0.0191**	**3.9400e-003**	**423.2454**

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	3.2181	0.0336	2.9008	4.6000e-004		0.0689	0.0689		0.0689	0.0689	5.5649	13.1140	18.6790	0.0143	4.6000e-004	19.1229
Unmitigated	3.2181	0.0336	2.9008	4.6000e-004		0.0689	0.0689		0.0689	0.0689	5.5649	13.1140	18.6790	0.0143	4.6000e-004	19.1229

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	0.3938					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4847					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2637	4.4800e-003	0.3773	3.2000e-004		0.0549	0.0549		0.0549	0.0549	5.5649	8.9901	14.5550	0.0103	4.6000e-004	14.9159
Landscaping	0.0759	0.0291	2.5235	1.3000e-004		0.0140	0.0140		0.0140	0.0140	0.0000	4.1239	4.1239	3.9600e-003	0.0000	4.2070
Total	**3.2180**	**0.0336**	**2.9008**	**4.5000e-004**		**0.0689**	**0.0689**		**0.0689**	**0.0689**	**5.5649**	**13.1140**	**18.6790**	**0.0143**	**4.6000e-004**	**19.1229**

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	0.3938					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4847					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2637	4.4800e-003	0.3773	3.2000e-004		0.0549	0.0549		0.0549	0.0549	5.5649	8.9901	14.5550	0.0103	4.6000e-004	14.9159
Landscaping	0.0759	0.0291	2.5235	1.3000e-004		0.0140	0.0140		0.0140	0.0140	0.0000	4.1239	4.1239	3.9600e-003	0.0000	4.2070
Total	**3.2180**	**0.0336**	**2.9008**	**4.5000e-004**		**0.0689**	**0.0689**		**0.0689**	**0.0689**	**5.5649**	**13.1140**	**18.6790**	**0.0143**	**4.6000e-004**	**19.1229**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	60.4855	0.7241	0.0175	81.1223
Unmitigated	60.4855	0.7243	0.0175	81.1335

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 4.28933	4.3674	2.0000e-004	4.0000e-005	4.3842
Condo/Townhouse	22.1524 / 13.9656	56.1181	0.7241	0.0175	76.7493
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**60.4855**	**0.7243**	**0.0175**	**81.1335**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 4.28933	4.3674	2.0000e-004	4.0000e-005	4.3842
Condo/Townhouse	22.1524 / 13.9656	56.1181	0.7239	0.0175	76.7381
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**60.4855**	**0.7241**	**0.0175**	**81.1223**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	31.8107	1.8800	0.0000	71.2899
Unmitigated	31.8107	1.8800	0.0000	71.2899

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.31	0.0629	3.7200e-003	0.0000	0.1410
Condo/Townhouse	156.4	31.7478	1.8762	0.0000	71.1488
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**31.8107**	**1.8800**	**0.0000**	**71.2899**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.31	0.0629	3.7200e-003	0.0000	0.1410
Condo/Townhouse	156.4	31.7478	1.8762	0.0000	71.1488
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**31.8107**	**1.8800**	**0.0000**	**71.2899**

9.0 Operational Offroad

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

10.0 Vegetation

Attachment C

Exposure Reduction Measures

The following provides background information on air quality exposure reduction measures to address localized impacts related to diesel particulate matter (DPM) emissions from roadways such as I-580.[1]

Residential Setback from Roadways: Limit residential units located within the set distance of 500 feet to I-580. Avoiding residential development within 500 feet of a major roadway is an effective strategy for reducing exposure to DPM and fine particulate matter ($PM_{2.5}$) and/or cancer risk from a roadway. Research findings indicate that roadways generally influence air quality within a few hundred feet – about 500 to 600 feet downwind from the vicinity of heavily traveled roadways or along corridors with significant truck traffic. This distance will vary by location and time of day or year, prevailing meteorology, topography, nearby land use, traffic patterns, as well as the individual pollutant.[2]

Minimum Efficiency Reporting Value Filters: Installation of an air filtration system can reduce cancer risks, health impacts and DPM exposure for residents and other sensitive populations in buildings that are in close proximity to major roadways. Air filtration devices should be rated Minimum Efficiency Reporting Value (MERV)-13 or higher. MERV-13 air filters are considered high efficiency filters able to remove 80 percent of $PM_{2.5}$ from indoor air.[3] MERV-13 air filters may reduce concentrations of DPM from mobile sources by approximately 53 percent and cancer risk by 42 percent. As part of implementing this measure, an ongoing maintenance plan for the building's air filtration system would be required.

Air filtration protects residents and other sensitive receptors from exposure to pollutants by reducing the pollutant concentration in indoor air circulated from outdoor air. Air filtration places a control on a building's mechanical ventilation system that filters particles from the air. The effectiveness of a filter depends on its (1) efficiency to remove particles from passing air; (2) a ventilation system's air flow rate; and (3) the path the clean air follows after it leaves the filter. To ensure adequate health protection to sensitive receptors, a ventilation system should meet the following minimal design standards:

- A MERV-13, or higher, rating that represents a minimum of 80 percent efficiency to capture fine particulates;

[1] Metropolitan Transportation Commission and Association of Bay Area Governments. *Plan Bay Area Environmental Impact Report*. April 2013. http://planbayarea.org/pdf/Draft_EIR_Chapters/Appendix_E_Air_Quality_Methodology_032713.pdf

[2] US Environmental Protection Agency. *Near Roadway Air Pollution and Health: Frequently Asked Questions*. August 2014. http://www3.epa.gov/otaq/documents/nearroadway/420f14044.pdf

[3] US Environmental Protection Agency. *Residential Air Cleaners.* http://www.epa.gov/iaq/pubs/residair.html

- At least one air exchange(s) per hour of fresh outside filtered air;
- At least four air exchange(s) / hour recirculation; and
- At least 0.25 air exchange(s) per hour in unfiltered infiltration.[4]

The effectiveness of air filtration is highly variable and based upon a building's design and maintenance. For example, the presence of operable windows, the placement of the air intakes, operation and maintenance of the ventilation system, and proper sealings will impact the effectiveness of air filtration and thus residents' exposure to TAC from nearby sources of emissions.

The California Air Resources Board (CARB) recently studied the effectiveness of air filtration, along with other mitigation measures, as a strategy to reduce exposure to nearby traffic pollution.[5] The study found that the use of air filtration tends to be relatively effective. The study notes that air filtration could be especially effective in residences with consideration to California's requirement that new homes have mechanical ventilation systems installed.

Installation of MERV-13 filters in residential units represents a feasible option that is recommended by a number of entities. The City and County of San Francisco requires MERV-13 filters be installed in residential buildings located in air quality hot spots as defined by San Francisco's Health Code Article 38.[6] In addition, the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), recommends, in their green building guide, that a minimum of MERV-13 rated air filtration be required in building locations where the air quality is designated to be in non-attainment with the National Ambient Air Quality Standards for PM2.5.[7] The United States Green Building Council (USGBS) requires that new construction be equipped with a MERV-13 or higher rated air filter in new construction for buildings and homes to receive air filtration green building credit points.[8]

Phase Residential Development: Phase residential developments located within the setback distance of 500 feet from I-580 until 2023, or as late as feasible. In 2008, CARB adopted a regulation that requires diesel trucks to retrofit or replace their engines so that by 2023, nearly all trucks would have a 2010 or newer model year engine. Therefore, DPM emissions from diesel

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[4] San Francisco Department of Public Health. *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review*. May 2008. http://www.gsweventcenter.com/Draft_SEIR_References%5C2008_0501_SFDPH.pdf

[5] California Air Resources Board. *Status of Research on Potential Mitigation Concepts to Reduce Exposure to Nearby Traffic Pollution*. August 2012. http://www.arb.ca.gov/research/health/traff-eff/research%20status%20-reducing%20exposure%20to%20traffic%20pollution.pdf

[6] City and County of San Francisco. *Green Building Requirements Summary and Verification Form*. http://sfdbi.org/sites/sfdbi.org/files/migrated/FileCenter/Documents/Permit_Review_Services/Green_Building_Requirements/LEED_component_columns.pdf

[7] ASHRAE Journal's Guide to Standard 189.1. *Balancing Environmental Responsibility, Resource Efficiency and Occupant Comfort*. June 2010. https://www.ashrae.org/resources--publications/bookstore/standard-189-1

[8] LEED for New Construction Rating System. http://new.usgbc.org/leed/rating-systems

trucks will decline by approximately 80 percent by 2023. This measure allows proposed projects to avoid exposing sensitive receptors to high levels of DPM from heavy duty trucks on roadways. As CARB's On-Road Heavy Duty Diesel Vehicles Regulation[9] gets implemented, DPM emissions will decrease over time, which will reduce cancer risk near major roadways.

Site Layout: Design buildings and sites to limit exposure from sources of TAC emissions. Locate operable windows, balconies, and building air intakes as far away as is feasible from emission sources.

Building design can be an important factor in improving indoor air quality, especially when considering the location of the air intake for air ventilation. In general, $PM_{2.5}$ concentrations decrease with distance and with building height, therefore air intake locations should be located farthest away from emission sources as possible to provide the cleanest ventilation to building occupants.

Operable windows and balconies should be installed away from I-580 and other sources of air pollution (i.e., on the north side where the exposure concentrations are likely to be lower). Similarly, if mechanical ventilation is installed, the proposed project should consider installing inoperable windows along the south side. This strategy will reduce the possibility of higher polluted air from entering the building and also increases the efficiency and performance standard of the mechanical filter.

Tree Planting: Plant trees and/or vegetation between sensitive receptors and I-580. Large, evergreen trees (those with foliage year-round) with long-life spans work best in trapping $PM_{2.5}$. In addition, trees with branches and leaves that have a sticky surface and trees with a fine, complex foliage structure that allow significant in-canopy airflow also perform well. Specific tree recommendations include: Pine (*Pinus nigra* var. *maritima*), Cypress (X *Cupressocyparis leylandii*), Hybrid popular (*Populus deltoids X trichocarpa*), and Redwoods *(Sequoia sempervirens*) Planting certain trees can be an effective strategy for reducing exposure to air pollution. With certain trees, fine particulates become trapped and filtered by the leaves, stems, and twigs of the trees. Trapped pollution particles are eventually washed to the ground by rainfall. Research supports a reduction in particulate matter concentration ranging from 0.5 to 5 percent from planting trees near a source of $PM_{2.5}$.

In addition to the type of tree, the placement of the trees, relative to major roadways, and how densely they are planted are important considerations in using trees as a strategy to reduce air pollution exposure. The $PM_{2.5}$ removal effectiveness of trees is greatest when the trees are planted closest to the edge of the roadway or stationary source, for this is where pollution concentrations are highest. Beyond 500 feet, concentrations begin to diminish considerably, thereby diminishing the need for or effectiveness of tree planting as a strategy. Ideally, trees

[9] The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm

should be planted within 500 feet from a roadway to be considered an effective strategy. In regards to density, trees should be planted so that they are grouped as close together as possible to ensure a rather dense collection of tree stands. The denser the trees, the more effective the foliage, trunks and canopies will be in collecting particulate matter.

Noise Barrier: The presence of a noise barrier often leads to pollutant concentration reductions behind the barrier during meteorological conditions with winds directionally from the road (which is the prominent condition for the proposed project and I-580 where the winds are from the south and the roadway is east-west within the vicinity of the proposed project). $PM_{2.5}$ concentrations generally decreased between 15 and 50 percent behind the barrier. However, conditions may also occur when pollutant concentrations are greater behind the barrier than when no barrier is present. These results imply that the presence of a noise barrier can lead to higher pollutant concentrations during certain wind conditions. In addition, results suggested that the presence of mature trees in addition to the barrier further lowered $PM_{2.5}$ concentrations.[10]

[10] Atmospheric Environment. *Impacts of Noise Barriers on Near-road Air Quality.* May 2008. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.174.3359&rep=rep1&type=pdf

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET, 16TH FLOOR
SAN FRANCISCO, CALIFORNIA 94103-1398

REPLY TO
ATTENTION OF

MAY 16 2013

Regulatory Division

SUBJECT: File No. 2006-400240S

Mr. Tom Fraser
Attention: Leslie Lazarotti
WRA Environmental Consultants
2169-G East Francisco Boulevard
San Rafael, California 94901

Dear Mr. Fraser:

This correspondence is in reference to your submittal of December 3, 2012, on behalf of LV Oak Knoll, LLC, requesting re-verification of an approved jurisdictional determination of the extent of navigable waters of the United States and waters of the United States occurring on the former Oak Knoll Hospital site (APNs: 043A-4675-003-21, 043A-4712-001 (Portion), and 048-6865-002-01 (Portion)) located east of I-580 and the Keller Avenue exit, 8750 Mountain Boulevard, Oakland, Alameda County, California 94627.

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; and within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. § 1344 *et seq.*). Waters of the United States generally include the territorial seas; all traditional navigable waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters subject to the ebb and flow of the tide; wetlands adjacent to traditional navigable waters; 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; and wetlands directly abutting such tributaries. Where a case-specific analysis determines the existence of a "significant nexus" effect with a traditional navigable water, waters of the United States may also include non-navigable tributaries that are not relatively permanent; wetlands adjacent to non-navigable tributaries that are not relatively permanent; wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary; and certain ephemeral streams in the arid West.

All proposed structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States, typically require Department of the Army authorization and the issuance of a permit under

Section 10 of the Rivers and Harbors Act of 1899, as amended (33 U.S.C. § 403 *et seq.*). Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce.

The enclosed delineation map entitled, "Appendix B: Jurisdictional Waters of the U.S., Former Oak Knoll Naval Hospital, Oakland, California," date labeled and initialed May 13, 2013, accurately depicts the extent and location of wetlands and other waters of the United States within the boundary area of the site that are subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. This approved jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of April 18, 2013, a review of available digital photographic imagery, and a review of other data included in your submittal. This approved jurisdictional determination will expire in five (5) years from the date of this letter, unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date. The basis for this approved jurisdictional determination is explained in the enclosed *Approved Jurisdictional Determination Form.* This approved jurisdictional determination is presumed to be consistent with the official interagency guidance of June 5, 2007, interpreting the Supreme Court decision, *Rapanos v. United States*, 126 S. Ct. 2208 (2006).

You are advised that the approved jurisdictional determination may be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; Mar. 28, 2000), and outlined in the enclosed flowchart and *Notification of Administrative Appeal Options, Process, and Request for Appeal* (NAO-RFA) Form. If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to this office for reconsideration of this decision. If you do not provide new information to this office, you may elect to submit a completed NAO-RFA Form to the Division Engineer to initiate the appeal process; the completed NAO-RFA Form must be submitted directly to the Appeal Review Officer at the address specified on the NAO-RFA Form. You will relinquish all rights to a review or an appeal, unless this office or the Division Engineer receives new information or a completed NAO-RFA Form within sixty (60) days of the date on the NAO-RFA Form. If you intend to accept the approved jurisdictional determination, you do not need to take any further action associated with the Administrative Appeal Process.

You may refer any questions on this matter to Justin Yee of my Regulatory staff by telephone at (415) 503-6788 or by email at Justin.J.Yee@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you

would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/regulatory/.

Sincerely,

Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copy Furnished (w/ encl 1 only):

CA RWQCB, Oakland, CA

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): May 13, 2013

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: SPN, SunCal Oak Knoll Residential and Mixed Use Development, 400240S.

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: CA County/parish/borough: Alameda City: Oakland
Center coordinates of site (lat/long in degree decimal format): Lat. 37.7670281648358° N, Long. -122.1493894633° W.
Universal Transverse Mercator: 10
Name of nearest waterbody: Rifle Range Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: San Francisco Bay
Name of watershed or Hydrologic Unit Code (HUC): 18050004
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 4/18/2013

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 5,200 linear feet: width (ft) and/or 0.72 acres.
      Wetlands: 0.02 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW:

   Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: Arroyo Viejo Watershed, approximately 5,500 **acres**
   Drainage area: 475 **acres**
   Average annual rainfall: 23.10 (Oakland Museum - WETS Table) inches
   Average annual snowfall: 0 inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **2-5** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **2-5** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: No.

   Identify flow route to TNW[5]: Hospital Creek and Powerhouse Creek are both tributary to Rifle Creek. Rifle Range Creek flows to Arroyo Viejo which is tributary to San Francisco Bay.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: Unknown, both tributaries are piped below ground to the project site.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☒ Natural
- ☐ Artificial (man-made). Explain:
- ☒ Manipulated (man-altered). Explain: The tributaries are deeply incised and have been altered by urbanization.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 4 feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):

☒ Silts	☐ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Both tributaries are deeply incised.
Presence of run/riffle/pool complexes. Explain: There are riffle and pool complexes within the Rifle Range Creek, but none were observed in Hospital or Powerhouse Creeks.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: The main source of water on the project site is precipitation and surface runoff from adjacent hillsides. Hospital Creek appears to drain ground water from the gently-rising hillside to the NE. Powerhouse Creek originates from a hillside west of the site.
Other information on duration and volume: None.

Surface flow is: **Discrete and confined.** Characteristics:

Subsurface flow: **Unknown**. Explain findings:
- ☐ Dye (or other) test performed:

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☒ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

- ☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: No information is available.
Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

☒ Riparian corridor. Characteristics (type, average width): Variable size.

☒ Wetland fringe. Characteristics: See data sheets in file.

☒ Habitat for:

☐ Federally Listed species. Explain findings: According to the CNDDB there are no aquatic federally listed species in close proximity to the project site, however no Biological Assessment has been submitted at this time.

☒ Fish/spawn areas. Explain findings: Common fish species may be found in the perennial Rifle Range Creek, however Steelhead are not known to occur in this area.

☒ Other environmentally-sensitive species. Explain findings: The riparian corridor provides appropriate habitat for many environmentally-sensitive species.

☒ Aquatic/wildlife diversity. Explain findings: The Creeks and in-stream wetlands provide appropriate habitat for a diversity of aquatic organisms.

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.02 acres

Wetland type. Explain: In-stream wetlands were mapped below the OHWM of Rifle Range Creek and Hospital Creek.

Wetland quality. Explain: Unknown, no information provided.

Project wetlands cross or serve as state boundaries. Explain: No.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: .

Surface flow is: **Discrete and confined**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: .

☐ Ecological connection. Explain: .

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No information available.

Identify specific pollutants, if known: No information available.

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

☒ Riparian buffer. Characteristics (type, average width): See section III.B.1.IV.

☒ Vegetation type/percent cover. Explain: See section III.B.1.IV.

☒ Habitat for:

☒ Federally Listed species. Explain findings: See section III.B.1.IV.

☒ Fish/spawn areas. Explain findings: See section III.B.1.IV.

☒ Other environmentally-sensitive species. Explain findings: See section III.B.1.IV.

☒ Aquatic/wildlife diversity. Explain findings: See section III.B.1.IV.

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: 2

Approximately (0.02) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Wetland 1 - Y - 0.01			
Wetland 2 - Y - 0.01			

Summarize overall biological, chemical and physical functions being performed: There are many likely biological, chemical and physical functions being preformed by the in-stream wetlands. The in-stream wetlands likely provides value by performing the following functions: sediment / toxicant / pathogen retention, biogeochemical cycling (i.e. biologic, physical, chemical transformations of various nutrients within the soil and water), sediment stabilization, and fish and wildlife habitat (i.e. stream macro invertebrates and small fish). For these reasons likely functions explained above provide value for the larger watershed in combination with similarly situated wetlands. No specific studies have been complete on the project site to determine the magnitude for which of the above mentioned functions and values are being performed.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Rifle Range Creek is a perennial stream that flows from northeast to southwest through the middle of the delineated area. During the site visit the creek was flowing at or near the Ordinary High Water Mark. The site visit was conducted at the end of the dry summer months. Presence of water at the OHWM at this time of year indicates that Rifle Range Creek is a perennial stream. In addition, Rifle Range Creek is a blue-line feature on the Oakland East 7.5-minute USGS quadrangle.

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: There are two reaches of seasonal RPW within the delineated area that are tributary to Rifle Range Creek. An OHWM was observed consistently throughout the delineated reaches (i.e. Hospital Creek and Powerhouse Creek). The overall California climate is characterized as Mediterranean, with the majority of precipitation occurring as rain in the winter months, and generally mild temperatures year round. Given the limited amount of rainfall restrict to winter months, presence of an OHWM is indicative of continuous seasonal flow within these channels. Additionally presence of water in the channel during the site visit supports the finding that water is likely present in the channel for a significant portion of the year.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☒ Tributary waters: **5,200** linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: **Perennial Stream (Rifle Range Creek), Seasonal RPWs (Powerhouse Creek and Hospital Creek).**

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **One in-stream wetland was mapped within Rifle Range Creek, below the OHWM and therefore directly abut the perennial RPW.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: One in-stream wetland was mapped below the OHWM within Hospital Creek.

Provide acreage estimates for jurisdictional wetlands in the review area: **0.02** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.**[9]

[8]See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Previous and revised wetland delineation maps dated August 2007 and April 2013.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☒ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: See File.
- ☐ Corps navigable waters' study: .

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: .
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Provided with Preliminary wetland delineation.
  or ☒ Other (Name & Date):Provided with Preliminary wetland delineation.
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Leslie Lazarotti, WRA	File Number: 2006-400240S	Date: 5/13/13
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Cameron Johnson
South Branch Chief, Regulatory Division
San Francisco District, U.S. Army Corps of Engineers
1455 Market Street, 16th floor
San Francisco, CA 94103-1398
Phone: (415) 503-6773 Email: Cameron.L.Johnson@usace.army.mil

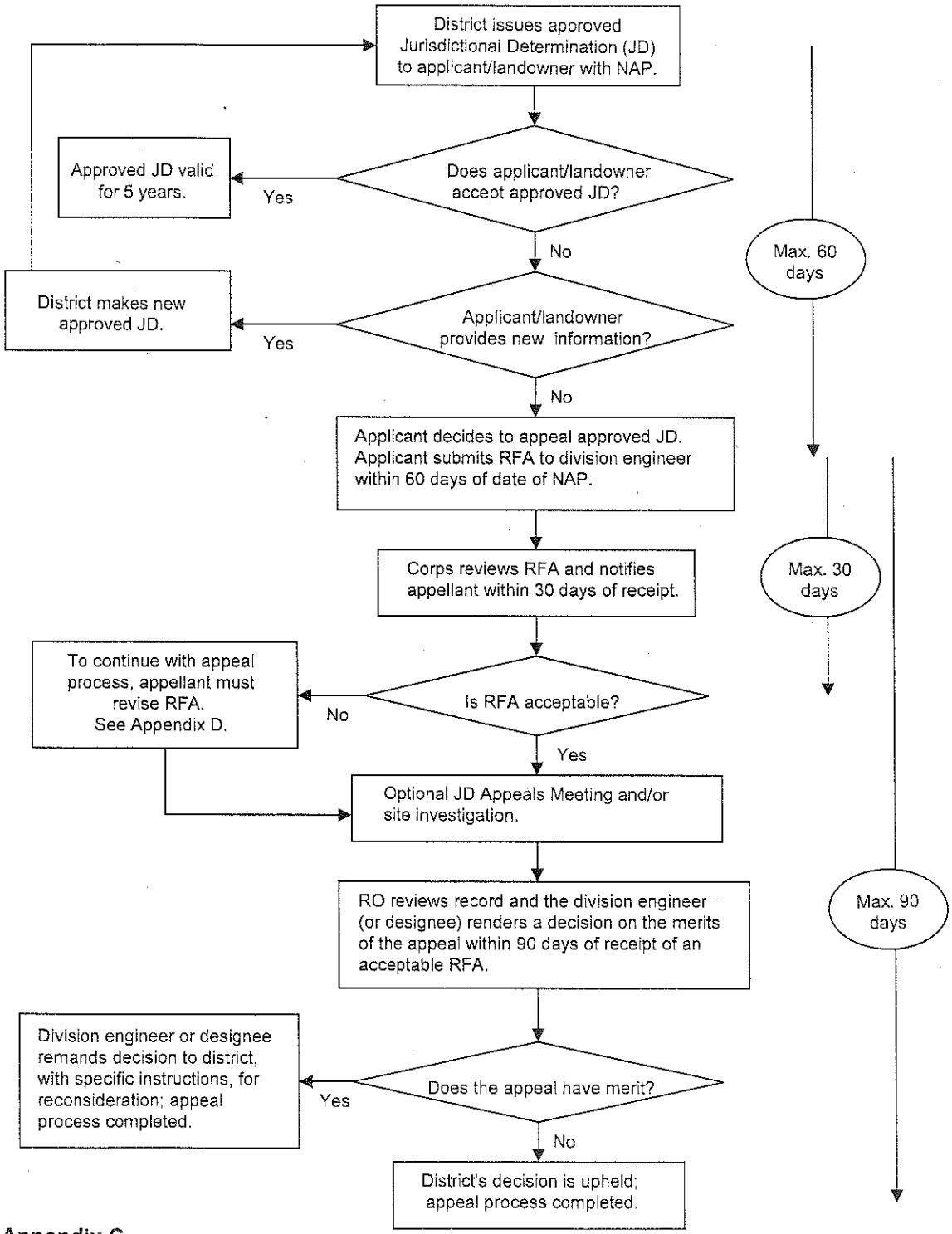
If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: (415) 503-6574 Fax: (415) 503-6646
Email: thomas.j.cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

US Army Corps of Engineers
San Francisco District

Jurisdictional Determination
Pursuant to: §404 Clean Water Act
Project Name: SunCal Oak Knoll Residential Development, File 2006-400240S
Location: 8750 Mountain Boulevard, Oakland, Alameda County, CA 94627 (APNs: 043A-4675-003-21, 043A-4712-001 [Portion], 048-6865-002-01 [Portion])

*Map Legend Approved as Submitted

§ 404 Clean Water Act Jurisdiction verified only within designated Study Area Boundary

Verification Date: 13 MAY 2013 Page 1 of 1

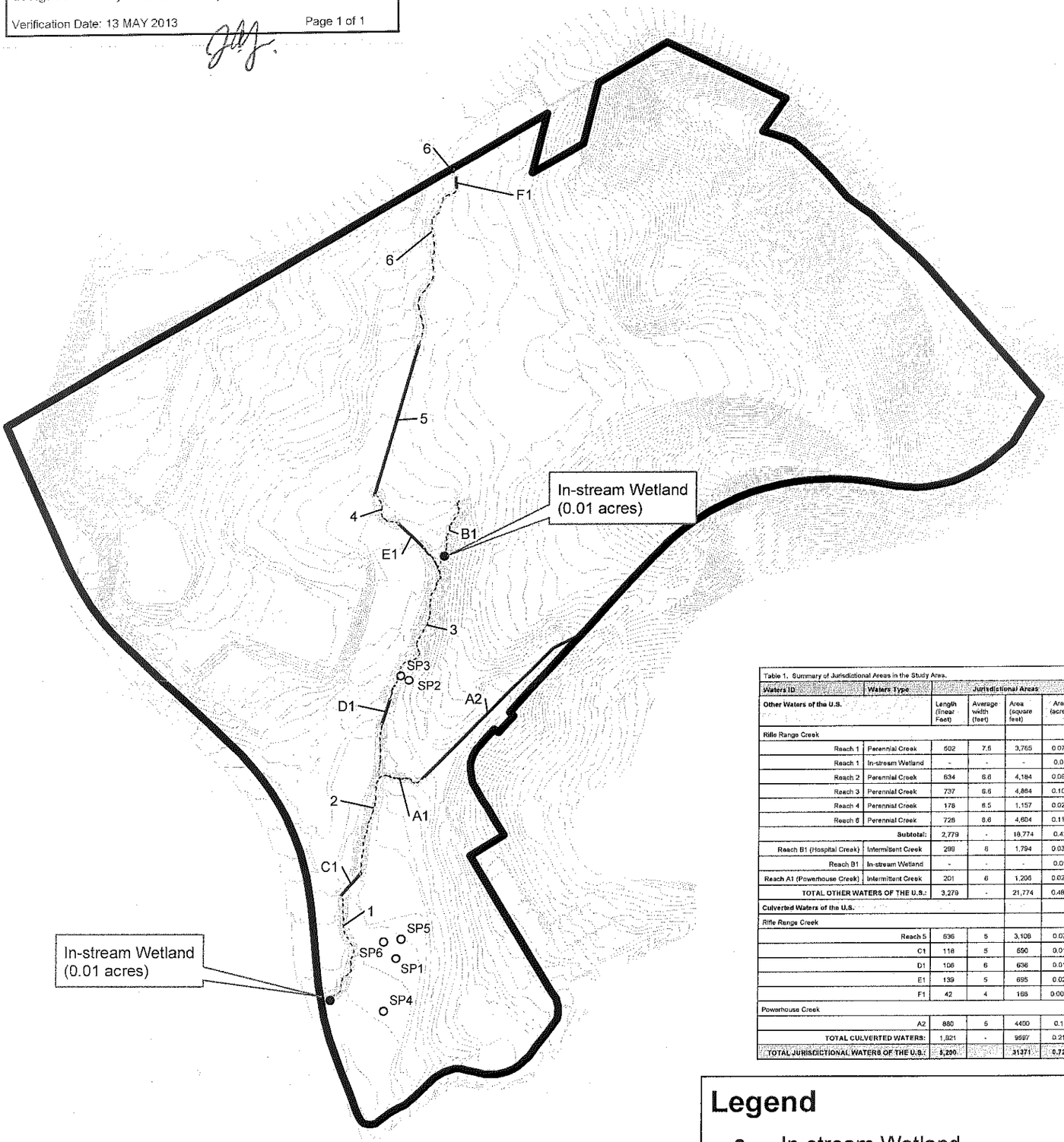


Table 1. Summary of Jurisdictional Areas in the Study Area.

Waters ID	Waters Type	Jurisdictional Areas			
Other Waters of the U.S.		Length (linear Feet)	Average width (feet)	Area (square feet)	Area (acres)
Rifle Range Creek					
Reach 1	Perennial Creek	502	7.5	3,765	0.076
Reach 1	In-stream Wetland	-	-	-	0.01
Reach 2	Perennial Creek	634	6.6	4,184	0.096
Reach 3	Perennial Creek	737	6.6	4,864	0.101
Reach 4	Perennial Creek	178	6.5	1,157	0.027
Reach 6	Perennial Creek	726	6.6	4,604	0.110
	Subtotal:	2,779	-	18,774	0.42
Reach B1 (Hospital Creek)	Intermittent Creek	299	6	1,794	0.031
Reach B1	In-stream Wetland	-	-	-	0.01
Reach A1 (Powerhouse Creek)	Intermittent Creek	201	6	1,206	0.028
TOTAL OTHER WATERS OF THE U.S.:		3,279	-	21,774	0.489
Culverted Waters of the U.S.					
Rifle Range Creek					
Reach 5		636	5	3,108	0.07
C1		118	5	590	0.01
D1		108	6	636	0.01
E1		139	5	695	0.02
F1		42	4	168	0.004
Powerhouse Creek					
A2		880	5	4400	0.1
TOTAL CULVERTED WATERS:		1,921	-	9597	0.21
TOTAL JURISDICTIONAL WATERS OF THE U.S.:		5,200		31371	0.72

Legend

- In-stream Wetland
- Sample Point
- Section 404 Waters
- Section 404 Waters in Culvert
- Study Area Boundary

Appendix B: Jurisdictional Waters of the U.S.

Former Oak Knoll Hospital
Oakland, California

N

0 250 500 1,000 Feet

wra
ENVIRONMENTAL CONSULTANTS

Date: April 2013
Map By: Derek Chan
Filepath: L:\Acad 2000 Files\15000\15103\gis\arcmap\DelineationFigures\Appendix_B_revised_20130425.mxd

Delineation of Potential Jurisdictional Wetlands and Non-Wetland Waters Under Section 404 of the Clean Water Act

HARDENSTINE PARCEL, OAKLAND, ALAMEDA COUNTY, CALIFORNIA (File 2006-4002OS)

Prepared For:

Oak Knoll Venture Acquisition LLC
2392 Morse Avenue
Irvine, California 92614

Contact: Mike Turner
mturner@argentmanagementllc.com

Prepared By:

WRA, Inc.
2169-G East Francisco Boulevard
San Rafael, California 94901

Contact: Amanda McCarthy
mccarthy@wra-ca.com

Date:

February 2015

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EXECUTIVE SUMMARY

The 14.8-acre Hardenstine parcel (APN: 43A-4675-47-1) was surveyed as part of an addendum to the 2007 delineation (Corps File No. 2006-400240S) of the adjacent 182-acre Oak Knoll Naval Hospital site in Oakland, Alameda County, California (Figure 1). Three site visits were conducted between January 6, 2015 and February 6, 2015 to delineate potential wetlands and non-wetland waters and to monitor hydrology within the Study Area. A total of 376 linear feet (0.03 acre) of ephemeral stream was identified on the parcel.

The hydrology in the Study Area appears to have been significantly disturbed by adjacent development and past on-site disturbances. The geomorphology (*i.e*., incised channel with bed and bank) of certain upstream portions of the unnamed ephemeral stream suggest that it once supported intermittent flows; however, little evidence of recent flow was observed in early January 2015, despite well above average rainfall in early December (USDA 2015c). Only a small amount of water (less than 4 inches deep) was observed during a storm event on February 6. The flow terminated where concrete debris exists in the channel and no flow or evidence of recent flow, nor evidence of any indicators of ordinary high water, was observed downslope of this point (see map in Appendix A). As such, this point was delineated as the downstream limit of jurisdictional waters of the U.S.

Further downslope, the incised channel transitions into a broad swale with little to no evidence of hydrology indicators, in spite of a landscape position that would naturally convey water under normal circumstances. The swale terminates in a shallow depression at the base of a man-made earthen berm. Again, despite the low-lying topography of this depression, there is no evidence of wetland hydrology, hydrophytic vegetation, nor hydric soils, even during an active storm event.

Two other potential ephemeral drainages were also investigated, but both lacked evidence of supporting hydrology including ordinary high water mark indicators. Neither exhibited indicators of hydrophytic vegetation or hydric soils. One potential drainage was a broad swale dominated by French broom (*Genista monspessulana,* UPL). The other potential drainage was dominated by panic veldtgrass (*Ehrharta erecta,* UPL). Both potential drainage features were also observed during a storm event and were not found to convey stormwater flows.

The apparent lack of hydrology in these areas is likely due to a combination of factors including: (1) a relatively small natural watershed, (2) well-draining loamy soils, (3) diversion of natural runoff into a storm drain system. The lack of supporting hydrology and diversion of historical flows into the storm drain system substantially reduce the functions and values of this drainage.

1.0 INTRODUCTION

1.1 Study Background

The Study Area consists of an approximately 14.8-acre parcel (Hardenstine parcel; APN: 43A-4675-47-1) located adjacent to the former Oak Knoll Naval Hospital site (APN: 043A-4675-3-21) in the Oakland Hills region of Alameda County, California (Figure 1). A routine wetland delineation of the adjacent 182-acre former Oak Knoll Naval Hospital site was conducted by WRA and was verified by the U.S. Army Corps of Engineers (Corps) in 2007 (Corps File No. 2006-400240S). In 2013, the Corps re-verified the wetland delineation for the Oak Knoll site and issued a five-year extension of the approved jurisdictional determination. Since that time, the Hardenstine parcel has been added to the proposed footprint of the Oak Knoll Mixed Use Community Development Project. This report thus serves as an addendum to the original 2007 wetland delineation report for the Oak Knoll Naval Hospital site.

On January 6, 2015, WRA conducted a routine wetland delineation in the Study Area to determine the presence of potential wetlands and non-wetland waters subject to federal jurisdiction under Section 404 of the Clean Water Act. WRA later conducted additional site visits and hydrology monitoring on January 14 and February 6, 2015. This report presents the results of this delineation and hydrology monitoring.

1.2 Regulatory Background

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) regulatory and permitting authority regarding discharge of dredged or fill material into "navigable waters of the United States." Section 502(7) of the Clean Water Act defines navigable waters as "waters of the United States, including territorial seas." Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term "waters of the United States" as it applies to the jurisdictional limits of the authority of the Corps under the Clean Water Act. A summary of this definition of "waters of the U.S." in 33 CFR 328.3 includes (1) waters used for commerce; (2) interstate waters and wetlands; (3) "other waters" such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of the determining Corps jurisdiction under the Clean Water Act, "navigable waters" as defined in the Clean Water Act are the same as "waters of the U.S." defined in the CFR above.

The limits of Corps jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas:* three nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.:* high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.:* ordinary high water mark or to the limit of adjacent wetlands; (d) *Wetlands:* to the limit of the wetland.

Figure 1. Location Map

Oak Knoll Development
Alameda County, California

Oak Knoll Venture Acquisition LLC
2392 Morse Avenue
Irvine, CA 92614
Contact: Mike Turner
mturner@argentmanagementllc.com

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ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 2/17/2015
Map Prepared By: czumwalt
Base Source: Esri, National Geographic
Data Source(s): WRA

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\February 2015\Figure 1 Location.mxd

2.0 SUMMARY OF POTENTIAL JURISDICTIONAL AREAS

Appendix A depicts the extent of Corps jurisdiction within the Study Area based on a wetland delineation conducted by WRA on January 6, 2015 and hydrology monitoring on January 14 and February 6, 2015. The acreage of potential Section 404 jurisdictional areas is summarized in Table 1 below.

Table 1. Summary of Potential Section 404 Jurisdictional Areas within the Study Area

Waters ID	Waters Type	Jurisdictional Areas			
		Length (linear feet)	Average Width (feet)	Area (square feet)	Area (acres)
Non-Wetland Waters of the U.S.					
Powerhouse Creek					
Reach A	Ephemeral Stream	203	3	609	0.01
Reach B	Ephemeral Stream	173	3	519	0.01
Total Jurisdictional Area:		376	3	1128	0.03

3.0 METHODS

Prior to conducting field surveys, reference materials were reviewed, including the Soil Survey of Alameda County, Western Part (USDA 1981), online soil data (CSRL 2015, USDA 2015a, USDA 2015b), National Wetland Inventory (NWI) data (USFWS 2015), rainfall data (USDA 2015c), the Oakland East United States Geologic Survey (USGS) 7.5-minute quadrangle (USGS 1980), and aerial photographs of the site (Google Earth 2015). Due to the extent of hydrological manipulation in this heavily urbanized area, maps of the stormwater infrastructure in and adjacent to the Study Area were also reviewed to better understand potential disturbances to the natural hydrology. Sources for these data included the City of Oakland, the Alameda County Flood Control & Water Conservation District, and the preliminary title report for the property. The preliminary title report (attached as Appendix E), indicates that the stormwater pipe observed on the site may belong to the East Bay Municipal Utility District (EBMUD); however, no survey of the existing infrastructure exists at this time.

A focused evaluation of indicators of wetlands and non-wetland waters was performed in the Study Area on January 6, 2015 and follow-up visits were conducted on January 14 and February 6, 2015. The methods used in this study to delineate jurisdictional wetlands and waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* ("Arid West Supplement"; Corps 2008). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area. A general description of the Study Area, including plant communities present, topography, and land use was also generated during the delineation visits. The methods for evaluating the presence of wetlands and other "waters of the U.S." employed during the site visit are described in detail below.

3.1 Potential Section 404 Waters of the U.S.

3.1.1 Wetlands

The Study Area was evaluated for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008).

Section 328.3 of the Federal Code of Regulations defines wetlands as:

> *"Those 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. Wetlands generally include swamps, marshes, bogs, and similar areas."*
>
> EPA, 40 CFR 230.3 and CE, 33 CFR 328.3 (b)

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

> *"....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."*

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visit was reported on Arid West Supplement data forms. Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using GPS equipment and mapped on a topographic map. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Indicators described in the Arid West Supplement were used to make wetland determinations at each sample point in the Study Area and are summarized below.

<u>Vegetation</u>

Plant species observed in the Study Area were identified using the Jepson Manual, Second Edition (Baldwin et al. 2012) and the Jepson eFlora (Jepson Flora Project 2015). Plants were assigned a wetland indicator status according to the National Wetland Plant List (Lichvar 2014). Where differences in nomenclature occur between the Jepson Manual or the Jepson eFlora and the NWPL, the species name as it occurred in the NWPL is listed in brackets. Other relevant synonyms may also be provided in brackets.

Wetland indicator statuses listed in the NWPL are based on the expected frequency of occurrence in wetlands as follows:

Classification (Abbreviation)	**Definition***	**Hydrophytic Species? (Y/N)**
Obligate (OBL)	Almost always is a hydrophyte, rarely in uplands	Y

Facultative Wetland (FACW)	Usually is a hydrophyte but occasionally found in uplands	Y
Facultative (FAC)	Commonly occurs as either a hydrophyte or non-hydrophyte	Y
Facultative Upland (FACU)	Occasionally is a hydrophyte but usually occurs in uplands	N
Upland/Not Listed (UPL/NL)	Rarely is a hydrophyte, almost always in uplands	N

*See Lichvar (2014).

The presence of hydrophytic vegetation was then determined based on indicator tests described in the Arid West Supplement. The Arid West Supplement requires that a three-step process be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the "50/20 rule" (Indicator 1; Dominance Test) described in the manual. To apply the "50/20 rule", dominant species are chosen independently from each stratum of the community. Dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total vegetative cover. If greater than 50 percent of the dominant species has an OBL, FACW, or FAC status the sample point meets the hydrophytic vegetation criterion.

If the sample point fails Indicator 1 and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 2.

Indicator 2 is known as the Prevalence Index. The prevalence index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 2 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. The delineator must then organize all species into groups according to their wetland indicator status and calculate the Prevalence Index using the following formula, where A equals total percent cover:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal to or less than 3, the sample point meets the hydrophytic vegetation criterion. However, if the community fails Indicator 2, the delineator must proceed to Indicator 3.

Indicator 3 is known as Morphological Adaptations. If more than 50 percent of the individuals of a FACU species have morphological adaptations for life in wetlands, that species is considered to be a hydrophyte and its indicator status should be reassigned to FAC. If such observations are made, the delineator must recalculate Indicators 1 and 2 using a FAC indicator status for

this species. The sample point meets the hydrophytic vegetation criterion if either test is satisfied.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

The presence or absence of the primary or secondary indicators described in the Arid West Supplement was utilized to determine if sample points within the Study Area met the wetland hydrology criterion. Recent and historical rainfall data was obtained from the Upper San Leandro weather station (Station #049185). A WETS analysis was used to assess whether precipitation was "normal" in the period of time preceding the site visits (USDA 2015c).

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

> *"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."*
>
> Federal Register July 13, 1994,
> U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color, generally designated 0, 1, or 2, used to identify them as hydric, presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to determine whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the U.S.* (USDA 2010). The Arid West Supplement provides a list of 23 of these hydric soil indicators which are known to occur in the Arid West region. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (Munsell Color 2009).

Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the Arid West Supplement.

3.1.2 Non-Wetland Waters of the U.S.

This study also evaluated the presence of "waters of the U.S." (other than wetlands) potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act.

Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers and streams (including intermittent streams) in addition to all areas below the HTL in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHW) defined as:

> "*...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*"
>
> Federal Register Vol. 51, No. 219,
> Part 328.3 (e). November 13, 1986

Identification of the ordinary high water mark followed the Corps Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (Corps 2005).

In tidal areas, the elevation of the HTL is defined as:

> *"...the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."*
>
> Federal Register Vol. 51, No. 219,
> Part 328.3 (d). November 13, 1986

3.2 Problem Areas and Difficult Wetland Situations in the Arid West

The Arid West Supplement (Corps 2008) includes recommended procedures for completing wetland delineations in areas of "difficult wetland situations." The Corps Manual describes "problem areas," defined as naturally occurring wetland types which periodically lack wetland indicators due to normal seasonal or annual variability.

The list of difficult wetland situations methods provided in the Arid West Supplement includes wetlands with problematic hydrophytic vegetation, problematic hydric soils, and wetlands that periodically lack indicators of wetland hydrology. Although the Corps Manual and Arid West Supplement were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. Thus, it is important to use best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of wetland delineation data for problematic sites.

3.3 Atypical Situations and Man Induced Wetlands

"Atypical situations" are defined in the Corps Manual as wetlands in which vegetation, soil, or hydrology indicators are substantially altered due to recent human activities or natural events. Atypical situation methods apply to the following specific situations:

- **Unauthorized activities**. Unauthorized activities are instances where one or more wetland indicators are not observable due to unauthorized activities such as filling or draining areas that were previously wetland.

- **Natural events**. Natural events include instances such as fire, flood, or beaver dams which may affect the ability to observe wetland indicators, or may permanently change and alter conditions such that former wetlands are converted to uplands, or former uplands are converted to wetlands.

- **Man-induced wetlands.** These are areas which were intentionally or unintentionally created by human activities. These areas may or may not be jurisdictional, depending on the type, source, and relative permanence of the man-induced alteration. In many cases, man-induced wetlands are considered jurisdictional. Areas where wetland conditions exist due to the man-induced hydrology (such as leaky irrigation or irrigated fields), and would not exist in the absence of that man-induced condition are not considered wetlands.

3.4 Areas Potentially Exempt from Section 404 Jurisdiction

Some areas that meet the technical criteria for wetlands or waters may not be jurisdictional under the CWA per Section 404 regulations and the Corps Manual. Included in this category are:

- Some man-induced wetlands, including areas that are maintained only due to the presence of man-induced hydrology (1987 Corps Manual)

- Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (33 CFR 328.3a)

- Ditches dug wholly in, and draining only uplands and that do not carry a relatively permanent flow of water (51 Fed. Reg. 41206, Corps 2008)

- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing·(51 Fed. Reg. 41206)

- Artificial reflecting or swimming pools, or other similar ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons (51 Fed. Reg. 41206)

- Water-filled depressions created as a result of construction activity (51 Fed. Reg. 41206)

- Pits excavated in upland for fill, sand, or gravel (51 Fed. Reg. 41206)

- Areas that are isolated from and/or do not have a significant nexus to navigable waters of the U.S. (Corps 2008)

Features meeting the criteria for wetlands and non-wetland waters within the Study Area were evaluated in the context of these exemptions for making determinations of areas potentially within the Corps' jurisdiction.

4.0 STUDY AREA DESCRIPTION

The 14.8-acre Study Area is located approximately nine miles southeast of downtown Oakland and is bounded by Mountain Boulevard and Interstate 580 to the west, Keller Avenue to the north and east, and Sequoyah Road to the south (Figure 1). The Study Area is primarily located within a small canyon on an overall west-facing ridge. Elevations range from approximately 335 feet to 620 feet National Geodetic Vertical Datum (NGVD).

Vegetation

The Study Area supports the following plant communities: chamise chaparral, broom scrub, coyote brush coastal scrub, coast live oak woodland, and coast live oak riparian forest (Sawyer and Keeler-Wolf 2009). The mesic north-facing slopes and riparian areas are typically dominated by coast live oak (*Quercus agrifolia*, UPL) and California bay (*Umbellularia californica*, FAC). The more xeric south-facing slopes are dominated by shrubs including California sagebrush (*Artemisia californica*, UPL), chamise (*Adenostoma fasciculatum*, UPL), and coyote brush (*Baccharis pilularis*, UPL). The westernmost portion of the Study Area has been heavy disturbed and is now dominated by non-native and invasive species including blue gum (*Eucalyptus globulus*, UPL), French broom, acacia (*Acacia* sp., UPL), and a variety of non-native grasses and forbs.

Hydrology

The principal natural hydrological sources for the Study Area are precipitation and surface runoff from adjacent hillsides. Hydrological inputs to this watershed have likely been reduced relative to historical levels due to adjacent development and diversion of runoff into the storm drain system. An ephemeral stream channel originates near the northeastern corner of the Study Area and winds through a residential development to the south of the parcel before re-entering the Study Area at the end of Sage Road. However, the stream flows for only about 173 feet until downstream flow is blocked by concrete debris in the channel. Rainfall in the region was well above average in the month of December 2014 and was slightly above normal for the water year to date. The nearby Upper San Leandro weather station recorded 11.18 inches in the month of December, which is approximately 291% of the average for the month (USDA 2015c). Overall, rainfall totals are approximately normal for the 2014-2015 water year to date (October 2014 to February 2015).

Table 2. WETS Analysis for 2014-2015 Water Year to Date.

Month	WETS			2014-2015 Water Year		
	Below	Average	Above	Precipitation	Above/Below	Percent of Average
October	0.53	1.55	1.90	0.82	Normal	52.9%
November	1.37	3.69	4.46	3.12	Normal	84.6%
December	1.71	3.84	4.68	11.18	Above	291.1%

Month	WETS			2014-2015 Water Year		
	Below	Average	Above	Precipitation	Above/Below	Percent of Average
January	2.18	5.20	6.32	0.00	Below	0%
February*	1.95	4.64	5.65	2.19	Normal	42.1%
Total	*7.74*	*18.92*	*23.01*	*17.31*	*Normal*	*91.5%*

**Note:* February data for the 2014-2015 water year is currently incomplete.

Soils

The Alameda County, Western Part Soil Survey (USDA 1981) indicates that the Study Area has four native soil types: Los Osos-Millsholm complex, 50 to 70 percent slopes; Millsholm silt loam, 50 to 75 percent slopes; Xerothents-Millsholm complex, 30 to 50 percent slopes; and Xerothents-Millsholm complex, 50 to 75 percent slopes. These soil types are described in detail below and are shown in Figure 2:

Los Osos-Millsholm complex, 50 to 75 percent slopes. The soils in this complex are roughly 50 percent Los Osos silty clay loam and 30 percent Millsholm silt loam. Los Gatos loam and rock outcrop are included in the mapping and make up approximately 20 percent of this map unit. The Los Osos soil is moderately deep and well drained. It formed in material that weathered from sedimentary rock. Permeability of the Los Osos soil is slow. The available water holding capacity is 3.5 to 6.5 inches. The root zone is 24 to 40 inches deep. Runoff is very rapid, and the hazard of erosion is very high. This soil type is not listed as a hydric soil (USDA 2015b).

Millsholm silt loam, 50 to 75 percent slopes. The Millsholm series consists of shallow, well drained soils that formed in residuum of shale and fine grained sandstone. The slopes range from 9 to 75 percent. Typically, the surface layer is grayish brown, medium acid silt loam about 6 inches thick. The subsoil extends to a depth of 20 inches. It is light olive brown, medium acid silt loam and is underlain by shale bedrock. Included in mapping are small areas of Maymen loam, Los Gatos loam, and Rock outcrop. Permeability is moderate**.** The available water capacity is 1.5 to 3.5 inches. The root zone is 10 to 20 inches deep. Runoff is very rapid, and the hazard of erosion is very high. The soil is used for recreation, watershed, and home sites. This soil type is not listed as a hydric soil (USDA 2015b).

Xerorthents-Millsholm complex, 30 to 50 percent slopes. The soils in this complex are roughly 70 percent loamy Xerothents and 20 percent Millsholm loam. Included in mapping, and making up 10 percent of the complex, are small areas of Maymen loam and Los Gatos loam. The Xerothents in this complex are well drained to somewhat excessively drained. They consist of soil material that has been altered by cutting or filling for urban development; as a result, they have variable soil characteristics. Fill areas consist of loam and silt loam and are as much as 25 percent angular fragments of shale and sandstone. The color varies. Permeability is moderate. The root zone is 20 inches deep. Runoff is rapid, and the hazard of erosion is high. The Millsholm soil is shallow and well drained. It formed in residuum of shale and fine grained sandstone. This soil makes up most of the undisturbed areas in this complex. Typically, the surface layer is grayish brown, medium acid silt loam about 7 inches thick. The subsoil extends to a depth of 20 inches. It is light olive brown, medium acid silt loam and is underlain by shale bedrock. Permeability is moderate**.** The available water capacity is 1.5 to 3.5 inches. The root zone is 10 to 20 inches deep. Runoff is rapid, and the hazard of erosion is high. Areas of this

complex are used primarily as sites for residential developments. This soil type is not listed as a hydric soil (USDA 2015b).

Xerothents-Millsholm complex, 50 to 75 percent slopes. The soils in this complex are roughly 60 percent loamy Xerothents, 20 percent Millsholm loam, and 20 percent small mapped areas of Maymen loam, Los Gatos loam, and Los Osos silty clay loam. The Xerorthents in this complex are well drained to somewhat excessively drained. They consist of soil material that has been altered by cutting or filling for urban development; as a result, they have variable soil characteristics. Fill areas consist of loam, silt loam, and light silty clay loam and are as much as 50 percent angular fragments of shale and sandstone. The color varies. Permeability is moderate. The root zone is more than 20 inches deep. Runoff is rapid to very rapid, and the hazard of erosion is high to very high. The Millsholm soil is shallow and well drained. It formed in residuum of shale and fine-grained sandstone. This soil makes up most of the undisturbed areas in this complex. Typically, the surface layer is grayish brown, medium acid silt loam about 7 inches thick. The subsoil extends to a depth of 20 inches. It is light olive brown, medium acid silt loam and is underlain by shale bedrock. Permeability is moderate**.** The available water capacity is 1.5 to 3.5 inches. The root zone is 10 to 20 inches deep. Runoff is rapid, and the hazard of erosion is high. The soils of this map unit are used mainly for home sites. This soil type is not listed as a hydric soil (USDA 2015b).

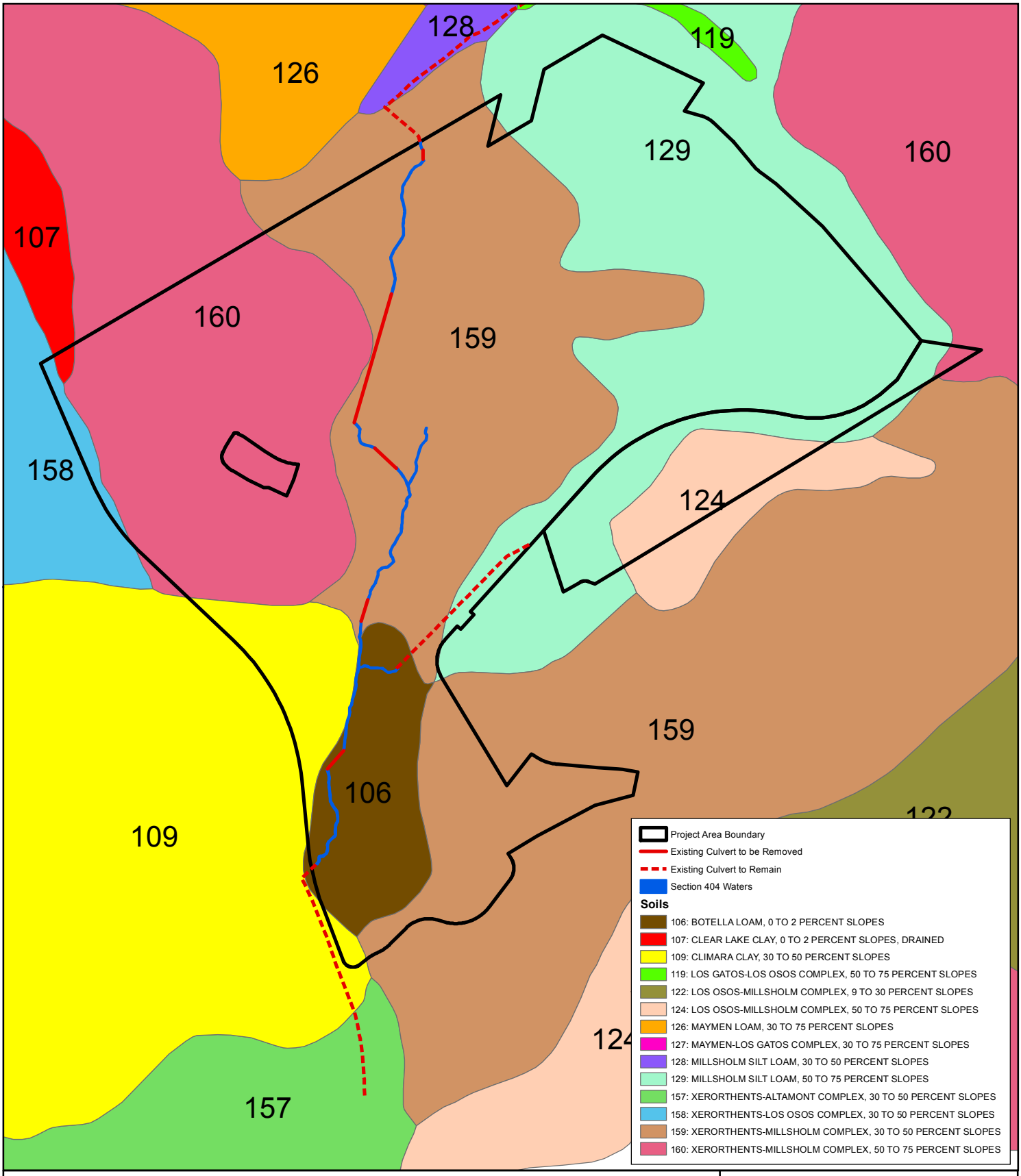

Figure 2. Soils Map

Oak Knoll Development
Alameda County, California

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Contact: Mike Turner
mturner@argentmanagementllc.com

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ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 2/17/2015
Map Prepared By: czumwalt
Base Source: Esri, National Geographic
Data Source(s): WRA

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5.0 RESULTS

Potential Section 404 jurisdictional areas are described in the following sections and depicted in Appendix A. Vegetation, soils, and hydrology data collected during delineation site visits are reported on standard Corps Arid West Region data forms in Appendix B. Photographs of representative portions of the Study Area and sample points are shown in Appendix C. A list of plant species observed during the site visits is included in Appendix D.

5.1 Potential Section 404 Waters of the U.S.

5.1.1 Wetlands

The majority of the site is characterized by steep slopes with well-draining soils. Therefore, delineation efforts were focused on low elevation areas and stream channels.

No potential wetland areas occur within the Study Area. One sample point was recorded at the toe of a steep slope, in a bowl-shaped man-made depression. However, the area was dominated by panic veldtgrass (UPL) and lacked evidence of wetland hydrology.

5.1.2 Non-Wetland Waters of the U.S.

Only one stream feature was identified within the Study Area. An unnamed ephemeral stream channel originates near the northeastern corner of the Study Area and winds through a residential development to the southeast of the parcel before re-entering the Study Area at the end of Sage Road. However, the stream flows for only about another 173 feet downstream before flow is blocked by concrete debris in the channel. Evidence of a historical channel with bed and banks extends several hundred feet downstream; however, the channel eventually turns into a broad swale with no evidence of OHW. The swale eventually terminates at a man-made berm, where there is no evidence of wetland hydrology. Hydrological monitoring conducted during a storm event on February 6, confirmed that no water flows downstream of the concrete debris. The site received over an inch of rain on February 6, including approximately 0.3-0.4 inches in the four hours immediately preceding the site visit.

5.2 Difficult Wetland Situations in the Arid West

The hydrology in the Study Area appears to have been significantly disturbed by adjacent development and past on-site disturbances. The geomorphology (*i.e.*, incised channel with bed and bank) of certain upstream portions of the unnamed ephemeral stream suggest that it once supported intermittent flows; however, little evidence of recent flow was observed in early January, despite well above average rainfall in December. Only a small amount of water (less than 4 inches deep) was observed during a storm event on February 6. The flow terminated where concrete debris had been placed in the channel and no flow or evidence of recent flow was observed downslope of this point (see map in Appendix A). As such, this point was delineated as the downstream limit of jurisdictional waters of the U.S.

Further downslope, the incised channel transitions into a broad swale with little to no evidence of hydrology indicators, in spite of a landscape position that seems as though it would naturally convey water under normal circumstances. The swale terminates in a shallow depression at the base of a man-made earthen berm. Again, despite the low-lying topography of this depression, there is no evidence of wetland hydrology, even during an active storm event.

Two other potential ephemeral drainages were also investigated, but both lacked evidence of supporting hydrology including ordinary high water mark indicators. One potential drainage was a broad swale dominated by French broom. The other potential drainage was dominated by panic veldtgrass. Both potential drainage features were also observed during a storm event and were not found to convey stormwater flows.

The apparent lack of hydrology in these areas is likely due to a combination of factors including: (1) a relatively small natural watershed, (2) well-draining loamy soils, (3) diversion of natural runoff into the storm drain system. The lack of supporting hydrology and diversion of historical flows into the storm drain system substantially reduce the functions and values of this drainage.

5.3 Areas Exempt from Section 404 Jurisdiction

Evidence of a historical incised channel extends further downstream of the mapped limit of the unnamed ephemeral stream; however, hydrology monitoring during a storm event demonstrated that these areas no longer support flows, likely due to upstream hydrological modifications. The adjacent development and upstream diversion of flows into the storm drain system. Therefore, this area no longer functions as non-wetland waters and should be exempt from Section 404 jurisdiction.

6.0 POTENTIAL CORPS OF ENGINEERS JURISDICTION

No potential jurisdictional wetlands were observed in the Study Area. The Study Area contains approximately 376 linear feet (0.03 acre) of potential jurisdictional non-wetland waters. Stream channels ranged from 1 to 5 feet in width, with an average width of 3 feet.

The conclusion of this delineation is based on conditions observed at the time of the field survey conducted on January 6, 2015 as well as hydrology monitoring on January 14 and February 6, 2015.

7.0 REFERENCES

Baldwin, BG, DH Goldman, DJ Keil, R Patterson, TJ Rosatti, and DH Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley, CA.

[CSRL] California Soil Resource Lab. 2015. SoilWeb: An online soil resource browser. http://casoilresource.lawr.ucdavis.edu/gmap/ Accessed January 2015.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Federal Register. November 13, 1986. Department of Defense, Corps of Engineers, Department of the Army, 33 CFR Parts 320 through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Vol. 51, No. 219; page 41217.

Google Earth. 2015. Aerial Imagery 1993-2014. Accessed January 2015.

Jepson Flora Project (eds.). 2015. Jepson eFlora. Online at: http://ucjeps.berkeley.edu/IJM.html. Accessed January 2015.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42

Munsell Color. 2009. Munsell Soil Color Charts. Munsell Color. Grand Rapids, MI. 40pp.

Sawyer, J, T Keeler-Wolf and J Evens. 2009. A Manual of California Vegetation. California Native Plant Society, Berkeley, CA.

U.S. Army Corps of Engineers (Corps). 2005. Regulatory Guidance Letter No. 05-05. Ordinary High Water Mark Identification. December 7.

U.S. Army Corps of Engineers (Corps). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA). 1981. Soil Survey of Alameda County, Western Part, California. In cooperation with the University of California Agricultural Experiment Station.

[USDA] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2015a. Official Soil Series Descriptions. USDA-NRCS, Lincoln, NE. http://soils.usda.gov/technical/classification/osd/index.html. Accessed January 2015.

[USDA] U.S. Department of Agriculture, National Resource Conservation Service (NRCS). 2015b. Official List of US Hydric Soils. http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed January 2015.

[USDA] U.S. Department of Agriculture, National Resource Conservation Service (NRCS). 2015c. Upper San Leandro Station #049185, WETS analysis. http://www.wcc.nrcs.usda.gov/climate/clim-reports.html. Accessed January 2015.

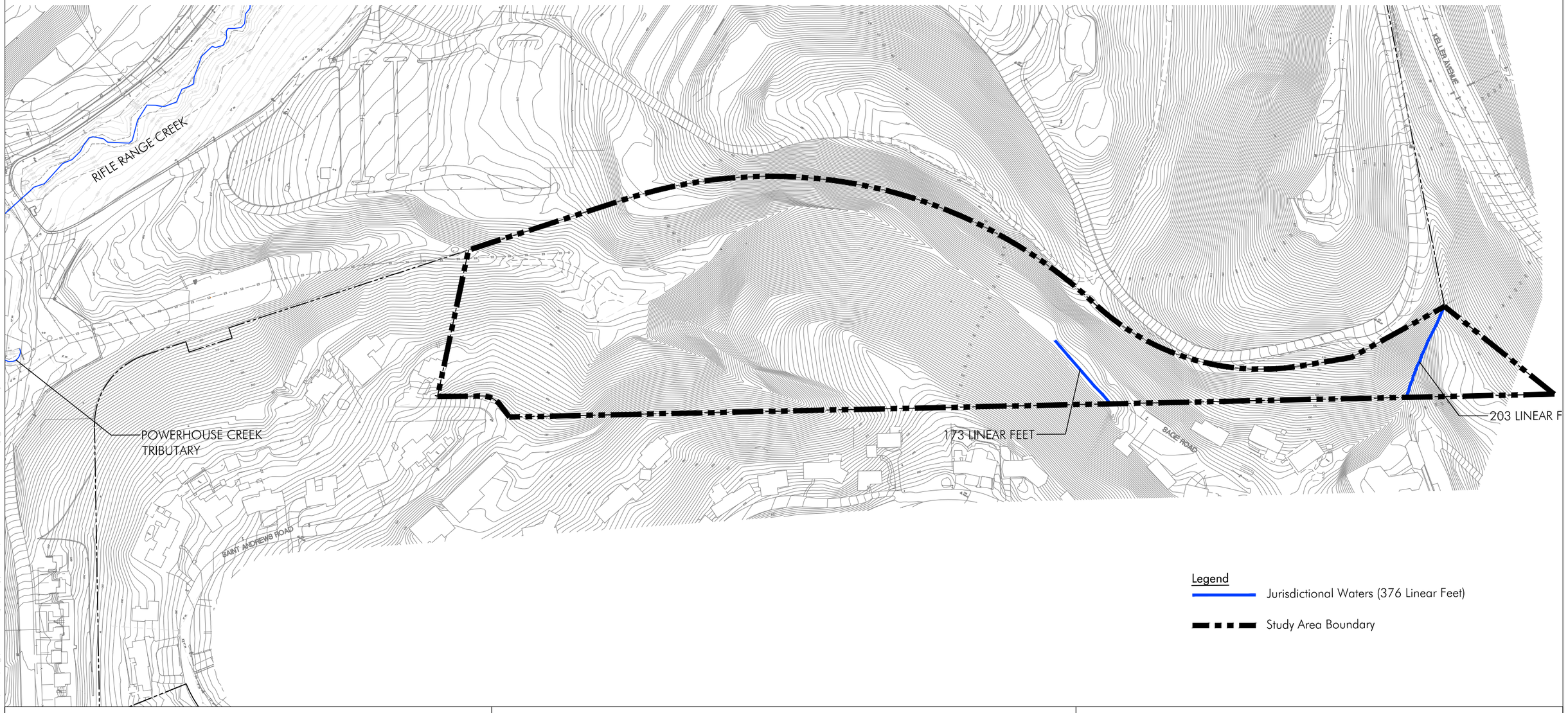
[USDA] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2010. Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010.

[USFWS] U.S. Fish and Wildlife Service. 2015. National Wetlands Inventory website. U.S. Department of the Interior, USFWS, Washington, D.C. http://www.fws.gov/nwi/. Accessed January 2015.

[USGS] U.S. Geological Survey. 1980. Oakland East. 7.5-minute topographic map.

[WRA] WRA, Inc. 2007. Delineation of Potential Jurisdictional Wetlands and "Other Waters" under Section 404 of the Clean Water Act.

Appendix A - Preliminary Section 404 Jurisdictional Map



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Appendix A. Preliminary Section 404 Jurisdiction Map

100 0 100 200 FEET

SCALE 1" = 200'

OAK KNOLL MIXED-USE COMMUNITY DEVELOPMENT PROJECT
HARDENSTINE PARCEL

LOCATION: OAKLAND, CALIFORNIA

COUNTY: ALAMEDA

DATE: 02/18/15

Jan 18, 2008 - 9:15am L:\Acad 2000 Files\15000\15103\dwg\construction\permit applications\FIG 4A-4E - JURISDICTION.DWG (Fig 4a - Reach 1)

Appendix B – Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Hardenstine Parcel (APN: 043A467504701) City/County: Alameda County Sampling Date: 1/6/15
Applicant/Owner: Oak Knoll Venture Acquisition, LLC State: CA Sampling Point: SP1
Investigator(s): Tiffany Edwards and Giselle Goulette Section/Township/Range: T2S, R3W, sec 12
Landform (hillslope, terrace, etc.): Toe of slope Local Relief (concave, convex, none): concave Slope (%): 2 %
Subregion (LRR): California Lat: 37.7662° Long: -122.1438° Datum: WGS84
Soil Map Unit Name: Millsholm silt loam, 50 to 70 % slopes NWI classification none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present? Yes X No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Sample is located at the toe of a steep slope, in a man-made depression. Vegetation is dominated by weedy upland species.

VEGETATION

Tree Stratum (Plot size: ___)	Absolute Cover %	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5' radius*)			
1. *Erharhta erecta*	90	X	UPL
2. *Rubus ursinus*	10		FAC
3. *Rumex sp.*	2		FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	102		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			

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

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Text 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** **X**

Remarks:
3% cover of algae.

SOIL

Sampling Point: SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/2	100					Silty loam	
6-12	7.5 YR 4/2	75					Sandy loam	
		25					Rocky fill	
12-18	7.5 YR 4/4	85	Gley 4/5 BG	10			Clay	
	2.5Y 4/1	5					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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 disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil almost meets criteria for indicator A11 (depleted below dark surface); however, soils with a matrix color of 4/2 require redox concentrations to meet this indicator.

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**)
- X Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X 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): _____

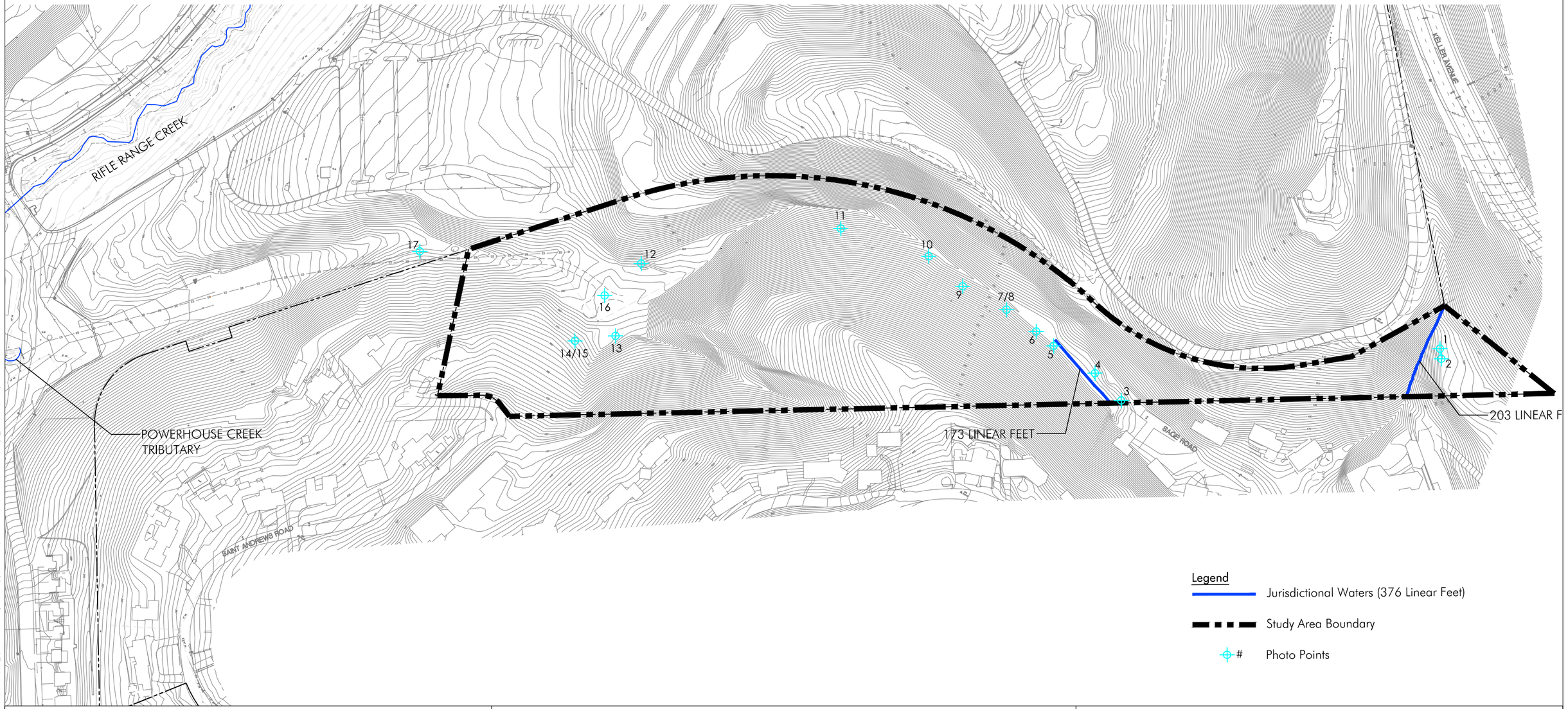
Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Some bent vegetation observed.

Appendix C - Representative Photographs of the Study Area



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Appendix C. Representative Photograph Locations

100 0 100 200 FEET

SCALE 1" = 200'

OAK KNOLL MIXED-USE COMMUNITY DEVELOPMENT PROJECT
HARDENSTINE PARCEL

LOCATION: OAKLAND, CALIFORNIA

COUNTY: ALAMEDA

DATE: 02/18/15

Jan 18, 2008 - 9:15am L:\Acad 2000 Files\15000\15103\dwg\construction\permit applications\FIG 4A-4E - JURISDICTION.DWG (Fig 4a - Reach 1)

Photograph 1: Ephemeral drainage, looking downstream. Photograph taken on January 14, 2015.

Photograph 2: Ephemeral drainage, looking upstream. Photograph taken on January 14, 2015.

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Photograph 3: Culvert outlet at the end of Sage Road. Photograph taken on January 14, 2015.

Photograph 4: Flow in ephemeral channel during storm on February 6, 2015.

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Photograph 5: Downstream extent of flow in ephemeral channel during storm on February 6, 2015.

Photograph 6: Concrete debris in the channel. Photograph taken on January 14, 2015.

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Photograph 7: Broad segment of channel on January 14, 2015.

Photograph 8: Broad segment of channel during storm on February 6, 2015.

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Photograph 9: Incised segment of channel during storm on February 6, 2015.

Photograph 10: Incised segment of channel during storm on February 6, 2015.

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Photograph 11: Incised segment of channel on January 6, 2015.

Photograph 12: Digressional feature and berm at downstream end of swale during storm on February 6, 2015.

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Photograph 13: Broad swale dominated by French broom (*Genista monspessulana*, UPL), observed during storm on February 6, 2015.

Photograph 14: Depressional area dominated by panic veldtgrass (*Ehrharta erecta*, UPL) during storm on February 6, 2015.

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Photograph 15: Man-made earthen berm enclosing a shallow depression dominated by panic veldtgrass (*Ehrharta erecta*, UPL) during storm on February 6, 2015.

Photograph 16: Upland fill area dominated by non-native weeds. Photograph taken on February 6, 2015.

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Photograph 17: Paved road following the alignment of what was likely a historical riparian corridor on February 6, 2015.

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Appendix D - Plant Species Observed in the Study Area

Appendix D. List of plant species observed on the Hardenstine parcel during a site visit conducted on January 6, 2015.

Scientific Name	Common Name	Wetland Indicator Status
Acacia baileyana	Bailey acacia	UPL
Adenostoma fasciculatum	chamise	UPL
Aesculus californicus	buckeye	UPL
Arbutus menziesii	madrone	UPL
Artemisia californica	California sagebrush	UPL
Artemisia douglasiana	California mugwort	FAC
Avena barbata	slender wild oat	UPL
Baccharis pilularis	coyote brush	UPL
Brassica nigra	black mustard	UPL
Bromus diandrus	ripgut brome	UPL
Bromus hordeaceus	soft chess	FACU
Carduus pycnocephalus	Italian thistle	UPL
Chlorogalum angustifolium	narrow leaved soap plant	UPL
Cirsium vulgare	bull thistle	FACU
Conium maculatum	poison hemlock	FACW
Cynodon dactylon	Bermuda grass	FACU
Cyperus eragrostis	tall flatsedge	FACW
Cytisus monspessulana	French broom	UPL
Ehrharta erecta	panic veldtgrass	UPL
Equisetum arvense	common horsetail	FAC
Erodium botrys	long-beaked filaree	FACU
Erodium cicutarium	red-stem filaree	UPL
Eucalyptus globulus	blue gum	UPL
Festuca perennis [Lolium perenne]	Italian ryegrass	FAC
Foeniculum vulgare	fennel	UPL
Galium aparine	common bedstraw	FACU
Genista monspessulana	French broom	UPL
Geranium molle	crane’s bill geranium	UPL
Hedera helix	English ivy	FACU
Helminthotheca echioides	bristly ox-tongue	FACU
Heteromeles arbutifolia	toyon	UPL
Hirschfeldia incana	shortpod mustard	UPL
Hordeum marinum ssp. gussoneanum	Mediterranean barley	FAC
Hordeum murinum	foxtail barley	FACU
Hypochaeris radicata	rough cat’s ear	FACU
Lactuca serriola	prickly lettuce	FACU
Medicago polymorpha	California burclover	FACU
Mimulus aurantiacus	sticky monkeyflower	UPL

Scientific Name	Common Name	Wetland Indicator Status
Paspalum dilatatum	dallisgrass	FAC
Pinus radiata	monterey pine	UPL
Plantago lanceolata	English plantain	FAC
Polypogon monspeliensis	rabbitsfoot grass	FACW
Pseudognaphalium luteoalbum	Jersey cudweed	FAC
Quercus agrifolia	coast live oak	UPL
Raphanus sativa	wild radish	UPL
Rubus armeniacus	Himalayan blackberry	FACU
Rubus ursinus	California blackberry	FAC
Rumex crispus	curly dock	FAC
Salix lasiolepis	arroyo willow	FACW
Sanicula crassicaulis	Pacific sanicle	UPL
Silybum marianum	milk thistle	UPL
Sonchus oleraceus	common sow-thistle	UPL
Torilis arvensis	field hedge parsley	UPL
Toxicodendron diversilobum	poison oak	FACU
Trifolium hirtum	rose clover	UPL
Umbellularia californica	bay laurel	FAC
Vinca major	periwinkle	UPL

Appendix E – Preliminary Title Report

First American Title

First American Title Company

6683 Owens Drive
Pleasanton, CA 94588

This report has been amended/updated to reflect the following matters:

[ ] No changes made to the report other than the Effective Date

[ ] Property address has been revised

[ ] Vesting has been revised

[ ] Legal Description has been revised

[X] Taxes have been updated

[ ] Original item number(s) have been removed

[X] New item number(s) 11 have been added

[X] Original item number(s) 1 have been revised

[X] Other: Informational Notes Item No. 1 have been removed.

Updated

First American Title

First American Title Company

6683 Owens Drive
Pleasanton, CA 94588

Escrow Officer:	Diane Burton
Phone:	(925)738-4050
Fax No.:	(866)648-7806
E-Mail:	dburton@firstam.com
Title Officer:	Sheryl Taylor
Phone:	(559)470-8819
Fax No.:	
E-Mail:	ShTaylor@firstam.com
E-Mail Loan Documents to:	Lenders please contact the Escrow Officer for email address for sending loan documents.
Buyer:	NCDG LLC
Property:	4407 Saint Andrews Road Oakland, CA 94605

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.* Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of October 20, 2014 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

ALTA Extended Loan Policy - 2006

ALTA Extended Owner Policy - 2006

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

WILLIAM A. HARDENSTINE AND ANNA-MARIA HARDENSTINE, TRUSTEES OF THE HARDENSTINE FAMILY LIVING TRUST DATED AUGUST 26, 2002

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A fee as to Parcel(s) 1, an easement as to Parcel(s) 2.

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2014-2015.

First Installment:	$450.93, OPEN
Penalty:	$0.00
Second Installment:	$450.93, OPEN
Penalty:	$0.00
Tax Rate Area:	17-001
A. P. No.:	043A-4675-047-01

1a. Intentionally Deleted

2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

3. An easement for sanitary sewer and incidental purposes, recorded April 24, 1953 as Book 7011, Page 5, Instrument No. AH-36484 of Official Records.

In Favor of:	City of Oakland, a municipal corporation
Affects:	Parcel 1

4. The terms and provisions contained in the Quitclaim Deed that provide for "Covenant to Refrain from Creation of any Noise Level which would Adversely Affect Patient Care" recorded December 4, 1978 as Reel 5703, Image 51, Instrument No. 78-236024 of Official Records.

5. An easement for pipe lines and incidental purposes, recorded February 5, 1980 as Instrument No. 80-021493 of Official Records.
   In Favor of: East Bay Municipal Utility District, a public corporation
   Affects: Parcel 2

6. An easement for anchors, guy wires, cables, guy stubs and fixtures and incidental purposes, recorded October 30, 1980 as Instrument No. 80-191640 of Official Records.
   In Favor of: Pacific Gas and Electric Company, a California corporation and The Pacific Telephone and Telegraph Company, a California corporation
   Affects: As described therein

7. An easement for access and incidental purposes, recorded June 18, 1982 as Instrument No. 82-090181 of Official Records.
   In Favor of: Walter J. Smith, an unmarried man, et al
   Affects: Parcel 2

8. An easement for access and incidental purposes, recorded June 4, 1984 as Instrument No. 84-107760 of Official Records.
   In Favor of: David M. Grubbs, et ux
   Affects: Parcel 2

9. An easement for underground conduits, service boxes and conductors, aboveground switches, fuses, terminals and transformers with associated concrete pads and incidental purposes, recorded September 19, 1984 as Instrument No. 84-190262 of Official Records.
   In Favor of: Pacific Gas and Electric Company, a California corporation
   Affects: Parcel 2

10. An easement for access and incidental purposes, recorded March 11, 1986 as Instrument No. 86-057519 of Official Records.
    In Favor of: David R. Kiteley, et ux
    Affects: Parcel 2

11. An option in favor of Timothy P Keliher of NCDG LLC as contained in or disclosed by a document recorded April 11, 2014 as Instrument No. 2014088861 of Official Records.

12. Any easements and/or servitudes affecting easement parcel(s) 2 herein described.

13. Water rights, claims or title to water, whether or not shown by the public records.

14. Rights of parties in possession.

15. Any facts, rights, interests or claims which would be disclosed by a correct ALTA/ACSM survey.

Prior to the issuance of any policy of title insurance, the Company will require:

16. With respect to the trust referred to in the vesting:
a. A certification pursuant to Section 18100.5 of the California Probate Code in a form satisfactory to the Company.
b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.
c. Other requirements which the Company may impose following its review of the material required herein and other information which the Company may require.

17. An ALTA/ACSM survey of recent date which complies with the current minimum standard detail requirements for ALTA/ACSM land title surveys.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. The property covered by this report is vacant land.

2. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:

   None

3. We find no open deeds of trust. Escrow please confirm before closing.

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the City of Oakland , County of Alameda, State of California, described as follows:

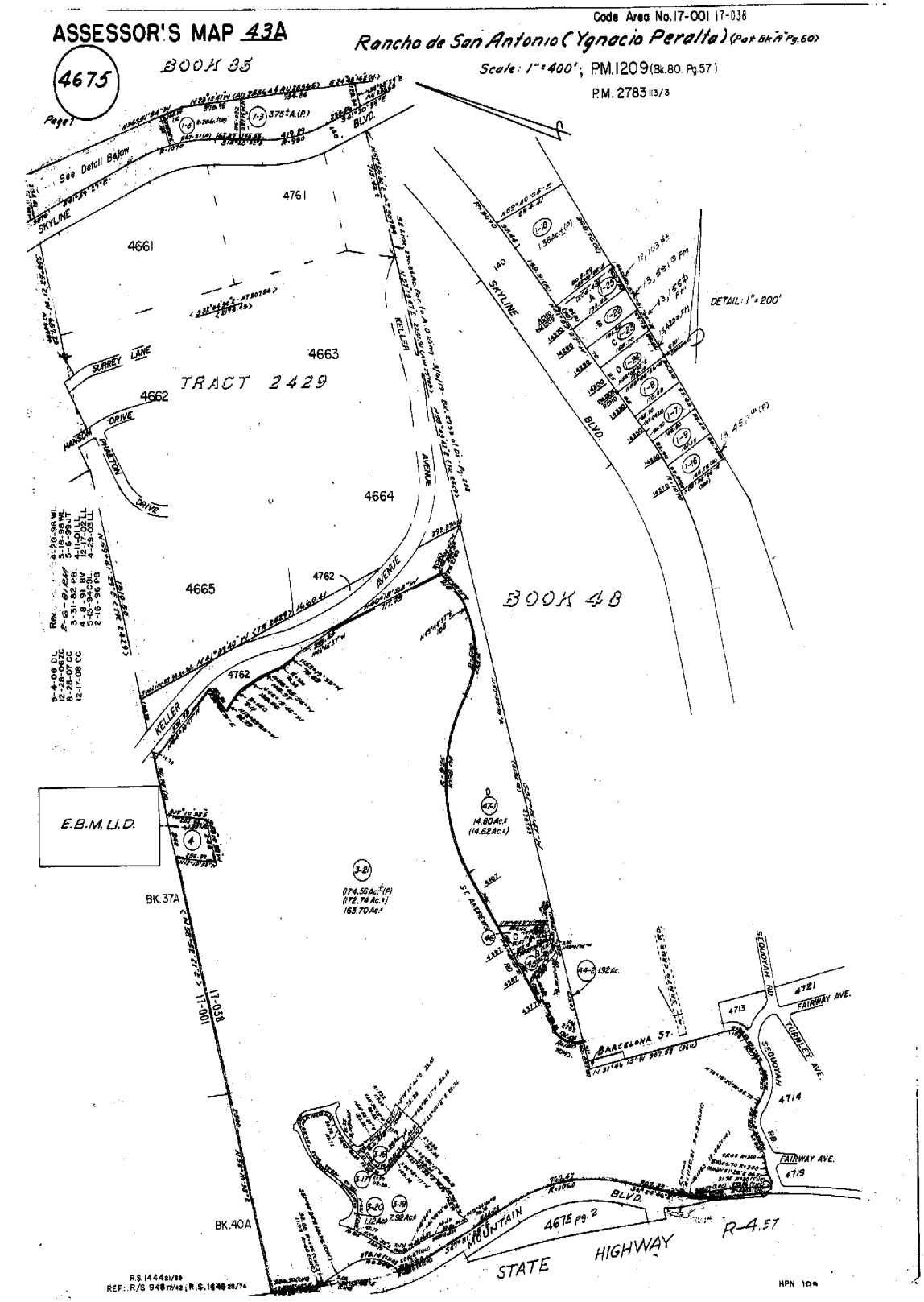
PARCEL 1:

PARCEL D, PARCEL MAP 2783, FILED SEPTEMBER 12, 1979, BOOK 113 OF PARCEL MAPS, PAGE 3, ALAMEDA COUNTY RECORDS.

PARCEL 2:

A NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS, APPURTENANT TO PARCEL 1, HEREINABOVE DESCRIBED, OVER THAT PORTION OF PARCEL MAP 2783, FILED SEPTEMBER 12, 1979, BOOK 113 OF PARCEL MAPS, PAGE 3, ALAMEDA COUNTY RECORDS, DESIGNATED "P.A.E." ON SAID MAP.

APN: 043A-4675-047-01



Description: Alameda,CA Assessor Map - Book.Page 43A.4675 Page: 1 of 3
Order: Reesha Comment:

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

If you have any questions about the effect of this new law, please contact your local First American Office for more details.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (02-03-10)
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   (a) building; (d) improvements on the Land;
   (b) zoning; (e) land division; and
   (c) land use; (f) environmental protection.
   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   (a) that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   (b) that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   (c) that result in no loss to You; or
   (d) that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   (a) to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   (b) in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows: For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

Your Deductible Amount	**Our Maximum Dollar Limit of Liability**
Covered Risk 16: 1% of Policy Amount or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18: 1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19: 1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21: 1% of Policy Amount or $2,500.00 (whichever is less)	$5,000.00

ALTA RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)
EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   (a) and use
   (b) improvements on the land
   (c) and division
   (d) environmental protection
   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.
   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:

(a) a notice of exercising the right appears in the public records on the Policy Date

(b) the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking

3. Title Risks:
   (a) that are created, allowed, or agreed to by you
   (b) that are known to you, but not to us, on the Policy Date -- unless they appeared in the public records
   (c) that result in no loss to you
   (d) that first affect your title after the Policy Date -- this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
   (a) to any land outside the area specifically described and referred to in Item 3 of Schedule A OR
   (b) in streets, alleys, or waterways that touch your land
   This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an

inspection of the Land or that may be asserted by persons in possession of the Land.

3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;

   (ii) the character, dimensions, or location of any improvement erected on the Land;

   (iii) the subdivision of land; or

   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters

   (a) created, suffered, assumed, or agreed to by the Insured Claimant;

   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

   (c) resulting in no loss or damage to the Insured Claimant;

   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or

   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is

   (a) a fraudulent conveyance or fraudulent transfer, or

   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;

   (ii) the character, dimensions, or location of any improvement erected on the Land;

   (iii) the subdivision of land; or

   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters

   (a) created, suffered, assumed, or agreed to by the Insured Claimant;

   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

   (c) resulting in no loss or damage to the Insured Claimant;

   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or

   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is

   (a) a fraudulent conveyance or fraudulent transfer, or

   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.

First American Title

Privacy Information
We Are Committed to Safeguarding Customer Information
In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability
This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information
Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:
- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information
We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers
Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security
We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site
First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet.
In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site.
There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships
First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies
Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive.
FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values
Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.
Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.
Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.
Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.
Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.
Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.

Biological Resources Assessment

Oak Knoll (APNs: 043A-4675-003-21 & 043A-4675-47-1)
OAKLAND, ALAMEDA COUNTY, CALIFORNIA

Prepared For:
Oak Knoll Venture Acquisition LLC
2392 Morse Avenue
Irvine, California 92614

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Chris Gurney
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Date:
July 2015 (Revised September 2015)

WRA Project Number:
15103-5, Phase 1, Task 9

wra
ENVIRONMENTAL CONSULTANTS

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LIST OF PREPARERS

Amanda McCarthy, PhD, Associate Principal, Principal-in-Charge
Chris Gurney, MS, Associate Plant Biologist, Project Manager
Scott Yarger, BS, Plant Biologist
Scott Batiuk, BS, Plant Biologist

LIST OF ACRONYMS AND ABBREVIATIONS

AWS	Alameda whipsnake
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
ESA	Federal Endangered Species Act
Inventory	CNPS Inventory of Rare and Endangered Plants
OWHM	Ordinary High Water Mark
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.

EXECUTIVE SUMMARY

The purpose of this report is to provide an analysis of potential impacts to biological resources, including sensitive natural communities and special-status species, within the Oak Knoll Mixed Use Development Project Area (Project Area) in the City of Oakland, Alameda County, California. The Project Area consists of two parcels (APNs: 043A-4675-003-21 and 043A-4675-47-1) totaling approximately 185.7 acres.

WRA, Inc. (WRA) visited the Project Area on several dates between March and May 2015. WRA identified 12 biological communities in the Project Area, of which, four are considered sensitive. Sensitive biological communities in the Project Area include riparian woodland, coast live oak woodland, perennial/intermittent stream, and native purple needlegrass grassland. Impacts to sensitive and/or regulated biological communities and resources would require the following permits/approvals:

- U.S. Army Corps of Engineers (Corps) Section 404 permit (the project likely qualifies for several nationwide permits including #7, #14, and #27) for any impacts below the ordinary high water mark (OHWM) of streams in the Project Area;
- Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certification for any impacts below the top of bank of streams in the Project Area;
- California Department of Fish and Wildlife Section 1602 Lake and Streambed Alteration Agreement for any impacts within the top-of-bank of streams and/or the outer drip line of associated riparian vegetation in the Project Area;
- City of Oakland (City) Tree Removal Permit for removal of any protected trees in the Project Area; and,
- City Creek Protection Permit for work within 20 feet of the top of bank of any protected stream in the Project Area.

WRA also identified one statewide rare plant species, Oakland star-tulip (*Calochortus umbellatus*) and four A-listed, locally rare/significant plant species: Oakland star-tulip; coast live oak (*Quercus agrifolia*), slender-footed sedge (*Carex leptopoda*), and Douglas' iris (*Iris douglasiana*).

Two special-status wildlife species were observed in the Project Area during the site assessment: Nuttall's woodpecker (*Picoides nuttallii*) and oak titmouse (*Baeolophus inornatus*). Four additional special-status wildlife species have a moderate or high potential to occur in the Project Area. Special-status wildlife species which have a high or moderate potential to occur in the Project Area include: San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), yellow warbler (*Setophaga petechia*), olive-sided flycatcher (*Contopus cooperi*), oak titmouse, Nuttall's woodpecker, and Allen's hummingbird (*Selasphorus sasin*).

A detailed analysis of potential impacts to sensitive biological communities and special-status species is included in Section 5 of this report, as are suggested mitigation measures. With implementation of mitigation measures, all impacts are considered less than significant under the California Environment Quality Act (CEQA).

1.0 INTRODUCTION

During the months of March, April, and May 2015, WRA, Inc. performed an assessment of biological resources within the approximately 185.7-acre Oak Knoll Mixed Use Development Project Area (Project Area), located on two parcels (APNs: 043A-4675-003-21 and 043A-4675-47-1) in Oakland, Alameda County, California (Figure 1). The Project Area consists of the approximately 170-acre former naval medical center property, and an adjacent 15-acre undeveloped parcel (known as the "Hardenstine parcel"). The Project Area is located in an urban area that consists of a patchwork of developed residential and commercial areas interspersed with undeveloped, open areas and regional open space. Rifle Range Creek, a tributary of Arroyo Viejo, flows from north to south across the Project Area and is one of the site's most prominent natural features.

The purpose of the assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA). This report describes the results of the site visit, which assessed the Project Area for the (1) potential to support special-status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. If special-status species were observed during the site visit, they were recorded. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted. This report also contains an evaluation of potential impacts to special-status species and sensitive biological resources that may occur as a result of the proposed project and potential mitigation measures to compensate for those impacts.

A biological resources assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

1.1.1 Project Area History

The Project Area, excluding the Hardenstine parcel, was originally developed as the Oak Knoll Gold and County Club in the 1920s. In 1942, the US Navy purchased the land and developed it as a naval base and medical center, which was operational until 1993. After the base was closed, the site was sold to a private owner for development purposes.

The majority of the Project Area, with the exception of of the Hardenstine parcel has experienced extensive historical impacts from development. Analysis of historical aerial photographs suggests that the majority of the Hardenstine parcel has remained relatively unchanged since at least 1946, the date of the oldest available image (NETR 2015). However, the former stream and riparian corridor on the Hardenstine parcel is a notable exception. Sometime between 1946 and 1958, there was substantial clearing of vegetation along the former stream corridor, presumably to facilitate use of the corridor as a trail or roadway. The hydrology of this former creek was likely also disrupted around this time and no longer supports regular flows (WRA 2015a).

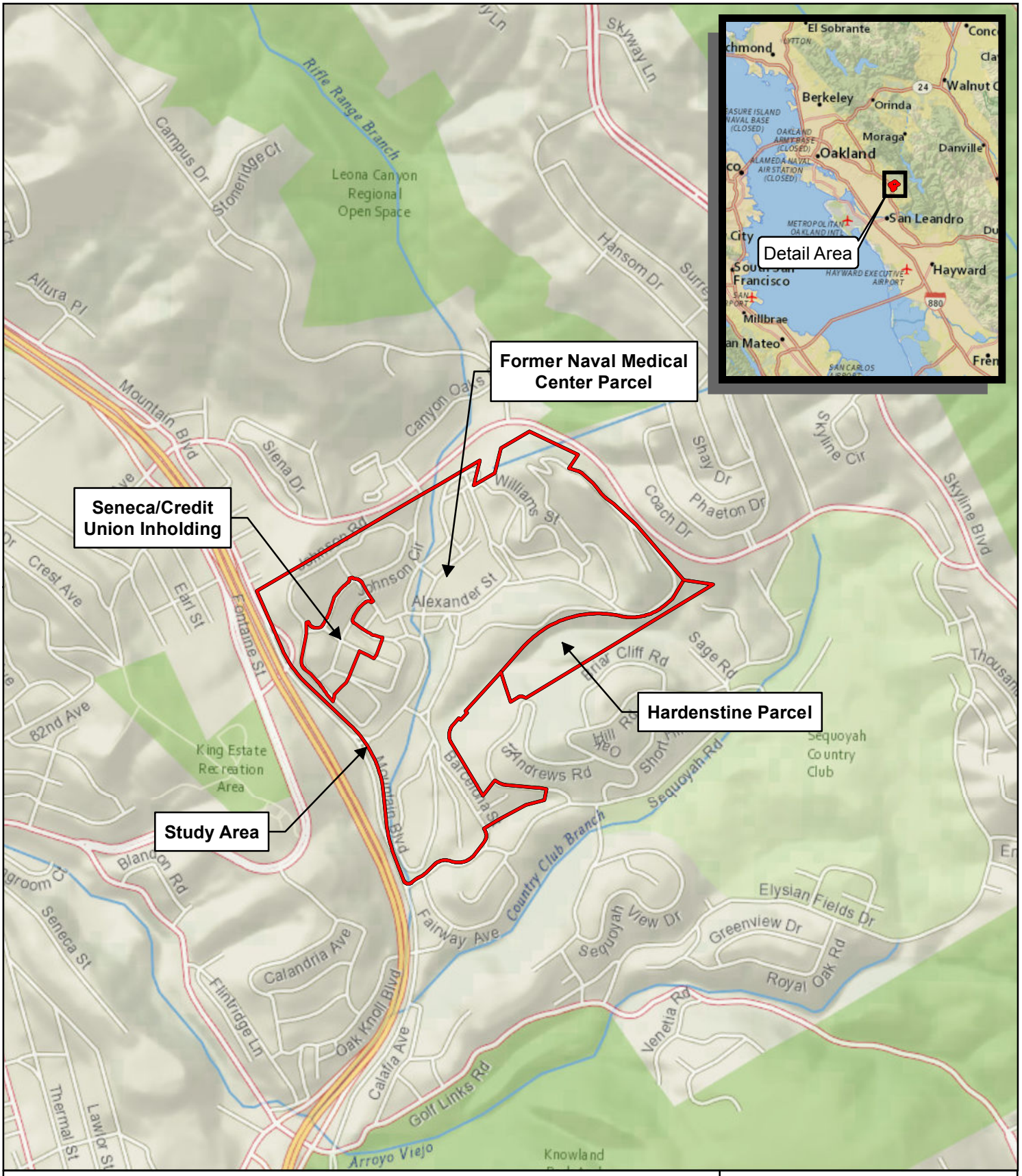

Figure 1. Location Map

Oak Knoll Mixed Use
Community Development
Alameda County, California

Oak Knoll Venture Acquisition LLC
2392 Morse Avenue
Irvine, CA 92614
Contact: Mike Turner
mturner@argentmanagementllc.com

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ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 9/3/2015
Map Prepared By: czumwalt
Base Source: Esri, National Geographic
Data Source(s): WRA

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\February 2015\Figure 1 Location.mxd

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive plant communities (or “vegetation alliances”) as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2015). Sensitive plant communities are also identified by CDFW (CNPS 2015a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 Local Policies, Ordinances, and Regulations

City of Oakland Tree Protection Ordinance

The City of Oakland Municipal Code, Chapter 12.36, “Protected Trees” (Tree Ordinance), establishes regulations for the protection and preservation of native and non-native trees in the City of Oakland. The ordinance defines a “protected tree” on any property within City limits, as any coast live oak (*Quercus agrifolia*) measuring four inches DBH or larger, and any other species measuring nine inches DBH or larger, except eucalyptus (*Eucalyptus* spp.) or Monterey pine (*Pinus radiata*). It is unlawful to remove a protected tree as defined above except as provided for in Section 12.36.140 (Exemptions) without obtaining a tree removal permit. The owner of property upon which a protected tree is located may request to remove protected trees not otherwise exempt from the Tree Ordinance by filling an application for a Tree Removal Permit. As described above, eucalyptus trees are not protected and removal does not require a tree removal permit. Monterey pine trees are also not protected; however, their identification must be verified by City staff prior to removal.

City of Oakland Creek Protection Ordinance

The City of Oakland Municipal Code, Chapter 13.16, "Creek Protection, Storm Water Management and Discharge Control" (Ord. 12024 § 1 (part), 1997), establishes regulations for the protection of creeks and riparian corridors and enhancement of the water quality of watercourses, water bodies, and wetlands within the City in a manner pursuant to and consistent with the federal Clean Water Act. The Ordinance defines a creek as any naturally occurring creek or engineered channel as identified on the "Watershed Map of Oakland and Berkeley Area", published by the Oakland Museum of California (Sowers 2000). Rifle Range Creek, which flows from north to south across the Project Area, is identified on the aforementioned map. A Creekside Property is defined as any property within City limits containing a creek or riparian corridor crossing the property. As per the Ordinance, a Creek Protection Permit and Creek Protection Plan may be required prior to development or work on a Creekside Property. If work is conducted within a creek setback (within 20 feet of the top of bank), a hydrology report may be required as well.

2.3 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates, are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). . In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGC), i.e., sections 3503, 3503.5 and 3513. Under these laws, destroying active bird nests, eggs, and/or young is illegal.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list

Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Locally Rare, Unusual, and Significant Plants

Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties, Eighth Edition (Lake 2010) is a document produced by the East Bay Chapter of the CNPS that lists 608 plant taxa which are considered locally rare, unusual, or significant in Alameda and Contra Costa counties. Of these 608 species, 313 occur in two or fewer regions in Alameda and Contra Costa counties (ranked A1 in the East Bay), 231 occur in five or fewer regions in the two counties or are otherwise threatened (ranked A2 in the East Bay), and 64 are only known form the area historically and are presumed to have been extirpated from the East Bay during the last 100 year (A1x) [see Table 2 below]. A-ranked species receive consideration under sections 15380 and 15125(c) of the CEQA and are considered “locally rare” for the purposes of this report. Any locally rare species observed in the Project Area are discussed in this report.

Table 2. Description of East Bay CNPS Rare Plant Rankings

Rank	Description
A1	Species occurring in two or fewer regions in Alameda and Contra Costa counties
A1x	Species presumed extirpated from Alameda and Contra Costa counties
A1?	Species possibly occurring in Alameda and Contra Costa counties. Identification or location is uncertain
A2	Plants occurring in three to five regions or are otherwise threatened in Alameda and Contra Costa counties.
B	Species occurring in six to nine regions or are otherwise threatened in Alameda and Contra Costa counties (high priority watch list).
C	Species occurring in 10 to 15 regions or are otherwise threatened in Alameda and Contra Costa counties (second priority watch list).

*Ranks preceded by an asterisk (e.g. "*A1") also have a statewide rarity ranking.
*Species on the watch lists (ranks B and C) are not considered to be special-status based on the CEQA guidelines.

Critical Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

3.0 METHODS

During the months of March, April, and May 2015, the Project Area was traversed on foot to determine (1) plant communities present within the Project Area, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats are present. All plant and wildlife species encountered were recorded, and are summarized in Appendix A and Appendix B. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2015), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of Alameda County, California (USDA 1981), aerial imagery, and previous reports from the Project Area were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities present in the Project Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *A Manual of California Vegetation, Online Edition* (CNPS 2015a). Holland classifies more often in broader, habitat-level descriptions than those in *A Manual of California Vegetation, Online Edition*, which typically provides narrower classifications based on individual species or small groups of species. Although the CDFW uses Natural Community descriptions used in *A Manual of California Vegetation, Online Edition*, it also follows habitat descriptions used by Holland, such as freshwater marsh. In some cases, it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.1.1.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

<u>Wetlands and Waters</u>

The majority of Project Area was previously surveyed for wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW in 2006 (WRA 2007; Corps File Number 2006-400240S). The wetland delineation was conducted using the three-parameter approach as defined in the Corps Manual (Environmental Laboratory 1987). The delineation was verified

by the Corps in 2007 and was later re-verified on May 16, 2013. The current verification is valid for five years from the date of issuance.

The Hardenstine parcel was subsequently delineated in February 2015 (WRA 2015a). A site visit with the Corps, RWQCB, and CDFW was conducted in July 2015 and verification is currently pending.

Other Sensitive Biological Communities

The Project Area was evaluated for the presence of other sensitive biological communities, including riparian areas, and sensitive plant communities recognized by CDFW. Prior to the site visit, aerial photographs, local soil maps, and *A Manual of California Vegetation* (CNPS 2015b) were reviewed to assess the potential for sensitive biological communities to occur in the Project Area. As discussed above in Section 2.1, all vegetation alliances within the Project Area with a CDFW ranking of 1 through 3 were considered sensitive biological communities and mapped. These communities are described in Section 4.1.2.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Oakland East 7.5 minute USGS quadrangle (USGS 2015) as well as the eight surrounding quadrangles. In addition, the USFWS species list for the county of Alameda was researched for other potential species occurrences. The following resources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project Area:

- CNDDB records (CDFW 2015)
- USFWS Information for Conservation and Planning Database (USFWS 2015)
- CNPS Inventory records (CNPS 2015a)
- Consortium of California Herbaria (CCH 2015)
- CDFG publication “California’s Wildlife, Volumes I-III” (Zeiner et al. 1990)
- CDFG publication “California Bird Species of Special Concern” (Shuford and Gardali 2008)
- CDFG publication “Amphibians and Reptile Species of Special Concern in California” (Jennings 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- Fairy Shrimps of California’s Puddles, Pools and Playas (Eriksen and Belk 1999)
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California (ICE 2015)
- Alameda County Breeding Bird Atlas (Richmond et al. 2011)

3.2.2 Site Assessment

Several site visits during March, April, and May 2015 were made to the Project Area to search for suitable habitats for special-status species. Habitat conditions observed in the Project Area were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each

special-status species to occur in the Project Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Project Area. The site visits do not constitute a protocol-level survey and are not intended to determine the actual presence or absence of a species; however, a separate protocol-level rare plant survey was conducted by WRA during this time period, and the findings of that survey (WRA 2015b) are incorporated into this report. In addition, protocol-level surveys for Alameda whipsnake (AWS; *Masticophis lateralis euryxanthus*) are ongoing, but have not yet been completed at this time.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up to date information regarding species biology and ecology.

For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described in Section 5.0.

3.2.3 Additional Protocol-level Surveys

Rare Plant Survey

WRA conducted a protocol-level rare plant survey in the Project Area on March 25 and April 20, 2015 (WRA 2015b). A total of 723 individuals of Oakland star-tulip (*Calochortus umbellatus;* Rank 4.2, *A2) were observed. In addition, three other A-ranked locally rare species were observed: slender-footed sedge (*Carex leptopoda*; A1), Douglas' iris (*Iris douglasiana*, A2), and coast live oak (*Quercus agrifolia* var. *agrifolia*; A2). The findings of the rare plant survey are incorporated into this report.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*) Surveys

The Wildlife Project is currently conducting protocol-level surveys for Alameda whipsnake (AWS) in the Project Area. Surveys involve the establishment of trap-lines on the site and daily or near-daily trap checking. Traps were activated for 45 days in the spring (April 1 through June 15) and will be activated for another 45 days in late summer/early fall. All snake species will be marked and measured, and all other non-target species will be identified, catalogued, and released. At the time of this report, no AWS has been observed in the Project Area. Prior surveys conducted in the Project Area have also failed to detect AWS (Swaim 1996 and Swaim 2006).

4.0 RESULTS

The Project Area is located in the southeast portion of the Oakland East USGS 7.5' Quadrangle map (USGS 2015), approximately seven miles southeast of downtown Oakland, and is bounded by Mountain Boulevard and Interstate 580 to the west, Keller Avenue to the north and east, and Sequoyah Road to the south. In general, topography in the Project Area is downsloping toward the southwest from a prominent ridge at the eastern side of the property. Elevations range from approximately 670 feet on the eastern ridge to 230 feet in the southwestern corner. The majority of the Project Area has been significantly altered from its natural state by previous infrastructure development associated with the former naval base and medical center, and subsequent abandonment and demolition. The majority of the Project Area is characterized by disturbed or planted vegetation types including non-native annual grassland, developed/ruderal vegetation, eucalyptus (*Eucalyptus globulus,* and *E. camaldulensis*) stands, and non-native/ornamental tree stands, which are generally situated in the previously developed, lower elevation areas with relatively flat topography. The eastern and southeastern portions of the Project Area are characterized by steep, hilly topography with relatively undisturbed, natural vegetation types, including coast live oak (*Quercus agrifolia*) woodland, California sagebrush (*Artemisia californica*) scrub, and native purple needlegrass (*Stipa pulchra*) grassland. Rifle Range Creek, a tributary of Arroyo Viejo, flows from north to south across the center of the Project Area and is bordered by riparian woodland. Surrounding land uses are primarily residential development, small local commercial centers, and regional open space.

4.1 Biological Communities

Table 3 summarizes the area of each biological community type observed in the Project Area. There are eight non-sensitive biological communities in the Project Area. Four sensitive biological communities are found in the Project Area: native purple needlegrass grassland, oak woodland, riparian woodland, and perennial/intermittent stream. Descriptions for each biological community are contained in the following sections. Biological communities within the Project Area are shown in Figure 2.

Table 3. Summary of Biological Communities in the Project Area

Community Type	Area within the Project Area (acres)	Area within the Limits of Disturbance (acres)
Non-sensitive biological communities		
Broom scrub	4.75	4.02
California sagebrush scrub	4.53	0.83
Developed/ruderal	58.84	55.72
Eucalyptus stand	12.70	12.14
Monterey pine woodland	4.35	2.65
Non-native annual grassland	28.07	27.17
Non-native/ornamental woodland	19.00	17.73
Planted purple needlegrass grassland	7.04	7.04
Sensitive biological communities		
Coast live oak woodland	28.89	16.61
Native purple needlegrass grassland	10.48	3.86
Perennial/intermittent stream	N/A (5,576 linear feet)	N/A (4,320 linear feet)
Riparian woodland	7.28	3.24
Total	**185.70**	**151.01**

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Oak Knoll Mixed Use Community Development Project

Alameda County, California

Study Area (185.70 acres)

Perennial/Intermittent Stream (3,655')

Culverted Perennial/Intermittent Stream (1,921')

Biological Communities

- Non-Native Annual Grassland (28.07 acres)
- Broom Scrub (4.75 acres)
- California Sagebrush Scrub (4.53 acres)
- Eucalyptus Stand (12.70 acres)
- Monterey Pine Woodland (4.35 acres)
- Coast Live Oak Woodland (28.89 acres)
- Riparian Woodland (7.28 acres)
- Non-Native/Ornamental (19.00 acres)
- Developed/Ruderal (58.84 acres)
- Native Purple Needlegrass Grassland (10.48 acres)
- Planted Purple Needlegrass Grassland (7.04 acres)

Figure 2.

Biological Communities

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Map Prepared Date: 9/3/2015
Map Prepared By: czumwalt
Base Source: USGS EROS
Data Source(s): WRA

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\July 2015\BiologicalCommunities20150721.mxd

4.1.1 Non-Sensitive Biological Communities

Non-native Annual Grassland

Non-native annual grassland typically occurs in open areas of valleys and foothills throughout California, usually on fine textured clay or loam soils that are somewhat poorly drained (Holland 1986), though it can occur on a variety of substrates. Within the Project Area, there are approximately 28.07 acres of non-native annual grassland. Elements of two different vegetation alliances/associations, as described by *A Manual of California Vegetation, Online Edition* (CNPS 2015b) occur in non-native grassland in the Project Area, but they are typically too small and/or too intermixed to map separately. These alliances/associations include *Avena (barbata, fatua)* Semi-Natural Herbaceous Stands (wild oats grasslands) and *Bromus* (*diandrus, hordeaceus*)—*Brachypodium distachyon* Semi-Natural Herbaceous Stands (annual brome grasslands). Non-native annual grassland occurs throughout the Project Area and is typically dominated by non-native annual grasses and forbs along with scattered native species, including slender oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), rattail fescue (*Festuca myuros*), English plantain (*Plantago lanceolata*), and longbeak stork's bill (*Erodium botrys*). Planted and naturally occurring tree and shrub species are present at low cover in parts of non-native annual grassland.

Planted Purple Needlegrass Grassland

Areas supporting at least 10% relative cover of purple needlegrass were mapped as needlegrass grassland. Planted purple needlegrass grassland occurs in areas where buildings were demolished in the Project Area. These areas were seeded post-demolition with native species, including purple needlegrass, as part of the Stormwater Pollution Prevention Plan (SWPPP). Purple needlegrass establishment was very successful in these areas, and the cover of this species is often dense. A total of 7.04 acres of planted purple needlegrass grassland are present in the Project Area, primarily in the western portion. It occurs in a variety of otherwise ruderal areas including former building locations and street medians. Purple needlegrass cover ranges from sparse to dense, and it co-occurs primarily with non-native annual grasses and forbs including slender oat, ripgut brome, rattail fescue (*Festuca myuros* [*Vulpia m.*]), English plantain, and longbeak stork's bill.

Developed/Ruderal

Although not described in the literature, developed/ruderal habitats include areas that have been heavily altered by humans and may contain built structures, landscaping, gravel roads, paved areas, or other non-natural surfaces. A total of 58.84 acres of developed/ruderal habitat is present throughout the Project Area. These areas are generally unvegetated, but may support sparse, primarily non-native vegetation including French broom (*Genista monspessulana*), ripgut brome, soft chess (*Bromus hordeaceus*), and yellow annual sweetclover (*Melilotus indicus*).

California Sagebrush

California sagebrush scrub is known from the outer Coast Ranges, western Transverse Range, and Peninsular Ranges from Marin County south to San Diego County. This vegetation community is typically located steep, well-drained slopes underlain by shallow alluvial and colluvial derived soils (CNPS 2015b). This community has been described variously as Northern Coastal Scrub (Holland 1986) and California sagebrush scrub (*Artemisia californica* Shrubland Alliance; rarity ranking G5 S5; CNPS 2015b). A total of 4.53 acres of California

sagebrush scrub occurs in two locations on steep slopes within coast live oak woodland in the southeastern portion of the Project Area. California sagebrush scrub appears to have experienced minimal disturbance from development and is relatively intact. Emergent coast live oak is present at low cover. The shrub canopy is dominated by California sagebrush, but other species are present, including coyote brush (*Baccharis pilularis* ssp. *consanguinea*), chamise (*Adenostoma fasciculatum* var. *fasciculatum*), and hairy manzanita (*Arctostaphylos crustacea* ssp. *crustacea*). Common herbaceous species in the interstitial areas between shrubs include ripgut brome, longbeak stork's bill, scarlet pimpernel (*Lysimachia arvensis*), and coffee fern (*Pellaea andromedifolia*).

Broom Scrub

Broom scrub dominated by French broom is known from disturbed places, shrublands, and forest openings throughout cismontane California (CNPS 2015b). French broom is a noxious weed rated by the California Invasive Plant Council (Cal-IPC) as having "high" potential to cause negative ecological impacts (Cal-IPC 2015). This community is described as broom patches (Broom Shrubland Semi-Natural Alliance) by *A Manual of California Vegetation, Online Edition* (CNPS 2015a). A total of 4.75 acres of broom scrub occur throughout the Project Area in small to large stands, generally in disturbed areas, but it occasionally occurs in relatively undisturbed areas in the southeast portion of the Project Area. The shrub canopy of this community is often dense, and other shrub species including coyote brush are present at low cover. Emergent trees, including coast live oak or various non-native species are present at low cover. Common herbaceous species include ripgut brome, soft chess, and bur medic (*Medicago polymorpha*).

Non-native/Ornamental Woodland

Although not described in the literature, non-native/ornamental woodland consists of a diverse array of native and non-native tree species that were historically planted as landscaping throughout the Project Area. As these trees have matured, and in some cases naturalized, significant non-native and ornamental tree cover has developed, ranging from open rows to dense forest. Commonly occurring trees include blackwood acacia (*Acacia melanoxylon*), ponderosa pine (*Pinus ponderosa*), Italian stone pine (*P. pinea*), and Deodar cedar (*Cedrus deodara*). Many of the non-native tree species are rated as invasive by the Cal-IPC (Cal-IPC 2015), such as blackwood acacia, olive (*Olea europaea*), cherry plum (*Prunus cerasifera*), California pepper (*Schinus molle*), and Brazilian pepper (*S. terebinthifolius*). Some native tree species, including coast live oak and California bay (*Umbellularia californica*), occur at low cover within landscaped/non-native woodland and forest. The understory is open to dense. Common understory shrub species include French broom and poison oak (*Toxicodendron diversilobum*). Common herbaceous species include ripgut brome, soft chess, and Italian ryegrass (*Festuca perennis*).

Monterey Pine Woodland

Native occurrences of Monterey pine woodland are restricted to three small stands on the Central Coast of California near Año Nuevo, on the Monterey Peninsula and at Cambria (CNPS 2015b). However, Monterey pine has been extensively planted throughout California and has naturalized outside of its native range. This community is described as Monterey Pine Forest by Holland (1986) and *A Manual of California Vegetation, Online Edition* (CNPS 2015b). This community occurs primarily in the central, eastern, and southern portions of the Project Area, primarily in a matrix of landscaped and developed areas. Though the majority of these stands appear to have been planted as landscape vegetation, in many cases, they have naturalized

and are expanding. Stands are typically small and discontinuous, density is open to dense, and most appear to be relatively even-aged. The overstory of these stands is typically composed entirely of Monterey pine. Common understory shrub species include poison oak, French broom, and coyote brush. Common understory herbaceous species include big quakinggrass (*Briza maxima*), ripgut brome, brome fescue (*Festuca bromoides*), and soft chess.

Eucalyptus Stand

Blue gum (*Eucalyptus globulus*) and other eucalyptus species have been planted as individual trees, groves, and windbreaks throughout California and have naturalized in upland and riparian areas. This community is described as Eucalyptus grove (*Eucalyptus globulus, E. camaldulensis* Woodland Semi-Natural Alliance) by *A Manual of California Vegetation, Online Edition* (CNPS 2015b). Blue gum (*Eucalyptus globulus*) is the most common species, but river redgum (*E. camaldulensis*), and red ironbark (*E. sideroxylon*) may also be present. Blue gum and river redgum are noxious weeds with a Cal-IPC rating of "limited" (Cal-IPC 2015). Eucalyptus stands occur throughout the Project Area, primarily in a matrix of landscaped and developed areas. Though the majority of these stands appear to have been planted as landscape vegetation, in many cases, they have naturalized and are expanding. Stand density ranges from open to dense and most stands are tall and mature. Common understory shrub species include poison oak, French broom, and coyote brush. Common understory herbaceous species include ripgut brome, Italian ryegrass, and bur medic.

4.1.2 Sensitive Biological Communities

Native Purple Needlegrass Grassland

Native purple needlegrass grassland is known from the Central Valley, Coast Ranges, Transverse Ranges, and South Coast from Del Norte County south to San Diego County. This vegetation community is typically located in valleys and hillslopes on many aspects underlain by deep clay substrate in the Central Valley and shallow, rocky substrate in coastal areas (CNPS 2015b). This community is described variously as Valley needlegrass grassland (Holland 1986) and Purple needlegrass grassland (*Stipa pulchra* [*Nasella p.*] Herbaceous Alliance; Rarity ranking G4, S3?; CNPS 2015b). Within the Project Area, areas supporting at least 10% relative cover of purple needlegrass were mapped as needlegrass grassland. Native purple needlegrass grassland occurs in relatively intact habitat on the eastern ridge as well as in some of the heavily disturbed habitat (see above description of planted needlegrass areas). Purple needlegrass cover ranges from sparse to dense and it co-occurs primarily with non-native annual grasses and forbs including slender oat, ripgut brome, rattail fescue, English plantain, and longbeak stork's bill. However, several native species are also present, including naked buckwheat (*Eriogonum nudum* var. *nudum*), foothill plantain (*Plantago erecta*), hairy gumweed (*Grindelia hirsutula*), and Wrangel's lotus (*Acmispon wrangelianus* [*Lotus w.*]). Native purple needlegrass grassland has a sensitivity ranking of G4 S3?, indicating that it is apparently globally secure but vulnerable in California (CDFW 2015, NatureServe 2010).

Riparian Woodland

Riparian woodland occurs on and adjacent to the banks of Rifle Range Creek and its tributaries. This community contains elements of the communities described as Central coast live oak riparian forest (Holland 1986) and Coast live oak woodland (*Quercus agrifolia* Woodland Alliance; Rarity ranking G5, S4; CNPS 2015b). The overstory is generally dense and the understory is generally open. The overstory is composed primarily of coast live oak, though

other tree species are present at low cover, including white alder (*Alnus rhombifolia*) and red willow (*Salix laevigata*). Common understory shrub species include poison oak and California blackberry (*Rubus ursinus*). Common understory herbaceous species include dogtail grass (*Cynosurus echinatus*), poison hemlock (*Conium maculatum*), and hedge parsley (*Torilis arvensis*). This community is regulated by the CDFW under the CFGC (Section 1600 et seq.).

Coast Live Oak Woodland

Coast live oak woodland is known from the outer and inner Coast Ranges, Transverse Ranges, and southern coast from northern Mendocino County south to San Diego County. This vegetation community is typically located on terraces, canyon bottoms, slopes, and flats underlain by deep, well-drained sandy or loam substrates with high organic content (CNPS 2015b). Coast live oak woodland occurs in upland settings throughout the Project Area. In the western and central portions of the Project Area, it occurs mainly as small patches in a matrix of landscaped and developed areas. In the northeastern and southeastern portions of the Project Area, larger, more contiguous stands of oak woodland occur. Some of these larger stands appear to predate development in the Project Area and have a higher diversity of native plant species compared to elsewhere in the Project Area. The overstory is composed of dense coast live oak with occasional California bay. The understory is relatively open. Common understory shrub species include poison oak and French broom. Common understory herbaceous species include bracken fern (*Pteridium aquilinum* var. *pubescens*), California maidenhair fern (*Adiantum jordanii*), and wall barley (*Hordeum murinum* ssp. *murinum*). Coast live oak woodland has a sensitivity ranking of G5 S4 indicating that it is globally secure and apparently secure in California; however, coast live oak trees are protected per the City of Oakland Tree Protection Ordinance. Additionally, coast live oak is listed as locally rare (A2) by the East Bay CNPS Chapter. Although it is a common species in Alameda and Contra Costa counties, coast live oak was included on the locally rare list because "many trees [are] being attacked by Sudden Oak Death" (Lake 2010).

Perennial/Intermittent Stream

The Project Area comprises six reaches of Rifle Range Creek and two associated tributaries, Powerhouse Creek and Hospital Creek. Rifle Range Creek is a perennial stream, while the associated tributaries are characterized by intermittent hydrology.

4.2 Special-Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 3.2.1, 51 statewide special-status plant species have been documented in the vicinity of the Project Area. The Project Area has the potential to support seven of these species. Appendix C summarizes the potential for occurrence for each statewide special-status plant species occurring in the vicinity of the Project Area. One statewide special-status plant species, Oakland star-tulip, was observed in the Project Area during the assessment site visit. Six other statewide special-status plant species were considered to have a moderate potential to occur in the Project Area. The remaining statewide species documented to occur in the vicinity of the Project Area are unlikely or have no potential to occur. Statewide special-status plant species that are present or were considered to have moderate potential to occur in the Project Area are discussed below. In addition, locally rare species observed in the Project Area are also discussed below. Statewide special-status plant species documented within 5 miles of the Project Area in the CNDDB are shown in Figure 3.

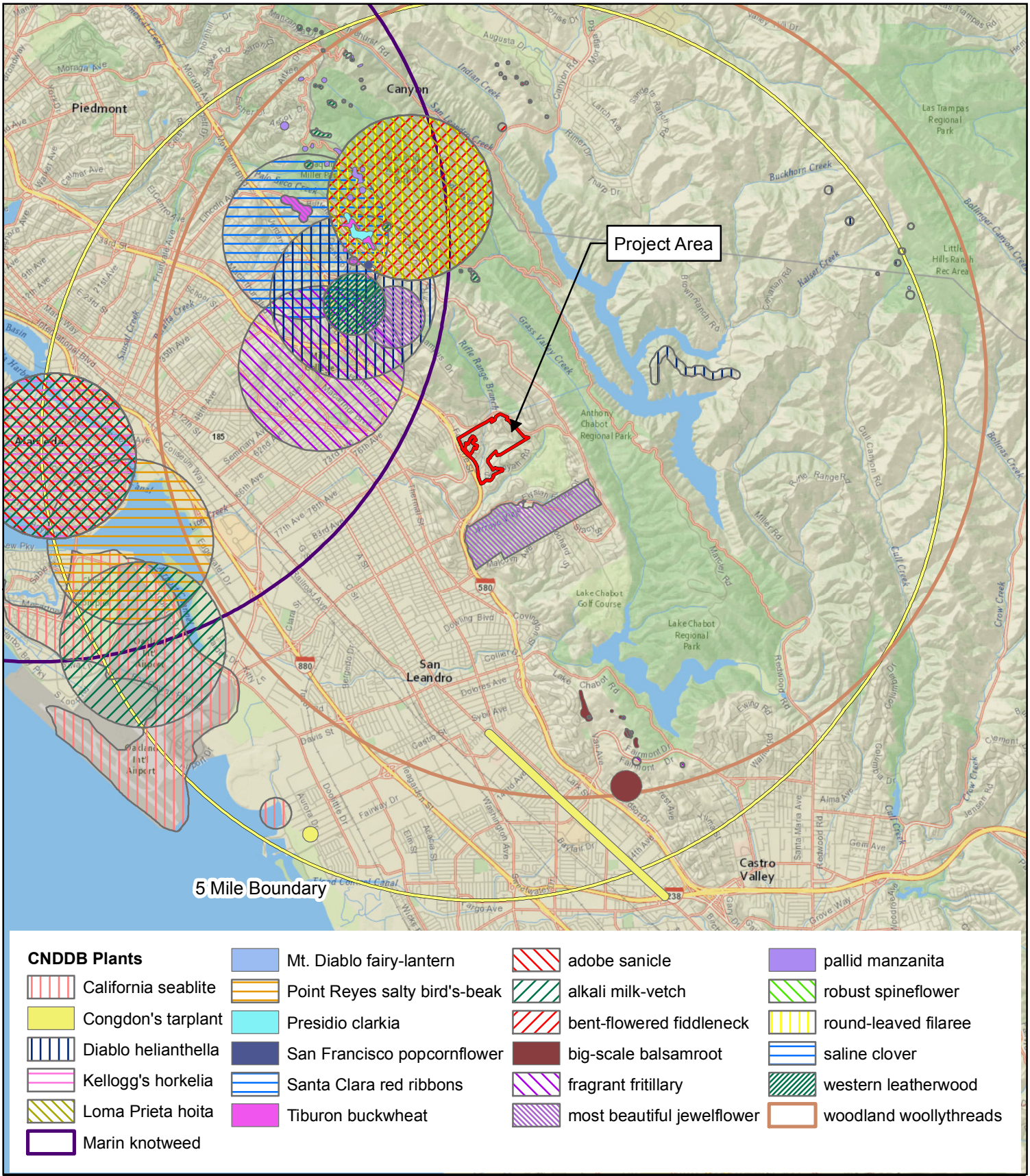

Figure 3. Special Status Plant Species within 5 miles of the Project Area

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Oak Knoll Mixed Use Community Development
Alameda County, California

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Map Prepared Date: 7/22/2015
Map Prepared By: Fhourigan
Base Source: National Geographic
Data Source(s): CNDDB (December 2014)

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\July 2015\CNDDB Plants.mxd

Oakland star-tulip (*Calochortus umbellatus*). Rank 4.2. Present. Oakland star-tulip is a perennial herb in the lily family (Liliaceae) that blooms from March to May. It typically occurs in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland, often on serpentine substrate, at elevations ranging from 330 to 2,300 feet (100 to 700 meters; CDFW 2015b, CNPS 2015b). Observed associated species include Sargent cypress (*Hesperocyparis sargentii*), musk brush (*Ceanothus jepsonii*), manzanita (*Arctostaphylos* sp.), leather oak (*Quercus durata*), and chamise (CCH 2015).

This species is known from 17 USGS 7.5 minute quadrangles in Alameda, Contra Costa, Lake, Marin, Santa Clara, Santa Cruz, San Mateo, and Stanislaus counties. Oakland star-tulip is present in scattered to dense concentrations in the eastern portion of the Project Area in the understory of Monterey pine forest, coast live oak forest, coastal scrub, and in non-native annual grassland. A reference site at Temescal Regional Park was visited on March 15 and 25, 2015, prior to surveying the Project Area on March 25, and Oakland star-tulip was in full bloom.

Approximately 723 individuals of Oakland star-tulip were observed in the southeast portion of the Project Area in Monterey pine woodland, coast live oak woodland, native purple needlegrass grassland, and California sagebrush scrub. Observed associated species in the Project Area include Monterey pine, coast live oak, French broom, California sagebrush, and checker lily (*Fritillaria affinis*). The locations of observed Oakland star-tulip plants are shown in Figure 4.

Bent-flowered fiddleneck (*Amsinckia lunaris*). Rank 1B.2. Moderate Potential. Not Present. Bent-flowered fiddleneck is an annual forb in the forget-me-not family (Boraginaceae) that blooms from March to June. It typically occurs in open areas within cismontane woodland, valley and foothill grassland, and coastal bluff scrub habitat often underlain by clay substrate at elevations ranging from 10 to 1625 feet (CDFW 2015b, CNPS 2015b, Jepson Flora Project 2015). Observed associated species include coast live oak, blue oak (*Quercus douglasii*), California juniper (*Juniperus californicus*), buck brush (*Ceanothus cuneatus*), poison oak, miniature lupine (*Lupinus bicolor*), foothill lotus (*Acmispon brachycarpus* [*Lotus humistratus*]), Wrangel's lotus, fringe pod (*Thysanocarpus curvipes*), q-tips (*Micropus californicus*), cream cups (*Platystemon californicus*), slender tarweed (*Madia gracilis*), common yarrow (*Achillea millefolium*), goldenback fern (*Pentagramma triangularis*), one-sided bluegrass (*Poa secunda*), woolly sunflower (*Eriophyllum lanatum*), and slender wild oat (CDFW 2015b).

Bent-flowered fiddleneck is known from 38 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties (CNPS 2015b). There are two CNDDB (CDFW 2015) records in the greater vicinity of the Project Area and three CCH (2015) records from Alameda County. The nearest documented occurrence is from March 1932, on the southern slopes of Redwood Ridge, approximately 2.75 miles north of the Project Area (CDFW 2015b). The most recent documented occurrence is from April 2008, along Rocky Ridge Road on Rocky Ridge, approximately 4.5 miles west of the Project Area (CDFW 2015b). Bent-flowered fiddleneck was considered to have a moderate potential to occur in the Project Area in areas of grassland and open woodland habitat that are relatively undisturbed and have known associated species. A reference site for this species was not visited because of lack of access. However, this species was not observed in the Project Area during the March and April surveys and is therefore considered not present.

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Oak Knoll Mixed Use Community Development Project

Alameda County, California

Figure 4.

Special Status Plant Species

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Map Prepared Date: 7/22/2015
Map Prepared By: CZumwalt
Base Source: USGS EROS
Data Source(s): WRA

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\July 2015\OaklandStarTulipCommunties20150721.mxd

Big-scale balsamroot (*Balsamorhiza macrolepis*). Rank 1B.2. Moderate Potential. Not Present. Big-scale balsamroot is a perennial herb in the sunflower family (Asteraceae) that blooms from March to June. It typically occurs on thin, rocky substrates sometimes derived from serpentine or volcanics in cismontane woodland and valley and foothill grassland habitat at elevations ranging from 295 to 3100 feet (CDFW 2015b, CNPS 2015b, Jepson Flora Project 2015). This species has a serpentine affinity rank of strong indicator (2.5) (Safford et al. 2005). Observed associated species include California onion grass (*Melica californica*), one-sided blue grass, soap plant (*Chlorogalum pomeridianum* ssp. *pomeridianum*), narrow-leaf mule's ears (*Wyethia angustifolia*), fairy mist (*Pterostegia drymarioides*), and barestem biscuitroot (*Lomatium nudicaule*) (CDFW 2015b).

This species is known from 38 USGS 7.5-minute quadrangles in Alameda, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, and Tuolumne Counties (CNPS 2015b). There are two CNDDB (CDFW 2015b) records in the greater vicinity of the Project Area, and nine CCH (2015) records from Alameda County. The nearest and most recent documented occurrence is from 2002, on Fairmont Ridge, approximately 3.25 miles southeast of the Project Area (CDFW 2015b). Big-scale balsamroot was considered to have a moderate potential to occur in the Project Area due to the presence of relatively undisturbed cismontane woodland and grassland habitats that have known associated species. A reference site at Fairmont Ridge was visited on April 20, 2015, prior to surveying the Project Area on April 20, and big-scale balsamroot was in full bloom. However, this species was not observed in the Project Area during the March and April surveys and is therefore considered not present.

Western leatherwood (*Dirca occidentalis*). CNPS Rank 1B.2. Moderate Potential. Not Present. Western leatherwood is a deciduous shrub in the mezereum family (Thymelaeaceae) that blooms from January to April, but is typically identifiable via vegetative structures into late summer and/or early fall. It typically occurs on brushy, mesic slopes in partial shade in broadleaf upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland habitat at elevations range from 165 to 1285 feet (CDFW 2015b, CNPS 2015b, Jepson Flora Project 2015). Observed associated species include coast live oak, California bay, Pacific madrone (*Arbutus menziesii*), California coffeeberry (*Frangula californica* [*Rhamnus c.*]), poison oak, toyon (*Heteromeles arbutifolia*), California buckeye (*Aesculus californica*), California hazelnut (*Corylus cornuta*), coyote brush, yerba buena (*Clinopodium douglasii* (*Satureja d.*), sword fern (*Polystichum munitum*), Pacific sanicle (*Sanicula crassicaulis*), and Douglas iris (*Iris douglasiana*) (CNDDB 2015b).

Western leatherwood is known from 19 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties (CNPS 2015b). There are four CNDDB (CDFW 2015b) records in the greater vicinity of the Project Area and 92 CCH (2015) records from Alameda County. The nearest occurrence is from 1925, on the summit of Skyline Ridge, approximately 1 mile north of the Project Area (CCH 2015). The most recent documented occurrence is from January 2014, at Redwood Regional Park, approximately 3 miles north of the Project Area (CDFW 2015b). Western leatherwood was considered to have a moderate potential to occur in the brushy, shaded slopes, and mesic areas in the Project Area due to the presence of associated species in suitable habitat; and proximity of nearby occurrences. A reference site at Redwood Regional Park in Oakland was visited on March 14 and 25, 2015, prior to surveying the Project Area on March 25. By March 25, this species was primarily past bloom, and some plants were in fruit. All were fully leafed out and identifiable by vegetative characteristics and the occasional presence of sexual reproductive structures.

However, this species was not observed during protocol-level rare plant surveys in March and April and is therefore considered not present.

Fragrant fritillary (*Fritillaria liliacea*). Rank 1B.2. **Moderate Potential.** Fragrant fritillary is a low-growing, bulbiferous perennial forb in the lily family (Liliaceae) that blooms from February to April. It typically occurs in open, grassy areas in valley and foothill grassland, coastal scrub, and coastal prairie habitat at elevations ranging from 10 to 1,345 feet (CDFW 2015b, CNPS 2015b). Soil survey data at known locations suggest that this species is typically located on moderately acid (pH 5.8) to neutral (pH 6.7) clay loams to clays derived from volcanics or serpentine (CDFW 2015b, CSRL 2015). This species has a serpentine affinity rank of weak indicator (1.8) (Safford et al. 2005). Observed associated species include soap plant, coyotebrush, purple, California oat grass (*Danthonia californica*), large flowered star tulip, California buttercup (*Ranunculus californicus*), sun cups (*Camissonia ovata*), shooting stars (*Dodecatheon hendersonii*), needleleaf pincushion plant (*Navarretia intertexta*), one-sided bluegrass, and Greene's popcornflower (*Plagiobothrys greenei*) (CDFW 2015b).

Fragrant fritillary is known from 47 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Marin, Monterey, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties (CNPS 2015b). There are six CNDDB (CDFW 2015b) records in greater vicinity of the Project Area and 11 CCH (2015) records from Alameda County. The nearest documented occurrence is from April 1920, in near Mills College in Oakland, approximately two miles northwest of the Project Area (CDFW 2015b). The most recent documented occurrence is from March 2010, in Anthony Chabot Regional Park, approximately 3 miles south of the Project Area (CDFW 2015b). Fragrant fritillary is considered to have a moderate potential to occur in the Project Area because of the presence of suitable grassland and woodland habitats and known associated species. A reference site was visited at Diablo Foothills Regional Park on February 15 and 22 and March 29, 2015, prior to survey the Project Area on March 25. This species was abundant and in full bloom in February, but by March 29; only a small number of individuals were observable and they were in fruit. This species was not observed during rare plant surveys in March and April; however, the survey timing was considered to be too late to be able to adequately detect this species. An appropriately timed, focused, pre-construction survey in suitable habitat (native needlegrass grassland) is recommended for this species.

Diablo helianthella (*Helianthella castanea*); Rank 1B.2. Moderate Potential. Not Present. Diablo helianthella is a perennial herb in the sunflower family (Asteraceae) that blooms from March to June. It typically occurs in broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations ranging from 200 to 4270 feet. Observed associated species include California sagebrush, buck brush (*Ceanothus cuneatus*), black sage (*Salvia mellifera*), slender wild oat, wild oat (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), bracken fern, and purple needlegrass (CDFW 2015b).

Diablo helianthella is known from 19 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Marin, San Francisco, and San Mateo counties (CNPS 2015b). There are six CNDDB (CDFW 2015b) records in the greater vicinity of the Project Area, and six CCH records from Alameda County (CCH 2015). The nearest documented occurrence is from April 1894, at Laundry Farm, approximately 2 miles northwest of the Project Area (CDFW 2015b). The most recent documented occurrence is from March 2002, on Fairmont Ridge, approximately 3.5 miles south of the Project Area. Diablo Helianthella was considered to have a moderate potential to occur in grassland and woodland habitats. A reference site was visited at Diablo Foothills Regional Park on March 29, 2015, and at Fairmont Ridge on April 20, 2015, prior to surveying the Project Area

on March 29 and April 20, 2015, respectively. This species was in full bloom on March 29, and on April 20, it was past bloom but still identifiable. However, this species was not observed during rare plant surveys in March and April and is therefore considered not present.

Bristly leptosiphon (*Leptosiphon acicularis*); Rank 4.2. Moderate Potential. Not Present. Bristly leptosiphon is an annual forb in the phlox family (Polemoniaceae) that blooms from April to July. It typically occurs in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland habitat at elevations ranging from 175 to 4875 feet (CNPS 2015b). Observed associated species include bird's-eyes (*Gilia tricolor*), true babystars (*Leptosiphon bicolor*), redstem filaree (*Erodium cicutarium*), purple needlegrass, European hair grass (*Aira caryophyllea*), short pod lotus, Spanish lotus (*Acmispon americanus* [*Lotus purshianus*]), and miniature lupine (A. Arthur, pers. comm. 2015).

Bristly leptosiphon is known from 14 USGS 7.5-minute quadrangles in Alameda, Butte, Contra Costa, Fresno, Humboldt, Lake, Marin, Mendocino, Napa, Santa Clara, San Mateo, and Sonoma counties (CNPS 2015b). There are no CNDDB (CDFW 2015) records within the greater vicinity of the Project Area, and seven CCH (2015) records from Alameda County. The nearest documented occurrence is from June 1893, at Laundry Farm, approximately two miles northwest of the Project Area (CCH 2015). The most recent documented occurrence is from May 1921, in Hayward, approximately 9.5 miles southeast of the Project Area (CCH 2015). Bristly leptosiphon was considered to have a moderate potential to occur in the Project Area due to the presence of suitable habitat and the relatively close location of the nearest documented occurrence. A reference site a Knowland Park was visited on April 19, 2015, prior to surveying the Project Area on April 20, but the location information of the occurrence was vague and this species was not observed. This species was not observed during rare plant surveys in March and April and is therefore considered not present.

Locally rare species observed in the Project Area

Four locally rare species were observed in the Project Area:

- Oakland star-tulip (*A2)
- Slender-footed sedge *(Carex leptopoda*; A1*)*
- Douglas' iris (*Iris douglasiana*; A2)
- Coast live oak (A2)

Oakland star-tulip is discussed above. A single slender-footed sedge individual was observed in a disturbed upland area adjacent to Rifle Range Creek, and several Douglas's iris plants were observed in the native needlegrass grassland habitat near the base of the knoll. Coast live oak is common in the Project Area. It occurs at high density in coast live oak woodland and riparian woodland. It also occurs at low cover in most other biological communities. Although it is a common species in Alameda and Contra Costa counties, coast live oak was included on the locally rare list because "many trees [are] being attacked by Sudden Oak Death" (Lake 2010).

4.2.2 Wildlife

Sixty-seven special-status wildlife species have been documented in the vicinity of the Project Area. Appendix C summarizes the potential for each of these species to occur in the Project Area. Special-status wildlife species which have been documented within five miles of the Project Area are shown in Figure 5.

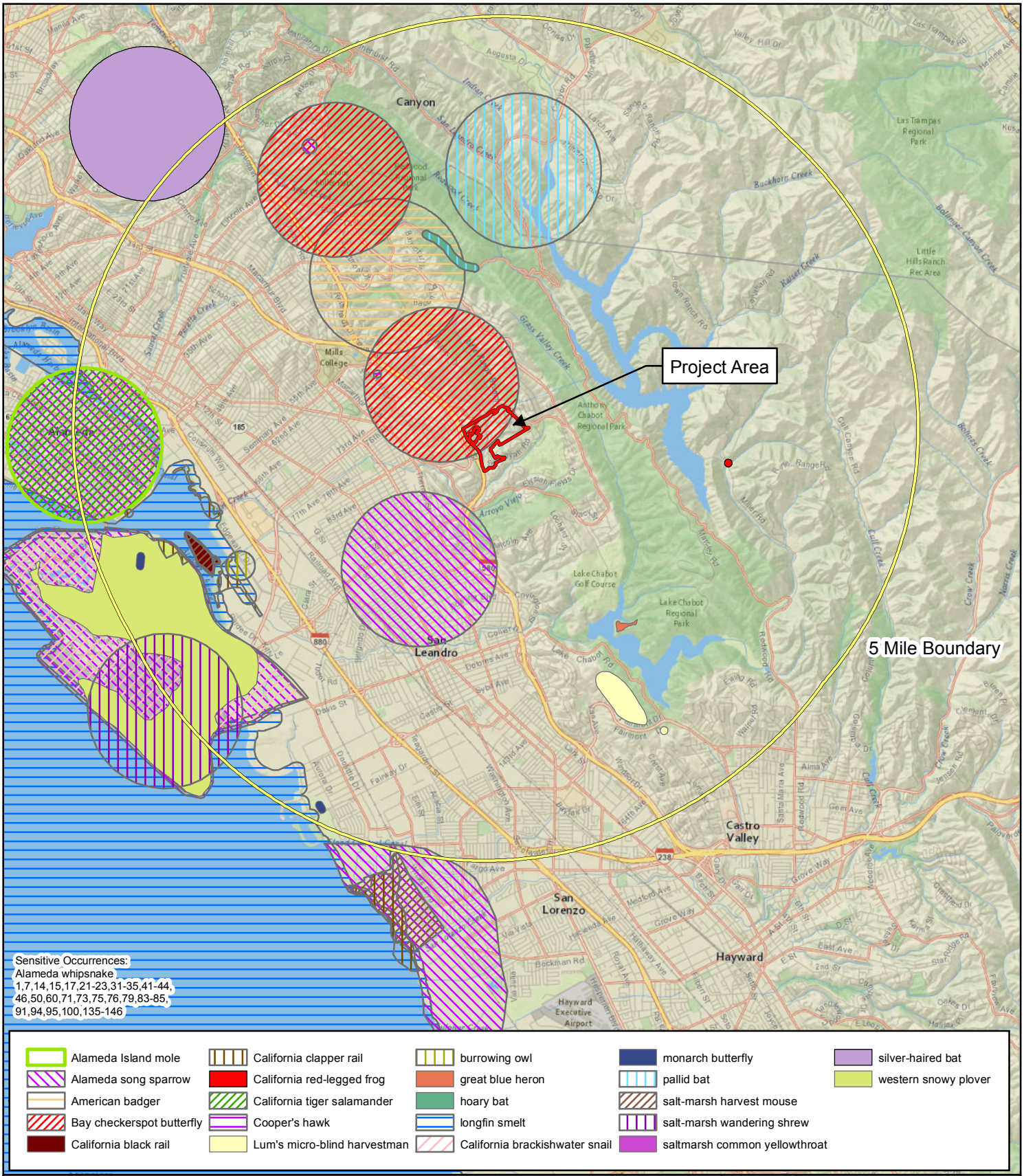

Figure 5. Special Status Wildlife Species within 5 miles of the Study Area

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Oak Knoll Rare Species Report
Alameda County, California

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Miles

Map Prepared Date: 9/3/2015
Map Prepared By: czumwalt
Base Source: National Geographic
Data Source(s): CNDDB (December 2014)

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\July 2015\CNDDB Wildlife.mxd

Two special-status wildlife species were observed in the Project Area during the site assessment: Nuttall's woodpecker (*Picoides nuttallii*) and oak titmouse (*Baeolophus inornatus*). Four additional special-status wildlife species have a moderate or high potential to occur in the Project Area. Special-status wildlife species which have a high or moderate potential to occur in the Project Area include: San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), yellow warbler (*Setophaga petechia*), olive-sided flycatcher (*Contopus cooperi*), oak titmouse, Nuttall's woodpecker, and Allen's hummingbird (*Selasphorus sasin*). These species are discussed in greater detail later in this section.

The majority of the special-status wildlife species found in the review of background literature were determined to have no potential, or to be unlikely to occur within the Project Area based on a lack of suitable habitat.

Species such as burrowing owl (*Athene cunicularia*) require ground squirrel burrows and low stature open grassland for nesting and foraging. During the site visit, no ground squirrels, ground squirrel burrows, or burrow surrogates such as pipes or material piles were observed. Low stature grasslands are also absent as a majority of the open areas are former building foundations which provide no burrows or structure to support burrowing owls.

Bat species common to the area also require specialized habitat features. Abandoned buildings have been removed and no unoccupied buildings are now found within the Project Area. Without the presence of abandoned buildings or habitat features such as mines, caves, rock crevices, or large specialized trees, none of the eight species of bat known to occur near to the Project Area have a moderate or high potential to occur on-site.

California tiger salamanders (*Ambystoma californiense*) breed in natural ephemeral pools, or ponds that mimic ephemeral pools (stock ponds that go dry), and occupy upland habitats surrounding the breeding pool as adults. The Project Area does not contain suitable vernal pools or seasonal ponds that could support breeding by the species. Additionally, the Project Area is devoid of suitable burrow or upland habitat that could support estivation by the species. Considering the absence of suitable breeding or estivation habitats, it is unlikely that California tiger salamander will occur on-site.

Appendix B documents the observations of other wildlife species which were encountered during the site visit. Among the species observed were non-special-status native bird species. The nests of native bird species are protected by the MTBA, as well as CFGC. Destroying active bird nests, eggs, and/or young is illegal. Many of the species observed are adapted to living in urban environments and may nest within or on buildings, trees and other vegetation throughout the Project Area during the nesting season.

<u>Special-Status Wildlife Species with Potential to Occur in the Project Area</u>

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), CDFW Species of Special Concern. High Potential. This subspecies of the dusky-footed woodrat occurs in the Coast Ranges between San Francisco Bay and the Salinas River (Matocq 2003). Occupied habitats are variable and include forest, woodland, riparian areas, and chaparral. Woodrats feed on woody plants, but will also consume fungi, grasses, flowers and acorns. Foraging occurs on the ground and in bushes and trees. This species constructs robust stick houses/structures in areas with moderate cover and a well-developed understory containing woody debris. Breeding takes place from December to September. Individuals are active year-round, and generally nocturnal. Fragments of wooded habitat may provide sufficient habitat

complexity and diversity to support the species. In addition, during tree surveys which occurred during the spring of 2015, middens or houses constructed by woodrats were observed within the Project Area.

Yellow warbler (*Setophaga petechia*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. The yellow warbler is a neotropical migrant bird that is widespread in North America, but has declined throughout much of its California breeding range. The Brewster's (*brewsteri*) subspecies is a summer resident and represents the vast majority of yellow warblers that breed in California. West of the Central Valley, typical yellow warbler breeding habitat consists of dense riparian vegetation along watercourses, including wet meadows, with willow growth especially being favored (Shuford and Gardali 2008). Insects comprise the majority of the diet. Riparian vegetation along Rifle Branch Creek may be of sufficient density to support nesting by the species.

Olive-sided Flycatcher (*Contopus cooperi*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. The olive-sided flycatcher is a summer resident in California, wintering in Central and South America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (Altman and Sallabanks 2012). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species usually forages for insects from prominent tree snags. The Project Area contains habitat mosaics between patches of wooded habitat and open ground which may support nesting and foraging by the species. In addition local accounts of this species have been recorded within 0.25 miles of the Project Area (eBird 2015).

Oak titmouse (*Baeolophus inornatus*), USFWS Bird of Conservation Concern. Present. This relatively common species is year-round resident throughout much of California including most of the coastal slope, the Central Valley and the western Sierra Nevada foothills. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas. The oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own (Cicero 2000). Seeds and arboreal invertebrates make up the birds' diet. Trees within the Project Area are of sufficient age and complex structure to support small cavities which may be used by the species for nesting. During the May 22, 2015 site visit the species was observed foraging within the Project Area.

Nuttall's woodpecker (*Picoides nuttallii*). USFWS Bird of Conservation Concern. Present. Nuttall's Woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. This species forages on a variety of arboreal invertebrates. Trees within the Project Area are of sufficient age and complex structure to support small cavities which may be used for nesting by the species. During the May 22, 2015 site visit the species was observed foraging within the Project Area.

Allen's hummingbird (*Selasphorus sasin*). USFWS Bird of Conservation Concern. High Potential. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California and the Channel Islands. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and

eucalyptus and cypress groves (Mitchell 2000). It feeds on nectar, as well as insects and spiders. This species is a common resident within this portion of its range. Trees and wooded habitat within the Project Area are of sufficient density and diversity to support nesting by the species. This species has been observed and recorded within 0.25 miles of the Project Area (eBird 2015).

Federally Listed Wildlife Species Considered Unlikely to Occur in the Project Area

Federally listed species that are documented within the vicinity of the Project Area, but are unlikely to occur include: Alameda whipsnake and California red-legged frog (*Rana draytonii*). These species are discussed below.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*). Federal Threatened Species, State Threatened Species. Alameda Whipsnake was listed as California State Threatened on June 6, 1971, Federal Threatened December 5, 1997 (62 FR 64306-64320), and critical habitat was designated October 2, 2006 (71 FR 58176-58231). The range of the Alameda whipsnake is restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties (USFWS 2012). The historical range of AWS has been fragmented into five disjunct populations: Tilden-Briones, Oakland-Las Trampas, Hayward-Pleasanton Ridge, Sunol-Cedar Mountain, and the Mount Diablo-Black Hills (USFWS 2012). The AWS is associated with scrub communities, including mixed chaparral, chamise-redshank chaparral, coastal scrub, and annual grassland and oak woodlands that lie adjacent to scrub habitats that contain areas of rock outcroppings. Rock outcroppings are important as they are a favored location for lizard prey. Whipsnakes frequently venture into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland.

Alameda whipsnake is unlikely to be present within the Project Area because of a lack of habitat connectivity, extremely limited suitable habitat, and no detections during two prior surveys of the Project Area (Swaim 1996 and Swaim 2006).

The Project Area is surrounded by urban development. Only a small portion in the north borders undeveloped habitat. However, at the point of connectivity, the Project Area is bound by Keller Avenue, a heavily traveled four-lane road which represents a significant barrier to dispersal. Because the Project Area is isolated in all other areas by a minimum of 0.25 mile of urban development, including homes and roads, there is poor habitat connectivity and no dispersal habitat which would allow the species to establish from outside of the Project Area.

Isolated fragments of coyote brush scrub, coast live oak woodland, and non-native ruderal grassland are intersected by existing roadways throughout the entirety of the Project Area. The high levels of disturbance degrade habitat quality throughout the Project Area and the Project Area is dominated by developed or ruderal grassland habitats. In addition, prior AWS surveys conducted in the Project Area have failed to detect AWS (Swaim 1996 and Swaim 2006). Another protocol-level AWS is currently being conducted. The spring 2015 trapping session is complete and no AWS have been detected to date; the fall trapping session is scheduled to begin in August 2015. If the species is not confirmed during the fall 2015 trapping season, then three protocol-level trapping surveys will have resulted in negative findings for the presence of the species, confirming that the species is unlikely to be present in the Project Area.

California Red-legged Frog (*Rana draytonii*). Federal Threatened Species. CDFW Species of Special Concern. The California red-legged frog (CRLF) was listed as Federally Threatened on May 23, 1996 (61 FR 25813-25833). Critical Habitat for the CRLF was

designated on April 13, 2006 (71 FR 19243-19346), and the revised designation was finalized on March 17, 2010 (75 FR 12815-12959). A Recovery Plan for the CRLF was published by the USFWS on May 28, 2002.

There are four primary habitat types which are used by CRLF throughout their life cycles. The primary habitat types include: aquatic breeding habitat; non-breeding aquatic habitat; upland habitat; and dispersal habitat (USFWS 2010).

Aquatic breeding habitat consists of low-gradient fresh water bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. Aquatic non-breeding habitat may or may not hold water long enough for this species to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLF. Non-breeding aquatic features enable CRLF to survive drought periods, and disperse to other aquatic breeding habitat (USFWS 2010). Upland habitats include areas within 300 feet of aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. Upland habitat can include structural features such as boulders, rocks and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010). Dispersal Habitat includes accessible upland or riparian habitats between occupied locations within 0.7 mile of each other that allow for movement between these sites. Dispersal habitat includes various natural and altered habitats such as agricultural fields, which do not contain barriers to dispersal. Moderate to high-density urban or industrial developments, large reservoirs and heavily traveled roads without bridges or culverts are considered barriers to dispersal (USFWS 2006).

California red-legged frog is unlikely to be found within the Project Area because of a lack of connectivity to populations outside of the Project Area, the absence of suitable upland and dispersal habitat within the Project Area, and extensive historical development within the Project Area.

The Project Area is surrounded by urban development and only a small portion of the Project Area in the north borders undeveloped habitat. Additionally, Keller Avenue, a heavily traveled four-lane road separates the Project Area from the undeveloped habitat to the north and is considered a significant barrier to amphibian dispersal (USFWS 2001). The dispersal barriers isolate the Project Area, and make it unlikely for CRLF to successfully disperse into the Project Area.

The nearest occurrence of this species was recorded in 2008 and is located east of Upper San Leandro Reservoir, approximately three miles from the Project Area. Located between the nearest occurrence and the Project Area is a solid band of urban development extending for approximately 0.75 mile. The high level of development surrounding the Project Area and separating it from nearby occurrences, combined with the lack of habitat connectivity mentioned above, makes the Project Area inaccessible to source populations of CRLF.

The primary source of open grassland within the Project Area is old building foundations which have been overgrown by ruderal vegetation. These areas do not provide the upland features required to support CRLF estivation. The grasslands do not provide suitable burrows, subterranean complexity, or suitable ground cover to support estivation by the species.

Rifle Range Branch Creek runs through the Project Area and has been significantly modified. Significant portions of the creek have been routed into underground culverts, including in the

upper watershed immediately off-site and in the lower reaches as the main channel leaves the Project Area. Additionally, adjacent development has substantially reduced the abundance and quality of riparian habitat in the Project Area. This level of modification combined with the developed roads between segments of creek eliminates suitable dispersal habitat for the species within the Project Area.

Based on the lack of habitat connectivity to occupied habitat, a lack of upland habitat with suitable structure to support estivation as well as a lack of dispersal habitat, and extensive development of the Project Area, we conclude CRLF are unlikely to be present in the Project Area. This conclusion concurs with findings for the project EIR (Naval Facilities Engineering Command and City of Oakland 1998) and the findings by the Department of the Navy (1998) which both concurred that CRLF was not present.

Foothill yellow-legged frog (*Rana boylii*), USFWS species of special concern, CDFW species of special concern

Foothill yellow-legged frogs require shallow streams and rivers with sunny banks and large boulders for basking, and prefer some cobble sized substrate (Jennings and Hayes, 1994). They are found in forest, chaparral, and woodland habitats. Riffle habitat is important.

According to the EIR (Naval Facilities Engineering Command and City of Oakland 1998), foothill yellow-legged frogs could exist in the riparian areas. However, based on the recent surveys, substantial channel alteration and adjacent development to within less than 25 feet of the riparian corridor has resulted in substantial impacts to the stream channel including bed and bank erosion, channel incision, sedimentation in pools, and loss of riffle habitat. Basking habitat such as sunny banks and large boulders were absent in all but the furthest upstream reaches. Extensive underground culverting of the stream both in the upper watershed immediately off-site and in the lower reaches as the main channel leaves the Project Area prevent dispersal fragment the creek making it unlikely that the species could disperse between creek habitat patches. Based on these findings, the species is unlikely to be present in the Project Area.

5.0 POTENTIAL IMPACTS, AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

5.1 Project Description

Overall Project Description

Oak Knoll is a Master Planned Residential Community Development Project ("Project") that would develop up to 935 residential units, including a range of single-family housing types, townhomes, and multifamily units that would be developed throughout the Project Area (Figure 6). A Village Center would provide a variety of neighborhood-serving retail of approximately 72,000 square feet of locally serving commercial uses and the highest density housing. The Project would also create approximately 75 to 85 acres of publicly accessible open space comprising an extensive network of parks, trails, and walkways that would weave through the Project Area, connecting various neighborhoods within the Project Area with adjacent open space areas and neighborhoods.

Development of the Project Area would involve up to 3 million cubic yards of grading (including approximately half of the amount as corrective grading required for existing unstable areas and grading associated with the proposed creek improvements), with the goal of "balancing" the grading on the site. As a result, the development would require the removal of approximately

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Oak Knoll Mixed Use Community Development
Alameda County, California

Figure 6.

Overall Site Plan

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Not to Scale

Map Prepared Date: 3/17/2015
Map Prepared By: czumwalt
Base Source:
Data Source(s):

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3,000 to 5,000 trees and replacement with several thousand trees. The Project would take place in multiple phases over approximately five to ten years, with initial phase of work commencing in 2016.

The only portion of the Project that would involve impacts to jurisdictional waters is the proposed restoration and enhancement of Rifle Range Creek and its tributaries. This component of the Project is discussed in greater detail below. Please also refer to the Riparian Restoration and Monitoring Plan (WRA 2015c) for additional details.

Proposed Restoration Activities

The Restoration Project Area comprises six reaches of Rifle Range Creek and two associated tributaries, Powerhouse Creek and Hospital Creek (Figure 7). In addition, three in-stream wetlands are present within Rifle Range Creek. The six reaches of Rifle Range Creek have been numbered from 1 to 6 starting at the downstream end. Currently, Rifle Range Creek is composed of both open channel sections and culverted sections. Active erosion is evident in the creek channel and along both banks. Channel incision has resulted in a deepened channel with over-steepened banks. The channel has an average grade of approximately three percent within the Project Area.

The overall restoration approach is to daylight all four of the culverts in the Project reach; remove non-native vegetation and replant with native plants; remove existing obsolete infrastructure (e.g. stormdrain outfalls), trash and construction debris from the channel and banks; stabilize headcuts in two deeply incised reaches that threaten upstream areas; and use a combination of grading and biotechnical methods to stabilize actively eroding bank areas that are too steep to support riparian vegetation. A total of 1,010 feet of culverted channel would be daylighted and restored, approximately 450 feet of existing channel would be realigned laterally and restored, and a 40-foot wide clear span bridge would be added over one of the realigned sections. Overall, the Project would result in a net increase of both jurisdictional other waters and riparian habitats.

Earthwork and grading activities are proposed to reduce bank slopes, reduce the channel gradient, and stabilize the creek banks. A total of 436 cubic yards of fill covering 0.22 acre would be placed within the OHWM of the creek to re-align and stabilize the channel and to reduce the channel gradient. Fill material would consist of clean cobbles and gravels as well as logs and boulders for grade control. Additional fill would be required above the OHWM to create the floodplain terraces and stabilize creek banks.

Grading would be required to reduce channel slopes and to establish suitable conditions for the installation of stabilization structures and plantings. Grading activities would include re-profiling the creek banks, and roughening the channel to stabilize major knick points and provide continuity of the channel gradient. The newly restored channel would typically consist of a 12-foot-wide low flow channel, a floodplain terrace up to 40-feet-wide, and channel banks at between 1.5:1 and 3:1 slopes. Appropriate native vegetation would be selected based on slope characteristics and proximity to the creek.

In order to reduce the channel gradient and the associated stresses placed on the channel bed, the restoration project would include the installation of a series of steps as grade controls in selected locations along the length of the channel, including log drops and boulder step pools. These steps would be primarily located in daylight reaches where the steepness of the culvert to be removed necessitates grade control to create a stable slope.

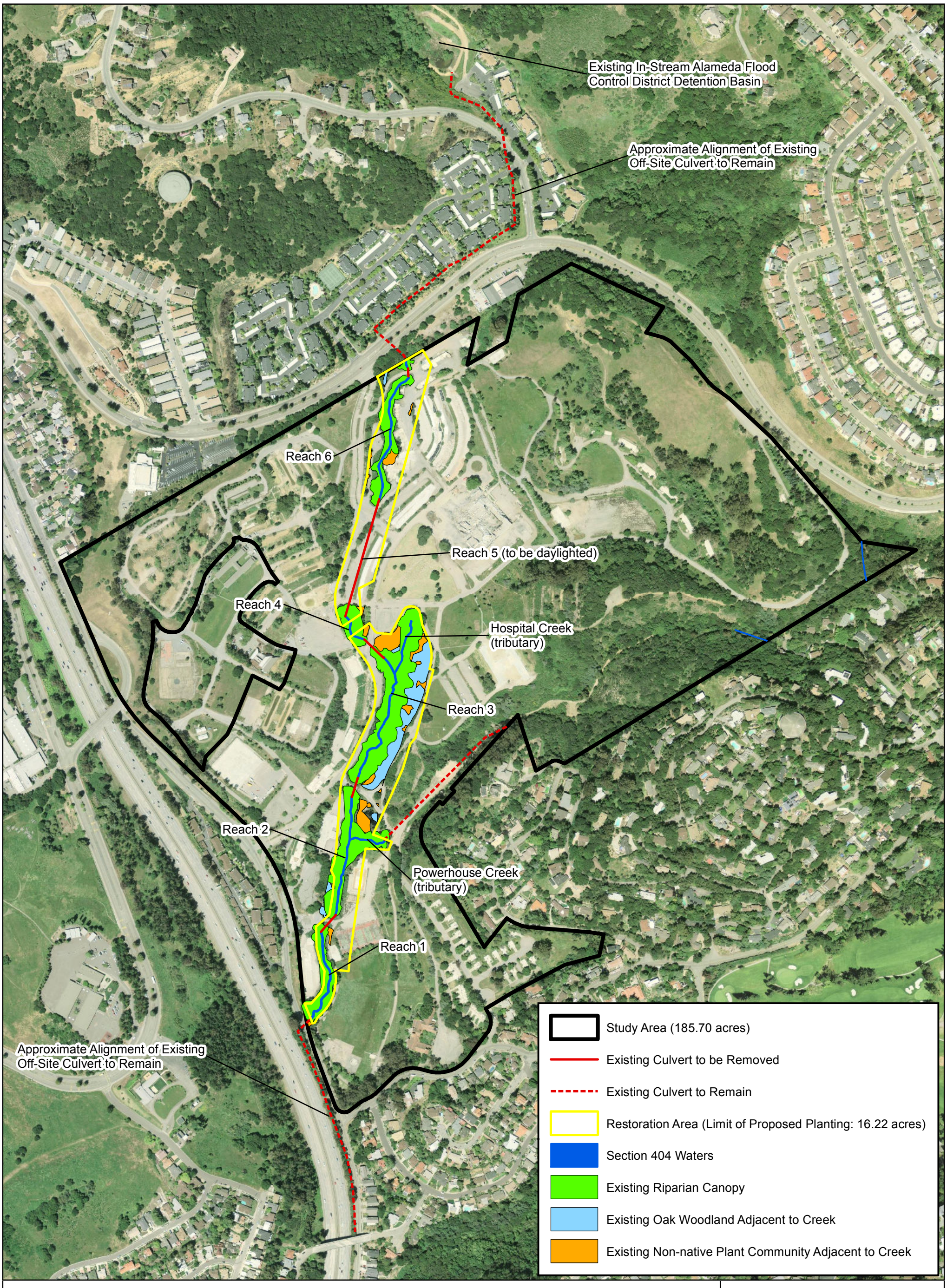

Figure 7. Creek and Riparian Overview Map

Oak Knoll Development
Alameda County, California

Oak Knoll Venture Acquisition LLC
2392 Morse Avenue
Irvine, CA 92614

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Map Prepared Date: 9/3/2015
Map Prepared By: czumwalt
Base Source: USGS EROS 2013
Data Source(s): WRA

Path: L:\Acad 2000 Files\15000\15103-5\GIS\ArcMap\July 2015\Figure 7 Creek Overview.mxd

Excavation work is proposed along Reach 5. This portion of the creek is currently piped underground through a 636-foot-long culvert. Reach 5 would be daylighted by reconstructing an open channel. Culverts and fill material associated with road crossings would also be removed from this reach. The creek would be reconstructed and a bridge with a 60-foot span over the channel would be installed at the downstream end of Reach 5.

Timing of Construction Activities

Rifle Range Creek would be restored concurrently with infrastructure construction for the larger redevelopment project. Grading of the creek banks and channel would begin at the downstream end of Reach 1 and would proceed upstream to Reach 6. Prior to grading within each reach, the perennial creek flow would be diverted into a suitably sized temporary culvert and routed around the work area such that downstream flows are maintained throughout the work period. Upon completion of grading work within a reach, flows would be returned to the newly restored channel. There is likely to be an overlap in the timing of some work efforts between adjacent creek reaches.

Extensive erosion and sediment control measures would be installed along the banks and at the downstream end of each channel reach prior to the initiation of any work on that reach. These protective measures would be maintained beyond the completion of creek and bank grading work until banks are vegetated or otherwise permanently protected from erosive forces.

Revegetation of the creek banks with native trees, shrubs, and grasses would likely take place in September and October prior to the start of the rainy season. It is likely that all six reaches of the restored Rifle Range Creek would be planted concurrently.

5.2 Significance Threshold Criteria

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

This report utilizes these thresholds in the analysis of impacts and determination of the significance of those impacts. The assessment of impacts under CEQA is based on the changes caused by the Project relative to the existing conditions in the Project Area. The existing conditions in the Project Area are described above, based on surveys conducted in 2015. In applying CEQA Appendix G, the terms "substantial" and "substantially" are used as the basis for significance determinations in many of the thresholds, but are not defined qualitatively or quantitatively in CEQA or in technical literature. In some cases, such as direct impacts to special-status species listed under the CESA or ESA, the determination of a substantial impact may be relatively straightforward. In other cases, the determination is less clear, and requires application of best professional judgment based on knowledge of site conditions as well as the ecology and physiology of biological resources present in a given area. Determinations of whether or not Project activities will result in a substantial adverse effect to biological resources are discussed in the following sections for sensitive biological communities, special-status plant species, and special-status wildlife species.

5.3 Potentially Significant Impacts

Sensitive Biological Communities

Impact BIO-1: Impacts to riparian woodland

The Project would impact approximately 3.24 acres of riparian woodland habitat due to re-grading associated with the restoration of Rifle Range Creek and its tributaries (Figure 8). Although this area will be re-planted and restored as part of the Project, there will be a temporary loss of habitat during construction and a reduction in habitat quality for the first few years following re-establishment. This habitat is regulated by CDFW under Sections 1600-1616 of the CFGC. As such, this impact would be potentially significant under CEQA (criterion B). A mitigation measure (MM BIO-1) for impacts to riparian woodland is discussed below in Section 5.4. With implementation of MM BIO-1 this impact would be less than significant.

Impact BIO-2: Impacts to Waters of the United States

The Project will temporarily or permanently impact 4,320 linear feet of perennial/intermittent stream habitat due to temporary dewatering and water diversion through the work area, and/or placement of fill to improve stream bank stability (see Table 4 below and Figure 8). These stream and wetland features are regulated by, and would require permits from, the Corps under Section 404 of the CWA, the RWQCB under section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and the CDFW under Sections 1600-161 of the CFGC. The Project would also require a Creek Protection Permit from the City of Oakland.

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Oak Knoll Mixed Use Community Development Project

Alameda County, California

Project Area

Limit of Disturbance

Biological Communities

- Non-Native Annual Grassland (28.07 acres)
- Broom Scrub (4.75 acres)
- California Sagebrush Scrub (4.53 acres)
- Eucalyptus Stand (12.70 acres)
- Monterey Pine Woodland (4.35 acres)
- Coast Live Oak Woodland (28.89 acres)
- Riparian Woodland (7.28 acres)
- Non-Native/Ornamental (19.00 acres)
- Developed/Ruderal (58.84 acres)
- Native Purple Needlegrass Grassland (10.48 acres)
- Planted Purple Needlegrass Grassland (7.04 acres)

Figure 8.

Project Impacts

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Feet

Map Prepared Date: 7/28/2015
Map Prepared By: czumwalt
Base Source: USGS EROS
Data Source(s): WRA

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Table 4. Impacts to Waters of the United States

Jurisdictional Area	Temporary Impacts[1]		Permanent Impacts[2]		
	Linear Feet	Acres	Linear Feet	Acres	Cubic Yards
Rifle Range Creek (includes 0.02 acre of in-stream wetland)	1,395	0.22	1,384	0.21	415
Powerhouse Creek	147	0.02	54	0.01	14
Hospital Creek Waters of the United States (includes 0.01 acre of in-stream wetland)	289	0.04	10	<0.01	7
Total Waters of the United States	**1,831**	**0.28**	**1,448**	**0.22**	**436**
Culverted Waters	1,041	0.11	n/a	n/a	n/a
Total Jurisdictional Waters	**2,872**	**0.39**	**1,448**	**0.22**	**436**

[1]Temporary impacts include the following activities: (1) temporary dewatering/water diversion during construction; and (2) temporary re-grading where the channel will be returned to its existing elevation and alignment.
[2]Permanent impacts include the following activities: (1) fill for channel realignment; (2) installation of rock step pools and logs for grade control and erosion protection; and (3) channel roughening for grade control.

However, the Project would ultimately result in a net increase in aquatic area (see Table 5 below). Additionally, potential impacts to water quality would be avoided and minimized by adhering to BMPs and permit conditions established by the Corps, RWQCB, and CDFW. As such, this impact would be less than significant.

Table 5. Existing and Proposed Habitats in the Restoration Area

Habitat	Pre-Restoration (Existing)	Post Restoration (Proposed)
Waters of the United States (unculverted)	3,279 linear feet; 0.50 acre	4,302 Linear feet; 1.19 acres
Waters of the United States (culverted)	1,921 linear feet; 0.21 acre	911 linear feet; 0.11 acre
Total Waters	5,200 linear feet; 0.72 acre	5,213 linear feet; 1.30 acres
Riparian Habitat (including riparian edge)	8.04 acres	15.97 acres

Impact BIO-3: Impacts to coast live oak woodland

The Project would result in the conversion/development of 16.61 acres of coast live oak woodland habitat (Figure 8). Coast live oak woodland receives consideration under CEQA based on its regional rarity and listing status on the East Bay CNPS Chapter's list of "Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties (Lake 2010). As such, this impact would be potentially significant under CEQA (criteria A and B). A potential mitigation measure (MM BIO-1) for impacts to coast live oak woodland is discussed below in Section 5.4. With implementation of MM BIO-1 this impact would be less than significant.

Impact BIO-4: Impacts to native purple needlegrass grassland

The Project would result in the conversion/development of 3.86 acres of native purple needlegrass grassland (Figure 8). Native purple needlegrass grassland receives consideration under CEQA because it is considered a sensitive plant community by the CDFW and is locally uncommon. However, purple needlegrass grassland is relatively common in the Project vicinity with an estimated several hundred acres occurring in parks and open space areas within a 5-

mile radius of the Project Area (e.g. at Knowland Park, Anthony Chabot/Fairmont Ridge, Skyline Serpentine Prairie Preserve, and Upper San Leandro Reservoir/Las Trampas Ridge). At least 250 acres of needlegrass grassland have been mapped at three sites in the vicinity (Fairmont Ridge, Knowland Park, and Skyline Serpentine Prairie). No detailed mapping has been conducted at other sites, but it is likely that there are many more acres of purple needlegrass grassland in the vicinity. The occurrences in nearby parks and open spaces are also generally of much higher quality than the habitat found in the Project Area, which is relatively fragmented and generally co-dominated by non-native annual grasses and forbs, with few native forbs. Additionally, the majority (6.62/10.48 acres) of the purple needlegrass in the Project Area will not be impacted by development and will be preserved. As such, this impact would be less than significant.

Impact BIO-5: Removal of protected trees

The Project would result in the removal of approximately 3,000-5,000 trees, most of which are protected under the City of Oakland's Tree Protection Ordinance. The Project will obtain a tree removal permit from the City prior to the removal of these trees. As such, this impact would not conflict with local policies or ordinances (CEQA significance criterion E). Mitigation measures associated with the Ordinance are summarized below in Section 5.4 (see MM BIO-2). With implementation of MM BIO-2 this impact would be less than significant.

Special-Status Plant Species

Impact BIO-6: Impacts to Oakland star-tulip

The Project would permanently impact an estimated 723 individuals of Oakland star-tulip (California Rare Plant Rank 4.2 and locally rare [A2]) due to planned grading and conversion of suitable habitat to developed areas (Figure 4 and Figure 8). A California Rare Plant Rank of 4.2 indicates that this species has a limited distribution and is "moderately threatened" in California. A local listing of A2 indicates that this species "occurs in six to nine regions or are otherwise threatened in Alameda and Contra Costa counties." According to the CNPS guidelines (CNPS 2015), few, if any, Rank 4 species are eligible for state listing under CESA; however, impacts may be considered significant under CEQA in special cases. Examples of impacts that may be considered significant under CEQA include:

- Impacts to the type locality of a California Rare Plant Rank 4 plant;
- Impacts to populations at the periphery of a species' range;
- Impacts in areas where the taxon is especially uncommon;
- Impacts in areas where the taxon has sustained heavy losses; or
- Impacts to populations exhibiting unusual morphology or occurring on unusual substrates.

However, none of these special considerations apply in this case. Oakland star-tulip is relatively widespread and common throughout the East Bay hills. For example, this species has been documented in at least nine of the East Bay Regional Parks including: (1) Sobrante Ridge, (2) Wildcat, (3) Tilden, (4) Claremont Canyon, (5) Temescal, (6) Redwood, (7) Leona Heights, (8) Anthony Chabot, and (9) Las Trampas (East Bay Regional Park District 2015). The vast majority of suitable habitat for this species is currently protected as open space by the East Bay Regional Park District. This species is also widespread in Marin County and has been documented as far north as Lake County and as far south as Stanislaus County (CNPS 2015). As such, this impact would be less than significant.

Impact BIO-7: Impacts to fragrant fritillary

Although not identified in the Project Area during the 2015 protocol-level rare plant survey, the timing of the surveys was determined to be too late to adequately be able to detect fragrant fritillary based on reference site visits. Without a valid survey we cannot definitely conclude that this species is absent from the Project Area. This species is uncommon in the East Bay and has only been recently documented at one location, Fairmont Ridge, in the East Bay hills region. Therefore, if present in the Project Area, impacts to this species could be significant under CEQA (criterion A). A mitigation measure (MM BIO-3) for impacts to riparian woodland is discussed below in Section 5.4. With implementation of MM BIO-3 this impact would be less than significant.

Impact BIO-7: Impacts to locally rare species

In addition to coast live oak (Impact BIO-3) and Oakland star-tulip (Impact BIO-5), the Project has the potential to impact the following locally rare species:

- Slender-footed sedge (A1)
- Douglas' iris (A2)

CEQA states that "special emphasis should be placed on environmental resources that are rare or unique to that region." However, impacts to Douglas' iris would be minimal. The on-site population is relatively small (less than 100 individuals) and this species has been documented in at least ten locations in the East Bay including nearby parks such as Joaquin Miller, Redwood, and Anthony Chabot (Lake 2010). The vast majority of suitable and occupied habitat in the East Bay is already protected by the East Bay Regional Park District and the East Bay Municipal Utilities District. As such, the Project would not substantially adversely affect this species persistence in the East Bay and impacts would be less than significant.

Impacts to slender-footed sedge are potentially significant under CEQA (criterion A) due to the regional rarity of this species. While common in other regions of the state, it has only been documented from two locations in the East Bay (Joaquin Miller and Redwood Regional Park). Only a single individual was identified in the Project Area; however, it is possible that additional plants are present, because the identity and status of this species was not confirmed until after the rare plant survey was completed. A mitigation measure (MM BIO-4) for impacts to slender-footed sedge is discussed below in Section 5.4. With implementation of MM BIO-4 this impact would be less than significant.

<u>Special-Status Wildlife Species</u>

Impact BIO-7: Impacts to San Francisco dusky-footed woodrat

The Project has the potential to impact San Francisco dusky-footed woodrats. The Project may affect this species by killing or injuring the species during the removal of vegetation or houses used by woodrats, or by causing disturbance of a sufficient level to cause abandonment of an active nest. These impacts would be potentially significant under CEQA. A potential mitigation measure (MM BIO-5) for impacts to San Francisco dusky-footed woodrat is discussed below in Section 5.4. With implementation of MM BIO-5 this impact would be less than significant.

Impact BIO-8: Impacts to Special-status and Non-special-status Nesting Birds

The Project has the potential to impact five special-status bird species: yellow warbler, olive-sided flycatcher, oak titmouse, Nuttall's woodpecker, and Allen's hummingbird. The Project may also affect non-special-status native nesting birds which are protected by the MTBA and CFCG.

The Project may affect these species by modifying nesting habitat, or by causing disturbance of a sufficient level to cause abandonment of an active nest. Potential impacts to these species and their habitats could occur during the removal of vegetation and structures, grading, or ground-disturbing activities. These activities could result in the direct removal or destruction of the active nests of protected bird species. These activities may also create audible, vibratory and/or visual disturbances which cause birds to abandon active nests.
Activities that result in the direct removal of active nests or disturbance to breeding birds sufficient to result in the abandonment of active nests would be potentially significant under CEQA. A potential mitigation measure (MM BIO-6) for impacts to nesting birds is discussed below in Section 5.4. With implementation of MM BIO-6 this impact would be less than significant.

5.4 Mitigation Measures

Sensitive Biological Communities

MM BIO-1: Compensatory mitigation for impacts to riparian woodland and coast live oak woodland

The oak woodland habitat in the Project Area, including the riparian woodland, is generally of medium to low quality due to the fragmented nature and the abundance of non-native, invasive species. Therefore, riparian/oak woodland habitat shall be mitigated for at a 2:1 ratio (preserved/established area : impacted area). This ratio is consistent with guidance issued under the Oak Woodlands Conservation Act. Although the Oak Woodlands Conservation Act is only applicable in unincorporated areas under County jurisdiction and is not applicable to the Project, it provides a useful framework for evaluating significance under CEQA and determining appropriate mitigation ratios.

Potential mitigation options include the following: (1) planting replacement trees, (2) establishing a conservation easement to protect existing woodland habitat, and/or (3) paying an in-lieu fee to a natural resource agency or nonprofit organization. If an in-lieu fee is used, there must be a direct nexus between the amount of fees paid and mitigation required in terms of oak tree replacement and oak woodland preservation[1]. If habitat is preserved and/or established for mitigation, a Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared. The HMMP will include a detailed description of restoration/enhancement/preservation actions proposed; restoration performance criteria for each biological parameter (i.e., native/invasive plants, wildlife use); and proposed monitoring/maintenance plan for each biological parameter to evaluate restoration performance criteria.

[1] The amount of the in-lieu fee shall be determined either by calculating the value of the land with oak woodland habitat proposed for removal, or by some other calculation developed by a qualified biologist in collaboration with the California Department of Fish and Game. This alternate calculation shall reflect differences in the quality of habitat proposed for removal, and may consider the cost of comparable habitat (fee title or easement) in nearby areas.

MM BIO-2: Compensatory mitigation for tree removal

The City of Oakland Tree Protection Ordinance requires replacement plantings to mitigate for the loss of functions provided by protected trees including shade, erosion control, groundwater replenishment, visual screening, and wildlife habitat. Replacement trees shall be planted in accordance with the following criteria from the Ordinance:

1) No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.
2) Replacement tree species shall consist of coast redwood (*Sequoia sempervirens*), coast live oak, madrone, California buckeye, or California bay.
3) Replacement trees shall be of twenty-four (24) inch box size, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.
4) Minimum planting areas must be available on site as follows:
   a. For Sequoia sempervirens, three hundred fifteen square feet per tree;
   b. For all other species listed in subsection (B)(2) of this section, seven hundred (700) square feet per tree.
5) In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee as determined by the master fee schedule[2] of the city may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

Plantings shall be installed prior to the issuance of a certificate of occupancy, subject to seasonal constraints, and shall be maintained by the applicant until established. The Tree Reviewer may require a landscape plan showing the replacement planting and the method of irrigation. Any replacement planting which fails to become established within one year of planting shall be replanted at the applicant's expense.

Special-Status Plant Species

MM BIO-3: Pre-construction survey for fragrant fritillary

Prior to vegetation removal and/or ground disturbance within the Project Area, a pre-construction survey for fragrant fritillary shall be conducted by a qualified biologist in all suitable habitats (i.e. native purple needlegrass grassland). Surveys shall be conducted during the appropriate time of year (February to March) to accurately identify any Fritillaria to species. If any fragrant fritillary plants are identified in the work area they shall be flagged and avoided with a minimum 20-foot buffer. However, if avoidance is not feasible, seeds shall be collected and a fragrant fritillary population shall be re-established at a minimum 1:1 ratio (number of plant established : number of plants impacted) in preserved, suitable habitat. Re-established populations shall be monitored annually in accordance with an approved HMMP for a minimum of five years. If re-established fails to meet the minimum success criteria established by the HMMP after five years, the Project shall pay an in-lieu fee of $5,000 to the East Bay Regional

[2] The City of Oakland Master Fee Schedule for the 2014-2015 fiscal year currently lists the fee as $325 per tree removed.

Park District to enhance and expand existing populations of fragrant fritillary. The in-lieu fee will also contribute to the long-term protection and monitoring of existing populations of fragrant fritillary on East Bay Regional Park District land.

MM BIO-4: Pre-construction survey for slender-footed sedge

Prior to vegetation removal and/or ground disturbance within the Project Area, a pre-construction survey for slender-footed sedge shall be conducted by a qualified biologist in all suitable habitats (i.e. riparian woodland habitat). Surveys shall be conducted during the appropriate time of year (April to August) to accurately identify any sedges to species. If any slender-footed sedges are identified in the work area they shall be flagged and avoided with a minimum 20-foot buffer. However, if avoidance is not feasible, seeds shall be collected and/or mature plants shall be transplanted and populations of slender-footed sedge shall be re-established at a minimum 1:1 ratio (number of plant established : number of plants impacted) in preserved, suitable habitat. Re-established populations shall be monitored annually in accordance with an approved HMMP for a minimum of five years. If re-established fails to meet the minimum success criteria established by the HMMP after five years, the Project shall pay an in-lieu fee of $5,000 to the East Bay Regional Park District to enhance and expand existing populations of slender-footed sedge. The in-lieu fee will also contribute to the long-term protection and monitoring of existing populations of slender-footed sedge on East Bay Regional Park District land.

<u>Special-Status Wildlife Species</u>

MM BIO-5: Pre-construction survey for San Francisco dusky-footed woodrat

For the protection of San Francisco dusky-footed woodrats: prior to vegetation removal and/or ground disturbance within the Project Area, a pre-construction survey for woodrat structures/houses shall be conducted by a qualified biologist. Any woodrat structures found during the survey shall be flagged and avoided to the fullest extent feasible. If avoidance is not possible, then structures to be impacted shall be dismantled by hand under the supervision of a qualified biologist. If woodrat young are encountered during the dismantling process, the material shall be placed back on the house, and a work exclusion buffer of at least 20 feet placed around the structure. The structure shall remain unmolested for at least two weeks in order to allow the young to mature and leave the nest of their own accord. After the avoidance period, the nest dismantling process may begin again. Nest material shall then be moved to adjacent vegetated areas that will not be disturbed.

MM BIO-6: Pre-construction surveys for nesting birds and nest avoidance

For the protection of special status bird species and bird species protected by the Migratory Bird Treaty Act and Fish and Game Codes, Project activities shall occur during the non-breeding bird season to the extent feasible (September 1 – January 31). However, if vegetation removal, grading, or initial ground-disturbing activities must occur during the breeding season (February 1 through August 31), a survey for active bird nests shall be conducted by a qualified biologist no more than 14 days prior to the start of these activities. The survey shall be conducted in a sufficient area around the work site to identify the location and status of any nests that could potentially be affected by Project activities.

If active nests of protected species are found within Project impact areas or in close proximity to affect breeding success, a work exclusion zone shall be established around each nest by a

qualified biologist. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes vary dependent upon bird species, nest location, existing visual buffers and baseline ambient sound levels, and other factors; an exclusion zone radius may be as small as 50 feet (for common, disturbance-adapted species) or as large as 250 feet or more for raptors. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities outside the reduced radius are not adversely impacting the nest.

6.0 REFERENCES

Altman, B, and R Sallabanks. 2012. Olive-sided Flycatcher (*Contopus cooperi*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/502

Baldwin, BG, DH Goldman, DJ Keil, R Patterson, TJ Rosatti, and DH Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley, CA.

[Cal-IPC] California Invasive Plant Council. 2015. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Available online at: http://www.cal-ipc.org/paf/. Most recently accessed: July 2015.

[CCH] Consortium of California Herbaria. 2015. Data provided by the participants of the Consortium of California Herbaria. Available online at: http://ucjeps.berkeley.edu/consortium/. Most recently accessed: July 2015.

[CDFG] California Department of Fish and Game. 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, Sacramento, CA.

[CDFG] California Department of Fish and Game. 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code. Environmental Services Division, Sacramento, CA.

[CDFW] California Department of Fish and Wildlife. 2015. California Natural Diversity Database (CNDDB). Wildlife and Habitat Data Analysis Branch, Sacramento, CA.

Cicero, C. 2000. Oak Titmouse (*Baeolophus inornatus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/485a

[CNPS] California Native Plant Society. 2015a. Inventory of Rare and Endangered Plants of California. California Native Plant Society, Sacramento, California. Available online at: http://www.rareplants.cnps.org. Most recently accessed: July 2015.

[CNPS] California Native Plant Society. 2015b. A Manual of California Vegetation, Online Edition. Sacramento, California. Available online at: http://vegetation.cnps.org/. Most recently accessed: May 2015.

[Corps] United States Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.

[Corps] United States Army Corps of Engineers and the Environmental Protection Agency. 2007. U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook.

[CSRL] California Soil Resources Lab 2015. Online Soil Survey. Online at: http://casoilresource.lawr.ucdavis.edu/drupal/. Most recently accessed: July 2015.

Department of Navy. 1998. Record of Decision for the Disposal and Reuse of Naval Medical Center, Oakland, CA. Vol. 63, No. 165. August 26, 1998.

East Bay Regional Park District. 2015. Park-Specific Wild Plant Checklists. Available online at: http://www.ebparks.org/about/stewardship/plants/checklist. Most recently accessed July 2015.

eBird. 2015. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available online at: http://www.ebird.org. Most recently accessed: July 2015.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Erikson, CH and D Belk. 1999. Fairy Shrimps of California's Puddles, Ponds and Playas. Mad River Press, Inc., Eureka, CA.

Google Earth. 2015. Aerial Imagery 1993-2015. Most recently accessed: July 2015.

Hayes, M. P. and D. M. Krempels. 1986. Vocal sac variation among frogs of the genus Rana from western North America. Copeia 1986(4):927-936.

Holland, RF. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Game, Sacramento, CA.

Information Center for the Environment (ICE). 2015. Distribution Maps of Fishes in California. Department of Environmental Science and Policy, University of California, Davis. Online at: http://ice.ucdavis.edu/aquadiv/fishcovs/fishmaps.html. Most recently accessed: May 2015.

Jennings, M. R. and M. P. Hayes. 1985. Pre-1900 overharvest of California red-legged frogs (Rana aurora draytonii): The inducement for bullfrog (*Rana catesbeiana*) introduction. Herpetological Review 32(1):94-103.

Jennings, MR and MP Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game. Sacramento, CA.

Jennings, MR. 2004. An Annotated Check List of Amphibians and Reptile Species of California and Adjacent Waters, third revised edition. California Department of Fish and Game, Sacramento, CA.

Jepson Flora Project (eds.). 2015. Jepson eFlora. Available online at: http://ucjeps.berkeley.edu/IJM.html. Most recently accessed July 2015.

Lake, D. 2010. Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties, 8th Edition. California Native Plant Society, East Bay Chapter. March 15, 2010.

Lowther, Peter E. 2000. Nuttall's Woodpecker (*Picoides nuttallii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:http://bna.birds.cornell.edu/bna/species/555

Matocq, M. 2003. Dusky-footed Woodrats (*Neotoma fuscipes*) at Hastings: A Research Tradition. Hastings Natural History Reservation. Available online at: http://www.hastingsreserve.org/Woodrats/DFwoodrats.html.

Mitchell, DE. 2000. Allen's Hummingbird (*Selasphorus sasin*), The Birds of North America Online (A Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:http://bna.birds.cornell.edu/bna/species/501.

NatureServe. 2010. NatureServe Conservation Status. Available online at: http://explorer.natureserve.org/ranking.htm.

Naval Facilities Engineering Command and City of Oakland. 1998. Final Environmental Impact Statement/ Environmental Impact Report. Disposal and Reuse of Naval Medical Center, Oakland. 1998. April.

[NETR] Nationwide Environmental Title Research. 2015. Historic Aerials. Available online at: http://www.historicaerials.com/. Most recently accessed: July 2015.

[NRCS] Natural Resources Conservation Service. 2010. Field Indicators of Hydric Soils in the United States, version 7.0. In cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.

Oak Knoll Coalition. 2015. History and Timeline. Available online at: http://www.oakknollcoalition.org/. Most recently accessed: July 2015.

Oak Woodland Conservation Act. 2004. State of California Public Resources Code, Division 13, Chapter 2.6, Section 21083.4.

Richmond, B., H. Green, D. C. Rice, H. Peeters. 2011. Alameda County breeding Bird Atlas. Golden Gate Audubon Society. 219 p.

Safford, H.D., J.H. Viers, and S.P. Harrison. 2005. Serpentine Endemism in the California Flora: A Database of Serpentine Affinity. Madroño, vol52(4): pp. 222-257.

Shuford, WD, and T Gardali (eds). 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 CDFG, Sacramento.

Sowers, JM. 2000. Creek & Watershed Map of Oakland & Berkeley. William Lettis & Associates, Inc. Published by Oakland Museum of California, Oakland, CA. Online at: http://www.acgov.org/aceh/lop/Oakland-Berkeley_Creek_Map.pdf

Stebbins, RC. 2003. A Field Guide to Western Reptiles and Amphibians, third edition. The Peterson Field Guide Series, Houghton Mifflin Company, NY.

Swaim, K.E. 1998. Aspects of the ecology of the Alameda whipsnake *Masticophis lateralis euryxanthus*. M.S. Thesis. California State University, Hayward. 140 pp.

Swaim, K. E. 1996. The Status of the Alameda whipsnake (*Masticophis lateralis euryxanthus*) at the Naval Medical Center Oakland. Report to TETRA TECH, Inc., San Francisco, CA.

Swaim, K. E. 2006. Survey Results for the Alameda Whipsnake (*Masticophis lateralis euryxanthus*) at the Former Naval Medical Center in Oakland, Alameda County, California. Report to WRA, Inc., San Rafael, CA

[USDA] United States Department of Agriculture. 1981. Soil Survey of Alameda County, California. Natural Resources Conservation Service.

[USGS] United States Geological Survey. 2015. Oakland East 7.5-minute Quadrangle map.

[USFWS] United States Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-Legged Frog. Final Rule. Federal Register, Vol. 61, No. 101. 25813-25833. May 23.

[USFWS] United States Fish and Wildlife Service. 1997. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Callippe Silverspot Butterfly and the Behren's Silverspot Butterfly and Threatened Status for the Alameda Whipsnake; Final Rule. Federal Register, Vol. 62, No. 234. 64306-64320. December 5.

[USFWS] United States Fish and Wildlife Service. 2000. Endangered and threatened wildlife and plants; final determination of critical habitat for the Alameda Whipsnake (*Masticophis lateralis euryxanthus*). (65:192 FR October 3, 2000).

[USFWS] United States Fish and Wildlife Service. 2001. Endangered and Threatened Wildlife and Plants; Final Determinations of Critical Habitat for the California Red-legged Frog; Final Rule. Vol. 66, No. 14626-14674

[USFWS] United States Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR.

[USFWS] United States Fish and Wildlife Service. 2006a. Alameda Whipsnake Critical Habitat Final Rule. October 2, 2006. Federal Register, Vol. 71, No. 190: 58176-58231.

[USFWS] United States Fish and Wildlife Service. 2006b. Designation of Critical Habitat for the California Red-Legged Frog, and Special Rule Exemption Associated With Final Listing for Existing Routine Ranching Activities; Final Rule. Federal Register 71(71): 19243-19346. April 13.

[USFWS] United States Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register, Vol. 75, No. 51. 12815-12959.

[USFWS] United States Fish and Wildlife Service. 2012. 5 year Reviews of Species in California and Nevada. April 27, 2012. Federal Register, Vol. 77, No. 25112-25116

[USFWS] United States Fish and Wildlife Service. 2015. Species Lists, Sacramento Fish and Wildlife Office. Available online at: http://www.fws.gov/sacramento; most recently accessed: July 2015.

[WRA] WRA, Inc. 2006. Rare Plant Report, Former Oak Knoll Hospital, Oakland, Alameda County, California.

[WRA] WRA, Inc. 2007. Delineation of Potential Jurisdictional Wetlands and Non-Wetland Waters Under Section 404 of the Clean Water Act, Former Oak Knoll Hospital, Oakland, Alameda County, California.

[WRA] WRA, Inc. 2015a. Delineation of Potential Jurisdictional Wetlands and Non-Wetland Waters Under Section 404 of the Clean Water Act, Hardenstine Parcel, Oakland, Alameda County, California.

[WRA] WRA, Inc. 2015b. Rare Plant Survey Report, Oak Knoll (APNs: 043A-4675-003-21 & 043A-4675-47-1), Oakland, Alameda County, California.

WRA] WRA, Inc. 2015c. Riparian Restoration and Monitoring Plan, Oak Knoll, Oakland, Alameda County, California.

Zeiner, DC, WF Laudenslayer, Jr., KE Mayer, and M White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

APPENDIX A

LIST OF OBSERVED PLANT SPECIES

Appendix A. Plant Species Observed in the Project Area in April and May 2015.

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Adoxaceae [Caprifoliaceae]	*Sambucus nigra* ssp. *caerulea* [*S. mexicana*]	blue elderberry	deciduous shrub	native	--	--	--
Agavaceae [Liliaceae]	*Chlorogalum pomeridianum*	common soap plant	perennial forb	native	--	--	--
Alliaceae [Liliaceae]	*Allium triquetrum*	threecorner leek	perennial forb	non-native	--	assessed	--
Anacardiaceae	*Schinus molle*	Peruvian peppertree	evergreen tree	non-native	--	limited	--
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	deciduous shrub	native	--	--	--
Apiaceae	*Conium maculatum*	poison hemlock	perennial forb	non-native	--	moderate	--
Apiaceae	*Daucus pusillus*	American wild carrot	annual forb	native	--	--	--
Apiaceae	*Foeniculum vulgare*	fennel	perennial forb	non-native	--	high	--
Apiaceae	*Lomatium utriculatum*	common lomatium	perennial forb	native	--	--	--
Apiaceae	*Sanicula bipinnatifida*	purple sanicle	perennial forb	native	--	--	--
Apiaceae	*Sanicula crassicaulis*	Pacific sanicle	perennial forb	native	--	--	--
Apiaceae	*Scandix pecten-veneris*	shepherdsneedle	annual forb	non-native	--	--	--
Apiaceae	*Torilis arvensis*	hedge parsley	annual forb	non-native	--	moderate	--
Apiaceae	*Yabea microcarpa*	false carrot	annual forb	native	--	--	C
Apocynaceae	*Nerium oleander*	oleander	evergreen shrub	non-native	--	assessed	--
Apocynaceae	*Vinca major*	bigleaf periwinkle	perennial forb	non-native	--	moderate	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Araceae	*Arum italicum*	Italian lords and ladies	perennial forb	non-native	--	--	--
Araceae	*Zantedeschia aethiopica*	calla lily	perennial forb	non-native	--	limited	--
Araliaceae	*Hedera canariensis*	Canary ivy	evergreen vine	non-native	--	high	--
Araliaceae	*Hedera helix*	English ivy	evergreen vine	non-native	--	high	--
Arecaceae	*Phoenix canariensis*	Canary Island date palm	evergreen tree	non-native	--	limited	--
Arecaceae	*Washingtonia robusta*	Washington fan palm	evergreen tree	non-native	--	moderate	--
Asphodelaceae [Liliaceae]	*Aloe* sp.	aloe	evergreen shrub	non-native	--	--	--
Asteraceae	*Achillea millefolium*	common yarrow	perennial forb	native	--	--	--
Asteraceae	*Artemisia californica*	Coast sagebrush	evergreen shrub	native	--	--	--
Asteraceae	*Artemisia douglasiana*	mugwort	perennial forb	native	--	--	--
Asteraceae	*Baccharis pilularis* ssp. *consanguinea*	coyote brush	evergreen shrub	native	--	--	--
Asteraceae	*Bellis perennis*	English lawn daisy	perennial forb	non-native	--	assessed	--
Asteraceae	*Calendula arvensis*	field marigold	annual forb	non-native	--	--	--
Asteraceae	*Carduus pycnocephalus*	Italian thistle	annual forb	non-native	--	moderate	--
Asteraceae	*Centaurea melitensis*	tocalote	annual forb	non-native	--	moderate	--
Asteraceae	*Cirsium vulgare*	bull thistle	perennial forb	non-native	--	moderate	--
Asteraceae	*Cotula australis*	Australian waterbuttons	annual forb	non-native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Asteraceae	*Cynara cardunculus* ssp. *flavescens*	artichoke thistle	perennial forb	non-native	--	moderate	--
Asteraceae	*Delairea odorata*	Cape ivy	perennial forb	non-native	--	high	--
Asteraceae	*Dittrichia graveolens*	stinkwort	annual forb	non-native	--	moderate	--
Asteraceae	*Erigeron karvinskianus*	Latin American fleabane	perennial forb	non-native	--	assessed	--
Asteraceae	*Grindelia hirsutula*	hairy gumweed	perennial forb	native	--	--	--
Asteraceae	*Helminthotheca echioides* [*Picris e.*]	bristly ox-tongue	perennial forb	non-native	--	limited	--
Asteraceae	*Heterotheca grandiflora*	telegraphweed	perennial forb	native	--	--	--
Asteraceae	*Heterotheca sessiliflora* ssp. *echioides*	sessileflower false goldenaster	perennial forb	native	--	--	--
Asteraceae	*Hypochaeris glabra*	smooth catsear	annual forb	non-native	--	limited	--
Asteraceae	*Hypochaeris radicata*	hairy catsear	perennial forb	non-native	--	moderate	--
Asteraceae	*Lactuca virosa*	bitter lettuce	perennial forb	non-native	--	--	--
Asteraceae	*Logfia gallica* [*Filago g.*]	narrowleaf cottonrose	annual forb	non-native	--	--	--
Asteraceae	*Madia exigua*	meager tarweed	annual forb	native	--	--	--
Asteraceae	*Madia gracilis*	gumweed tarweed	annual forb	native	--	--	--
Asteraceae	*Matricaria discoidea* [*Chamomilla suaveolens*]	pineapple weed	annual forb	non-native	--	--	--
Asteraceae	*Microseris* sp.	microseris	annual forb	native	--	--	--
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey cudweed	annual forb	non-native	--	--	--
Asteraceae	*Senecio vulgaris*	old man in the Spring	annual forb	non-native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Asteraceae	*Silybum marianum*	milk thistle	perennial forb	non-native	--	limited	--
Asteraceae	*Sonchus asper* ssp. *asper*	prickly sow thistle	annual forb	non-native	--	assessed	--
Asteraceae	*Sonchus oleraceus*	common sow thistle	annual forb	non-native	--	--	--
Asteraceae	*Taraxacum officinale*	common dandelion	perennial forb	non-native	--	assessed	--
Asteraceae	*Tragopogon porrifolius*	purple salsify	perennial forb	non-native	--	--	--
Asteraceae	*Wyethia angustifolia*	narrow leaf mule ears	perennial forb	native	--	--	--
Betulaceae	*Alnus rhombifolia*	white alder	deciduous tree	native	--	--	--
Betulaceae	*Corylus cornuta* ssp. *californica*	California hazelnut	deciduous shrub	native	--	--	--
Boraginaceae	*Cynoglossum grande*	Pacific hound's tongue	perennial forb	native	--	--	--
Brassicaceae	*Brassica nigra*	black mustard	annual forb	non-native	--	moderate	--
Brassicaceae	*Brassica rapa*	field mustard	annual forb	non-native	--	limited	--
Brassicaceae	*Cardamine oligosperma*	Idaho bittercress	annual forb	native	--	--	--
Brassicaceae	*Hirschfeldia incana*	short podded mustard	perennial forb	non-native	--	moderate	--
Brassicaceae	*Nasturtium officinale* [*Rorippa nasturtium-aquaticum*]	watercress	perennial forb	native	--	--	--
Brassicaceae	*Raphanus sativus*	wild radish	perennial forb	non-native	--	limited	--
Cactaceae	*Opuntia* sp.	prickly pear	evergreen shrub	non-native	--	?	--
Caprifoliaceae	*Lonicera hispidula*	pink honeysuckle	evergreen shrub	native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Caprifoliaceae	*Symphoricarpos mollis*	creeping snowberry	deciduous shrub	native	--	--	--
Caryophyllaceae	*Cerastium glomeratum*	mouse-ear chickweed	annual forb	non-native	--	--	--
Caryophyllaceae	*Silene gallica*	windmill pink	annual forb	non-native	--	--	--
Caryophyllaceae	*Spergularia rubra*	red sandspurry	perennial forb	non-native	--	--	--
Caryophyllaceae	*Stellaria media*	common chickweed	annual forb	non-native	--	--	--
Convolvulaceae	*Convolvulus arvensis*	field bindweed	perennial forb	non-native	--	assessed	--
Cornaceae	*Cornus sericea* ssp. *sericea*	redosier dogwood	evergreen shrub	native	--	--	C
Crassulaceae	*Crassula connata*	sand pygmyweed	annual forb	native	--	--	--
Cucurbitaceae	*Marah fabacea*	California manroot	perennial vine	native	--	--	--
Cupressaceae	*Hesperocyparis macrocarpa* [*Cupressus m.*] (planted ornamental)	Monterey cypress	evergreen tree	native	Rank 1B.2	--	--
Cupressaceae [Taxodiaceae]	*Sequoia sempervirens*	coast redwood	evergreen tree	native	--	--	--
Cyperaceae	*Carex leptopoda* [*C. deweyana* s. *l.*]	slender-rooted sedge	perennial graminoid	native	--	--	A1
Cyperaceae	*Cyperus eragrostis*	tall flatsedge	perennial graminoid	native	--	--	--
Cyperaceae	*Eleocharis macrostachya*	common spikerush	perennial graminoid	native	--	--	--
Dennstaedtiaceae	*Pteridium aquilinum* var. *pubescens*	hairy brackenfern	perennial fern	native	--	--	--
Equisetaceae	*Equisetum telmateia* ssp. *braunii*	giant horsetail	perennial fern	native	--	--	--
Ericaceae	*Arbutus menziesii*	Pacific madrone	evergreen tree	native	--	--	C

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Ericaceae	*Arctostaphylos crustacea* ssp. *crustacea* [*A. tomentosa* s. *c.*]	hairy manzanita	evergreen shrub	native	--	--	C
Euphorbiaceae	*Euphorbia peplus*	petty spurge	annual forb	non-native	--	--	--
Fabaceae	*Acacia dealbata*	silver wattle	evergreen tree	non-native	--	moderate	--
Fabaceae	*Acacia melanoxylon*	blackwood acacia	evergreen tree	non-native	--	limited	--
Fabaceae	*Acmispon brachycarpus* [*Lotus humistratus*]	hairy lotus	annual forb	native	--	--	--
Fabaceae	*Acmispon glaber* var. *glaber* [*Lotus scoparius* var. *scoparius*]	deer vetch	evergreen shrub	native	--	--	--
Fabaceae	*Acmispon wrangelianus* [*Lotus w.*]	Wrangel's lotus	annual forb	native	--	--	--
Fabaceae	*Ceratonia siliqua*	carob	evergreen tree	non-native	--	--	--
Fabaceae	*Cercis occidentalis* (planted ornamental)	western redbud	deciduous shrub	native	--	--	--
Fabaceae	*Genista monspessulana*	French broom	evergreen shrub	non-native	--	high	--
Fabaceae	*Lotus corniculatus*	bird's-foot trefoil	perennial forb	non-native	--	assessed	--
Fabaceae	*Lupinus bicolor*	miniature lupine	annual forb	native	--	--	--
Fabaceae	*Lupinus formosus* var. *formosus*	summer lupine	perennial forb	native	--	--	--
Fabaceae	*Medicago polymorpha*	bur medic	annual forb	non-native	--	limited	--
Fabaceae	*Melilotus indicus*	yellow annual sweetclover	annual forb	non-native	--	--	--
Fabaceae	*Trifolium campestre*	hop clover	annual forb	non-native	--	--	--
Fabaceae	*Trifolium dubium*	Shamrock clover	annual forb	non-native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Fabaceae	*Trifolium hirtum*	rose clover	annual forb	non-native	--	moderate	--
Fabaceae	*Trifolium incarnatum*	crimson clover	annual forb	non-native	--	--	--
Fabaceae	*Trifolium repens*	white clover	perennial forb	non-native	--	--	--
Fabaceae	*Trifolium subterraneum*	subterranean clover	annual forb	non-native	--	--	--
Fabaceae	*Vicia gigantea*	giant vetch	perennial forb	native	--	--	--
Fabaceae	*Vicia sativa* ssp. *nigra*	garden vetch	annual forb	non-native	--	--	--
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	evergreen tree	native	--	--	A2
Garryaceae	*Garrya elliptica*	coast silktassel	evergreen shrub	native	--	--	B
Geraniaceae	*Erodium botrys*	longbeak stork's bill	annual forb	non-native	--	assessed	--
Geraniaceae	*Erodium cicutarium*	redstem stork's bill	annual forb	non-native	--	limited	--
Geraniaceae	*Geranium dissectum*	cutleaf geranium	annual forb	non-native	--	moderate	--
Geraniaceae	*Geranium molle*	woodland geranium	perennial forb	non-native	--	assessed	--
Geraniaceae	*Geranium purpureum*	herb robert	perennial forb	non-native	--	--	--
Geraniaceae	*Geranium robertianum*	Robert's geranium	annual forb	non-native	--	assessed	--
Grossulariaceae	*Ribes divaricatum* var. *pubiflorum*	straggly gooseberry	evergreen shrub	native	--	--	--
Hamamelidaceae	*Liquidambar styraciflua*	sweetgum	deciduous tree	non-native	--	--	--
Iridaceae	*Iris douglasiana*	Douglas' iris	perennial forb	native	--	--	A2

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	perennial forb	native	--	--	--
Juncaceae	*Juncus aff. xiphioides*	iris-leaf rush	perennial graminoid	native	--	--	--
Juncaceae	*Juncus bufonius* var. *bufonius*	toad rush	annual graminoid	native	--	--	--
Juncaceae	*Juncus patens*	common rush	perennial graminoid	native	--	--	--
Juncaceae	*Luzula comosa* var. *comosa*	Pacific woodrush	perennial graminoid	native	--	--	--
Lamiaceae	*Clinopodium douglasii* [*Satureja d.*]	yerba buena	perennial forb	native	--	--	--
Lamiaceae	*Monardella villosa* ssp. *franciscana*	coyote mint	perennial forb	native	--	--	--
Lamiaceae	*Monardella villosa* ssp. *villosa*	coyote mint	perennial forb	native	--	--	--
Lamiaceae	*Stachys rigida* var. *quercetorum*	rough hedgenettle	perennial forb	native	--	--	--
Lauraceae	*Umbellularia californica*	California bay	evergreen tree	native	--	--	--
Laxmanniaceae [Liliaceae]	*Cordyline australis*	cabbage tree	evergreen tree	non-native	--	limited	--
Liliaceae	*Agapanthus praecox*	lily-of-the-Nile	perennial forb	non-native	--	--	--
Liliaceae	*Calochortus umbellatus*	Oakland star tulip	perennial forb	native	Rank 4.2	--	*A2
Liliaceae	*Fritillaria affinis*	checker lily	perennial forb	native	--	--	--
Liliaceae	*Prosartes hookeri*	drops of gold	perennial forb	native	--	--	C
Linaceae	*Linum bienne*	pale flax	annual forb	non-native	--	--	--
Lythraceae	*Lythrum hyssopifolia*	hyssop loosestrife	annual forb	non-native	--	moderate	--
Magnoliaceae	*Magnolia grandiflora*	southern magnolia	evergreen tree	non-native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Melanthiaceae [Liliaceae]	*Toxicoscordion fremontii* [*Zigadenus f.*]	Fremont's star lily	perennial forb	native	--	--	--
Melanthiaceae [Liliaceae]	*Trillium chloropetalum*	common wakerobin	perennial forb	native	--	--	--
Montiaceae [Portulacaceae]	*Claytonia parviflora* ssp. *parviflora*	streambank springbeauty	annual forb	native	--	--	--
Montiaceae [Portulacaceae]	*Claytonia perfoliata* ssp. *mexicana*	miner's lettuce	annual forb	native	--	--	--
Myrsinaceae [Primulaceae]	*Lysimachia arvensis* [*Anagallis a.*]	scarlet pimpernel	annual forb	non-native	--	--	--
Myrtaceae	*Eucalyptus camaldulensis*	river redgum	evergreen tree	non-native	--	limited	--
Myrtaceae	*Eucalyptus globulus*	blue gum	evergreen tree	non-native	--	moderate	--
Myrtaceae	*Eucalyptus sideroxylon*	red ironbark	evergreen tree	non-native	--	--	--
Oleaceae	*Ligustrum japonicum*	Japanese privet	evergreen shrub	non-native	--	--	--
Oleaceae	*Olea europaea*	olive	evergreen tree	non-native	--	limited	--
Onagraceae	*Clarkia affinis*	chaparral clarkia	annual forb	native	--	--	C
Onagraceae	*Epilobium brachycarpum*	annual willowherb	annual forb	native	--	--	--
Onagraceae	*Epilobium canum* ssp. *canum*	California fuchsia	perennial forb	native	--	--	--
Onagraceae	*Taraxia ovata* [*Camissonia o.*]	sun cup	perennial forb	native	--	--	--
Orchidaceae	*Corallorhiza maculata* var. *maculata* [forma immaculata]	summer coralroot	perennial forb	native	--	--	B
Orobanchaceae [Scrophulariaceae]	*Bellardia trixago*	Mediterranean lineseed	annual forb	non-native	--	limited	--
Orobanchaceae [Scrophulariaceae]	*Castilleja exserta* ssp. *exserta*	exserted Indian paintbrush	annual forb	native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Orobanchaceae [Scrophulariaceae]	*Parentucellia viscosa*	yellow glandweed	annual forb	non-native	--	limited	--
Orobanchaceae [Scrophulariaceae]	*Pedicularis densiflora*	Indian warrior	perennial forb	native	--	--	--
Oxalidaceae	*Oxalis corniculata*	yellow sorrel	perennial forb	non-native	--	assessed	--
Oxalidaceae	*Oxalis incarnata*	crimson woodsorrel	perennial forb	non-native	--	--	--
Oxalidaceae	*Oxalis pes-caprae*	Bermuda buttercup	perennial forb	non-native	--	moderate	--
Papaveraceae	*Eschscholzia californica*	California poppy	perennial forb	native	--	--	--
Papaveraceae	*Fumaria capreolata*	white ramping fumitory	perennial forb	non-native	--	--	--
Phrymaceae [Scrophulariaceae]	*Mimulus aurantiacus* var. *aurantiacus*	sticky monkey	evergreen shrub	native	--	--	--
Pinaceae	*Cedrus deodara*	deodar cedar	evergreen tree	non-native	--	--	--
Pinaceae	*Pinus pinea*	Italian stone pine	evergreen tree	non-native	--	--	--
Pinaceae	*Pinus ponderosa* var. *ponderosa*	ponderosa pine	evergreen tree	native	--	--	--
Pinaceae	*Pinus radiata* (planted ornamental)	Monterey pine	evergreen tree	native	Rank 1B.1	limited	--
Pittosporaceae	*Pittosporum undulatum*	Australian cheesewood	evergreen tree	non-native	--	assessed	--
Plantaginaceae [Scrophulariaceae]	*Kickxia spuria*	roundleaf cancerwort	perennial forb	non-native	--	--	--
Plantaginaceae	*Plantago coronopus*	buckhorn plantain	annual forb	non-native	--	assessed	--
Plantaginaceae	*Plantago erecta*	foothill plantain	annual forb	native	--	--	--
Plantaginaceae	*Plantago lanceolata*	English plantain	perennial forb	non-native	--	limited	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Platanaceae	*Platanus xhispanica*	London planetree	deciduous tree	non-native	--	--	--
Poaceae	*Aira caryophyllea*	silver hairgrass	annual graminoid	non-native	--	assessed	--
Poaceae	*Arundo donax*	giant reed	perennial graminoid	non-native	--	high	--
Poaceae	*Avena barbata*	slender oat	annual graminoid	non-native	--	moderate	--
Poaceae	*Avena fatua*	wild oat	annual graminoid	non-native	--	moderate	--
Poaceae	*Brachypodium distachyon*	false brome	perennial graminoid	non-native	--	moderate	--
Poaceae	*Briza maxima*	big quakinggrass	annual graminoid	non-native	--	limited	--
Poaceae	*Briza minor*	little quakinggrass	annual graminoid	non-native	--	--	--
Poaceae	*Bromus carinatus* var. *carinatus*	California brome	perennial graminoid	native	--	--	--
Poaceae	*Bromus catharticus* var. *elatus*	Chilean brome	perennial graminoid	non-native	--	--	--
Poaceae	*Bromus diandrus*	ripgut brome	annual graminoid	non-native	--	moderate	--
Poaceae	*Bromus hordeaceus*	soft chess	annual graminoid	non-native	--	limited	--
Poaceae	*Bromus madritensis* ssp. *madritensis*	foxtail chess	annual graminoid	non-native	--	--	--
Poaceae	*Cortaderia selloana*	Uruguayan pampas grass	perennial graminoid	non-native	--	high	--
Poaceae	*Cynodon dactylon*	Bermuda grass	perennial graminoid	non-native	--	moderate	--
Poaceae	*Cynosurus echinatus*	dogtail grass	annual graminoid	non-native	--	moderate	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Poaceae	*Deschampsia elongata*	slender hairgrass	perennial graminoid	native	--	--	C
Poaceae	*Ehrharta erecta*	panic veldtgrass	perennial graminoid	non-native	--	moderate	--
Poaceae	*Elymus multisetus*	big squirrel tail	perennial graminoid	native	--	--	C
Poaceae	*Elymus glaucus* ssp. *glaucus*	blue wildrye	perennial graminoid	native	--	--	--
Poaceae	*Elymus triticoides* [*Leymus t.*]	beardless wild rye	perennial graminoid	native	--	--	--
Poaceae	*Festuca arundinacea*	tall fescue	perennial graminoid	non-native	--	moderate	--
Poaceae	*Festuca bromoides* [*Vulpia b.*]	brome fescue	perennial graminoid	non-native	--	--	--
Poaceae	*Festuca microstachys* [*Vulpia m.*]	Pacific fescue	annual graminoid	native	--	--	--
Poaceae	*Festuca myuros* [*Vulpia m.*]	rattail fescue	perennial graminoid	non-native	--	moderate	--
Poaceae	*Festuca perennis* [*Lolium multiflorum; L. perenne*]	Italian rye grass	annual graminoid	non-native	--	moderate	--
Poaceae	*Glyceria declinata*	waxy mannagrass	perennial graminoid	non-native	--	moderate	--
Poaceae	*Hordeum marinum* ssp. *gussoneanum*	Mediterranean barley	annual graminoid	non-native	--	moderate	--
Poaceae	*Hordeum murinum* ssp. *murinum*	wall barley	annual graminoid	non-native	--	moderate	--
Poaceae	*Melica californica*	California onion grass	perennial graminoid	native	--	--	C
Poaceae	*Paspalum dilatatum*	dallis grass	perennial graminoid	non-native	--	--	--
Poaceae	*Phalaris aquatica*	harding grass	perennial graminoid	non-native	--	moderate	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Poaceae	*Poa annua*	annual bluegrass	annual graminoid	non-native	--	--	--
Poaceae	*Polypogon monspeliensis*	rabbit's-foot grass	annual graminoid	non-native	--	limited	--
Poaceae	*Stipa lepida* [*Nassella l.*]	foothill needlegrass	perennial graminoid	native	--	--	C
Poaceae	*Stipa miliacea* var. *miliacea* [*Piptatherum m.*]	smilo grass	perennial graminoid	non-native	--	limited	--
Poaceae	*Stipa pulchra* [*Nassella p.*]	purple needlegrass	perennial graminoid	native	--	--	C
Polygonaceae	*Eriogonum nudum* var. *nudum*	naked buckwheat	perennial forb	native	--	--	--
Polygonaceae	*Persicaria* sp.	smartweed	perennial forb	unknown	--	--	--
Polygonaceae	*Rumex crispus*	curly dock	perennial forb	non-native	--	limited	--
Polygonaceae	*Rumex pulcher*	fiddle dock	perennial forb	non-native	--	--	--
Polypodiaceae	*Polypodium californicum*	California polypody	perennial fern	native	--	--	--
Polypodiaceae	*Polypodium calirhiza*	nested polypody	perennial fern	native	--	--	--
Pteridaceae	*Adiantum jordanii*	California maidenhair fern	perennial fern	native	--	--	--
Pteridaceae	*Pellaea andromedifolia*	coffee fern	perennial fern	native	--	--	--
Pteridaceae	*Pentagramma triangularis*	gold back fern	perennial fern	native	--	--	--
Ranunculaceae	*Ranunculus californicus* var. *californicus*	California buttercup	perennial forb	native	--	--	--
Rhamnaceae	*Frangula californica* ssp. *californica* [*Rhamnus c. s. c.*]	California coffeeberry	evergreen shrub	native	--	--	--
Rosaceae	*Acaena pinnatifida* var. *californica*	California sheepburr	perennial forb	native	--	--	C
Rosaceae	*Adenostoma fasciculatum* var. *fasciculatum*	chamise	evergreen shrub	native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Rosaceae	*Cotoneaster* sp.	cotoneaster	unknown shrub	non-native	--	?	--
Rosaceae	*Fragaria vesca*	woodland strawberry	perennial forb	native	--	--	--
Rosaceae	*Holodiscus discolor* var. *discolor*	oceanspray	deciduous shrub	native	--	--	--
Rosaceae	*Prunus cerasifera*	cherry plum	deciduous tree	non-native	--	limited	--
Rosaceae	*Prunus ilicifolia* ssp. *ilicifolia*	hollyleaf cherry	evergreen tree	native	--	--	C
Rosaceae	*Pyracantha angustifolia*	narrowleaf firethorn	evergreen shrub	non-native	--	limited	--
Rosaceae	*Pyracantha koidzumii*	Taiwan firethorn	evergreen shrub	non-native	--	--	--
Rosaceae	*Rosa californica*	California rose	evergreen shrub	native	--	--	--
Rosaceae	*Rubus armeniacus* [*R. discolor*]	Himalayan blackberry	evergreen shrub	non-native	--	high	--
Rosaceae	*Rubus ursinus*	California blackberry	evergreen shrub	native	--	--	--
Rubiaceae	*Galium aparine*	common bedstraw	annual forb	native	--	--	--
Rubiaceae	*Galium murale*	yellow wall bedstraw	annual forb	non-native	--	--	--
Rubiaceae	*Galium porrigens* var. *porrigens*	graceful bedstraw	perennial forb	native	--	--	--
Rubiaceae	*Sherardia arvensis*	blue fieldmadder	annual forb	non-native	--	--	--
Ruscaceae [Liliaceae]	*Maianthemum stellatum* [*Smilacina s.*]	starry false lily of the valley	perennial forb	native	--	--	--
Salicaceae	*Salix laevigata*	red willow	deciduous tree	native	--	--	--

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHENOLOGY AND FORM	ORIGIN	RARE STATUS	INVASIVE STATUS	EAST BAY CNPS UNUSUAL & SIGNIFICANT PLANTS RANK
Salicaceae	*Salix lasiolepis*	arroyo willow	deciduous tree	native	--	--	--
Sapindaceae [Hippocastanaceae]	*Aesculus californica*	California buckeye	deciduous tree	native	--	--	--
Scrophulariaceae [Buddlejaceae]	*Buddleja davidii*	summer lilac	evergreen shrub	non-native	--	assessed	--
Scrophulariaceae	*Scrophularia californica*	California figwort	perennial forb	native	--	--	--
Tamaricaceae	*Tamarix aphylla*	athel tree	evergreen shrub	non-native	--	limited	--
Themidaceae [Liliaceae]	*Dichelostemma capitatum* ssp. *capitatum*	bluedicks	perennial forb	native	--	--	--
Themidaceae [Liliaceae]	*Triteleia laxa*	Ithuriel's spear	perennial forb	native	--	--	--
Typhaceae	*Typha angustifolia*	narrowleaf cattail	perennial forb	non-native	--	--	--
Urticaceae	*Urtica dioica* ssp. *holosericea*	hoary nettle	perennial forb	native	--	--	--
Valerianaceae	*Centranthus ruber*	red valerian	perennial forb	non-native	--	--	--
Verbenaceae	*Phyla nodiflora*	common lippia	perennial forb	native	--	--	--
Woodsiaceae [Dryopteridaceae]	*Athyrium filix-femina* var. *cyclosorum*	subarctic lady fern	perennial fern	native	--	--	--

APPENDIX B

LIST OF OBSERVED WILDLIFE SPECIES

Appendix B: Wildlife species observed in the Project Area in April and May 2015.

Wildlife	
Common Name	Scientific Name
western scrub-jay	*Aphelocoma californica*
house finch	*Haemorhous mexicanus*
American robin	*Turdus migratorius*
western bluebird	*Sialia mexicana*
wild turkey	*Meleagris gallopavo*
Nuttall's woodpecker	*Picoides nuttallii*
Anna's hummingbird	*Calypte anna*
bushtit	*Psaltriparus minimus*
Steller's jay	*Cyanocitta stelleri*
oak titmouse	*Baeolophus inornatus*
red-tailed hawk	*Buteo jamaicensis*
turkey vulture	*Cathartes aura*
common raven	*Corvus corax*
California towhee	*Pipilo crissalis*
dark-eyed junco	*Junco hyemalis*
ash-throated flycatcher	*Myiarchus cinerascens*
mourning dove	*Zenaida macroura*
northern rough winged swallow	*Stelgidopteryx serripennis*
fox squirrel	*Sciurus niger*
blacktailed deer	*Odocoileus hemionus columbianus*
Botta's pocket gopher (burrows)	*Thomomys bottae*

APPENDIX C

POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR IN THE PROJECT AREA

Appendix C. Potential for special-status species to occur in the Project Area. List compiled from U.S. Fish and Wildlife Service (USFWS) IPaC Trust Report, a search of the California Department of Fish and Wildlife Natural Diversity Database (CDFW 2015b) and the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2015a) for the Oakland East USGS 7.5' quadrangle and eight surrounding quadrangles (USGS 2015).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Plants				
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms March-June.	**Not Present.** The needlegrass grassland could provide suitable habitat. This species was historically documented in the Oakland Hills area in 1932 and the nearest extant occurrence is located approximately 3.5 miles north of the Project Area (USFWS 2015). However, this species was not detected during protocol-level, floristic rare plant surveys.	No further actions are recommended for this species.
California androsace *Androsace elongata* ssp. *acuta*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 3940 feet (150 to 1200 meters). Blooms March-June.	**Not Present.** There are no documented occurrence records in the Project Vicinity and only a small portion of the Project Area is within the documented elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
pallid manzanita *Arctostaphylos pallida*	FT, SE, Rank 1B.1	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub/siliceous shale, sandy or gravelly. Elevation ranges from 610 to 1530 feet (185 to 465 meters). Blooms December-March.	**Not Present.** The nearest documented occurrence is located approximately 3.2 miles north of the Project Area in Joaquin Miller Regional Park; however, the Project Area lacks suitable substrate (siliceous shale or thin chert). Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
alkali milk-vetch *Astragalus tener* var. *tener*	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools/alkaline. Elevation ranges from 0 to 200 feet (1 to 60 meters). Blooms March-June.	**Not Present.** The Project Area lacks suitable mesic alkaline habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
San Joaquin spearscale *Atriplex joaquinana*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland/alkaline. Elevation ranges from 0 to 2740 feet (1 to 835 meters). Blooms April-October.	**Not Present.** The Project Area lacks suitable mesic alkaline habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
big-scale balsamroot *Balsamorhiza macrolepis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/sometimes serpentine. Elevation ranges from 300 to 5100 feet (90 to 1555 meters). Blooms March-June.	**Not Present.** The nearest documented occurrence of this species is located approximately 3.0 miles south of the Project Area, at Fairmont Ridge (USFWS 2015). However, this species was not detected during protocol-level, floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
big tarplant *Blepharizonia plumosa*	Rank 1B.1	Valley and foothill grassland/usually clay. Elevation ranges from 100 to 1660 feet (30 to 505 meters). Blooms July-October.	**Not Present.** There are no documented occurrence records in the Project Vicinity and the Project Area lacks suitable native grassland habitat with clay soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
round-leaved filaree *California macrophylla*	Rank 1B.1	Cismontane woodland, valley and foothill grassland/clay. Elevation ranges from 50 to 3940 feet (15 to 1200 meters). Blooms March-May.	**Not Present.** The Project Area lacks suitable native grassland habitat with clay soils. This species was historically documented in the Oakland Hills area in 1891 (USFWS 2015); however, there are no recent records of this species in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	Rank 1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 100 to 2760 feet (30 to 840 meters). Blooms April-June.	**Not Present.** There are no documented occurrence records in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Oakland star-tulip *Calochortus umbellatus*	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/often serpentine. Elevation ranges from 330 to 2300 feet (100 to 700 meters). Blooms March-May.	**Present.** Approximately 723 individuals of this species were observed in the southeast portion of the Project Area in Monterey pine woodland, coast live oak woodland, purple needlegrass grassland, and California sagebrush scrub.	No further actions are recommended for this species.
coastal bluff morning-glory *Calystegia purpurata* ssp. *saxicola*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest. Elevation ranges from 30 to 340 feet (10 to 105 meters). Blooms (March), April-September.	**Not Present.** The Project Area lacks suitable coastal habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
johnny-nip *Castilleja ambigua* var. *ambigua*	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation ranges from 0 to 1430 feet (0 to 435 meters). Blooms March-August.	**Not Present.** The Project Area lacks suitable mesic coastal habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 750 feet (0 to 230 meters). Blooms May-October (November).	**Not Present.** The Project Area lacks suitable mesic alkaline habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Point Reyes bird's-beak *Chloropyron maritimum* ssp. *palustre*	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 30 feet (0 to 10 meters). Blooms June-October.	**Not Present.** The Project Area lacks coastal salt marsh habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub/sandy. Elevation ranges from 10 to 710 feet (3 to 215 meters). Blooms April-July (August).	**Not Present.** The Project Area lack suitable coastal habitats with sandy soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
robust spineflower *Chorizanthe robusta* var. *robusta*	FE, Rank 1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly. Elevation ranges from 10 to 980 feet (3 to 300 meters). Blooms April-September.	**Not Present.** The Project Area lack suitable coastal habitats with sandy or gravelly soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Franciscan thistle *Cirsium andrewsii*	Rank 1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub/mesic, sometimes serpentine. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms March-July.	**Not Present.** The Project Area lacks mesic serpentine habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Santa Clara red ribbons *Clarkia concinna* ssp. *automixa*	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 300 to 4920 feet (90 to 1500 meters). Blooms (April), May-June (July).	**Not Present.** This species was historically documented in the Oakland Hills area in 1936 (USFWS 2015); however, there are no recent records of this species in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Presidio clarkia *Clarkia franciscana*	FE, SE, Rank 1B.1	Coastal scrub, valley and foothill grassland (serpentine). Elevation ranges from 80 to 1100 feet (25 to 335 meters). Blooms May-July.	**Not Present.** There are several documented occurrences of this species in or near the Skyline Serpentine Prairie Preserve, approximately 2.5 miles northwest of the Project Area; however, this species is a strict serpentine endemic and the Project Area lacks suitable serpentine substrates. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
western leatherwood *Dirca occidentalis*	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland/mesic. Elevation ranges from 80 to 1390 feet (25 to 425 meters). Blooms January-March (April).	**Not Present.** The coast live oak woodland in the Project Area provides suitable habitat. There are several documented occurrence records of this species in the Project Vicinity, including an extant occurrence approximately 1.7 miles north of the Project Site in Chabot Regional Park. However, this species was not detected during protocol-level, floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Tiburon buckwheat *Eriogonum luteolum* var. *caninum*	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland/serpentine, sandy to gravelly. Elevation ranges from 0 to 2300 feet (0 to 700 meters). Blooms May-September.	**Not Present.** There are several documented occurrences of this species in or near the Skyline Serpentine Prairie Preserve, approximately 2.5 miles northwest of the Project Area; however, this species is a strict serpentine endemic and the Project Area lacks suitable serpentine substrates. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
minute pocket moss *Fissidens pauperculus*	Rank 1B.2	North coast coniferous forest (damp coastal soil). Elevation ranges from 30 to 3360 feet (10 to 1024 meters).	**Not Present.** The Project Area lacks suitable coniferous forest habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
fragrant fritillary *Fritillaria liliacea*	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentine. Elevation ranges from 10 to 1350 feet (3 to 410 meters). Blooms February-April.	**Moderate Potential.** Grassland and woodland habitats within the Project Area provide suitable habitat. This species was documented approximately 1.7 miles northwest of the Project Area in 1920 (USFWS 2015); however, this population is likely extirpated. The nearest extant occurrence is located approximately 3.3 miles south of the Project Area, at Fairmont Ridge (USFWS 2015).	The timing of the 2015 rare plant survey was too late to be able to adequately detect this species. An appropriately timed, focused, pre-construction survey in suitable habitat (native needlegrass grassland) is recommended for this species.
blue coast gilia *Gilia capitata* ssp. *chamissonis*	Rank 1B.1	Coastal dunes, coastal scrub. Elevation ranges from 10 to 660 feet (2 to 200 meters). Blooms April-July.	**Not Present.** The Project Area lacks suitable coastal habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Diablo helianthella *Helianthella castanea*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 200 to 4270 feet (60 to 1300 meters). Blooms March-June.	**Not Present.** Grassland and woodland habitats within the Project Area provide suitable habitat. There are several documented occurrences in the vicinity of the Project Are; the nearest is located approximately 1.8 miles west of the Project Site, on a ridge above Lake Chabot. However, this species was not detected during protocol-level, floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Loma Prieta hoita *Hoita strobilina*	Rank 1B.1	Chaparral, cismontane woodland, riparian woodland/usually serpentine, mesic. Elevation ranges from 100 to 2820 feet (30 to 860 meters). Blooms May-July (August), (October).	**Not Present.** This species was historically documented in the Oakland Hills area in 1865 (USFWS 2015); however, there are no recent records of this species in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Santa Cruz tarplant *Holocarpha macradenia*	FT, SE, Rank 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland/often clay, sandy. Elevation ranges from 30 to 720 feet (10 to 220 meters). Blooms June-October.	**Not Present.** This species is considered extirpated from Alameda County. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	Rank 1B.1	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub/sandy or gravelly, openings. Elevation ranges from 30 to 660 feet (10 to 200 meters). Blooms April-September.	**Not Present.** The Project Area lack suitable coastal habitats with sandy or gravelly soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
coast iris *Iris longipetala*	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps/mesic. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms March-May.	**Not Present.** The Project Area lacks suitable mesic coastal habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Southern California black walnut *Juglans californica*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub/alluvial. Elevation ranges from 160 to 2950 feet (50 to 900 meters). Blooms March-August.	**Not Present.** This is an apparent database error. This species is restricted to Southern California and is not known to occur north of Santa Barbara County. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Northern California black walnut *Juglans hindsii*	Rank 1B.1	Riparian forest, riparian woodland. Elevation ranges from 0 to 1440 feet (0 to 440 meters). Blooms April-May.	**Not Present.** Only native stands are considered rare; most stands are hybrid cultivars. There are no known native stands in Alameda County and the Project Area lacks suitable riparian habitat with deep alluvial soil. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Contra Costa goldfields *Lasthenia conjugens*	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools/mesic. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms March-June.	**Not Present.** The Project Area lacks suitable mesic alkaline habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	Rank 1B.2	Marshes and swamps (freshwater and brackish). Elevation ranges from 0 to 20 feet (0 to 5 meters). Blooms May-July (August), (September).	**Not Present.** The Project Area lacks suitable freshwater or brackish marsh habitat and is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
bristly leptosiphon *Leptosiphon acicularis*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms April-July.	**Not Present.** Scrub and grassland habitats in the Project Area provide suitable habitat for this species. The nearest known occurrence of this species is 0.9 mile south of the Project Area at Knowland Park (CCH 2015). However, this species was not detected during protocol-level, floristic rare plant surveys.	No further actions are recommended for this species.
Oregon meconella *Meconella oregana*	Rank 1B.1	Coastal prairie, coastal scrub. Elevation ranges from 820 to 2030 feet (250 to 620 meters). Blooms March-April.	**Not Present.** The Project Area lacks suitable mesic coastal habitats and is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Mt. Diablo cottonweed *Micropus amphibolus*	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland/rocky. Elevation ranges from 150 to 2710 feet (45 to 825 meters). Blooms March-May.	**Not Present.** The Project Area lacks suitable habitat with rocky soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
San Antonio Hills monardella *Monardella antonina* ssp. *antonina*	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1050 to 3280 feet (320 to 1000 meters). Blooms June-August.	**Not Present.** The Project Area is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
woodland woolythreads *Monolopia gracilens*	Rank 1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland/serpentine. Elevation ranges from 330 to 3940 feet (100 to 1200 meters). Blooms (February), March-July.	**Not Present.** This species was historically documented in the Oakland Hills area in 1888 (USFWS 2015); however, there are no recent records of this species in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Lime Ridge navarretia *Navarretia gowenii*	Rank 1B.1	Chaparral. Elevation ranges from 590 to 1000 feet (180 to 305 meters). Blooms May-June.	**Not Present.** There are no known occurrence records in the Project Vicinity and the majority of the Project Area is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Michael's rein orchid *Piperia michaelii*	Rank 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest. Elevation ranges from 10 to 3000 feet (3 to 915 meters). Blooms April-August.	**Not Present.** There are no known occurrence records in the Project Vicinity. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Choris' popcorn-flower *Plagiobothrys chorisianus* var. *chorisianus*	Rank 1B.2	Chaparral, coastal prairie, coastal scrub/mesic. Elevation ranges from 50 to 520 feet (15 to 160 meters). Blooms March-June.	**Not Present.** The Project Area lacks suitable mesic coastal habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
San Francisco popcorn-flower *Plagiobothrys diffusus*	SE, Rank 1B.1	Coastal prairie, valley and foothill grassland. Elevation ranges from 200 to 1180 feet (60 to 360 meters). Blooms March-June.	**Not Present.** The nearest documented occurrence is located approximately 2.4 miles northwest of the Project Area on a serpentine rock outcrop; however, there are no other known occurrence records in the Project Vicinity and the Project Area lack serpentine outcrops. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
hairless popcorn-flower *Plagiobothrys glaber*	Rank 1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt). Elevation ranges from 50 to 590 feet (15 to 180 meters). Blooms March-May.	**Not Present.** The Project Area lacks coastal salt or alkaline meadow habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
Marin knotweed *Polygonum marinense*	Rank 3.1	Marshes and swamps (coastal salt or brackish). Elevation ranges from 0 to 30 feet (0 to 10 meters). Blooms (April), May-August (October).	**Not Present.** The Project Area lacks coastal salt or brackish marsh habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Lobb's aquatic buttercup *Ranunculus lobbii*	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 50 to 1540 feet (15 to 470 meters). Blooms February-May.	**Not Present.** The Project Area lack suitable mesic habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
adobe sanicle *Sanicula maritima*	SR, Rank 1B.1	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland/clay, serpentine. Elevation ranges from 100 to 790 feet (30 to 240 meters). Blooms February-May.	**Not Present.** The Project Area lacks suitable coastal mesic habitats with clay or serpentine soils. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/serpentine. Elevation ranges from 310 to 3280 feet (95 to 1000 meters). Blooms (March), April-September (October).	**Not Present.** There are several nearby occurrence records of this species in the CNDDB (USFWS 2015), including a 1994 occurrence record less than 1.0 mile south of the Project Site in Knowland Park. However, the Project Site lacks serpentine outcrops. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
slender-leaved pondweed *Stuckenia filiformis* ssp. *alpina*	Rank 2B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7050 feet (300 to 2150 meters). Blooms May-July.	**Not Present.** The Project Area lacks suitable freshwater or brackish marsh habitat and is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
California seablite *Suaeda californica*	FE, Rank 1B.1	Marshes and swamps (coastal salt). Elevation ranges from 0 to 50 feet (0 to 15 meters). Blooms July-October.	**Not Present.** The Project Area lacks coastal salt marsh habitat. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 980 feet (0 to 300 meters). Blooms April-June.	**Not Present.** The Project Area lacks suitable mesic alkaline habitats. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.
oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 710 to 4590 feet (215 to 1400 meters). Blooms May-June.	**Not Present.** There are no known occurrence records in the Project Vicinity and the Project Area is outside of the known elevation range for this species. Additionally, this species was not detected during protocol-level floristic rare plant surveys.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Wildlife				
Mammals				
pallid bat *Antrozous pallidus*	SSC, WBWG High	Occupies a variety of habitats at low elevation including grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rock crevices, tree hollows, mines, caves, and a variety of man-made structures for roosting.	**Unlikely.** The Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. Trees within the Project Area do not typically offer the size or foliage structure required to support roosting by the species. Abandoned buildings have been removed and no rock outcrops or suitable caves or mines are present to provide roosting habitat.	No further actions are recommended for this species.
Townsend's big-eared bat *Corynorhinus townsendii*	SCT, SSC, WBWG High	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	**Unlikely.** The Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. Typical roosting habitat including caves or mines are not present. The only known occurrence of the species within the search area was approximately 8.7 miles away and occurred in 1938.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
long-eared myotis *Myotis evotis*	WBWG medium	Found in all brush, woodland and forest habitats from sea level to about 9000 feet. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	**No Potential.** The Project Area lacks the dense Douglas fir or redwood forests required to support roosting by the species.	No further actions are recommended for this species.
fringed myotis *Myotis thysanodes*	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	**No Potential.** The Project Area occurs in a cool, moist region on the borders of San Francisco bay. The site lacks the dry woodland habitat required to support the species.	No further actions are recommended for this species.
long-legged myotis *Myotis volans*	WBWG High	Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**Unlikely.** The Project Area lacks the dense forest and large trees required by the species for roosting. However, suitable habitat is found to the east of the Project Area within 2 miles, therefore the species may occasionally forage over the site.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western mastiff bat *Eumops perotis*	SSC, WBWG High	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**No Potential.** The Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. Typical roosting habitat including large caves or mines is not present.	No further actions are recommended for this species.
silver-haired bat *Lasionycteris noctivagans*	WBWG Medium	Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. This species is primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**Unlikely.** The Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. Typical roosting habitat such as large dry pine trees is uncommon in the Project Area. Foraging habitat within and surrounding the Project Area is also sub-optimal with only small patches of open, intact grassland.	No further actions are recommended for this species.
hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Unlikely.** The Project Area and surrounding habitats are poor quality foraging habitat. Roost trees with sufficient foliage structure and intact surrounding habitat are rare within the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	**High Potential.** Middens constructed by the species were observed during tree surveys within the Project Area. The species may be rare within the site due to the primarily developed nature of the Project Area and limited expanses of forest that are required to provide adequate nesting material.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area. Any woodrat structures found during the survey shall be flagged and avoided to the fullest extent feasible. If avoidance is not possible, then structures to be impacted shall be dismantled by hand under the supervision of a qualified biologist.
Alameda Island mole *Scapanus latimanus parvus*	SSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	**No Potential.** The Project Area is outside of the known	No further actions are recommended for this species.
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**No Potential:** The Project Area contains predominantly developed surfaces with little friable soils. In addition, the Project Area receives a high level of anthropogenic disturbance and the preferred prey species of badgers are not common.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
salt marsh wandering shrew *Sorex vagrans halicoetes*	SSC	Seldom observed; endemic to salt-marshes of the south arm of San Francisco Bay. Typically in medium to high marsh where abundant driftwood is scattered among pickleweed.	**No Potential.** No salt marsh habitat is present within or near the Project Area; no suitable habitat for this species is present.	No further actions are recommended for this species.
salt marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP	Occurs in pickleweed and dense vegetation habitats in tidal, muted-tidal, and diked areas.	**No Potential.** No salt marsh habitat is present within or near the Project Area; no suitable habitat for this species is present.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Birds				
bald eagle *Haliaeetus leucocephalus*	FD, SE, CFP	Generally a winter visitor; breeding in the vicinity of San Francisco Bay is very limited. Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork.	**No Potential.** Suitable large water bodies which are required to support prey species are not found within 1.5 miles of the Project Area. More suitable habitat is found to the east or southeast of the Project Area near Upper San Leandro Reservoir or Lake Chabot. This species may pass over the Project Area, but no suitable nesting or foraging habitat is present.	No further actions are recommended for this species.
Swainson's hawk *Buteo swainsoni*	ST, BCC	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa.	**No Potential.** The Project Area is not within the current breeding distribution of the species.	No further actions are recommended for this species.
black oystercatcher *Haematopus bachmani*	BCC	Year-round resident of rocky coast habitats along the Pacific coast. Also occurs on coastal and lower estuarine mud-flats. Forages primarily on intertidal invertebrates.	**No Potential.** No coastal or shoreline habitat is present within or near the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Bell's sage sparrow *Amphispiza belli belli*	BCC, SSC	Year-round resident though shows seasonal movements. Prefers dense chaparral and scrub habitats for breeding; strongly associated with chamise. Also occurs in more open habitats during winter.	**No Potential. T**he Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. The species requires expanses of dry chaparral habitat which are not found within the Project Area.	No further actions are recommended for this species.
black skimmer *Rynchops niger*	BCC, SSC	(Nesting colony) Nests along the north and south ends of the Salton Sea; also, on salt pond dikes of south San Diego bay. Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	**No Potential.** The Project Area does not contain suitable habitat such as sandy or salt pond habitats for this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
golden eagle *Aquila chrysaetos*	CFP	Resident in rolling foothill and mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range.	**No Potential. T**he Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. The Project Area does not contain nesting habitat and the typical open habitats for foraging are not present. More suitable habitat occurs approximately 1.5 miles east near Upper San Leandro Reservoir.	No further actions are recommended for this species.
ferruginous hawk *Buteo regalis*	BCC	Winter visitor; does not nest in the vicinity San Francisco Bay. Occurs in open habitats, including grasslands, low foothills surrounding valleys, and agricultural areas.	**Unlikely. T**he Project Area is a former naval hospital with moderate levels of anthropogenic disturbances and developed surfaces throughout most of the area. The Project area is surrounded by development, limiting foraging habitat.	No further actions are recommended for this species.
northern harrier *Circus cyaneus*	SSC	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Unlikely.** Marsh and grassland habitat suitable for this species is not present within the Project Area. The Project Area contains predominantly developed surfaces.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Allen's hummingbird *Selasphorus sasin*	BCC	(Nesting) Inhabits mixed evergreen, riparian woodlands, eucalyptus and cypress groves, oak woodlands, and coastal scrub during breeding season. Nest in shrubs and trees with dense vegetation.	**High potential.** The species has been confirmed in the area by both Richmond et al (2011) and by observations recorded on eBird (2015). Suitable habitat is present within the Project Area.	Work windows or pre-construction nesting bird surveys. See section 6 for additional measures.
prairie falcon *Falco mexicanus*	BCC	Resident and winter visitor. Inhabits dry, open terrain. Breeding sites are located on cliffs; forages widely. Prey upon a variety of vertebrates, mostly mammals and birds.	**No Potential.** There are no cliffs or large geologic features to support nesting by the species. **T**he Project Area is predominantly developed surfaces, and typical open habitats used for foraging is not present.	No further actions are recommended for this species.
olive-sided flycatcher *Contopus cooperi*	SSC, BCC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Arboreal nest sites located well off the ground.	**Moderate Potential.** The riparian trees within the Project Area provides suitable nesting habitat. **T**he species has been recorded within the local area (eBird 2015).	Work windows or pre-construction nesting bird surveys. See section 6 for additional measures.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
white-tailed kite *Elanus leucurus*	CFP	Year-long resident of coastal and valley lowlands. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	**Unlikely.** The Project Area is predominantly developed surfaces, and typical open grassland habitat used for foraging is not present. The species may be seen flying over the Project Area.	No further actions are recommended for this species.
burrowing owl *Athene cunicularia*	SSC, BCC	Largely resident in the region. Found in grasslands and other open habitats with a sparse to absent shrub/tree canopy. Nests and roosts in old mammal burrows, typically those of ground squirrels. Preys upon insects, and also small mammals, reptiles and birds.	**Unlikely.** The Project Area contains predominantly developed surfaces, and ground squirrels burrows or burrow surrogates were not observed on the site. Short grasslands and open habitats are extremely limited within the Project Area.	No further actions are recommended for this species.
long-billed curlew *Numenius americanus*	BCC	(Nesting) breeds in upland shortgrass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others	**No Potential.** The species does not breed in Alameda County.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
American peregrine falcon *Falco peregrinus anatum*	FD, SD, CFP, BCC,	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**Unlikely.** There are no large cliffs or tall man-made structures within the Project Area to support nesting by the species. Typical foraging habitat is not present; however, this species may be observed on rare occasion foraging in the Project Area.	No further actions are recommended for this species.
grasshopper sparrow *Ammodramus savannarum*	SSC	Summer resident. Breeds in open grasslands, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Unlikely. T**he Project Area is a former naval hospital with developed surfaces throughout most of the area. Sparse ruderal grasslands present within the Project Area are not of sufficient height or density to support nesting and foraging by the species.	No further actions are recommended for this species.
oak titmouse *Baeolophus inornatus*	BCC	Occurs year-round in woodland and savannah habitats where oaks are present, as well as riparian areas. Nests in tree cavities.	**Present.** This species was observed during the site visit, and suitable nesting habitat is present in the oak woodland and riparian habitats within the Project Area.	Work windows or pre-construction nesting bird surveys. See section 6 for additional measures.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Nuttall's woodpecker *Picoides nuttallii*	BCC	Year-round resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks; also occurs in riparian woodland. Nests in tree cavities.	**Present.** This species was observed during the site visit, and suitable nesting habitat is present in the oak woodland and riparian habitats within the Project Area.	Work windows or pre-construction nesting bird surveys. See section 6 for additional measures.
yellow-billed magpie *Pica nuttalli*	BCC	(Nesting & communal roosts) Oak savanna with large trees and large expanses of open ground. The Central Valley floor, gentle slopes, and open park-like areas including along stream courses. Grasslands, pasture, or cultivated fields are needed for foraging.	**No Potential. T**he Project Area is a former naval hospital with developed surfaces throughout most of the area. Open areas are primarily old building foundations which have been colonized by sparse ruderal grasses. This species primarily nests within the southeastern portions of Alameda County (Richmond et al. 2011)	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
loggerhead shrike *Lanius ludovicianus*	BCC, SSC	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**Unlikely. T**he Project Area is a former naval hospital with developed surfaces throughout most of the area. Foraging habitat within the Project Area is sub optimal due to the presence of foundations and development. Accounts of this species from Richmond et al. (2011) show the species typically nests in the eastern portions of the county where undeveloped areas more suitable for foraging are plentiful.	No further actions are recommended for this species.
Lewis's woodpecker *Melanerpes lewis*	BCC	Uncommon winter resident occurring on open oak savannahs, broken deciduous and coniferous habitats.	**Unlikely.** This species does not breed in the San Francisco Bay Area. The Project Area does not contain open oak woodlands and typical habitats of this species.	No further actions are recommended for this species.
Costa's hummingbird *Calypte costae*	BCC	Desert and semi-desert, arid brushy foothills and chaparral, in migration and winter also in adjacent mountains and in open meadows and gardens.	**No Potential.** Only three confirmed records exist for this species and occurred in: 1875, 1890 and 1995. The species does not breed in Alameda County.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
tricolored blackbird *Agelaius tricolor*	SE, SSC, BCC	Resident, though disperses somewhat when not breeding. Typically nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Highly colonial; breeding aggregations tend to be large.	**No Potential. T**he Project Area is a former naval hospital with developed surfaces throughout most of the area. There is no marsh or thickets of willow to support nesting or foraging of this species.	No further actions are recommended for this species.
short-eared owl *Asio flammeus*	SSC	Resident and winter visitor, found in open, treeless areas with elevated perches and dense vegetation. Tall grasses and/or emergent vegetation are needed for nesting and daytime seclusion.	**No Potential.** The Project Area contains predominantly developed surfaces, and tall grasses and emergent vegetation for nesting are not present.	No further actions are recommended for this species.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT, SE, BCC	Summer resident, breeding in dense riparian forests and jungles, typically with early successional vegetation present. Utilizes densely-foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very restricted.	**No Potential.** The species does not breed in Alameda County.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Ridgway's (California clapper) rail *Rallus obsoletus (longirostris) obsoletus*	FE, SE, CFP	Associated with tidal salt marsh and brackish marshes supporting emergent vegetation, upland refugia, and incised tidal channels.	**No Potential.** The Project Area does not contain marsh habitat and is outside of the known breeding distribution of this species.	No further actions are recommended for this species.
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP, BCC	Occurs in tidal salt marsh with dense stands of pickleweed as well as freshwater to brackish marshes.	**No Potential.** The Project Area and vicinity do not contain marsh habitat.	No further actions are recommended for this species.
western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC	Federal listing applies only to the Pacific coastal population. Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	**No Potential.** The Project Area and vicinity do not contain shore, lake, or sandy habitats to support nesting or foraging of this species.	No further actions are recommended for this species.
California least tern *Sterna antillarum browni*	FE, SE	Nests along the coast from San Francisco bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**No Potential.** The Project Area and vicinity do not contain shore, gravel, or sandy habitats to support nesting or foraging of this species. This species inhabits lands immediately adjacent to or within San Francisco Bay.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and bands with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	**No Potential.** The species does not breed in Alameda County.	No further actions are recommended for this species.
black-chinned sparrow *Spizella atrogularis*	BCC	(Nesting) prefers sloping ground in mixed chaparral, chamise-redshank chaparral, sagebrush, and similar brushy habitats. Often on arid, south-facing slopes with ceanothus, manzanita, sagebrush, and chamise.	**No Potential.** This species is a rare breeder in Alameda county. When present it primarily nests in the far southeastern portions of the county (Richmond et al. 2011).	No further actions are recommended for this species.
yellow-breasted chat *Icteria virens*	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**Unlikely.** The Project Area does not provide the exceptionally dense riparian vegetation which is required for nesting by this species. This species is a very rare breeder in Alameda County.	No further actions are recommended for this species.
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	SSC, BCC	Resident of San Francisco bay region fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging, tall grasses, tule patches, willows for nesting.	**Unlikely.** The Project Area does not contain any saltmarsh or thick contiguous cover required by the species. The species does not typically nest within this portion of Alameda County.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
purple martin *Progne subis*	SSC	Summer resident. Breeds in woodlands and other relatively open habitat. Nests in cavities, usually in tall, isolated trees or man-made structures.	**Unlikely.** While habitat within the riparian areas may be able to support the species, this species is also very rare to Alameda County. Richmond et al. (2011) did not confirm any nesting activity by the species within the county.	No further actions are recommended for this species.
yellow warbler *Setophaga (Dendroica) petechia brewsteri*	SSC	Summer resident, nesting in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in suitable montane shrubbery.	**Moderate Potential.** Suitable stands of willows and cottonwoods may occur within the riparian zones of the Project Area. Richmond et al (2011) and occurrences in eBird (2015) have confirmed sightings or possible nesting activity within the local area.	Work windows or pre-construction nesting bird surveys. See section 6 for additional measures.
yellow-headed blackbird *Xanthocephalus xanthocephalus*	SSC	Migrant and local summer resident. Nests colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or larger ponds.	**No Potential.** This species is not known to breed in Alameda county.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
lesser yellowlegs *Tringa flavipes*	BCC	Breeds in open boreal forest with scattered shallow wetlands. Winters in wide variety of shallow fresh and saltwater habitats.	**No Potential.** The Project Area does not contain open fresh or saltwater habitat to support nesting by the species. This species is not known to breed in Alameda county.	No further actions are recommended for this species.
least bittern *Ixobrychus exilis*	SSC, BCC	Summer resident in portions of the Central Valley and southern California. Typically breeds in deeper freshwater marshes with dense emergent and woody vegetation.	**No Potential.** This species is not known to breed in Alameda County.	No further actions are recommended for this species.
Lawrence's goldfinch *Carduelis lawrencei*	BCC	Resident to nomadic; inhabits oak woodlands, chaparral, riparian woodlands and other areas, often near water. Not known to breed in the vicinity of San Francisco Bay.	**Unlikely.** This species primarily breeds in the southern portions of Alameda County where expanses of open oak woodland are present.	No further actions are recommended for this species.
Alameda song sparrow *Melospiza melodia pusillula*	BCC, SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**No Potential.** The Project Area is a former naval hospital. There are no salt marshes present to support nesting by the species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
whimbrel *Numenius phaeopus*	BCC	Breeds in various tundra habitat, from wet lowlands to dry heath. In migration, frequents various coastal and inland habitats, including fields and beaches. Winters in tidal flats and shorelines, occasionally visiting inland habitats.	**No Potential.** This species is not known to breed in Alameda county.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Reptiles and Amphibians				
western pond turtle *Actinemys (Emys) marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**Unlikely.** Waters within the Project Area are limited to Rifle range Branch Creek which does not provide suitable basking habitat or suitable water depths to support the species. The project Area also lacks friable soils in the uplands to support nesting by the species.	No further actions are recommended for this species.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses.	**Unlikely.** The Project Area is a fully developed, former naval hospital complex and has limited connectivity to potentially occupied habitats. Suitable scrub and woodland habitats are extremely limited within the Project Area, and protocol-level surveys have not documented the species within the Project Area to date.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
foothill yellow-legged frog *Rana boylii*	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**Unlikely.** The Project Area is a fully developed former naval hospital complex. Perennial waterways within the Project Area are fragmented and surrounded by development. The Project Area is also isolated from neighboring populations by urban development.	No further actions are recommended for this species.
California red-legged frog *Rana draytonii*	FT, SSC	Associated with quiet perennial to intermittent ponds, stream pools, and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	**Unlikely.** The Project Area is a fully developed former naval hospital complex. The Project Area lacks suitable upland or dispersal habitat. The Project Area is also isolated from neighboring populations by urban development.	No further actions are recommended for this species.
California tiger salamander *Ambystoma californiense*	FT, ST, SSC	Populations in Santa Barbara and Sonoma counties currently listed as endangered. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Seasonal ponds and vernal pools are crucial to breeding. Adults utilize mammal burrows as estivation habitat.	**Unlikely.** The Project Area is a developed former naval hospital complex, and does not have seasonal wetlands or vernal pools to support breeding by the species. The Project Area is surrounded by development and high traffic roads; there is no connectivity to occupied habitats.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Fish				
tidewater goby *Eucyclogobius newberryi*	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**No Potential.** The Project Area does not contain any lagoon habitat or occur adjacent to any suitable saltwater habitat.	No further actions are recommended for this species.
Delta smelt *Hypomesus transpacificus*	FT, ST, RP	Endemic to the Sacramento-San Joaquin delta area; found in areas where salt and freshwater systems meet. It occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay.	**No Potential.** The Project Area does not contain any suitable brackish water habitat to support the species.	No further actions are recommended for this species.
longfin smelt *Spirinchus thaleichthys*	FCT, ST, RP	Found in open waters of estuaries, mostly in the middle or bottom of the water column. This species prefers salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Project Area does not contain any suitable brackish or saltwater water habitat to support the species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
steelhead - central CA coast ESU *Oncorhynchus mykiss*	FT	Anadromous, spending most of life cycle in the ocean. This ESU occurs from the Russian River south to Soquel Creek and Pajaro River, including the San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**No Potential.** The creeks which run through the Project Area are not connected to the waters of San Francisco Bay. The absence of anadromy precludes the species from being present.	No further actions are recommended for this species.
Invertebrates				
vernal pool fairy shrimp *Branchinecta lynchi*	FT, SSI, RP	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** The Project area does not contain any vernal pool features that are required to support the species.	No further actions are recommended for this species.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT, SSI, RP	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *O. purpurscens* are the secondary host plants.	**No Potential.** This species is considered extirpated from the East Bay hills (CNDDB 2015).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Callippe silverspot butterfly *Speyeria callippe callippe*	FE, SSI	Restricted to the northern coastal scrub of the San Francisco peninsula. Hostplant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** There are no suitable soils within the Project Area to support the host plants of the species.	No further actions are recommended for this species.
monarch butterfly *Danaus plexippus*	SSI (winter roosting areas)	Winter roost sites located in wind-protected tree groves, with nectar and water sources nearby; sites are generally on or close to the coast.	**No Potential.** The Project Area occurs inland from the coast of San Francisco Bay. Roost trees for the species are primarily located along the coast. Two occurrences of roost trees have been recorded in Alameda county by CNDDB (2015); both are approximately 5 miles from the Project Area.	No further actions are recommended for this species.

*** Key to status codes:**

BCC	U.S. Fish & Wildlife Service (USFWS) Birds of Conservation Concern
CFP	CDFW Fully Protected Animal
FCT	Federal Candidate Threatened
FE	Federal Endangered
FT	Federal Threatened
RP	Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
SE	State Endangered
SCT	State Candidate Threatened
SSC	California Department of Fish and Game (CDFG) Species of Special Concern
ST	State Threatened
Rank 1A	California Native Plant Society (CNPS) Rank 1A: Plants presumed extirpated in California and rare or extinct elsewhere
Rank 1B.1	California Native Plant Society (CNPS) Rank 1B.1: Plants rare, threatened or endangered in California and elsewhere (seriously threatened in California)
Rank 1B.2	California Native Plant Society (CNPS) Rank 1B.2: Plants rare, threatened, or endangered in California and elsewhere (moderately threatened in California)
Rank 2B.2	California Native Plant Society (CNPS) Rank 2B.2: Plants rare, threatened, or endangered in California, but more common elsewhere (moderately threatened in California)
Rank 3	California Native Plant Society (CNPS) Rank 3: Plants about which more information is needed (a review list).
Rank 4.3	California Rare Plant Rank 4.3: Plants of Limited Distribution - A Watch List (not very threatened in California)
WBWG	Western Bat Working Group Priority Species
WL	CDFW Watch List

****Potential species occurrence definitions:**

Present. Species was observed on the site during site visits or has been recorded (i.e. CNDDB, other reports) on the site recently.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species has a low probability of being found on the site.

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

APPENDIX D

PROJECT AREA PHOTOGRAPHS

Top: Overview of the Project Area from the northeastern edge. View facing west.

Bottom: Purple needlegrass grassland on the knoll in the northeastern portion of the property.

Photographs taken March 25, 2015.

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Top: Broom scrub in the northern portion of the Project Area.

Bottom: Coast live oak woodland in the northern portion of the Project Area.

Photographs taken March 25, 2015.

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Top: Monterey pine woodland with a eucalyptus stand in the background in the northeastern portion of the Project Area.
Bottom: California annual grassland, non-native/ornamental woodland, and developed/ruderal biological communities in the northwestern portion of the Project Area
Photographs taken March 25, 2015.

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Top: Riparian woodland in the southern portion of the Project Area.

Bottom: California sagebrush scrub in the Hardenstine Parcel portion of the Project Area.

Photographs taken March 25, 2015.

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Top: Oakland star-tulip in Monterey pine woodland in the northeastern portion of the Project Area.

Photograph taken March 25, 2015.

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