

## Appendix C

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### **Air Quality Supporting Information**

**Air Quality Emissions Assumptions and Calculations**

CalEEMod Emissions Model Results

Health Risk Assessment

**Schedule**

Phase	Construction Phase	Start Date	End Date	Approximate Demolition Duration	Approximate Grading Duration (Work Days)	Approximate Building Duration	Approximate Paving Duration	Approximate Planting Duration	Approximate Duration (Work Days)	Total Approximate Duration (Active Construction Excluding Planting)	Notes	Operations
1	Lower Channel Concrete Removal	8/8/2022	10/12/2022	15	30	0	0	32	72	40		
		10/31/2022	12/1/2022							0		
2	Flood Wall (Segment #1) Construction	4/1/2022	7/7/2022	5	5	50	10	0	70	70		
3	Flood Wall (Segment #2) Construction	7/8/2022	8/25/2022	5	5	15	10	0	35	35		
4	Flood Wall (Segment #3) Construction	4/1/2022	7/14/2022	5	10	50	10	0	75	75		
5	Fish Pool Construction	6/15/2022	10/11/2022	25	25	0	65	0	85	85	These tasks overlap in the schedule, total days 85	
6	Granton Park Storm Drain Pump Station Construction	4/1/2022	5/26/2022	5	10	15	10	1	40	39		40 HP (29.8 kW) Pumps; 150-kW (201 hp) backup generator 50 hrs/yr
7	Allen Park Construction	6/1/2022	10/25/2022	25	50	45	20	20	105	85	These tasks overlap in the schedule, total days 105	
8	Unit 4 Improvements	6/15/2022	8/30/2022	5	35	10	10	5	55	50	These tasks overlap in the schedule, total days 55	

<b>Total</b>	<b>4/1/2022</b>	<b>10/25/2022</b>	<b>10/31/2022</b>	<b>12/1/2022</b>
	<b>Total</b>	<b>167</b>		

502 kWhr per year

**Table 1 - Cut and Fill Details**

Construction Phase	Total Disturbed Area (acre)	Total Disturbed Area (sf)	Total Paved (Concrete) Area (sf)	Total Volume Cut Generated (cy) - below OHWM Only	Total Volume Cut Generated (cy)	Total Volume Fill (cy) - Below OHWM	Total Volume Fill (cy) (Native Soil)	Total Volume Fill (cy) (Rock)	Total Volume Fill (cy) (Concrete)
Lower Channel Concrete Removal	1.98	86,250	0	N/A	7,250	N/A	0	1,025	0
Flood Wall (Segment #1) Construction	0.13	5,700	950	0	370	0	150	70	160
Flood Wall (Segment #2) Construction	0.01	390	65	0	25	0	10	5	11
Flood Wall (Segment #3) Construction	0.15	6,500	1,100	0	420	0	160	80	180
Fish Pool Construction	0.11	5,000	5,000	Unknown	650	Unknown	0	100	350
Granton Park Storm Drain Pump Station Construction	0.04	1,900	520	0	2,800	0	1,400	20	110
					Total: 8,900 Conc. Channel: 400 Right Bank: 7,550 Left Bank: 950		Total: 1,350 Conc. Channel: 1,300 Right Bank: 25 Left Bank: 25		
Allen Park Construction	1.38	60,000	6,400	Unknown		Unknown		0	650
Unit 4 Improvements	0.23	10,000	3,625	1,500	1,500	1,425	750	450	225
<b>Total</b>		<b>175,740</b>			<b>32,415</b>		<b>5,070</b>	<b>1,750</b>	<b>1,686</b>

Note: for "Lower Channel Concrete Removal" the volume of cut includes the volume of rock fill  
 The "Lower Channel Concrete Removal" volume of cut was reduced to 7,225 per the 65% plan  
 Project assumptions are based on preliminary engineering and subject to change. The majority of the Lower Channel Concrete Removal assumptions are from the 30% design plan. The 65% design plan yielded smaller areas of effect.

Note: for "Lower Channel Concrete Removal" the rock fill is taken from the edges of the stilling

**Table 2 - Construction Water**

<b>Construction Phase</b>	<b>Approximate Grading Duration (Work Days)</b>	<b>Total Disturbed Area (sf)</b>	<b>Total Disturbed Area (Acre)</b>	<b>Required Water (Gal)</b>
Lower Channel Concrete Removal	30	86,250	1.9800	269,085
Flood Wall (Segment #1) Construction	5	5,700	0.1309	2,964
Flood Wall (Segment #2) Construction	5	390	0.0090	203
Flood Wall (Segment #3) Construction	10	6,500	0.1492	6,760
Fish Pool Construction	25	5,000	0.1148	12,999
Granton Park Storm Drain Pump Station Construction	10	1,900	0.0436	1,976
Allen Park Construction	50	60,000	1.3774	311,982
Unit 4 Improvements	35	10,000	0.2296	36,398

642,366

3020 gal/acre application rate

3 applications per day

0.5 portion of project duration requiring dust control

Water usage for dust control is calculated based on a minimum control efficiency of 66% (three times daily) with an application rate of 3,020 gal/acre/day (Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition))

Table 3 - Worker Trip Details	Worker				Water		Earthwork				Demo (concrete, fencing, vegetation and miscellaneous)										Concrete			Equipment		MHDT Total		HHDT Total		
	Average Number of Workers Per Day (Active Construction)	Average One-Way Worker Trips per Day	Average Number of Workers Per Day (Planting)	Average One-Way Worker Trips per Day	Total Water Trucks (4,000 gallons)	Average One-Way Water Trucks per Day	Total Export/Import (solid cy)	Total Export/Import (loose cy)	Total Number of 16 cy Haul trucks ONLY	Average One-Way Truck Trips per Day (16 cy Haul trucks ONLY)	Total Concrete Demo (solid cy)	Total Concrete Demo (loose cy)	Total Concrete Weight (tons)	Concrete Area (sf)	Tree Removal	Tree Removal (loose cy)	Fence Removal (ft)	Fence Removal (loose cy)	Total Demo (loose cy)	Total Number of 16 cy Haul trucks ONLY	Average One-Way Truck Trips per Day (16 cy Haul trucks ONLY)	Total Concrete (cy)	Total Number of 9 cy trucks	Average One-Way Truck Trips per Day (9 cy Haul trucks ONLY)	Total Number of Trips	Average One-Way Truck Trips per Day	Total Concrete and Water Trucks	Average One-Way Truck Trips per Day (Water and Concrete)	Total Haul and Equipment Trucks	Average One-Way Truck Trips per Day (Haul and Equipment)
Lower Channel Concrete Removal	6	12	4	8	136	6.8	6,225	7470	467	23.4	220	286	446	5,700	39	78	1,250	125	489	31	1.6	0	0	0	10	0.5	136	7	508	25
Flood Wall (Segment #1) Construction	6	12	0	0	2	0.1	290	348	22	0.6	0	0	0	71	142	950	95	237	15	0.4	160	18	0.5	10	0.3	20	1	65	2	
Flood Wall (Segment #2) Construction	6	12	0	0	2	0.1	20	25	2	0.1	0	0	0	3	6	0	0	6	1	0.1	11	1	0.1	10	0.6	3	0	14	1	
Flood Wall (Segment #3) Construction	6	12	0	0	0	0.0	340	408	26	0.7	0	0	0	83	166	1,075	108	274	18	0.5	180	20	0.5	10	0.3	20	1	74	2	
Fish Pool Construction	4	8	0	0	8	0.2	750	900	57	1.3	350	455	709	5,000	0	0	0	0	455	29	0.7	350	39	0.9	10	0.2	47	1	135	3
Granton Park Storm Drain Pump Station Construction	6	12	4	8	2	0.1	1,420	1704	107	5.5	0	0	0	0	8	16	0	0	16	1	0.1	110	12	0.6	10	0.5	14	1	130	7
Allen Park Construction	6	12	4	8	156	3.7	7,550	9060	567	13.3	1,200	1,560	2,430	32,000	144	288	1,200	120	1,968	123	2.9	650	72	1.7	10	0.2	228	5	772	18
Unit 4 Improvements	4	8	4	8	20	0.8	1,200	1440	90	3.6	0	0	0	0	21	42	0	0	42	3	0.1	225	25	1.0	10	0.4	45	2	128	5
<b>Total</b>							<b>17795.5</b>	<b>21354.6</b>			<b>1770.0</b>	<b>2301.0</b>			<b>369.0</b>	<b>738.0</b>		<b>447.5</b>	<b>3486.5</b>											

Note: one-way trips multiple the number of trucks needed by two to account for arriving with the load and leaving empty/arriving empty and leaving with 1 Note: for "Lower Channel Concrete Removal" the rock 1 Note: Use loose instead of solid.

Average trips for "Lower Channel Concrete Removal", "Allen Park Construction", "Granton Park", and "Unit 4" are for active construction, excluding planting periods.

Project assumptions are based on preliminary engineering and subject to change. The majority of the Lower Channel Concrete Removal assumptions are from the 30% design plan. The 65% design plan yielded smaller areas of effect.

Assume hauling to Redwood Landfill

Parameters Used in Calculations	
Soils Bulking Solid to Loose	1.20 multiplier
Concrete Demo Bulking Solid to Loose	1.30 multiplier
Tree Removal Volume Average	2.00 cy (chipped)
Fence Demo Length to Volume	0.10 cy (loose in truck)
Truck Volume (no trailer)	16 cy
Concrete Truck Volume	9 cy
Average Truck Loading/Unloading Time	0.5 hours
Average Concrete Truck Four Time	1.0 hours
Hours Per Day Loading	8 hours
Time for One Way Trip to Disposal Site	1 hours
Haul TruckTrips Per Day	16 round trip
Haul TruckTrips Per Day	32 one way
Concrete TruckTrips Per Day	6 round trip
Concrete TruckTrips Per Day	12 one way
equipment deliveries	equipment deliveries
Equipment Mob/Demob	10 per phase

**Table 4 - Construction Equipment**

Construction Phase	Construction Equipment Type	Construction Fuel Type	Number	Horsepower of Equipment	Hours of use over Demolition	Hours of use over Grading	Hours of use over Construction	Hours of use over Paving
<b>Lower Channel Concrete Removal</b>								
CAT 320 Excavator	Excavator (Medium)	Diesel	1	120	6.00	5.00		
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Dewatering Pump	Pump	Diesel	1	44	24.00	20.00		
Super 10 Truck	Dump Truck	Diesel	3	550	8.00	6.67		
CAT 120 Motor Grader	Grader	Diesel	1	140	0.00	2.00		
Liebherr LTR 1060 Crawler Crane	Crane	Diesel	1	175	2.67	0.00		
Giken F101 Hammer	Silent Piler	Diesel	1	355	5.33	0.00		
<b>Flood Wall (Segment #1) Construction</b>								
CAT 226D3 Skid Steer	Loader	Diesel	1	67.1	4.00	4.00	2.40	0.00
CAT 303 Excavator	Excavator (Small)	Diesel	1	25	4.00	4.00	2.40	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	2.50
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	2.50
Super 10 Truck	Dump Truck	Diesel	2	550	6.00	6.00	1.20	0.00
<b>Flood Wall (Segment #2) Construction</b>								
CAT 226D3 Skid Steer	Loader	Diesel	1	67.1	4.00	4.00	2.67	0.00
CAT 303 Excavator	Excavator (Small)	Diesel	1	25	4.00	4.00	2.67	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	2.50
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	2.50
Super 10 Truck	Dump Truck	Diesel	2	550	6.00	6.00	4.00	0.00
<b>Flood Wall (Segment #3) Construction</b>								
CAT 226D3 Skid Steer	Loader	Diesel	1	67.1	4.00	4.00	2.40	0.00
CAT 303 Excavator	Excavator (Small)	Diesel	1	25	4.00	4.00	2.40	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	5.00
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	5.00

Super 10 Truck	Dump Truck	Diesel	2	550	6.00	6.00	0.60	0.00
<b>Fish Pool Construction</b>								
CAT 226D3 Skid Steer	Loader	Diesel	1	67.1	4.00	3.20		0.00
CAT 320 Excavator	Excavator (Medium)	Diesel	1	120	6.00	4.80		0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00		1.54
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00		1.54
Dewatering Pump	Pump	Diesel	2	44	24.00	24.00		12.92
Super 10 Truck	Dump Truck	Diesel	2	550	1.80	1.80		0.00
<b>Granton Park Storm Drain Pump Station Construction</b>								
CAT 320 Excavator	Excavator (Medium)	Diesel	1	120	6.00	6.00	2.00	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	2.50
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	2.50
Leibherr Small Crane LTC 1050-3.1	Crane	Diesel	1	326	0.00	0.00	0.00	3.00
Super 10 Truck	Dump Truck	Diesel	2	550	6.00	3.00	2.00	0.00
Dewatering Pump	Pump	Diesel	1	44	24.00	24.00	16.00	0.00
<b>Allen Park Construction</b>								
CAT 226D3 Skid Steer	Loader	Diesel	1	67.1	2.67	1.33	1.48	0.00
CAT 320 Excavator	Excavator (Medium)	Diesel	1	120	3.20	1.60	1.78	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	1.00
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	1.00
CAT CB22B Small Roller	Roller/Compactor	Diesel	1	36.2	0.00	0.00	0.00	4.00
Super 10 Truck	Dump Truck	Diesel	3	550	3.20	1.60	2.67	0.00
Dewatering Pump	Pump	Diesel	1	44	24.00	24.00	2.67	0.00
CAT 120 Motor Grader	Grader	Diesel	1	140	3.60	1.80	0.00	0.00
<b>Unit 4 Improvements</b>								
CAT 320 Excavator	Excavator (Medium)	Diesel	1	120	8.00	1.43	5.00	0.00
Pickup Truck	Pickup Truck	Gas	2	290				
Utility/Large Pickup Truck	Pickup Truck Large	Diesel	1	330				
Cement truck and mixer	Cement truck and mixer	Diesel	1	500	0.00	0.00	0.00	5.00
Putzmeister 47Z Boom Pump	Concrete boom pump	Diesel	1	550	0.00	0.00	0.00	5.00
Dewatering Pump	Pump	Diesel	1	44	24.00	24.00	24.00	12.00
Super 10 Truck	Dump Truck	Diesel	3	550	10.67	1.52	5.33	0.00

**Total Criteria Air Pollutants Unmitigated**

Construction Phase	pounds								metric tons	Amortized
	ROG	NOx	CO	SO2	Exhaust PM10	Dust/Fugitive PM10	Exhaust PM2.5	Dust/Fugitive PM2.5	CO2e	
<b>1 Lower Channel Concrete Removal</b>										
Truck Emissions	16.83	348.55	176.04	1.07	9.37	125.16	4.91	30.72	8.9	
Equipment and Worker Trip Emissions	65.40	447.60	492.80	0.94	19.10	20.40	18.52	4.02	38.0	
<b>Total</b>	<b>82.23</b>	<b>796.15</b>	<b>668.84</b>	<b>2.01</b>	<b>28.47</b>	<b>145.56</b>	<b>23.43</b>	<b>34.74</b>	<b>46.9</b>	<b>1.6</b>
<b>2 Flood Wall (Segment #1) Construction</b>										
Truck Emissions	4.44	59.26	39.83	0.22	2.74	47.98	1.38	11.78	4.9	
Equipment and Worker Trip Emissions	11.04	69.80	90.60	0.26	2.82	9.42	2.68	2.48	12.2	
<b>Total</b>	<b>15.48</b>	<b>129.06</b>	<b>130.43</b>	<b>0.48</b>	<b>5.56</b>	<b>57.40</b>	<b>4.06</b>	<b>14.26</b>	<b>17.2</b>	<b>0.6</b>
<b>3 Flood Wall (Segment #2) Construction</b>										
Truck Emissions	1.84	22.75	14.86	0.10	1.43	23.65	0.72	5.80	3.2	
Equipment and Worker Trip Emissions	7.56	51.00	56.60	0.18	1.92	4.64	1.84	1.24	9.0	
<b>Total</b>	<b>9.40</b>	<b>73.75</b>	<b>71.46</b>	<b>0.28</b>	<b>3.35</b>	<b>28.29</b>	<b>2.56</b>	<b>7.04</b>	<b>12.2</b>	<b>0.4</b>
<b>4 Flood Wall (Segment #3) Construction</b>										
Truck Emissions	4.87	65.63	44.02	0.24	2.95	51.81	1.49	12.72	5.2	
Equipment and Worker Trip Emissions	12.88	104.60	98.60	0.30	3.98	1.32	3.82	0.32	15.1	
<b>Total</b>	<b>17.75</b>	<b>170.23</b>	<b>142.62</b>	<b>0.54</b>	<b>6.93</b>	<b>53.13</b>	<b>5.31</b>	<b>13.04</b>	<b>20.3</b>	<b>0.7</b>
<b>5 Fish Pool Construction</b>										
Truck Emissions	6.91	106.21	64.56	0.36	3.97	65.35	2.02	16.04	5.9	
Equipment and Worker Trip Emissions	171.40	1,118.60	1,182.80	2.34	44.40	25.40	44.00	5.02	94.7	
<b>Total</b>	<b>178.31</b>	<b>1,224.81</b>	<b>1,247.36</b>	<b>2.70</b>	<b>48.37</b>	<b>90.75</b>	<b>46.02</b>	<b>21.06</b>	<b>100.5</b>	<b>3.4</b>
<b>6 Granton Park Storm Drain Pump Station Construction</b>										
Truck Emissions	5.00	89.55	51.00	0.29	2.66	41.35	1.37	10.15	2.9	
Equipment and Worker Trip Emissions	37.00	248.60	265.80	0.56	9.96	5.60	9.76	1.44	23.0	
<b>Total</b>	<b>42.00</b>	<b>338.15</b>	<b>316.80</b>	<b>0.85</b>	<b>12.62</b>	<b>46.95</b>	<b>11.13</b>	<b>11.59</b>	<b>25.9</b>	<b>0.9</b>
<b>7 Allen Park Construction</b>										
Truck Emissions	25.38	511.32	269.25	1.56	13.09	184.41	6.83	45.26	10.6	
Equipment and Worker Trip Emissions	115.60	756.60	839.00	1.54	32.60	73.80	31.80	13.44	61.6	
<b>Total</b>	<b>140.98</b>	<b>1,267.92</b>	<b>1,108.25</b>	<b>3.10</b>	<b>45.69</b>	<b>258.21</b>	<b>38.63</b>	<b>58.70</b>	<b>72.2</b>	<b>2.4</b>
<b>8 Unit 4 Improvements</b>										
Truck Emissions	5.62	99.24	55.30	0.33	3.44	52.18	1.77	12.81	5.0	
Equipment and Worker Trip Emissions	77.00	499.60	526.00	1.06	19.64	5.98	19.48	1.56	43.6	
<b>Total</b>	<b>82.62</b>	<b>598.84</b>	<b>581.30</b>	<b>1.39</b>	<b>23.08</b>	<b>58.16</b>	<b>21.25</b>	<b>14.37</b>	<b>48.6</b>	<b>1.6</b>
<b>Total</b>	<b>568.76</b>	<b>4,598.90</b>	<b>4,267.07</b>	<b>11.36</b>	<b>174.07</b>	<b>738.45</b>	<b>152.38</b>	<b>174.80</b>		
<b>Average Daily</b>	<b>3.41</b>	<b>27.54</b>	<b>25.55</b>	<b>0.07</b>	<b>1.04</b>	<b>4.42</b>	<b>0.91</b>	<b>1.05</b>	<b>343.8</b>	<b>11.5</b>
<b>Operational Facility</b>	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SO2</b>	<b>Exhaust PM10</b>	<b>Dust/Fugitive PM10</b>	<b>Exhaust PM2.5</b>	<b>Dust/Fugitive PM2.5</b>	<b>CO2e</b>	
<b>6 Granton Park Storm Drain Pump Station Construction</b>										
Equipment Emissions	16.6	46.2	42	0.08	2.42	0	2.42	0	17.7	
<b>Average Daily</b>	<b>0.05</b>	<b>0.13</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>17.7</b>	<b>29.1</b>

1 lb = 0.00045 metric ton  
 1 ton = 2000 pounds

0.01 0.01





Activities	Uncontrolled Emission Factor		Controlled Emission Factor		Uncontrolled Emission Factor		Controlled Emission Factor		Source	Notes
	PM10	Units	PM10	Units	PM2.5	Units	PM2.5	Units		
Paved Roads - Average Weight of Vehicle	0.004	lb/VMT			0.0009	lb/VMT			AP-42, Section 13.2.1 Paved Roads	With Precipitation
	0.004	lb/VMT			0.0010	lb/VMT				Without Precipitation

**Paved Roads Emission Factor Assumptions**

0.0022 PM10 k Constant

0.00054 PM2.5 k Constant

2.4 Average Weight of Vehicle (CalEEMod)

0.7 silt content

0.5 moisture content

40 speed                      15 speed

69 Days of Measurable Precipitation

Source: CalEEMod User's Guide, November 2017, page 39.



Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	N <sub>OX</sub> _IDLE	N <sub>OX</sub> _RUNEX	X	N <sub>OX</sub> _STREX	L <sub>UNEX</sub>	X	PM2.5_R	PM2.5_IDLE	PM2.5_ST	PM2.5_P	PM2.5_P	PM10_RU	PM10_IDL	PM10_ST	CO2_IDLE	CO2_STRE	CH4_RUN	CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STR	ROG_RUN	ROG_IDLE	ROG_STR	ROG_HOT	ROG_RUN	ROG_RES	ROG_DIU	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIU	CO_RUNE	SOX_RUN	SOX_IDLE	SOX_STRE		
SAN FRANCISCO BAY AREA	2022	LDT1	Aggregated	Aggregated	GAS	291836.686	9811542	1346181	0.090870772	0	0.263204407	0.001751	0	0.002269	0.002	0.01575	0.001904	0	0.002467	0.008000002	0.036750011	304.6484215	0	64.97666	0.004893	0	0.073331	0.007247	0	0.029457	0.021274	0	0.365848	0.183398	0.669177	0.342141	0.405488	0.031025	0	0.400556	0.183398	0.669177	0.342141	0.405488	1.042717	0	2.514924	0.003015	0	0.000643

LDT1	Running (RUNEX, PMTW, PMBW) grams per mile										Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNLS, RESTL) grams per trip									
	ROG	N <sub>OX</sub>	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O		ROG	N <sub>OX</sub>	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O	
	0.02	0.09	1.04	0.05	0.02	0.00	304.65	0.00	0.01		1.97	0.26	2.51	0.00	0.00	0.00	64.98	0.07	0.03	

2022	Running Emission Factor (pounds per mile)								Process Emission Factor (pounds per trip)							
	ROG	N <sub>OX</sub>	CO	SO2	Exhaust PM10	Exhaust PM2.5	Exhaust Dust PM 10	Exhaust CO2e	ROG	N <sub>OX</sub>	CO	SO2	Exhaust PM10	Exhaust PM2.5	Exhaust CO2e	
	4.6901E-05	0.0002	0.002299	6.64636E-06	0.000103	0.003883983	4.3E-05	0.00095334	0.613889	0.004334	0.00058	0.005544	1.41756E-06	5.43942E-06	5.00168E-06	0.151616

GWPx (Fourth Assessment Report)

factor	CO2:	1
0.00220462	CH4:	28
	N2O:	298

1 metric ton (t)  
1.102311 short tons

Calendar Year	Vehicle Category	Model Year	Speed	Fuel Type	Population	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNE	PM2.5_IDLEX	PM2.5_STRE	PM2.5_PMT	PM2.5_PMB	PM10_RUNE	PM10_IDLEX	PM10_STREX	PM10_PMT	PM10_PMB	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSO	ROG_RUNLO	ROG_RESTLO	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSO	TOG_RUNLO	TOG_RESTLO	TOG_DIURN	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX					
2022	LHD12	Aggregator		DSL	18356.54	691439.7	230902.2	1.41190749	2.07610274	0	0.0223275	0.0269088	0	0.003	0.03822001	0.02333705	0.0281255	0	0.012	0.08918003	616.076006	214.539309	0	0.00707359	0.00509813	0	0.09683857	0.03372259	0	0.15229012	0.1097597	0	0	0	0	0	0	0.17337218	0.12495413	0	0	0	0	0	0	0	0.65596133	0.90974508	0	0.00582413	0.00202817	0

Running (RUNEX, PMTW, PMBW) grams per mile													Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNIS, RESTL) grams per trip												
ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O	ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O								
LHD12	0.15	1.41	0.66	0.12	0.06	0.01	616.08	0.01	0.10	0.11	2.08	0.91	0.03	0.03	0.00	214.54	0.01	0.03							

Running Emission Factor (pounds per mile)							Paved					
ROG	NOx	CO	SO2	Exhaust PM10	Exhaust Dust PM10	Exhaust PM2.5	Dust PM2.5	CO2e				
2022	0.000336	0.003113	0.001446	1.284E-05	0.00027451	0.00388398	0.0001401	0.00095334	1.29026239			

Process Emission Factor (pounds per trip)							
ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	CO2e	
	0.00024198	0.00457702	0.00020564	4.4713E-06	6.2006E-05	5.9324E-05	0.44046224

GWPs (Fourth Assessment Report)

factor CO2: 1  
 0.002205 CH4: 28 1 metric ton (!)  
 N2O: 298 1.10231131 short tons

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	NOx_RUNEX	NOx_IDLE	NOx_STRE	PM2.5_R	PM2.5_ID	PM2.5_ST	PM2.5_P	PM2.5_P	PM10_RU	PM10_IDL	PM10_ST	CO2_RUN	CO2_STRE	CH4_RUN	CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STR	ROG_HOT	ROG_RUN	ROG_RES	ROG_DIU	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIU	CO_RUNE	SOx_RUN	SOx_IDLE	SOx_STRE								
SAN FRANCISCO BAY AREA	2022	MHDT	Aggregate	Aggregate	DSL	46144.44	2797463	458784.3	2.200196666	7.670083	1.704167	0.037649	0.01542	0	0.003	0.05586	0.039351	0.016118	0	0.012000003	0.130340037	1041.276	950.374263	0	0.004141	0.004787	0	0.163674	0.149386	0	0.089148	0.103065	0	0	0	0	0	0	0.101488	0.117331	0	0	0	0	0	0.307324	2.707213	0	0.009837	0.008979	0

MHDT	Running (RUNEX, PMTW, PMBW) grams per mile										Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNLS, RESTL) grams per trip																																				
	ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O		ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O																												
	0.09	2.20	0.31	0.18	0.10	0.01	1041.28	0.00	0.16	0.10	9.37	2.71	0.02	0.02	0.01	950.37	0.00	0.15																													

Running Emission Factor (pounds per mile)						Paved						Process Emission Factor (pounds per trip)											
ROG	NOx	CO	SO2	Exhaust PM10	Dust PM10	Exhaust PM2.5	Dust PM2.5	CO2e	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	CO2e	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	CO2e	
2022	0.000197	0.004851	0.000678	2.16879E-05	0.000401	0.003884	0.000213	0.000953	2.180331	0.000227	0.020667	0.005968	1.97945E-05	3.55331E-05	3.4E-05	1.99004806							

GWPs (Fourth Assessment Report)

factor	CO2:	1
0.002205	CH4:	28
	N2O:	298

1 metric ton (t)  
1.102311 short tons

Region	Year	Calendar	Vehicle	Model	Speed	Fuel	Populatio	NOx_RUN	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_ID	PM2.5_ST	PM2.5_P	PM2.5_P	PM10_RU	PM10_IDL	PM10_ST	PM10_PM	CO2_RUN	CO2_STRE	CH4_RUN	CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STR	ROG_HOT	ROG_RUN	ROG_RES	ROG_DIU	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIU	CO_RUNE	SOx_RUN	SOx_IDLE	SOx_STRE						
SAN FRAN	2022	HHDT	Aggregated	Aggregated	DSL	n	36411.82	4387801	381736.1	3.516434	62.13251	2.095419	0.033594	0.034593	0	0.008868	0.026071	0.035113	0.036157	0	0.035471	0.060832412	1481.329	11601.8943	0	0.003844	0.212645	0	0.232844	1.823656	0	0.082761	4.57818	0	0	0	0	0	0.094217	5.211909	0	0	0	0	0	0.36379	62.38175	0	0.013995	0.109609	0

Running (RUNEX, PMTW, PMBW) grams per mile													Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNLS, RESTL) grams per trip												
ROG	NOx	CO	PM10 Ex	PM10 D	PM2.5 Ex	PM2.5 D	SO2	CO2	CH4	N2O	ROG	NOx	CO	PM10 Ex	PM10 D	PM2.5 Ex	PM2.5 D	SO2	CO2	CH4	N2O				
0.08	3.52	0.36	0.13	0.00	0.07	0.00	0.01	1481.33	0.00	0.23	4.58	64.23	62.38	0.04	0.00	0.03	0.00	0.11	11601.89	0.21	1.82				

Running Emission Factor (pounds per mile)								Paved			
ROG	NOx	CO	SO2	Exhaust PM10	Dust PM10	Exhaust PM2.5	Dust PM2.5	CO2e	PM10	PM2.5	CO2e
2022	0.000182	0.007752	0.000802	3.09E-05	0.00029	0.003884	0.000151	0.000953	0.007538		

Process Emission Factor (pounds per trip)							
ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	CO2e	CO2e
	0.010093	0.141598	0.137528	0.000242	7.97129E-05	7.63E-05	0.059059553

GWPs (Fourth Assessment Report)

factor	CO2:	1
0.002205	CH4:	28
	N2O:	298

1 metric ton (t)  
1.102311 short tons

## Appendix C

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### **Air Quality Supporting Information**

Air Quality Emissions Assumptions and Calculations

**CalEEMod Emissions Model Results**

Health Risk Assessment



Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**Lower Channel Concrete Removal  
San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.00	1000sqft	0.00	0.10	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

Project Characteristics - Aug 8, 2022 start

Land Use - no paving

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Refer to spreadsheet

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - Watering; Tier 3, DPF level 3

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	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	8.00
tblConstructionPhase	NumDays	0.00	24.00
tblGrading	AcresOfGrading	3.75	1.98
tblLandUse	LandUseSquareFeet	0.00	0.10
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	187.00	0.00
tblOffRoadEquipment	HorsePower	187.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	221.00	355.00
tblOffRoadEquipment	HorsePower	231.00	175.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	187.00	140.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.41	0.00

## Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	LoadFactor	0.41	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00

## Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

tblTripsAndVMT	HaulingTripNumber	44.00	0.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	10.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

**2.0 Emissions Summary**

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Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**



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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/8/2022	8/26/2022	5	15	
2	Grading	Grading	8/27/2022	10/7/2022	5	30	
3	Planting Phase I	Site Preparation	10/3/2022	10/12/2022	5	8	
4	Planting Phase II	Site Preparation	10/31/2022	12/1/2022	5	24	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 1.98**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Bore/Drill Rigs	1	5.30	355	0.50
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Cranes	1	2.70	175	0.29
Demolition	Excavators	1	6.00	120	0.38
Demolition	Pumps	1	24.00	44	0.74
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	5.00	120	0.38
Grading	Graders	1	2.00	140	0.41
Grading	Pumps	1	24.00	44	0.74
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Planting Phase I	Graders	0	0.00	0	0.00
Planting Phase I	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Planting Phase II	Graders	0	0.00	0	0.00
Planting Phase II	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**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	4	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Planting Phase I	0	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Planting Phase II	0	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

**3.2 Demolition - 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					
Fugitive Dust					4.7700e-003	0.0000	4.7700e-003	7.2000e-004	0.0000	7.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.0881	0.0915	2.0000e-004		3.6900e-003	3.6900e-003		3.5500e-003	3.5500e-003	0.0000	16.1486	16.1486	3.7100e-003	0.0000	16.2415
<b>Total</b>	<b>0.0118</b>	<b>0.0881</b>	<b>0.0915</b>	<b>2.0000e-004</b>	<b>4.7700e-003</b>	<b>3.6900e-003</b>	<b>8.4600e-003</b>	<b>7.2000e-004</b>	<b>3.5500e-003</b>	<b>4.2700e-003</b>	<b>0.0000</b>	<b>16.1486</b>	<b>16.1486</b>	<b>3.7100e-003</b>	<b>0.0000</b>	<b>16.2415</b>

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**3.2 Demolition - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.8600e-003	0.0000	1.8600e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4300e-003	0.1117	0.1161	2.0000e-004		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	16.1486	16.1486	3.7100e-003	0.0000	16.2414
<b>Total</b>	<b>6.4300e-003</b>	<b>0.1117</b>	<b>0.1161</b>	<b>2.0000e-004</b>	<b>1.8600e-003</b>	<b>8.5000e-004</b>	<b>2.7100e-003</b>	<b>2.8000e-004</b>	<b>8.5000e-004</b>	<b>1.1300e-003</b>	<b>0.0000</b>	<b>16.1486</b>	<b>16.1486</b>	<b>3.7100e-003</b>	<b>0.0000</b>	<b>16.2414</b>

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**3.2 Demolition - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**3.3 Grading - 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					
Fugitive Dust					1.0500e-003	0.0000	1.0500e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1347	0.1441	2.4000e-004		5.8400e-003	5.8400e-003		5.6800e-003	5.6800e-003	0.0000	18.1695	18.1695	2.8600e-003	0.0000	18.2409
<b>Total</b>	<b>0.0194</b>	<b>0.1347</b>	<b>0.1441</b>	<b>2.4000e-004</b>	<b>1.0500e-003</b>	<b>5.8400e-003</b>	<b>6.8900e-003</b>	<b>1.1000e-004</b>	<b>5.6800e-003</b>	<b>5.7900e-003</b>	<b>0.0000</b>	<b>18.1695</b>	<b>18.1695</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>18.2409</b>

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**3.3 Grading - 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	6.7000e-004	4.6000e-004	4.9100e-003	2.0000e-005	1.9900e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6059	1.6059	3.0000e-005	0.0000	1.6067
<b>Total</b>	<b>6.7000e-004</b>	<b>4.6000e-004</b>	<b>4.9100e-003</b>	<b>2.0000e-005</b>	<b>1.9900e-003</b>	<b>1.0000e-005</b>	<b>2.0000e-003</b>	<b>5.3000e-004</b>	<b>1.0000e-005</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>1.6059</b>	<b>1.6059</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.6067</b>

**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					4.1000e-004	0.0000	4.1000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.8500e-003	0.1460	0.1479	2.4000e-004		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.0000	18.1695	18.1695	2.8600e-003	0.0000	18.2409
<b>Total</b>	<b>8.8500e-003</b>	<b>0.1460</b>	<b>0.1479</b>	<b>2.4000e-004</b>	<b>4.1000e-004</b>	<b>1.2800e-003</b>	<b>1.6900e-003</b>	<b>4.0000e-005</b>	<b>1.2800e-003</b>	<b>1.3200e-003</b>	<b>0.0000</b>	<b>18.1695</b>	<b>18.1695</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>18.2409</b>











Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**3.5 Planting Phase II - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.5000e-004	2.6200e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0700e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8565	0.8565	2.0000e-005	0.0000	0.8569
<b>Total</b>	<b>3.6000e-004</b>	<b>2.5000e-004</b>	<b>2.6200e-003</b>	<b>1.0000e-005</b>	<b>1.0600e-003</b>	<b>1.0000e-005</b>	<b>1.0700e-003</b>	<b>2.8000e-004</b>	<b>1.0000e-005</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>0.8565</b>	<b>0.8565</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8569</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N



Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>



Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**7.0 Water Detail**



Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## Lower Channel Concrete Removal - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**Flood Wall (Segment #1) Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.95	1000sqft	0.02	950.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

Project Characteristics - 2023 Operations

Land Use - 950 sf concrete area

Construction Phase - 4/1 to 7/7

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Negligible

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - Tier 3 and level 3; watering

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	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	100.00	50.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	5.00	10.00
tblGrading	AcresOfGrading	0.00	0.13

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	HorsePower	9.00	0.00
tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	231.00	0.00
tbloffRoadEquipment	HorsePower	89.00	0.00
tbloffRoadEquipment	HorsePower	130.00	0.00
tbloffRoadEquipment	HorsePower	80.00	0.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	84.00	550.00
tbloffRoadEquipment	LoadFactor	0.56	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.29	0.00
tbloffRoadEquipment	LoadFactor	0.20	0.00
tbloffRoadEquipment	LoadFactor	0.42	0.00
tbloffRoadEquipment	LoadFactor	0.38	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	4.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	7.00	0.00
tbloffRoadEquipment	UsageHours	7.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	8.00	2.40
tbloffRoadEquipment	UsageHours	6.00	4.00
tbloffRoadEquipment	UsageHours	6.00	4.00
tbloffRoadEquipment	UsageHours	7.00	0.00
tbItripsAndVMT	WorkerTripLength	10.80	15.10



## Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	3.00	12.00

**2.0 Emissions Summary**

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Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2022	6-30-2022	0.0311	0.0368
2	7-1-2022	9-30-2022	0.0092	0.0139
		Highest	0.0311	0.0368

**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	1.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

## Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2022	4/7/2022	5	5	
2	Grading	Grading	4/8/2022	4/14/2022	5	5	
3	Building Construction	Building Construction	4/15/2022	6/23/2022	5	50	
4	Paving	Paving	6/24/2022	7/7/2022	5	10	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.13**

**Acres of Paving: 0.02**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	4.00	25	0.38
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	4.00	25	0.38
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	2.40	25	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Tractors/Loaders/Backhoes	1	2.40	67	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	2.50	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**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	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

**3.2 Demolition - 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	2.4000e-004	2.2200e-003	2.8300e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>2.4000e-004</b>	<b>2.2200e-003</b>	<b>2.8300e-003</b>	<b>0.0000</b>		<b>1.1000e-004</b>	<b>1.1000e-004</b>		<b>1.0000e-004</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**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	1.3000e-004	2.4700e-003	2.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>1.3000e-004</b>	<b>2.4700e-003</b>	<b>2.8800e-003</b>	<b>0.0000</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>



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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**3.3 Grading - 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					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-004	2.2200e-003	2.8300e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>2.4000e-004</b>	<b>2.2200e-003</b>	<b>2.8300e-003</b>	<b>0.0000</b>	<b>7.0000e-005</b>	<b>1.1000e-004</b>	<b>1.8000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.3 Grading - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**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					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3000e-004	2.4700e-003	2.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>1.3000e-004</b>	<b>2.4700e-003</b>	<b>2.8800e-003</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.3 Grading - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4500e-003	0.0133	0.0170	2.0000e-005		6.7000e-004	6.7000e-004		6.1000e-004	6.1000e-004	0.0000	2.0147	2.0147	6.5000e-004	0.0000	2.0310
<b>Total</b>	<b>1.4500e-003</b>	<b>0.0133</b>	<b>0.0170</b>	<b>2.0000e-005</b>		<b>6.7000e-004</b>	<b>6.7000e-004</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>2.0147</b>	<b>2.0147</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>2.0310</b>

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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.1100e-003	7.7000e-004	8.1800e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6764	2.6764	5.0000e-005	0.0000	2.6778
<b>Total</b>	<b>1.1100e-003</b>	<b>7.7000e-004</b>	<b>8.1800e-003</b>	<b>3.0000e-005</b>	<b>3.3100e-003</b>	<b>2.0000e-005</b>	<b>3.3300e-003</b>	<b>8.8000e-004</b>	<b>2.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.6764</b>	<b>2.6764</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.6778</b>

**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	7.6000e-004	0.0148	0.0173	2.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.0147	2.0147	6.5000e-004	0.0000	2.0310
<b>Total</b>	<b>7.6000e-004</b>	<b>0.0148</b>	<b>0.0173</b>	<b>2.0000e-005</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>2.0147</b>	<b>2.0147</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>2.0310</b>

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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.1100e-003	7.7000e-004	8.1800e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6764	2.6764	5.0000e-005	0.0000	2.6778
<b>Total</b>	<b>1.1100e-003</b>	<b>7.7000e-004</b>	<b>8.1800e-003</b>	<b>3.0000e-005</b>	<b>3.3100e-003</b>	<b>2.0000e-005</b>	<b>3.3300e-003</b>	<b>8.8000e-004</b>	<b>2.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.6764</b>	<b>2.6764</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.6778</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0300e-003	0.0161	0.0112	6.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	5.7825	5.7825	1.6000e-004	0.0000	5.7865
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.0300e-003</b>	<b>0.0161</b>	<b>0.0112</b>	<b>6.0000e-005</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>5.7825</b>	<b>5.7825</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>5.7865</b>

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**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	1.3500e-003	0.0260	0.0292	6.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7825	5.7825	1.6000e-004	0.0000	5.7865
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.3500e-003</b>	<b>0.0260</b>	<b>0.0292</b>	<b>6.0000e-005</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>5.7825</b>	<b>5.7825</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>5.7865</b>

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**3.5 Paving - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N





Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	1.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	1.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**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	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**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	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail**

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## Flood Wall (Segment #1) Construction - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**Flood Wall (Segment #2) Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.07	1000sqft	0.00	65.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

Project Characteristics - Start July 8, 2022

Land Use - 65 sf concrete area

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Negligible

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - Watering; Tier 3, DPF level 3

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	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	10.00
tblGrading	AcresOfGrading	0.00	0.01

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

tblLandUse	LandUseSquareFeet	70.00	65.00
tblOffRoadEquipment	HorsePower	9.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	231.00	0.00
tblOffRoadEquipment	HorsePower	89.00	0.00
tblOffRoadEquipment	HorsePower	130.00	0.00
tblOffRoadEquipment	HorsePower	80.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	158.00	25.00
tblOffRoadEquipment	HorsePower	158.00	25.00
tblOffRoadEquipment	HorsePower	158.00	25.00
tblOffRoadEquipment	HorsePower	84.00	550.00
tblOffRoadEquipment	LoadFactor	0.56	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.29	0.00
tblOffRoadEquipment	LoadFactor	0.20	0.00
tblOffRoadEquipment	LoadFactor	0.42	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	4.00	0.00
tbloffRoadEquipment	UsageHours	6.00	0.00
tbloffRoadEquipment	UsageHours	7.00	0.00
tbloffRoadEquipment	UsageHours	7.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00
tbloffRoadEquipment	UsageHours	8.00	2.70
tbloffRoadEquipment	UsageHours	6.00	4.00
tbloffRoadEquipment	UsageHours	6.00	4.00
tbloffRoadEquipment	UsageHours	7.00	0.00

## Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	3.00	12.00

## 2.0 Emissions Summary

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**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	1.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**



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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/8/2022	7/14/2022	5	5	
2	Grading	Grading	7/15/2022	7/21/2022	5	5	
3	Building Construction	Building Construction	7/22/2022	8/11/2022	5	15	
4	Paving	Paving	8/12/2022	8/25/2022	5	10	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.01**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	4.00	25	0.38
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	4.00	25	0.38
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	2.70	25	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Tractors/Loaders/Backhoes	1	2.70	67	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	2.50	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**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	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

**3.2 Demolition - 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	2.4000e-004	2.2200e-003	2.8300e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>2.4000e-004</b>	<b>2.2200e-003</b>	<b>2.8300e-003</b>	<b>0.0000</b>		<b>1.1000e-004</b>	<b>1.1000e-004</b>		<b>1.0000e-004</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**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	1.3000e-004	2.4700e-003	2.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>1.3000e-004</b>	<b>2.4700e-003</b>	<b>2.8800e-003</b>	<b>0.0000</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**3.3 Grading - 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					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-004	2.2200e-003	2.8300e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>2.4000e-004</b>	<b>2.2200e-003</b>	<b>2.8300e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.3 Grading - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3000e-004	2.4700e-003	2.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>1.3000e-004</b>	<b>2.4700e-003</b>	<b>2.8800e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.3 Grading - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	4.5000e-003	5.7300e-003	1.0000e-005		2.3000e-004	2.3000e-004		2.1000e-004	2.1000e-004	0.0000	0.6800	0.6800	2.2000e-004	0.0000	0.6855
<b>Total</b>	<b>4.9000e-004</b>	<b>4.5000e-003</b>	<b>5.7300e-003</b>	<b>1.0000e-005</b>		<b>2.3000e-004</b>	<b>2.3000e-004</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.6800</b>	<b>0.6800</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.6855</b>

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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**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	2.6000e-004	5.0000e-003	5.8300e-003	1.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6800	0.6800	2.2000e-004	0.0000	0.6855
<b>Total</b>	<b>2.6000e-004</b>	<b>5.0000e-003</b>	<b>5.8300e-003</b>	<b>1.0000e-005</b>		<b>5.0000e-005</b>	<b>5.0000e-005</b>		<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.6800</b>	<b>0.6800</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.6855</b>



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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0300e-003	0.0161	0.0112	6.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	5.7825	5.7825	1.6000e-004	0.0000	5.7865
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.0300e-003</b>	<b>0.0161</b>	<b>0.0112</b>	<b>6.0000e-005</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>		<b>4.9000e-004</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>5.7825</b>	<b>5.7825</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>5.7865</b>

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**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**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	1.3500e-003	0.0260	0.0292	6.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7825	5.7825	1.6000e-004	0.0000	5.7865
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.3500e-003</b>	<b>0.0260</b>	<b>0.0292</b>	<b>6.0000e-005</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>5.7825</b>	<b>5.7825</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>5.7865</b>

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**3.5 Paving - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N



Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>



Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**7.0 Water Detail**



Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Flood Wall (Segment #2) Construction - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**Flood Wall (Segment #3) Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.10	1000sqft	0.03	1,100.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

Project Characteristics - Start 4/1/2022

Land Use - 1,100 sf concrete

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Negligible

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - watering; Tier 3, DPF level 3

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	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	100.00	50.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblGrading	AcresOfGrading	0.00	0.15

## Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	HorsePower	9.00	0.00
tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	231.00	0.00
tbloffRoadEquipment	HorsePower	89.00	0.00
tbloffRoadEquipment	HorsePower	130.00	0.00
tbloffRoadEquipment	HorsePower	80.00	0.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	67.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	158.00	25.00
tbloffRoadEquipment	HorsePower	84.00	550.00
tbloffRoadEquipment	LoadFactor	0.56	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.29	0.00
tbloffRoadEquipment	LoadFactor	0.20	0.00
tbloffRoadEquipment	LoadFactor	0.42	0.00
tbloffRoadEquipment	LoadFactor	0.38	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10



## Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10

**2.0 Emissions Summary**

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Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2022	6-30-2022	0.0224	0.0236
2	7-1-2022	9-30-2022	0.0363	0.0548
		Highest	0.0363	0.0548

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	1.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2022	4/7/2022	5	5	
2	Grading	Grading	4/8/2022	4/21/2022	5	10	
3	Building Construction	Building Construction	4/14/2022	6/22/2022	5	50	
4	Paving	Paving	7/1/2022	7/14/2022	5	10	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.15**

**Acres of Paving: 0.03**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	4.00	25	0.38
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	4.00	25	0.38
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	2.40	25	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Tractors/Loaders/Backhoes	1	2.40	67	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	5.00	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**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	2	5.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	5.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	0.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	3.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

**3.2 Demolition - 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	2.4000e-004	2.2200e-003	2.8300e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>2.4000e-004</b>	<b>2.2200e-003</b>	<b>2.8300e-003</b>	<b>0.0000</b>		<b>1.1000e-004</b>	<b>1.1000e-004</b>		<b>1.0000e-004</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>

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**3.2 Demolition - 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	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1115	0.1115	0.0000	0.0000	0.1116
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1115</b>	<b>0.1115</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1116</b>

**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	1.3000e-004	2.4700e-003	2.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3358	0.3358	1.1000e-004	0.0000	0.3385
<b>Total</b>	<b>1.3000e-004</b>	<b>2.4700e-003</b>	<b>2.8800e-003</b>	<b>0.0000</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>		<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3358</b>	<b>0.3358</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.3385</b>



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**3.2 Demolition - 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	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1115	0.1115	0.0000	0.0000	0.1116
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1115</b>	<b>0.1115</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1116</b>

**3.3 Grading - 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					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	4.4400e-003	5.6500e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.0000e-004	2.0000e-004	0.0000	0.6716	0.6716	2.2000e-004	0.0000	0.6770
<b>Total</b>	<b>4.8000e-004</b>	<b>4.4400e-003</b>	<b>5.6500e-003</b>	<b>1.0000e-005</b>	<b>8.0000e-005</b>	<b>2.2000e-004</b>	<b>3.0000e-004</b>	<b>1.0000e-005</b>	<b>2.0000e-004</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.6716</b>	<b>0.6716</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.6770</b>

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**3.3 Grading - 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	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2230	0.2230	0.0000	0.0000	0.2232
<b>Total</b>	<b>9.0000e-005</b>	<b>6.0000e-005</b>	<b>6.8000e-004</b>	<b>0.0000</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>2.8000e-004</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>0.2230</b>	<b>0.2230</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.2232</b>

**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					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5000e-004	4.9300e-003	5.7600e-003	1.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6716	0.6716	2.2000e-004	0.0000	0.6770
<b>Total</b>	<b>2.5000e-004</b>	<b>4.9300e-003</b>	<b>5.7600e-003</b>	<b>1.0000e-005</b>	<b>3.0000e-005</b>	<b>5.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.6716</b>	<b>0.6716</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.6770</b>

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**3.3 Grading - 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	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2230	0.2230	0.0000	0.0000	0.2232
<b>Total</b>	<b>9.0000e-005</b>	<b>6.0000e-005</b>	<b>6.8000e-004</b>	<b>0.0000</b>	<b>2.8000e-004</b>	<b>0.0000</b>	<b>2.8000e-004</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>0.2230</b>	<b>0.2230</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.2232</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4500e-003	0.0133	0.0170	2.0000e-005		6.7000e-004	6.7000e-004		6.1000e-004	6.1000e-004	0.0000	2.0147	2.0147	6.5000e-004	0.0000	2.0310
<b>Total</b>	<b>1.4500e-003</b>	<b>0.0133</b>	<b>0.0170</b>	<b>2.0000e-005</b>		<b>6.7000e-004</b>	<b>6.7000e-004</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>2.0147</b>	<b>2.0147</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>2.0310</b>

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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	7.6000e-004	0.0148	0.0173	2.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.0147	2.0147	6.5000e-004	0.0000	2.0310
<b>Total</b>	<b>7.6000e-004</b>	<b>0.0148</b>	<b>0.0173</b>	<b>2.0000e-005</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>		<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>2.0147</b>	<b>2.0147</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>2.0310</b>

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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.0600e-003	0.0321	0.0225	1.1000e-004		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	11.5649	11.5649	3.3000e-004	0.0000	11.5731
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>4.0600e-003</b>	<b>0.0321</b>	<b>0.0225</b>	<b>1.1000e-004</b>		<b>9.9000e-004</b>	<b>9.9000e-004</b>		<b>9.9000e-004</b>	<b>9.9000e-004</b>	<b>0.0000</b>	<b>11.5649</b>	<b>11.5649</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>11.5731</b>

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**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1339
<b>Total</b>	<b>6.0000e-005</b>	<b>4.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1338</b>	<b>0.1338</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1339</b>

**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	2.6900e-003	0.0520	0.0583	1.1000e-004		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	11.5649	11.5649	3.3000e-004	0.0000	11.5730
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.6900e-003</b>	<b>0.0520</b>	<b>0.0583</b>	<b>1.1000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>11.5649</b>	<b>11.5649</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>11.5730</b>

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**3.5 Paving - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1339
<b>Total</b>	<b>6.0000e-005</b>	<b>4.0000e-005</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1338</b>	<b>0.1338</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1339</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N





Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	1.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	1.1000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**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	4.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**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	4.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail**

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Flood Wall (Segment #3) Construction - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**Fish Pool Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.00	1000sqft	0.11	5,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

Project Characteristics - start June 15, 2022

Land Use - 5,000 sf concrete

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Refer to spreadsheet

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - watering; Tier 3, DPF level 3

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	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	25.00

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tblConstructionPhase	NumDays	5.00	65.00
tblGrading	AcresOfGrading	0.00	0.11
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	9.00	0.00
tblOffRoadEquipment	HorsePower	130.00	0.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	84.00	550.00
tblOffRoadEquipment	HorsePower	80.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.73	0.00
tblOffRoadEquipment	LoadFactor	0.40	0.00
tblOffRoadEquipment	LoadFactor	0.56	0.00
tblOffRoadEquipment	LoadFactor	0.42	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.20
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	HaulingTripNumber	70.00	0.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	13.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00

**2.0 Emissions Summary**



Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-15-2022	9-14-2022	0.5836	0.6525
2	9-15-2022	9-30-2022	0.0363	0.0451
		Highest	0.5836	0.6525

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	5.0000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.0000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/15/2022	7/19/2022	5	25	
2	Demolition	Demolition	6/29/2022	8/2/2022	5	25	
3	Paving	Paving	7/13/2022	10/11/2022	5	65	

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**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.11**

**Acres of Paving: 0.11**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	4.80	120	0.38
Grading	Pumps	2	24.00	44	0.74
Grading	Rubber Tired Dozers	1	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	1	3.20	67	0.37
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	6.00	120	0.38
Demolition	Pumps	2	24.00	44	0.74
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	1	4.00	67	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	12.90	44	0.74
Paving	Pumps	1	1.50	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**Trips and VMT**



Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	8.00	0.00	0.00	15.10	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

**3.2 Grading - 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					
Fugitive Dust					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0285	0.1872	0.2030	3.4000e-004		7.6900e-003	7.6900e-003		7.6000e-003	7.6000e-003	0.0000	25.7072	25.7072	3.2800e-003	0.0000	25.7893
<b>Total</b>	<b>0.0285</b>	<b>0.1872</b>	<b>0.2030</b>	<b>3.4000e-004</b>	<b>6.0000e-005</b>	<b>7.6900e-003</b>	<b>7.7500e-003</b>	<b>1.0000e-005</b>	<b>7.6000e-003</b>	<b>7.6100e-003</b>	<b>0.0000</b>	<b>25.7072</b>	<b>25.7072</b>	<b>3.2800e-003</b>	<b>0.0000</b>	<b>25.7893</b>

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**3.2 Grading - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8921	0.8921	2.0000e-005	0.0000	0.8926
<b>Total</b>	<b>3.7000e-004</b>	<b>2.6000e-004</b>	<b>2.7300e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8921</b>	<b>0.8921</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8926</b>

**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					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0135	0.2194	0.2070	3.4000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	25.7072	25.7072	3.2800e-003	0.0000	25.7892
<b>Total</b>	<b>0.0135</b>	<b>0.2194</b>	<b>0.2070</b>	<b>3.4000e-004</b>	<b>2.0000e-005</b>	<b>1.9700e-003</b>	<b>1.9900e-003</b>	<b>0.0000</b>	<b>1.9700e-003</b>	<b>1.9700e-003</b>	<b>0.0000</b>	<b>25.7072</b>	<b>25.7072</b>	<b>3.2800e-003</b>	<b>0.0000</b>	<b>25.7892</b>

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**3.2 Grading - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8921	0.8921	2.0000e-005	0.0000	0.8926
<b>Total</b>	<b>3.7000e-004</b>	<b>2.6000e-004</b>	<b>2.7300e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8921</b>	<b>0.8921</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8926</b>

**3.3 Demolition - 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					
Fugitive Dust					7.5900e-003	0.0000	7.5900e-003	1.1500e-003	0.0000	1.1500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0291	0.1925	0.2102	3.5000e-004		7.9700e-003	7.9700e-003		7.8600e-003	7.8600e-003	0.0000	26.5829	26.5829	3.5600e-003	0.0000	26.6720
<b>Total</b>	<b>0.0291</b>	<b>0.1925</b>	<b>0.2102</b>	<b>3.5000e-004</b>	<b>7.5900e-003</b>	<b>7.9700e-003</b>	<b>0.0156</b>	<b>1.1500e-003</b>	<b>7.8600e-003</b>	<b>9.0100e-003</b>	<b>0.0000</b>	<b>26.5829</b>	<b>26.5829</b>	<b>3.5600e-003</b>	<b>0.0000</b>	<b>26.6720</b>

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**3.3 Demolition - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8921	0.8921	2.0000e-005	0.0000	0.8926
<b>Total</b>	<b>3.7000e-004</b>	<b>2.6000e-004</b>	<b>2.7300e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8921</b>	<b>0.8921</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8926</b>

**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					2.9600e-003	0.0000	2.9600e-003	4.5000e-004	0.0000	4.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.2244	0.2146	3.5000e-004		2.0100e-003	2.0100e-003		2.0100e-003	2.0100e-003	0.0000	26.5829	26.5829	3.5600e-003	0.0000	26.6720
<b>Total</b>	<b>0.0137</b>	<b>0.2244</b>	<b>0.2146</b>	<b>3.5000e-004</b>	<b>2.9600e-003</b>	<b>2.0100e-003</b>	<b>4.9700e-003</b>	<b>4.5000e-004</b>	<b>2.0100e-003</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>26.5829</b>	<b>26.5829</b>	<b>3.5600e-003</b>	<b>0.0000</b>	<b>26.6720</b>

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**3.3 Demolition - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7300e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8921	0.8921	2.0000e-005	0.0000	0.8926
<b>Total</b>	<b>3.7000e-004</b>	<b>2.6000e-004</b>	<b>2.7300e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8921</b>	<b>0.8921</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8926</b>

**3.4 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	0.0264	0.1784	0.1656	4.3000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	38.0670	38.0670	2.1400e-003	0.0000	38.1204
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0264</b>	<b>0.1784</b>	<b>0.1656</b>	<b>4.3000e-004</b>		<b>6.5000e-003</b>	<b>6.5000e-003</b>		<b>6.5000e-003</b>	<b>6.5000e-003</b>	<b>0.0000</b>	<b>38.0670</b>	<b>38.0670</b>	<b>2.1400e-003</b>	<b>0.0000</b>	<b>38.1204</b>

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**3.4 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	9.6000e-004	6.6000e-004	7.0900e-003	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.3196	2.3196	5.0000e-005	0.0000	2.3207
<b>Total</b>	<b>9.6000e-004</b>	<b>6.6000e-004</b>	<b>7.0900e-003</b>	<b>3.0000e-005</b>	<b>2.8700e-003</b>	<b>2.0000e-005</b>	<b>2.8900e-003</b>	<b>7.6000e-004</b>	<b>2.0000e-005</b>	<b>7.8000e-004</b>	<b>0.0000</b>	<b>2.3196</b>	<b>2.3196</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.3207</b>

**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	0.0140	0.2408	0.2371	4.3000e-004		1.8400e-003	1.8400e-003		1.8400e-003	1.8400e-003	0.0000	38.0670	38.0670	2.1400e-003	0.0000	38.1204
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0140</b>	<b>0.2408</b>	<b>0.2371</b>	<b>4.3000e-004</b>		<b>1.8400e-003</b>	<b>1.8400e-003</b>		<b>1.8400e-003</b>	<b>1.8400e-003</b>	<b>0.0000</b>	<b>38.0670</b>	<b>38.0670</b>	<b>2.1400e-003</b>	<b>0.0000</b>	<b>38.1204</b>

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**3.4 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	9.6000e-004	6.6000e-004	7.0900e-003	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.3196	2.3196	5.0000e-005	0.0000	2.3207
<b>Total</b>	<b>9.6000e-004</b>	<b>6.6000e-004</b>	<b>7.0900e-003</b>	<b>3.0000e-005</b>	<b>2.8700e-003</b>	<b>2.0000e-005</b>	<b>2.8900e-003</b>	<b>7.6000e-004</b>	<b>2.0000e-005</b>	<b>7.8000e-004</b>	<b>0.0000</b>	<b>2.3196</b>	<b>2.3196</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.3207</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N





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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	5.0000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Unmitigated	5.0000e-004	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
<b>Total</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

**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	1.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
<b>Total</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-004</b>

**7.0 Water Detail**

Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## Fish Pool Construction - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

**Granton Park Storm Drain Pump Station Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.52	1000sqft	0.01	520.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

Project Characteristics - Start April 1, 2022

Land Use - 520 sf of concrete

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Negligible

Grading - Refer to spreadsheet

Energy Use - Refer to spreadsheet; pump energy

Construction Off-road Equipment Mitigation - watering; Tier 3, DPF level 3

Stationary Sources - Emergency Generators and Fire Pumps - Refer to spreadsheet

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	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	10.00

Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

tblConstructionPhase	NumDays	100.00	15.00
tblConstructionPhase	NumDays	5.00	10.00
tblEnergyUse	T24E	0.00	502.00
tblGrading	AcresOfGrading	0.00	0.04
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	231.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	89.00	0.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	9.00	0.00
tblOffRoadEquipment	HorsePower	231.00	326.00
tblOffRoadEquipment	HorsePower	130.00	0.00
tblOffRoadEquipment	HorsePower	84.00	550.00
tblOffRoadEquipment	HorsePower	80.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	84.00	44.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	187.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00

Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.29	0.00
tbloffRoadEquipment	LoadFactor	0.20	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.56	0.00
tbloffRoadEquipment	LoadFactor	0.42	0.00
tbloffRoadEquipment	LoadFactor	0.38	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.41	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

## Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	201.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

## Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

tblTripsAndVMT	WorkerTripNumber	0.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

## 2.0 Emissions Summary

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Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2022	6-30-2022	0.1427	0.1571
		Highest	0.1427	0.1571

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	5.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	75.9395	75.9395	3.4300e-003	7.1000e-004	76.2371
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	8.2500e-003	0.0231	0.0210	4.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	3.8270	3.8270	5.4000e-004	0.0000	3.8404
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.3000e-003</b>	<b>0.0231</b>	<b>0.0210</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.2100e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>1.2100e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>79.7666</b>	<b>79.7666</b>	<b>3.9700e-003</b>	<b>7.1000e-004</b>	<b>80.0775</b>



Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	75.9395	75.9395	3.4300e-003	7.1000e-004	76.2371
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	8.2500e-003	0.0231	0.0210	4.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	3.8270	3.8270	5.4000e-004	0.0000	3.8404
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.3000e-003</b>	<b>0.0231</b>	<b>0.0210</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.2100e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>1.2100e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>79.7666</b>	<b>79.7666</b>	<b>3.9700e-003</b>	<b>7.1000e-004</b>	<b>80.0775</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

## Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2022	4/7/2022	5	5	
2	Grading	Grading	4/8/2022	4/21/2022	5	10	
3	Building Construction	Building Construction	4/21/2022	5/11/2022	5	15	
4	Paving	Paving	5/12/2022	5/25/2022	5	10	
5	Planting	Site Preparation	5/26/2022	5/26/2022	5	1	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.04**

**Acres of Paving: 0.01**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	6.00	120	0.38
Grading	Pumps	1	24.00	44	0.74
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	2.00	120	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Pumps	1	16.00	44	0.74
Building Construction	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Cranes	1	3.00	326	0.29
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	2.50	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	6.00	120	0.38
Demolition	Pumps	1	24.00	44	0.74
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Planting	Graders	0	0.00	0	0.00
Planting	Tractors/Loaders/Backhoes	0	0.00	0	0.00

Trips and VMT

Granton Park Storm Drain Pump Station Construction - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Planting	0	8.00	0.00	0.00	15.10	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

**3.2 Demolition - 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	3.0200e-003	0.0205	0.0227	4.0000e-005		8.6000e-004	8.6000e-004		8.5000e-004	8.5000e-004	0.0000	2.8602	2.8602	4.2000e-004	0.0000	2.8707
<b>Total</b>	<b>3.0200e-003</b>	<b>0.0205</b>	<b>0.0227</b>	<b>4.0000e-005</b>		<b>8.6000e-004</b>	<b>8.6000e-004</b>		<b>8.5000e-004</b>	<b>8.5000e-004</b>	<b>0.0000</b>	<b>2.8602</b>	<b>2.8602</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>2.8707</b>

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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**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	1.4300e-003	0.0234	0.0232	4.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	2.8602	2.8602	4.2000e-004	0.0000	2.8707
<b>Total</b>	<b>1.4300e-003</b>	<b>0.0234</b>	<b>0.0232</b>	<b>4.0000e-005</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>2.8602</b>	<b>2.8602</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>2.8707</b>

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**3.2 Demolition - 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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2676	0.2676	1.0000e-005	0.0000	0.2678
<b>Total</b>	<b>1.1000e-004</b>	<b>8.0000e-005</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>3.3000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2676</b>	<b>0.2676</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2678</b>

**3.3 Grading - 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					
Fugitive Dust					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.0410	0.0453	7.0000e-005		1.7200e-003	1.7200e-003		1.6900e-003	1.6900e-003	0.0000	5.7203	5.7203	8.4000e-004	0.0000	5.7414
<b>Total</b>	<b>6.0500e-003</b>	<b>0.0410</b>	<b>0.0453</b>	<b>7.0000e-005</b>	<b>2.0000e-005</b>	<b>1.7200e-003</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>1.6900e-003</b>	<b>1.6900e-003</b>	<b>0.0000</b>	<b>5.7203</b>	<b>5.7203</b>	<b>8.4000e-004</b>	<b>0.0000</b>	<b>5.7414</b>

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**3.3 Grading - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8600e-003	0.0469	0.0465	7.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.7203	5.7203	8.4000e-004	0.0000	5.7414
<b>Total</b>	<b>2.8600e-003</b>	<b>0.0469</b>	<b>0.0465</b>	<b>7.0000e-005</b>	<b>1.0000e-005</b>	<b>4.1000e-004</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>4.1000e-004</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>5.7203</b>	<b>5.7203</b>	<b>8.4000e-004</b>	<b>0.0000</b>	<b>5.7414</b>

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**3.3 Grading - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6700e-003	0.0371	0.0401	7.0000e-005		1.5200e-003	1.5200e-003		1.5000e-003	1.5000e-003	0.0000	5.0806	5.0806	6.4000e-004	0.0000	5.0965
<b>Total</b>	<b>5.6700e-003</b>	<b>0.0371</b>	<b>0.0401</b>	<b>7.0000e-005</b>		<b>1.5200e-003</b>	<b>1.5200e-003</b>		<b>1.5000e-003</b>	<b>1.5000e-003</b>	<b>0.0000</b>	<b>5.0806</b>	<b>5.0806</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>5.0965</b>



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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**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	2.6800e-003	0.0434	0.0409	7.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	5.0806	5.0806	6.4000e-004	0.0000	5.0965
<b>Total</b>	<b>2.6800e-003</b>	<b>0.0434</b>	<b>0.0409</b>	<b>7.0000e-005</b>		<b>3.9000e-004</b>	<b>3.9000e-004</b>		<b>3.9000e-004</b>	<b>3.9000e-004</b>	<b>0.0000</b>	<b>5.0806</b>	<b>5.0806</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>5.0965</b>

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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	3.3000e-004	2.3000e-004	2.4500e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8029	0.8029	2.0000e-005	0.0000	0.8033
<b>Total</b>	<b>3.3000e-004</b>	<b>2.3000e-004</b>	<b>2.4500e-003</b>	<b>1.0000e-005</b>	<b>9.9000e-004</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8029</b>	<b>0.8029</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8033</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8500e-003	0.0251	0.0181	7.0000e-005		8.6000e-004	8.6000e-004		8.3000e-004	8.3000e-004	0.0000	7.1217	7.1217	6.0000e-004	0.0000	7.1366
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.8500e-003</b>	<b>0.0251</b>	<b>0.0181</b>	<b>7.0000e-005</b>		<b>8.6000e-004</b>	<b>8.6000e-004</b>		<b>8.3000e-004</b>	<b>8.3000e-004</b>	<b>0.0000</b>	<b>7.1217</b>	<b>7.1217</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>7.1366</b>

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**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.6400e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5353	0.5353	1.0000e-005	0.0000	0.5356
<b>Total</b>	<b>2.2000e-004</b>	<b>1.5000e-004</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.7000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5353</b>	<b>0.5353</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.5356</b>

**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	1.7200e-003	0.0333	0.0373	7.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	7.1216	7.1216	6.0000e-004	0.0000	7.1365
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.7200e-003</b>	<b>0.0333</b>	<b>0.0373</b>	<b>7.0000e-005</b>		<b>1.9000e-004</b>	<b>1.9000e-004</b>		<b>1.9000e-004</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>7.1216</b>	<b>7.1216</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>7.1365</b>





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**3.6 Planting - 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	1.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0357	0.0357	0.0000	0.0000	0.0357
<b>Total</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0357</b>	<b>0.0357</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0357</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N





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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	261040	75.9395	3.4300e-003	7.1000e-004	76.2371
<b>Total</b>		<b>75.9395</b>	<b>3.4300e-003</b>	<b>7.1000e-004</b>	<b>76.2371</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	261040	75.9395	3.4300e-003	7.1000e-004	76.2371
<b>Total</b>		<b>75.9395</b>	<b>3.4300e-003</b>	<b>7.1000e-004</b>	<b>76.2371</b>

**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	5.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	5.0000e-005	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
<b>Total</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>

**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	2.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
<b>Total</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	201	0.73	Diesel

**Boilers**

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

Equipment Type	Number
----------------	--------

**10.1 Stationary Sources**

**Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (175 - 300 HP)	8.2500e-003	0.0231	0.0210	4.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	3.8270	3.8270	5.4000e-004	0.0000	3.8404
<b>Total</b>	<b>8.2500e-003</b>	<b>0.0231</b>	<b>0.0210</b>	<b>4.0000e-005</b>		<b>1.2100e-003</b>	<b>1.2100e-003</b>		<b>1.2100e-003</b>	<b>1.2100e-003</b>	<b>0.0000</b>	<b>3.8270</b>	<b>3.8270</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>3.8404</b>

**11.0 Vegetation**

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**Allen Park Construction**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.40	1000sqft	0.15	6,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**



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Project Characteristics - start June 1, 2022

Land Use - 6,400 sf of concrete

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Refer to spreadsheet

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - watering; Tier 3, DPF level 3

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	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	50.00
tblConstructionPhase	NumDays	100.00	45.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	20.00
tblGrading	AcresOfGrading	5.63	1.38
tblOffRoadEquipment	HorsePower	9.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	81.00	0.00
tblOffRoadEquipment	HorsePower	231.00	0.00
tblOffRoadEquipment	HorsePower	89.00	0.00
tblOffRoadEquipment	HorsePower	187.00	0.00
tblOffRoadEquipment	HorsePower	130.00	0.00
tblOffRoadEquipment	HorsePower	80.00	36.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	247.00	0.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	67.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	97.00	0.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	158.00	120.00
tblOffRoadEquipment	HorsePower	187.00	140.00

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tbloffRoadEquipment	HorsePower	187.00	140.00
tbloffRoadEquipment	HorsePower	187.00	0.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	84.00	550.00
tbloffRoadEquipment	LoadFactor	0.56	0.00
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tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.29	0.00
tbloffRoadEquipment	LoadFactor	0.20	0.00
tbloffRoadEquipment	LoadFactor	0.41	0.00
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tbloffRoadEquipment	LoadFactor	0.40	0.00
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tbloffRoadEquipment	LoadFactor	0.41	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	6.00	1.30
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	240.00	0.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10

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tblTripsAndVMT	WorkerTripNumber	10.00	12.00
tblTripsAndVMT	WorkerTripNumber	10.00	12.00
tblTripsAndVMT	WorkerTripNumber	3.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

**2.0 Emissions Summary**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2022	8-31-2022	0.4146	0.4171
2	9-1-2022	9-30-2022	0.0210	0.0282
		Highest	0.4146	0.4171

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	6.4000e-004	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.2000e-004</b>

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**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	6.4000e-004	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.2000e-004</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**



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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2022	7/5/2022	5	25	
2	Grading	Grading	6/15/2022	8/23/2022	5	50	
3	Building Construction	Building Construction	7/1/2022	9/1/2022	5	45	
4	Paving	Paving	8/31/2022	9/27/2022	5	20	
5	Planting	Site Preparation	9/28/2022	10/25/2022	5	20	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 1.38**

**Acres of Paving: 0.15**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	3.20	120	0.38
Demolition	Graders	1	3.60	140	0.41
Demolition	Pumps	1	24.00	44	0.74
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	1	2.70	67	0.37
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	1.60	120	0.38
Grading	Graders	1	1.80	140	0.41
Grading	Pumps	1	24.00	44	0.74
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	1	1.30	67	0.37
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	1.80	120	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Graders	0	0.00	0	0.00
Building Construction	Pumps	1	2.70	44	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.50	67	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	1.00	550	0.74
Paving	Rollers	1	4.00	36	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Planting	Graders	0	0.00	0	0.00
Planting	Tractors/Loaders/Backhoes	0	0.00	0	0.00

**Trips and VMT**

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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	4	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	12.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Planting	0	8.00	0.00	0.00	15.10	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

**3.2 Demolition - 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					
Fugitive Dust					0.0260	0.0000	0.0260	3.9400e-003	0.0000	3.9400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0172	0.1217	0.1276	2.1000e-004	5.3900e-003	5.3900e-003		5.2200e-003	5.2200e-003		0.0000	16.0768	16.0768	2.6800e-003	0.0000	16.1439
<b>Total</b>	<b>0.0172</b>	<b>0.1217</b>	<b>0.1276</b>	<b>2.1000e-004</b>	<b>0.0260</b>	<b>5.3900e-003</b>	<b>0.0314</b>	<b>3.9400e-003</b>	<b>5.2200e-003</b>	<b>9.1600e-003</b>	<b>0.0000</b>	<b>16.0768</b>	<b>16.0768</b>	<b>2.6800e-003</b>	<b>0.0000</b>	<b>16.1439</b>

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**3.2 Demolition - 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	5.6000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3382	1.3382	3.0000e-005	0.0000	1.3389
<b>Total</b>	<b>5.6000e-004</b>	<b>3.8000e-004</b>	<b>4.0900e-003</b>	<b>1.0000e-005</b>	<b>1.6600e-003</b>	<b>1.0000e-005</b>	<b>1.6700e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.3382</b>	<b>1.3382</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.3389</b>

**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					0.0101	0.0000	0.0101	1.5400e-003	0.0000	1.5400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6300e-003	0.1273	0.1311	2.1000e-004		1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003	0.0000	16.0768	16.0768	2.6800e-003	0.0000	16.1439
<b>Total</b>	<b>7.6300e-003</b>	<b>0.1273</b>	<b>0.1311</b>	<b>2.1000e-004</b>	<b>0.0101</b>	<b>1.1200e-003</b>	<b>0.0113</b>	<b>1.5400e-003</b>	<b>1.1200e-003</b>	<b>2.6600e-003</b>	<b>0.0000</b>	<b>16.0768</b>	<b>16.0768</b>	<b>2.6800e-003</b>	<b>0.0000</b>	<b>16.1439</b>

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**3.2 Demolition - 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	5.6000e-004	3.8000e-004	4.0900e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3382	1.3382	3.0000e-005	0.0000	1.3389
<b>Total</b>	<b>5.6000e-004</b>	<b>3.8000e-004</b>	<b>4.0900e-003</b>	<b>1.0000e-005</b>	<b>1.6600e-003</b>	<b>1.0000e-005</b>	<b>1.6700e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.3382</b>	<b>1.3382</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.3389</b>

**3.3 Grading - 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					
Fugitive Dust					7.3000e-004	0.0000	7.3000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0304	0.2043	0.2145	3.6000e-004		8.6600e-003	8.6600e-003		8.4900e-003	8.4900e-003	0.0000	27.1496	27.1496	3.7500e-003	0.0000	27.2433
<b>Total</b>	<b>0.0304</b>	<b>0.2043</b>	<b>0.2145</b>	<b>3.6000e-004</b>	<b>7.3000e-004</b>	<b>8.6600e-003</b>	<b>9.3900e-003</b>	<b>8.0000e-005</b>	<b>8.4900e-003</b>	<b>8.5700e-003</b>	<b>0.0000</b>	<b>27.1496</b>	<b>27.1496</b>	<b>3.7500e-003</b>	<b>0.0000</b>	<b>27.2433</b>

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**3.3 Grading - 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	1.1100e-003	7.7000e-004	8.1800e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6764	2.6764	5.0000e-005	0.0000	2.6778
<b>Total</b>	<b>1.1100e-003</b>	<b>7.7000e-004</b>	<b>8.1800e-003</b>	<b>3.0000e-005</b>	<b>3.3100e-003</b>	<b>2.0000e-005</b>	<b>3.3300e-003</b>	<b>8.8000e-004</b>	<b>2.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.6764</b>	<b>2.6764</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.6778</b>

**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					2.9000e-004	0.0000	2.9000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0139	0.2268	0.2191	3.6000e-004		2.0200e-003	2.0200e-003		2.0200e-003	2.0200e-003	0.0000	27.1496	27.1496	3.7500e-003	0.0000	27.2433
<b>Total</b>	<b>0.0139</b>	<b>0.2268</b>	<b>0.2191</b>	<b>3.6000e-004</b>	<b>2.9000e-004</b>	<b>2.0200e-003</b>	<b>2.3100e-003</b>	<b>3.0000e-005</b>	<b>2.0200e-003</b>	<b>2.0500e-003</b>	<b>0.0000</b>	<b>27.1496</b>	<b>27.1496</b>	<b>3.7500e-003</b>	<b>0.0000</b>	<b>27.2433</b>

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**3.3 Grading - 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	1.1100e-003	7.7000e-004	8.1800e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6764	2.6764	5.0000e-005	0.0000	2.6778
<b>Total</b>	<b>1.1100e-003</b>	<b>7.7000e-004</b>	<b>8.1800e-003</b>	<b>3.0000e-005</b>	<b>3.3100e-003</b>	<b>2.0000e-005</b>	<b>3.3300e-003</b>	<b>8.8000e-004</b>	<b>2.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.6764</b>	<b>2.6764</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.6778</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1800e-003	0.0323	0.0383	6.0000e-005		1.4900e-003	1.4900e-003		1.4200e-003	1.4200e-003	0.0000	4.7718	4.7718	1.0300e-003	0.0000	4.7976
<b>Total</b>	<b>4.1800e-003</b>	<b>0.0323</b>	<b>0.0383</b>	<b>6.0000e-005</b>		<b>1.4900e-003</b>	<b>1.4900e-003</b>		<b>1.4200e-003</b>	<b>1.4200e-003</b>	<b>0.0000</b>	<b>4.7718</b>	<b>4.7718</b>	<b>1.0300e-003</b>	<b>0.0000</b>	<b>4.7976</b>

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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-003	6.9000e-004	7.3600e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4088	2.4088	5.0000e-005	0.0000	2.4100
<b>Total</b>	<b>1.0000e-003</b>	<b>6.9000e-004</b>	<b>7.3600e-003</b>	<b>3.0000e-005</b>	<b>2.9800e-003</b>	<b>2.0000e-005</b>	<b>3.0000e-003</b>	<b>7.9000e-004</b>	<b>2.0000e-005</b>	<b>8.1000e-004</b>	<b>0.0000</b>	<b>2.4088</b>	<b>2.4088</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.4100</b>

**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	1.9700e-003	0.0347	0.0398	6.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.7718	4.7718	1.0300e-003	0.0000	4.7976
<b>Total</b>	<b>1.9700e-003</b>	<b>0.0347</b>	<b>0.0398</b>	<b>6.0000e-005</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>4.7718</b>	<b>4.7718</b>	<b>1.0300e-003</b>	<b>0.0000</b>	<b>4.7976</b>



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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-003	6.9000e-004	7.3600e-003	3.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.4088	2.4088	5.0000e-005	0.0000	2.4100
<b>Total</b>	<b>1.0000e-003</b>	<b>6.9000e-004</b>	<b>7.3600e-003</b>	<b>3.0000e-005</b>	<b>2.9800e-003</b>	<b>2.0000e-005</b>	<b>3.0000e-003</b>	<b>7.9000e-004</b>	<b>2.0000e-005</b>	<b>8.1000e-004</b>	<b>0.0000</b>	<b>2.4088</b>	<b>2.4088</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.4100</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5100e-003	0.0178	0.0143	5.0000e-005		7.0000e-004	7.0000e-004		6.7000e-004	6.7000e-004	0.0000	5.2013	5.2013	3.2000e-004	0.0000	5.2092
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.5100e-003</b>	<b>0.0178</b>	<b>0.0143</b>	<b>5.0000e-005</b>		<b>7.0000e-004</b>	<b>7.0000e-004</b>		<b>6.7000e-004</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>5.2013</b>	<b>5.2013</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>5.2092</b>

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**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2700e-003	1.0000e-005	1.3300e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.0706	1.0706	2.0000e-005	0.0000	1.0711
<b>Total</b>	<b>4.4000e-004</b>	<b>3.1000e-004</b>	<b>3.2700e-003</b>	<b>1.0000e-005</b>	<b>1.3300e-003</b>	<b>1.0000e-005</b>	<b>1.3300e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>1.0706</b>	<b>1.0706</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.0711</b>

**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	1.4300e-003	0.0264	0.0283	5.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	5.2013	5.2013	3.2000e-004	0.0000	5.2092
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.4300e-003</b>	<b>0.0264</b>	<b>0.0283</b>	<b>5.0000e-005</b>		<b>1.7000e-004</b>	<b>1.7000e-004</b>		<b>1.7000e-004</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>5.2013</b>	<b>5.2013</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>5.2092</b>





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**3.6 Planting - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.0000e-004	2.1800e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7137	0.7137	1.0000e-005	0.0000	0.7141
<b>Total</b>	<b>3.0000e-004</b>	<b>2.0000e-004</b>	<b>2.1800e-003</b>	<b>1.0000e-005</b>	<b>8.8000e-004</b>	<b>1.0000e-005</b>	<b>8.9000e-004</b>	<b>2.4000e-004</b>	<b>1.0000e-005</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>0.7137</b>	<b>0.7137</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.7141</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N



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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>



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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	6.4000e-004	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Unmitigated	6.4000e-004	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
<b>Total</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.2000e-004</b>

**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	2.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
<b>Total</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.2000e-004</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Allen Park Construction - San Francisco Bay Area Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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**11.0 Vegetation**

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Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

**Unit 4 Improvements**  
**San Francisco Bay Area Air Basin, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.63	1000sqft	0.08	3,625.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	64
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

Project Characteristics - start June 15, 2022

Land Use - 3,625 sf concrete

Construction Phase - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Off-road Equipment - Refer to spreadsheet

Trips and VMT - Refer to spreadsheet (ABAG MTC 2017); Trucks calculated separately

Demolition - Negligible

Grading - Refer to spreadsheet

Construction Off-road Equipment Mitigation - watering; Tier 3, DPF level 3

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	2.00	35.00
tblConstructionPhase	NumDays	100.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	0.00	0.23
tblLandUse	LandUseSquareFeet	3,630.00	3,625.00



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tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	158.00	120.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	81.00	0.00
tbloffRoadEquipment	HorsePower	158.00	120.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	247.00	0.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	231.00	0.00
tbloffRoadEquipment	HorsePower	158.00	120.00
tbloffRoadEquipment	HorsePower	89.00	0.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	9.00	0.00
tbloffRoadEquipment	HorsePower	130.00	0.00
tbloffRoadEquipment	HorsePower	84.00	44.00
tbloffRoadEquipment	HorsePower	84.00	550.00
tbloffRoadEquipment	HorsePower	80.00	0.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	HorsePower	187.00	0.00
tbloffRoadEquipment	HorsePower	97.00	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00
tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.73	0.00

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tbloffRoadEquipment	LoadFactor	0.40	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.29	0.00
tbloffRoadEquipment	LoadFactor	0.20	0.00
tbloffRoadEquipment	LoadFactor	0.56	0.00
tbloffRoadEquipment	LoadFactor	0.42	0.00
tbloffRoadEquipment	LoadFactor	0.38	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	LoadFactor	0.41	0.00
tbloffRoadEquipment	LoadFactor	0.37	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	1.00	0.00

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tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripLength	10.80	15.10
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	2.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00

**2.0 Emissions Summary**



Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-15-2022	9-14-2022	0.2882	0.3276
		Highest	0.2882	0.3276

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	3.6000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/15/2022	6/21/2022	5	5	
2	Grading	Grading	6/22/2022	8/9/2022	5	35	
3	Building Construction	Building Construction	8/3/2022	8/16/2022	5	10	
4	Paving	Paving	8/10/2022	8/23/2022	5	10	
5	Planting	Site Preparation	8/24/2022	8/30/2022	5	5	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0.23**

**Acres of Paving: 0.08**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	0	0.00
Demolition	Excavators	1	8.00	120	0.38
Demolition	Pumps	1	24.00	44	0.74
Demolition	Rubber Tired Dozers	0	0.00	0	0.00
Demolition	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Grading	Concrete/Industrial Saws	0	0.00	0	0.00
Grading	Excavators	1	1.40	120	0.38
Grading	Pumps	1	24.00	44	0.74
Grading	Rubber Tired Dozers	0	0.00	0	0.00
Grading	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Building Construction	Cranes	0	0.00	0	0.00
Building Construction	Excavators	1	5.00	120	0.38
Building Construction	Forklifts	0	0.00	0	0.00
Building Construction	Pumps	1	24.00	44	0.74
Building Construction	Tractors/Loaders/Backhoes	0	0.00	0	0.37
Paving	Cement and Mortar Mixers	0	0.00	0	0.00
Paving	Pavers	0	0.00	0	0.00
Paving	Pumps	1	24.00	44	0.74
Paving	Pumps	1	5.00	550	0.74
Paving	Rollers	0	0.00	0	0.00
Paving	Tractors/Loaders/Backhoes	0	0.00	0	0.00
Planting	Graders	0	0.00	0	0.00
Planting	Tractors/Loaders/Backhoes	0	0.00	0	0.00

Trips and VMT



Unit 4 Improvements - San Francisco Bay Area Air Basin, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	2	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	8.00	0.00	0.00	15.10	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Planting	0	8.00	0.00	0.00	15.10	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

**3.2 Demolition - 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	3.1500e-003	0.0218	0.0244	4.0000e-005		9.3000e-004	9.3000e-004		9.1000e-004	9.1000e-004	0.0000	3.0734	3.0734	4.9000e-004	0.0000	3.0857
<b>Total</b>	<b>3.1500e-003</b>	<b>0.0218</b>	<b>0.0244</b>	<b>4.0000e-005</b>		<b>9.3000e-004</b>	<b>9.3000e-004</b>		<b>9.1000e-004</b>	<b>9.1000e-004</b>	<b>0.0000</b>	<b>3.0734</b>	<b>3.0734</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>3.0857</b>

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**3.2 Demolition - 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	7.0000e-005	5.0000e-005	5.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1784	0.1784	0.0000	0.0000	0.1785
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.5000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1784</b>	<b>0.1784</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1785</b>

**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	1.4900e-003	0.0246	0.0251	4.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	3.0734	3.0734	4.9000e-004	0.0000	3.0857
<b>Total</b>	<b>1.4900e-003</b>	<b>0.0246</b>	<b>0.0251</b>	<b>4.0000e-005</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>3.0734</b>	<b>3.0734</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>3.0857</b>

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**3.2 Demolition - 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	7.0000e-005	5.0000e-005	5.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1784	0.1784	0.0000	0.0000	0.1785
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.5000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1784</b>	<b>0.1784</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1785</b>

**3.3 Grading - 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					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0191	0.1224	0.1306	2.2000e-004		4.9200e-003	4.9200e-003		4.8900e-003	4.8900e-003	0.0000	16.5881	16.5881	1.8400e-003	0.0000	16.6341
<b>Total</b>	<b>0.0191</b>	<b>0.1224</b>	<b>0.1306</b>	<b>2.2000e-004</b>	<b>1.2000e-004</b>	<b>4.9200e-003</b>	<b>5.0400e-003</b>	<b>1.0000e-005</b>	<b>4.8900e-003</b>	<b>4.9000e-003</b>	<b>0.0000</b>	<b>16.5881</b>	<b>16.5881</b>	<b>1.8400e-003</b>	<b>0.0000</b>	<b>16.6341</b>

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**3.3 Grading - 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	5.2000e-004	3.6000e-004	3.8200e-003	1.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2490	1.2490	3.0000e-005	0.0000	1.2496
<b>Total</b>	<b>5.2000e-004</b>	<b>3.6000e-004</b>	<b>3.8200e-003</b>	<b>1.0000e-005</b>	<b>1.5500e-003</b>	<b>1.0000e-005</b>	<b>1.5600e-003</b>	<b>4.1000e-004</b>	<b>1.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>1.2490</b>	<b>1.2490</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.2496</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0400e-003	0.1453	0.1327	2.2000e-004		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003	0.0000	16.5881	16.5881	1.8400e-003	0.0000	16.6341
<b>Total</b>	<b>9.0400e-003</b>	<b>0.1453</b>	<b>0.1327</b>	<b>2.2000e-004</b>	<b>5.0000e-005</b>	<b>1.3100e-003</b>	<b>1.3600e-003</b>	<b>1.0000e-005</b>	<b>1.3100e-003</b>	<b>1.3200e-003</b>	<b>0.0000</b>	<b>16.5881</b>	<b>16.5881</b>	<b>1.8400e-003</b>	<b>0.0000</b>	<b>16.6341</b>

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**3.3 Grading - 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	5.2000e-004	3.6000e-004	3.8200e-003	1.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2490	1.2490	3.0000e-005	0.0000	1.2496
<b>Total</b>	<b>5.2000e-004</b>	<b>3.6000e-004</b>	<b>3.8200e-003</b>	<b>1.0000e-005</b>	<b>1.5500e-003</b>	<b>1.0000e-005</b>	<b>1.5600e-003</b>	<b>4.1000e-004</b>	<b>1.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>1.2490</b>	<b>1.2490</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.2496</b>

**3.4 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9200e-003	0.0397	0.0436	7.0000e-005		1.6500e-003	1.6500e-003		1.6300e-003	1.6300e-003	0.0000	5.5071	5.5071	7.7000e-004	0.0000	5.5265
<b>Total</b>	<b>5.9200e-003</b>	<b>0.0397</b>	<b>0.0436</b>	<b>7.0000e-005</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>1.6300e-003</b>	<b>1.6300e-003</b>	<b>0.0000</b>	<b>5.5071</b>	<b>5.5071</b>	<b>7.7000e-004</b>	<b>0.0000</b>	<b>5.5265</b>

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**3.4 Building Construction - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.5000e-004	1.0000e-004	1.0900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3569	0.3569	1.0000e-005	0.0000	0.3570
<b>Total</b>	<b>1.5000e-004</b>	<b>1.0000e-004</b>	<b>1.0900e-003</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.3569</b>	<b>0.3569</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3570</b>

**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	2.8000e-003	0.0457	0.0446	7.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.5071	5.5071	7.7000e-004	0.0000	5.5265
<b>Total</b>	<b>2.8000e-003</b>	<b>0.0457</b>	<b>0.0446</b>	<b>7.0000e-005</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>5.5071</b>	<b>5.5071</b>	<b>7.7000e-004</b>	<b>0.0000</b>	<b>5.5265</b>

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**3.4 Building Construction - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.5000e-004	1.0000e-004	1.0900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3569	0.3569	1.0000e-005	0.0000	0.3570
<b>Total</b>	<b>1.5000e-004</b>	<b>1.0000e-004</b>	<b>1.0900e-003</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.3569</b>	<b>0.3569</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3570</b>

**3.5 Paving - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.3500e-003	0.0653	0.0573	1.7000e-004		2.3000e-003	2.3000e-003		2.3000e-003	2.3000e-003	0.0000	16.0058	16.0058	7.6000e-004	0.0000	16.0247
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>9.3500e-003</b>	<b>0.0653</b>	<b>0.0573</b>	<b>1.7000e-004</b>		<b>2.3000e-003</b>	<b>2.3000e-003</b>		<b>2.3000e-003</b>	<b>2.3000e-003</b>	<b>0.0000</b>	<b>16.0058</b>	<b>16.0058</b>	<b>7.6000e-004</b>	<b>0.0000</b>	<b>16.0247</b>

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**3.5 Paving - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.0900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3569	0.3569	1.0000e-005	0.0000	0.3570
<b>Total</b>	<b>1.5000e-004</b>	<b>1.0000e-004</b>	<b>1.0900e-003</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.3569</b>	<b>0.3569</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3570</b>

**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	5.1900e-003	0.0919	0.0936	1.7000e-004		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	16.0058	16.0058	7.6000e-004	0.0000	16.0247
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.1900e-003</b>	<b>0.0919</b>	<b>0.0936</b>	<b>1.7000e-004</b>		<b>6.6000e-004</b>	<b>6.6000e-004</b>		<b>6.6000e-004</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>16.0058</b>	<b>16.0058</b>	<b>7.6000e-004</b>	<b>0.0000</b>	<b>16.0247</b>







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**3.6 Planting - 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	7.0000e-005	5.0000e-005	5.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1784	0.1784	0.0000	0.0000	0.1785
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.5000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1784</b>	<b>0.1784</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1785</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N



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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas 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 Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	3.6000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Unmitigated	3.6000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
<b>Total</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

**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	1.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
<b>Total</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

**7.0 Water Detail**



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**7.1 Mitigation Measures Water**

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

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

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

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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

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**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

Equipment Type	Number
----------------	--------

**11.0 Vegetation**

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## Appendix C

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### **Air Quality Supporting Information**

Air Quality Emissions Assumptions and Calculations

CalEEMod Emissions Model Results

**Health Risk Assessment**

# **CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1**

## **HEALTH RISK ASSESSMENT**

**CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK  
ASSESSMENT**

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# CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

## Acronyms

ASF	Age Specific Factor
BAAQMD	Bay Area Air Quality Management District
CalEEMod	California Emission Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DBR	Daily Breathing Rate
DEM	Digital Elevation Model
DPM	Diesel Particulate Matter
HI	Hazard Index
HQ	Hazard Quotient
HRA	Health Risk Assessment
MEIR	Maximum Exposed Individual Receptor
MSA	Metropolitan Statistical Area
OEHHA	Office of Environmental Health Hazard Assessment
PM2.5	Particulate Matter of aerodynamic diameter less than 2.5 micrometers
RAGS	Risk Assessment Guidelines for Superfund
REL	Relative Exposure Limit
SCAQMD	South Coast Air Quality Management District
TAC	Toxic Air Contaminant
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

# CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

## 1 Introduction

The Marin County Flood Control and Water Conservation District (the District) and the Friends of Corte Madera Creek Watershed, propose the Corte Madera Creek Flood Risk Management Project, Phase 1 (the project). The District is the California Environmental Quality Act (CEQA) Lead Agency responsible for preparation of this EIR. The proposed project includes improvements to the concrete Corte Madera Creek flood control channel constructed by the US Army Corps of Engineers (USACE) in the 1960s and 1970s. The project improvements would be located within the Town of Ross and unincorporated Kentfield. The proposed channel improvements would improve fish passage and provide 25-year flood risk reduction to residents and businesses within the Town of Ross and Kentfield.

The project construction activities and operation of the 150-kW backup power generator at the new stormwater pump station will emit toxic air contaminants (TACs). A health risk assessment (HRA) was conducted in order to evaluate the potential health impacts from these sources of TACs. This report details the key assumptions and results of the HRA conducted following the Office of Environmental Health Hazard Assessment (OEHHA), California Air Resources Board (CARB) and Bay Area Air Quality Management District (BAAQMD) HRA guidelines.

### 1.1 Report Organization

This report describes the methodology used to estimate TAC emissions, conduct air dispersion modeling, and determine exposure factors and toxicity that are the key inputs into a HRA. The report is organized in to the following key sections:

- Toxic Air Contaminants and Emissions
- Air Dispersion Modeling
- Exposure Factors and Toxicity Factors
- HRA Results

## **2 Toxic Air Contaminants and Emissions**

### **2.1 Toxic Air Contaminants**

One of the first steps in a HRA is to identify the potential chemicals of concern. OEHHA has identified a list of chemicals that are identified in California as toxic air contaminants and have determined appropriate toxicity factors for these chemicals for use in HRAs. The chemicals of concern during Project construction are from the combustion of fossil fueled construction equipment, material hauling vehicles and worker vehicles. During normal Project operation, the emergency generator for the pump station would emit diesel exhaust during routine testing and maintenance activities.

Diesel exhaust is a complex mixture that includes hundreds of individual constituents and is identified by the State of California as a known carcinogen and it also has chronic health effects. Diesel particulate matter (DPM) could be emitted from the construction equipment, material hauling vehicles, worker vehicles and the emergency diesel generators during periodic testing. Various gasoline fuel-related toxic air contaminants (TACs) would be emitted from gasoline fueled vehicles. Specifically, TACs such as benzene, toluene, ethylbenzene, 1,3-butadiene, and xylenes may be emitted from the gasoline vehicles.

The analysis also evaluates the concentration of Particulate Matter of aerodynamic diameter less than 2.5 micrometers (PM<sub>2.5</sub>). While PM<sub>2.5</sub> is not a TAC, it is part of BAAQMD's CEQA significance thresholds for risks and hazards. It is assumed that all vehicle exhaust including DPM is PM<sub>2.5</sub>. In addition, fugitive dust from construction activities, tire and brake wear as well as dust from traveling on paved roads are also included in the PM<sub>2.5</sub> emissions used to estimate PM<sub>2.5</sub> concentrations.

### **2.2 Emission Estimates**

For the HRA, TAC emissions need to be estimated for each individual area where the emissions will occur. For construction emissions, this means the work areas that the construction equipment will work in during a specific phase, and specific roads that vehicles will travel along. For operational emissions, the emissions associated with routine testing and maintenance of the emergency generator are estimated. Emergency use of the generator is not considered as it is unpredictable and uncertain and therefore not typically included in a HRA.

Construction emissions were estimated using off-road construction emission factors used in California Emissions Estimator Model (CalEEMod) version 2016.3.2. The emission factors were combined with the horsepower, load factor and hours of use during the construction phase to give the emissions for a specific construction work area. For use in air dispersion modeling, the emissions were converted to an emission rate in terms of grams per second. The emission rate from construction equipment for each work area is shown in **Table 1**. Fugitive dust emissions

## CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

from construction activity was also calculated based on CalEEMod version 2016.3.2 methods. Vehicle emissions were estimated using on-road emission factors from EMFAC2017. The vehicle emission factor was multiplied by the length of the specific road segment it would drive along for distance-based emission factors and number of trips for trip-based emission factors. The emissions were converted to an emission rate in terms of grams per second. The emission rate from vehicles on each road segment is shown in **Table 2**. Roads were only modeled in the immediate vicinity of the project site. In general, this was modeling roads from Lagunitas Road at the northern end of the project along Sir Francis Drake Boulevard to Bon Air Road and College Avenue and Magnolia Avenue to Bon Air Road at the southern end of the project. **Table 3** shows the assumed distribution of vehicle trips on the different road segments for each phase. **Table 4** shows the speciation factors used to determine gasoline TAC emissions from total organic gases. **Table 4** also shows the speciation used only for acute health impacts of diesel particulate matter.

The emissions for the emergency generator testing were estimated using California Emissions Estimator Model (CalEEMod) version 2016.3.2; it was assumed that the generator would be in operation for 1 hour on 50 days per year. For chronic health impacts and cancer assessments, the emissions were amortized over a year. The total emissions were converted to an emission rate in terms of grams per second. **Table 5** shows the generator emission rate.

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## 3 Air Dispersion Modeling

The dispersion of emissions in ambient air was simulated using the U.S. Environmental Protection Agency's (USEPA's) approved model, AERMOD version 19121, which is an air dispersion model that is approved by the BAAQMD for air dispersion assessments. AERMOD was used to estimate levels of TACs at sensitive receptor locations from the project's construction and operation as well as PM<sub>2.5</sub> concentrations. The model inputs and assumptions are summarized below.

**Emission Rate:** A unit emission rate was used in the AERMOD analysis, which allows for the AERMOD results or dispersion factors to be multiplied by project-specific emission rates to identify the project-specific ambient air concentrations.

**Meteorological Data:** AERMOD ready meteorological data using for the Gness Field Airport surface station and Oakland International Airport for upper air station was used for 2009-2013 calendar years which represents five years of meteorological data. This was obtained from the California Air Resources Board (CARB) Hot Spots Analysis & Report Program website list of AERMOD Meteorological Files (CARB 2020a). **Figure 1** shows the location of the surface meteorological station relative to the project site as well as showing a wind rose of the wind speeds used in the modeling.

**Terrain:** AERMOD uses the preprocessor AERMAP to incorporate terrain elevation into the model. A Digital Elevation Model (DEM) for San Rafael at 30-meter resolution was used (CARB 2020b).

**Urban Source Designation:** AERMOD allows the option to designate sources as urban or rural. Selecting the urban options accounts for heat island effects. This requires the user to enter a population for the area. AERMOD's Implementation Guide suggests using the Metropolitan Statistical Area (MSA) which for this project which is San Rafael with a population of 258,826 (USEPA 2019). The default surface roughness of 1 meter was used.

**Receptors:** Receptors were modeled at 25-meter increments from the sources out to 500 meters. **Table 6** shows the coordinates of the receptors. **Figure 2** shows the receptor grid used in the modeling.

**Source Parameters:** Emergency generators were modeled as point sources. Point sources are represented by defining the stack height, stack diameter, exhaust temperature and exhaust flow rate. Typical values for emergency generators were used for the point source parameters. Construction equipment emissions, on-road vehicle emissions, and fugitive dust emissions were modeled with a series of volume sources. Volume sources are defined by their release height, initial vertical dimension and initial lateral dimension. For volume sources that represent roads the initial lateral dimension is calculated by dividing the center to center distance by 2.15 as recommended by BAAQMD (BAAQMD 2012). The center to center distance for roads is

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determined by the width of the road. For Sir Francis Drake Boulevard, a distance of 20 meters was used. For College and Magnolia Avenues a distance of 12 meters was used and all other roads used 6 meters. The release height from the vehicles was assumed to be 10 feet and 3.2 meter initial vertical dimension as recommended by BAAQMD for trucks (BAAQMD 2012). Construction work areas were modeled as 10 by 10 meter adjacent volume sources and used release height of 5 meters and an initial vertical dimension of 1.4 meters (SCAQMD 2008). Details of source parameters are shown in **Table 7**. **Figures 3 through 5** show the locations of the sources from an overall aspect as well as closer views of the northern and southern sources.

The output of AERMOD is the 1-hour maximum air concentration and annual average air concentration in units of micrograms per cubic meter at each receptor in the model for each group of sources.

## **4 Exposure Factors and Toxicity Factors**

### **4.1 Exposure Factors**

Potential sensitive receptors were characterized as residents, day-care children, school children, medical patients, senior center users, and recreational users. The maximally exposed receptor for assuming residential exposure as well as the actual residential receptor, is reported. Given a specific receptor location, residential exposure assumptions are the most conservative compared to day-care children, school children, medical patients, senior center users, and recreational users.

The exposure parameters used to estimate excess lifetime cancer risks and chronic non-cancer Hazard Index (HI) for all potentially exposed populations were obtained using risk assessment guidelines from OEHHA (2015).

The inhalation dose is a function of the concentration of a chemical and the intake of that chemical. The dose can be calculated as follows:

$$Dose = \frac{Conc * DBR * ET * EF * ED * CF}{AT}$$

Where:

Dose	=	Dose of chemical (milligrams per kilogram-day [mg/kg-day])
Conc	=	Chemical concentration in air (micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ])
DBR	=	Daily Breathing Rate (liters per kilogram-day [l/kg-day])
ET	=	Exposure Time (hours/day)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)
CF	=	Conversion Factor (cubic meters per liter [ $\text{m}^3/\text{l}$ ] and milligrams per microgram [ $\text{mg}/\mu\text{g}$ ])

The DBR was set to the 95th percentile for third trimester, 0-2 years. The 80th percentile DBR was used for 2-15 years, and 16-30 years as recommended by CARB and CAPCOA (2015) and BAAQMD (2016). The exposure frequency was assumed to be for the 244 calendar days of the construction work schedule. The exposure frequency for residents was 350 days per year, consistent with a resident being present at the home except for two weeks out of the year and a



## CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

30-year exposure duration. There was no further adjustment for fraction of time at home. The averaging time was based on 70 years. The details of the exposure factors for the receptors are shown in **Table 8**.

### 4.2 Toxicity Assessment

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. For purposes of calculating exposure criteria to be used in risk assessments, adverse health effects are classified into two broad categories: cancer and non-cancer endpoints. Toxicity values, used to estimate the likelihood of adverse effects occurring in humans at different exposure levels, are identified as part of the toxicity assessment component of a risk assessment.

In this HRA, diesel exhaust and speciated gasoline total organic gases are the only chemical of potential concern that was quantified. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. For gasoline and gasoline exhaust, the individual chemicals making up the primary components were used to estimate health effects based on common speciation profiles (CARB 2020c).

The estimated excess lifetime cancer risk for a resident was adjusted using the age sensitivity factors (ASFs) recommended by OEHHA (2015). This approach accounts for an “anticipated special sensitivity to carcinogens” of infants and children. Cancer risk estimates are weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age and by a factor of 3 for exposures that occur from 2 years through 15 years of age. No weighting factor (i.e., an ASF of 1, which is equivalent to no adjustment) is applied to exposure from ages 16 to 70 years. These ASFs are shown in **Table 8**.

Excess lifetime cancer risks are estimated as the upper-bound incremental probability<sup>1</sup> that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs if the chemical is being inhaled) by the chemical-specific cancer potency factor (CPF).

---

<sup>1</sup> The upper-bound incremental probability means that the “true carcinogenic risk” of an individual is unlikely to exceed the model-derived cancer risk estimates and, therefore, is likely to be less than the predicted (modeled) risk (USEPA 2012). Thus, the modeled cancer risks would represent a conservative scenario.

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The equation used to calculate the potential excess lifetime cancer risk for the inhalation pathway is as follows:

$$Risk_i = Dose * CPF_i * ASF$$

Where:

Risk<sub>i</sub> = Cancer Risk, the incremental probability of an individual developing cancer as a result of inhalation exposure to a particular potential carcinogen (unitless)

Dose = Dose of chemical (mg/kg-day)

CPF<sub>i</sub> = Cancer Potency Factor for Chemical I (mg chemical/kg body weight-day)

1

ASF = Age Sensitivity Factor (unitless)

The CPFs for potential carcinogens that are anticipated to be present at the project site are shown in **Table 9**.

The potential for exposure to result in chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the chemical-specific non-cancer chronic reference exposure level (RELs). When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient (HQ). To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding an HI.

The equations used to calculate the chemical-specific HQs and the overall HI are:

$$Chronic HQ_i = C_i / REL_i$$

$$Chronic HI = \sum HQ_i$$

Where:

Chronic HQ<sub>i</sub> = Chronic Hazard Quotient for Chemical<sub>i</sub> (unitless)

Chronic HI = Hazard Index (unitless)

C<sub>i</sub> = Annual average air concentration for Chemical<sub>i</sub> (µg/m<sup>3</sup>)

REL<sub>i</sub> = Chronic Non-cancer Reference Exposure Level for Chemical<sub>i</sub> (µg/m<sup>3</sup>)

In summing values for a HI, the organ end point (e.g. respiratory system, nervous system) is considered and only those chemicals that have the same target organ end point are summed together.

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Acute non-cancer impacts were estimated in a similar manner to chronic non-cancer impacts, by estimating the HQs for all chemicals and summing them to yield an HI. **Table 9** contains the chronic and acute RELs used in this HRA.

## **5 Results**

### **5.1 Project Construction and Operation HRA Results**

The results of the project construction and operation HRA are shown in **Table 10** for the maximum exposed individual receptor (MEIR). The construction cancer risk is 3.17 in a million after mitigation. The mitigated Construction Chronic HI is .0028 and acute HI is 0.61. This is the anticipated cancer risk, chronic HI and acute HI from project activities. **Figure 6** shows the overall distribution of the mitigated cancer risk from construction activities and location of the MEIR assuming all receptors have residential exposures. The operational cancer risk from the emergency generator is 0.76 in a million. The operational chronic HI is 0.0002 and the acute HI is 0.066. **Figure 7** shows the location of the MEIR for mitigated chronic and acute health effects from construction. **Figure 8** shows the cancer risk and location of the MEIR for the project operation. **Figure 8** shows the location of the MEIR for chronic and acute health effects from project operation. **Figure 9** shows the mitigated PM<sub>2.5</sub> concentration from project construction with a maximum of 0.033 µg/m<sup>3</sup>. The operational PM<sub>2.5</sub> concentration is 0.0010 µg/m<sup>3</sup>. The results of this HRA are below thresholds of significance used by BAAQMD (BAAQMD 2017).

### **5.2 BAAQMD Nearby Sources**

BAAQMD suggests looking at sources within 1,000 feet of the project site to develop an estimate of the cumulative risk in the project vicinity. BAAQMD has an online tool to search for permitted sources. There are five permitted sources within 1000 feet of the project site. The major arterial roads (i.e. Sir Francis Drake Boulevard) in the project vicinity could contribute additional risk, however this would be small since the roads are not major interstates or highways and do not have a substantial amount of trucks on in this area and adequate information on annual average traffic counts and percentage of trucks is not readily available. Thus, the contribution to the overall risk does not include nearby major arterial roads. These are shown in **Table 11** as well as the distance to the MEIR. **Figure 10** shows the locations of the identified permitted sources. BAAQMD has a Health Risk Calculator Tool that will estimate the risk at the MEIR from the permitted sources. This tool uses basic distance adjustment multipliers. The distance to the MEIR exceeded the maximum distance in the adjustment multiplier tables, therefore the greatest distance in the tool was conservatively used. Values for one generator were not available so they were assumed to be similar to the other BAAQMD permitted generator. **Table 12** shows the estimated cumulative risk plus the project based on the use of the distance multipliers. The cumulative cancer risk when combining construction emissions is 17.43 in a million and when combining operation emissions is 13.77. Chronic and acute HIs are well below 1.

The results of the cumulative risk are below thresholds of significance used by BAAQMD (BAAQMD 2017).

# CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

## 6 References

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- CARB. *See* California Air Resources Board.
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## CORTE MADERA CREEK FLOOD RISK MANAGEMENT PROJECT PHASE 1 HEALTH RISK ASSESSMENT

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# memo

Horizon Water & Environment, LLC

To: Caitlin Gilleran, Panorama Environmental, Inc.

From: Jennifer Schulte, Horizon Water & Environment

Date: October 26, 2020

Re: Health Risk Assessment for Alternative with No Construction Phase 7 at Frederick Allen Park

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This memorandum details the health impacts for an alternative for the Corte Madera Creek Flood Risk Management Project Phase 1. The alternative being evaluated is to consider not doing any of the Phase 7 Construction activities in the Frederick Allen Park. A health risk assessment (HRA) was conducted for the Proposed Project for Corte Madera Creek Flood Risk Management Project Phase 1 construction and operation. The detailed HRA report outlined the key assumptions and results of the HRA conducted following the Office of Environmental Health Hazard Assessment (OEHHA), California Air Resources Board (CARB) and Bay Area Air Quality Management District (BAAQMD) HRA guidelines. The analysis of this alternative followed the same assumptions and methodologies outlined for the project except for the removal of construction Phase 7.

The major toxic air contaminants (TACs) are from combustion of diesel and gasoline in the construction equipment and vehicles. Diesel exhaust is a complex mixture that includes hundreds of individual constituents and is identified by the State of California as a known carcinogen and it also has chronic health effects. Diesel particulate matter (DPM) could be emitted from the construction equipment, material hauling vehicles, worker vehicles and the emergency diesel generators during periodic testing. Various gasoline fuel-related toxic air contaminants (TACs) would be emitted from gasoline fueled vehicles. Specifically, TACs such as benzene, toluene, ethylbenzene, 1,3-butadiene, and xylenes may be emitted from the gasoline vehicles.

Briefly, emissions were estimated for construction equipment and construction vehicles on nearby roadways. Construction emissions were estimated using off-road construction emission factors used in California Emissions Estimator Model (CalEEMod) version 2016.3.2. The emission factors were combined with the horsepower, load factor and hours of use during the construction phase to give the emissions for a specific construction work area. The mitigated scenario assumed that all construction equipment was equivalent to Tier 3 engines with Level 3 Diesel Particulate Filters. Vehicle emissions were estimated using on-road emission factors from EMFAC2017. The vehicle emission factor was multiplied by the length of the specific road segment it would drive along for distance-based emission factors and number of trips for trip-based emission factors. See the project HRA report for additional details. Specifically Table 1a and Table 1b which would have the change to remove the rows associated with Phase 7. Table 2 and 3 would modify the road section weighting to remove Phase 7 and recalculated in the same manner.

The dispersion of emissions in ambient air was simulated using the U.S. Environmental Protection Agency's (USEPA's) approved model, AERMOD version 19121, which is an air dispersion model that is approved by the BAAQMD for air dispersion assessments. AERMOD was used to estimate levels of TACs at sensitive receptor locations from the project's construction and operation as well as PM<sub>2.5</sub> concentrations. Meteorological data was from Gness Field Airport for surface station and Oakland International Airport for upper air station. Terrain was accounted for using a 30-meter resolution DEM for San Rafael. Urban sources was selected with a population for San Rafael Metropolitan Statistical Area of 258,826 and a surface roughness of 1 meter. Receptors were modeled in a 25-meter grid out to 500 meters. Construction

equipment was modeled as adjacent volume sources in the work area. Construction vehicles on roads was modeled as a series of volume sources. See the project HRA report for additional details. There would be no changes to these tables except for excluding the sources related to Phase 7.

Residential exposure assumptions and toxicity factors were combined to determine the worst-case health impacts for cancer and chronic hazard index and the maximum receptor in the model domain is reported as well as the highest actual residential receptor. Acute hazard index is reported for any modeled receptor in the model domain since a person could be in this location for a short period of time. The PM2.5 concentration is reported for any modeled receptor in the model domain since the value is the highest ambient concentration and not a specific individual receptor.

The results for this alternative are shown in Table 1 and the excess cancer risk in a million people is shown in Figure 1. As shown in Table 1, the unmitigated scenario results in a cancer risk of 15.85 in a million which is above the BAAQMD CEQA significance threshold of 10 in a million. The mitigated scenario results in a cancer risk of 4.26 in a million which is below the BAAQMD CEQA significance threshold of 10 in a million. The chronic and acute hazard indices are well below the BAAQMD CEQA significance threshold of 1. The mitigated PM2.5 concentration is 0.031  $\mu\text{g}/\text{m}^3$  and is below the BAAQMD CEQA significance threshold of 0.3  $\mu\text{g}/\text{m}^3$ . Operational results and impacts are the same as the project for this alternative.

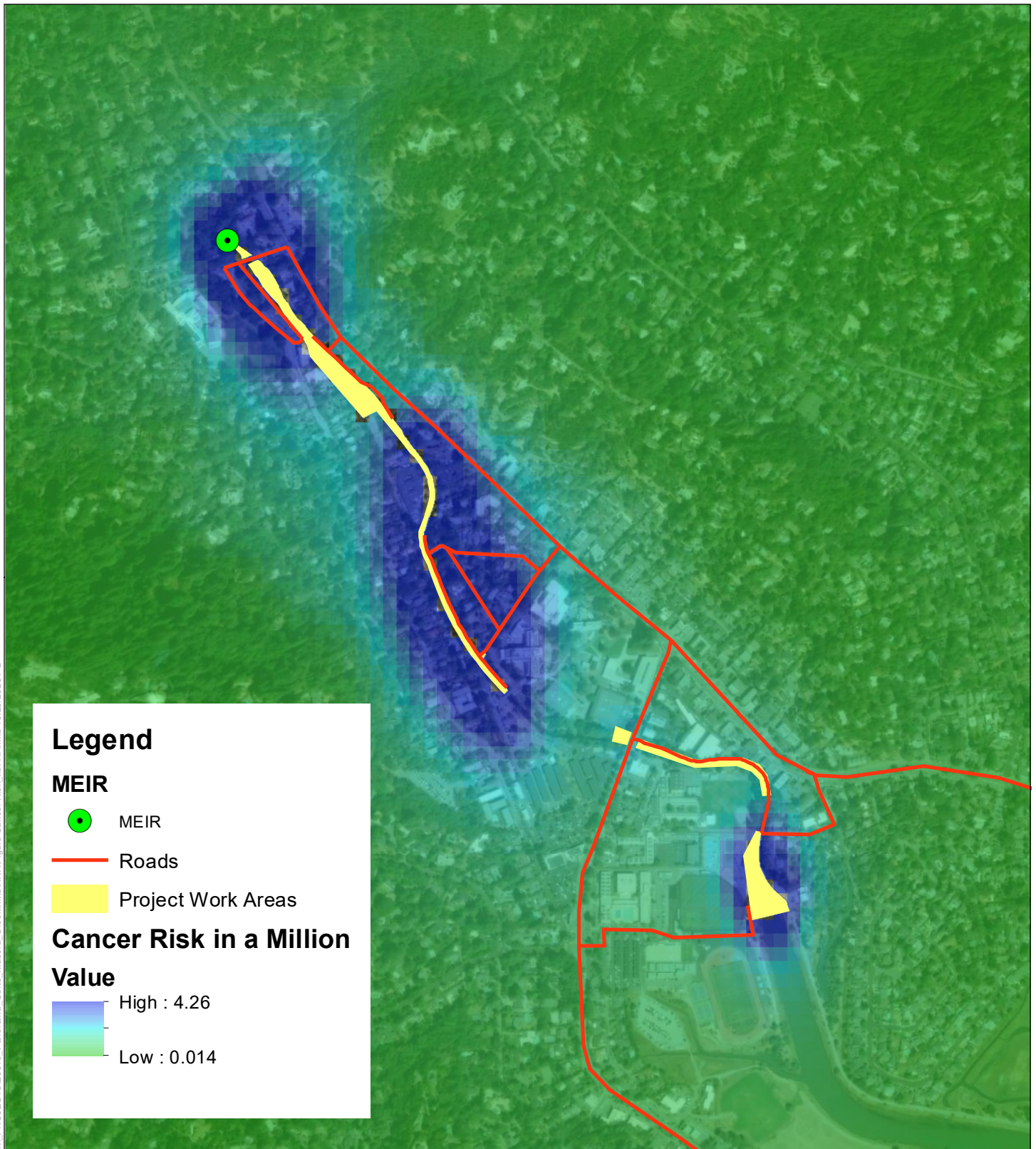


**Table 1: Health Risk Assessment Results at MEIR for No Phase 7 Construction at Frederick Allen Park**

UTM X (m)	UTM Y (m)	Notes	Cancer Risk in a Million		Chronic HI		Acute HI		Mitigated PM 2.5 Concentration (ug/m <sup>3</sup> )	
			Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated
<b>Construction</b>										
538933.7	4201716	Note 1	15.85	4.26	0.037	0.010			0.11	0.031
539733.7	4201016	Note 1					0.17	0.17		
<b>Operation</b>										
539483.7	4201016	Note 2	0.76	0.76	0.00020	0.00020	0.066	0.066	0.0010	0.0010

1. This represents the maximum of a receptor modeled using residential exposure assumptions.
2. This is the maximum of a receptor modeled using residential exposure assumptions since a person could be around for all Emergency Generator testing.

T:\PROJECTS\20019\_Panorama\_Corte\_Madera\_Creek\mxd\HR\Figure Cancer Risk\_nofAP.mxd 10/26/2020 PG



Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,

**Figure 1**

**Construction Residential Cancer Risk  
Alternative with No Phase 7 Construction at Frederick Allen Park  
Health Risk Assessment**



0 125 250 500 750 1,000 Meters

**Table 1a: Construction Equipment Emission Rates**

Construction Phase	SubPhase	SRCID	Equipment	Count	Horse Power	Usage (hr/day)	Load Factor	Duration (days)	DPM Emission Factor (g/bhp-hr)	Mitigated DPM Emission Factor (g/bhp-hr)	DPM Emissions (g)	Mitigated DPM Emissions (g)	DPF Reduction	DPM Emission Rate (g/s)	DPM Mitigated Emission Rate (g/s)	TOG Emission Factor (g/bhp-hr)	Mitigated TOG Emission Factor (g/bhp-hr)	1-hr TOG Emission Rate (g/s)
1	Demolition	LCCR	Excavator	1	120	6	0.38	15	0.138	0.112	566.352	6.89E+01	8.50E-01	2.68648E-05	3.27E-06	0.299503	0.12	0.0037937
1	Demolition	LCCR	Pump	1	44	24	0.74	15	0.152	0.28	1781.6832	4.92E+02	8.50E-01	8.45137E-05	2.34E-05	6.194	0.29	0.05602129
1	Demolition	LCCR	Crane	1	175	2.7	0.29	15	0.246	0.088	505.62225	2.71E+01	8.50E-01	2.39841E-05	1.29E-06	0.513527	0.12	0.0072393
1	Demolition	LCCR	Silent Piler	1	355	5.3	0.5	15	0.035	0.088	493.89375	1.86E+02	8.50E-01	2.34277E-05	8.84E-06	0.12801	0.12	0.0063116
1	Grading	LCCR	Excavator	1	120	5	0.38	30	0.138	0.112	943.92	1.15E+02	8.50E-01	4.47746E-05	5.45E-06	0.299503	0.12	0.0037937
1	Grading	LCCR	Pump	1	44	20	0.74	30	0.152	0.28	2969.472	8.21E+02	8.50E-01	0.000140856	3.89E-05	6.194	0.29	0.05602129
1	Grading	LCCR	Grader	1	140	2	0.41	30	0.229	0.112	788.676	5.79E+01	8.50E-01	3.74106E-05	2.74E-06	0.524016	0.12	0.00835514
2	Grading	FW1	Skid Steer Loader	1	67	4	0.37	5	0.081	0.192	40.1598	1.43E+01	8.50E-01	1.90497E-06	6.77E-07	0.195311	0.12	0.00134493
2	Grading	FW1	Excavator	1	24	4	0.38	5	0.16	0.28	29.184	7.98E+00	8.50E-01	1.38434E-06	3.79E-07	0.568779	0.29	0.00150094
2	Building Construction	FW1	Skid Steer Loader	1	67	2.4	0.37	50	0.081	0.192	240.9588	8.57E+01	8.50E-01	1.14298E-05	4.06E-06	0.195311	0.12	0.00134493
2	Building Construction	FW1	Excavator	1	24	2.4	0.38	50	0.16	0.28	175.104	4.79E+01	8.50E-01	8.30601E-06	2.27E-06	0.568779	0.29	0.00150094
2	Demolition	FW1	Skid Steer Loader	1	67	4	0.37	5	0.081	0.192	40.1598	1.43E+01	8.50E-01	1.90497E-06	6.77E-07	0.195311	0.12	0.00134493
2	Demolition	FW1	Excavator	1	24	4	0.38	5	0.16	0.28	29.184	7.98E+00	8.50E-01	1.38434E-06	3.79E-07	0.568779	0.29	0.00150094
2	Paving	FW1	Pump	1	550	2.5	0.74	10	0.034	0.088	345.95	1.34E+02	8.50E-01	1.641E-05	6.37E-06	30.396	0.12	3.43643667
3	Demolition	FW2	Skid Steer Loader	1	67	4	0.37	5	0.081	0.192	40.1598	1.43E+01	8.50E-01	1.90497E-06	6.77E-07	0.195311	0.12	0.00134493
3	Demolition	FW2	Excavator	1	24	4	0.38	5	0.16	0.28	29.184	7.98E+00	8.50E-01	1.38434E-06	3.79E-07	0.568779	0.29	0.00150094
3	Grading	FW2	Skid Steer Loader	1	67	4	0.37	5	0.081	0.192	40.1598	1.43E+01	8.50E-01	1.90497E-06	6.77E-07	0.195311	0.12	0.00134493
3	Grading	FW2	Excavator	1	24	4	0.38	5	0.16	0.28	29.184	7.98E+00	8.50E-01	1.38434E-06	3.79E-07	0.568779	0.29	0.00150094
3	Building Construction	FW2	Skid Steer Loader	1	67	2.67	0.37	15	0.081	0.192	80.4199995	2.86E+01	8.50E-01	3.8147E-06	1.36E-06	0.195311	0.12	0.00134493
3	Building Construction	FW2	Excavator	1	24	2.67	0.38	15	0.16	0.28	58.44096	1.60E+01	8.50E-01	2.77213E-06	7.58E-07	0.568779	0.29	0.00150094
3	Paving	FW2	Pump	1	550	2.5	0.74	10	0.034	0.088	345.95	1.34E+02	8.50E-01	1.641E-05	6.37E-06	30.396	0.12	3.43643667
4	Grading	COMFW	Skid Steer Loader	1	67	4	0.37	10	0.081	0.192	80.3196	2.86E+01	8.50E-01	3.80994E-06	1.35E-06	0.195311	0.12	0.00134493
4	Grading	COMFW	Excavator	1	24	4	0.38	10	0.16	0.28	58.368	1.60E+01	8.50E-01	2.76867E-06	7.57E-07	0.568779	0.29	0.00150094
4	Building Construction	COMFW	Skid Steer Loader	1	67	2.4	0.37	50	0.081	0.192	240.9588	8.57E+01	8.50E-01	1.14298E-05	4.06E-06	0.195311	0.12	0.00134493
4	Building Construction	COMFW	Excavator	1	24	2.4	0.38	50	0.16	0.28	175.104	4.79E+01	8.50E-01	8.30601E-06	2.27E-06	0.568779	0.29	0.00150094
4	Demolition	COMFW	Skid Steer Loader	1	67	4	0.37	5	0.081	0.192	40.1598	1.43E+01	8.50E-01	1.90497E-06	6.77E-07	0.195311	0.12	0.00134493
4	Demolition	COMFW	Excavator	1	24	4	0.38	5	0.16	0.28	29.184	7.98E+00	8.50E-01	1.38434E-06	3.79E-07	0.568779	0.29	0.00150094
4	Paving	COMFW	Pump	1	550	5	0.74	10	0.034	0.088	691.9	2.69E+02	8.50E-01	3.28201E-05	1.27E-05	30.396	0.12	3.43643667
5	Grading	NFP	Skid Steer Loader	1	67	3.2	0.37	25	0.081	0.192	160.6392	5.71E+01	8.50E-01	7.61988E-06	2.71E-06	0.195311	0.12	0.00134493
5	Grading	NFP	Excavator	1	120	4.8	0.38	25	0.138	0.112	755.136	9.19E+01	8.50E-01	3.58197E-05	4.36E-06	0.299503	0.12	0.0037937
5	Grading	NFP	Pump	2	44	24	0.74	25	0.152	0.28	5938.944	1.64E+03	8.50E-01	0.000281712	7.78E-05	6.194	0.29	0.11204258
5	Demolition	NFP	Skid Steer Loader	1	67	4	0.37	25	0.081	0.192	200.999	7.14E+01	8.50E-01	9.52485E-06	3.39E-06	0.195311	0.12	0.00134493
5	Demolition	NFP	Excavator	1	120	6	0.38	25	0.138	0.112	943.92	1.15E+02	8.50E-01	4.47746E-05	5.45E-06	0.299503	0.12	0.0037937
5	Demolition	NFP	Pump	2	44	24	0.74	25	0.152	0.28	5938.944	1.64E+03	8.50E-01	0.000281712	7.78E-05	6.194	0.29	0.11204258
5	Paving	NFP	Pump	2	44	12.92	0.74	25	0.152	0.28	3197.13152	8.83E+02	8.50E-01	0.000151655	4.19E-05	6.194	0.29	0.11204258
5	Paving	NFP	Pump	1	550	1.54	0.74	25	0.034	0.088	532.763	2.07E+02	8.50E-01	2.52715E-05	9.81E-06	30.396	0.12	3.43643667
6	Grading	SDPS	Excavator	1	120	6	0.38	10	0.138	0.112	377.568	4.60E+01	8.50E-01	1.79098E-05	2.18E-06	0.299503	0.12	0.0037937
6	Grading	SDPS	Pump	1	44	24	0.74	10	0.152	0.28	1187.7888	3.28E+02	8.50E-01	5.63424E-05	1.56E-05	6.194	0.29	0.05602129
6	Building Construction	SDPS	Excavator	1	120	2	0.38	15	0.138	0.112	188.784	2.30E+01	8.50E-01	8.95492E-06	1.09E-06	0.299503	0.12	0.0037937
6	Building Construction	SDPS	Pump	1	44	16	0.74	15	0.152	0.28	1187.7888	3.28E+02	8.50E-01	5.63424E-05	1.56E-05	6.194	0.29	0.05602129
6	Paving	SDPS	Crane	1	326	3	0.29	10	0.117	0.088	331.8354	3.74E+01	8.50E-01	1.57405E-05	1.78E-06	0.31051	0.12	0.00815434
6	Paving	SDPS	Pump	1	550	2.5	0.74	10	0.034	0.088	345.95	1.34E+02	8.50E-01	1.641E-05	6.37E-06	30.396	0.12	3.43643667
6	Demolition	SDPS	Excavator	1	120	6	0.38	5	0.138	0.112	188.784	2.30E+01	8.50E-01	8.95492E-06	1.09E-06	0.299503	0.12	0.0037937
6	Demolition	SDPS	Pump	1	44	24	0.74	5	0.152	0.28	593.8944	1.64E+02	8.50E-01	2.81712E-05	7.78E-06	6.194	0.29	0.05602129
7	Demolition	APRC	Skid Steer Loader	1	67	2.67	0.37	25	0.081	0.192	134.033333	4.77E+01	8.50E-01	6.35783E-06	2.26E-06	0.195311	0.12	0.00134493
7	Demolition	APRC	Excavator	1	120	3.2	0.38	25	0.138	0.112	503.424	6.13E+01	8.50E-01	2.38798E-05	2.91E-06	0.299503	0.12	0.0037937
7	Demolition	APRC	Pump	1	44	24	0.74	25	0.152	0.28	2969.472	8.21E+02	8.50E-01	0.000140856	3.89E-05	6.194	0.29	0.05602129
7	Demolition	APRC	Grader	1	140	3.6	0.41	25	0.229	0.112	1183.014	8.68E+01	8.50E-01	5.61159E-05	4.12E-06	0.524016	0.12	0.00835514
7	Grading	APRC	Skid Steer Loader	1	67	1.33	0.37	50	0.081	0.192	133.531335	4.75E+01	8.50E-01	6.33402E-06	2.25E-06	0.195311	0.12	0.00134493
7	Grading	APRC	Excavator	1	120	1.6	0.38	50	0.138	0.112	503.424	6.13E+01	8.50E-01	2.38798E-05	2.91E-06	0.299503	0.12	0.0037937
7	Grading	APRC	Pump	1	44	24	0.74	50	0.152	0.28	5938.944	1.64E+03	8.50E-01	0.000281712	7.78E-05	6.194	0.29	0.05602129
7	Grading	APRC	Grader	1	140	1.8	0.41	50	0.229	0.112	1183.014	8.68E+01	8.50E-01	5.61159E-05	4.12E-06	0.524016	0.12	0.00835514
7	Building Construction	APRC	Skid Steer Loader	1	67	1.48	0.37	45	0.081	0.192	133.732134	4.75E+01	8.50E-01	6.34355E-06	2.26E-06	0.195311	0.12	0.00134493
7	Building Construction	APRC	Excavator	1	120	1.78	0.38	45	0.138	0.112	504.05328	6.14E+01	8.50E-01	2.39096E-05	2.91E-06	0.299503	0.12	0.0037937
7	Building Construction	APRC	Pump	1	44	2.67	0.74	45	0.152	0.28	594.636768	1.64E+02	8.50E-01	2.82064E-05	7.79E-06	6.194	0.29	0.05602129
7	Paving	APRC	Rollers	1	36.2	4	0.38	20	0.25	0.28	275.12	4.62E+01	8.50E-01	1.30502E-05	2.19E-06	0.878567	0.29	0.0033571
7	Paving	APRC	Pump	1	550	1	0.74	20	0.034	0.088	276.76	1.07E+02	8.50E-01	1.3128E-05	5.10E-06	30.396	0.12	3.43643667

**Table 1a: Construction Equipment Emission Rates**

Construction Phase	SubPhase	SRCID	Equipment	Count	Horse Power	Usage (hr/day)	Load Factor	Duration (days)	DPM Emission Factor (g/bhp-hr)	Mitigated DPM Emission Factor (g/bhp-hr)	DPM Emissions (g)	Mitigated DPM Emissions (g)	DPF Reduction	DPM Emission Rate (g/s)	DPM Mitigated Emission Rate (g/s)	TOG Emission Factor (g/bhp-hr)	Mitigated TOG Emission Factor (g/bhp-hr)	1-hr TOG Emission Rate (g/s)
8	Demolition	FPTG	Excavator	1	120	8	0.38	5	0.138	0.112	251.712	3.06E+01	8.50E-01	1.19399E-05	1.45E-06	0.299503	0.12	0.0037937
8	Demolition	FPTG	Pump	1	44	24	0.74	5	0.152	0.28	593.8944	1.64E+02	8.50E-01	2.81712E-05	7.78E-06	6.194	0.29	0.05602129
8	Grading	FPTG	Excavator	1	120	1.43	0.38	35	0.138	0.112	314.95464	3.83E+01	8.50E-01	1.49398E-05	1.82E-06	0.299503	0.12	0.0037937
8	Grading	FPTG	Pump	1	44	24	0.74	35	0.152	0.28	4157.2608	1.15E+03	8.50E-01	0.000197199	5.45E-05	6.194	0.29	0.05602129
8	Building Construction	FPTG	Excavator	1	120	5	0.38	10	0.138	0.088	314.64	3.01E+01	8.50E-01	1.49249E-05	1.43E-06	0.299503	0.12	0.0037937
8	Building Construction	FPTG	Pump	1	44	24	0.74	10	0.152	0.28	1187.7888	3.28E+02	8.50E-01	5.63424E-05	1.56E-05	6.194	0.29	0.05602129
8	Paving	FPTG	Pump	1	550	5	0.74	10	0.034	0.088	691.9	2.69E+02	8.50E-01	3.28201E-05	1.27E-05	30.396	0.12	3.43643667
8	Paving	FPTG	Pump	1	44	12	0.74	10	0.152	0.28	593.8944	1.64E+02	8.50E-01	2.81712E-05	7.78E-06	6.194	0.29	0.05602129

**Table 1b: Construction Fugitive Emission Rates**

SRCID	Phase	Demolition Tons	Grader Hours	Truck Loading Tons	Emissions (g)			Mitigated Emissions (g)			Emission Rate (g/s)	Mitigated Emission Rate (g/s)
					Demolition	Grading	Truck Loading	Demolition	Grading	Truck Loading		
LCCR	1	245	60	9443.321514	4.15E-02	4.29E-01	1.30E-01	4.15E-02	2.10E-01	1.30E-01	8.65E-06	5.49782028958943E-06
FW1	2	119		440.4916892	2.01E-02	0.00E+00	6.08E-03	2.01E-02	0.00E+00	6.08E-03	3.77E-07	3.76530196268593E-07
FW2	3	3		31.04230336	5.09E-04	0.00E+00	4.29E-04	5.09E-04	0.00E+00	4.29E-04	1.35E-08	1.34817187919398E-08
COMFW	4	137		515.217958	2.32E-02	0.00E+00	7.11E-03	2.32E-02	0.00E+00	7.11E-03	4.36E-07	4.35886413725569E-07
NFP	5	228		1137.74958	3.86E-02	0.00E+00	1.57E-02	3.86E-02	0.00E+00	1.57E-02	7.81E-07	7.80867286498570E-07
SDPS	6	8		2154.139205	1.36E-03	0.00E+00	2.97E-02	1.36E-03	0.00E+00	2.97E-02	4.47E-07	4.47222551420889E-07
APRC	7	985	180	11453.34577	1.67E-01	1.29E+00	1.58E-01	1.67E-01	6.31E-01	1.58E-01	2.32E-05	1.37560965493456E-05
FPTG	8	7		1820.399328	1.19E-03	0.00E+00	2.51E-02	1.19E-03	0.00E+00	2.51E-02	3.79E-07	3.78518634349006E-07

Notes

1. Demolition debris is assumed to be 0.5 tons pe cubic yard. Truck Loading is assumed to be 1.2641662 ton per cubic yard.
2. Mitigation for watering is assumed to result in a 61% reduction in grading fugitive emissions.

Source CalEEMod Users Guide, 2017.

**Table 2: Road Sources Emission Rates**

SRCID	Vehicle	Length (miles)	DPM Exhaust Emissions (g)	Fugitive Emissions (g)	Total PM Emissions (g)	TOG Exhaust Emissions (g)	TOG Evaporative Emissions (g)	Fugitive Emission Rate (g/s)	Exhaust Emission Rate (g/s)	TOG Exhaust Emission Rate (g/s)	TOG Evaporative Emission Rate (g/s)
2A1	LDT1	0.122247		0.055032913	0.002482774	0.4043488	1.600204545	5.06431E-07	2.2847E-08	3.72095E-06	1.47256E-05
AP1	LDT1	0.130838		0.058900393	0.002497816	2.004819884	1.600204545	3.07332E-07	1.3033E-08	1.04608E-05	8.34958E-06
AP2	LDT1	0.076499		0.034438169	0.002402672	2.003133997	1.600204545	1.79692E-07	1.2537E-08	1.0452E-05	8.34958E-06
AP3	LDT1	0.115002		0.051771373	0.002470089	2.004328566	1.600204545	2.70134E-07	1.2888E-08	1.04582E-05	8.34958E-06
AP4	LDT1	0.020959		0.009435281	0.002305426	2.001410849	1.600204545	9.39876E-08	2.2965E-08	1.99366E-05	1.59401E-05
AP6	LDT1	0.13467		0.060625475	0.002504526	2.004938773	1.600204545	6.03908E-07	2.4948E-08	1.99718E-05	1.59401E-05
COL1	LDT1	0.248784		0.11199709	0.002704332	2.008479201	1.600204545	1.43439E-07	3.4635E-09	2.57234E-06	2.04944E-06
GWA1	LDT1	0.157466		0.070887733	0.00254444	2.005646027	1.600204545	7.73384E-07	2.776E-08	2.18816E-05	1.74582E-05
GWA2	LDT1	0.122284		0.05504957	0.002482839	2.004554493	1.600204545	3.91689E-07	1.7666E-08	1.42628E-05	1.13858E-05
GWA3	LDT1	0.111671		0.05027183	0.002464256	2.004225221	1.600204545	3.57695E-07	1.7534E-08	1.42605E-05	1.13858E-05
GWA4	LDT1	0.202005		0.090938212	0.002622425	2.007027866	1.600204545	1.29409E-06	3.7318E-08	2.85608E-05	2.27716E-05
GWA5	LDT1	0.017227		0.007755217	0.002298891	2.001295062	1.600204545	5.518E-08	1.6357E-08	1.42396E-05	1.13858E-05
LC1	LDT1	0.147995		0.066624097	0.002527857	2.005352186	1.600204545	9.30649E-07	1.1631E-08	9.22696E-06	7.36281E-06
LC2	LDT1	0.232078		0.104476416	0.002675081	2.007960891	1.600204545	4.80714E-07	1.2308E-08	9.23897E-06	7.36281E-06
LC3	LDT1	0.255031		0.114809352	0.00271527	2.008673016	1.600204545	2.94081E-07	6.9551E-09	5.14517E-06	4.09888E-06
MAG1	LDT1	0.78839		0.354915855	0.003649145	2.02522067	1.600204545	4.54554E-07	4.6736E-09	2.59378E-06	2.04944E-06
SFD1	LDT1	0.660864		0.297506452	0.003425856	2.02126413	1.600204545	1.36041E-05	1.5665E-07	9.24265E-05	7.31727E-05
SFD2	LDT1	0.238853		0.107526372	0.002686943	2.008171088	1.600204545	4.55983E-06	1.1394E-07	8.51598E-05	6.78593E-05
SFD3	LDT1	0.168326		0.075776667	0.002563455	2.005982963	1.600204545	2.51611E-06	8.5118E-08	6.66073E-05	5.31337E-05
SFD4	LDT1	0.34912		0.157166153	0.002880013	2.011592161	1.600204545	2.38564E-06	4.3716E-08	3.05342E-05	2.42897E-05
SFD5	LDT1	0.121537		0.054713287	0.002481531	2.004531317	1.600204545	2.85484E-07	1.2948E-08	1.04593E-05	8.34958E-06
2A1	LHDT	0.122247	0.00272947	0.057902051	0.00272947	0.146148356		3.43321E-07	1.6184E-08	8.66563E-07	
AP1	LHDT	0.130838	0.00292129	0.061971161	0.002921285	0.147637796		1.411E-07	6.6514E-09	3.36152E-07	
AP2	LHDT	0.076499	0.00170803	0.036233601	0.001708031	0.138216925		8.24991E-08	3.889E-09	3.14702E-07	
AP3	LHDT	0.115002	0.00256771	0.054470471	0.002567707	0.144892274		1.24022E-07	5.8463E-09	3.299E-07	
AP4	LHDT	0.020959	0.00046796	0.009927189	0.000467962	0.128587834		2.82536E-08	1.3319E-09	3.65972E-07	
AP6	LHDT	0.13467	0.00300684	0.063786181	0.003006844	0.148302158		1.81541E-07	8.5577E-09	4.2208E-07	
COL1	LHDT	0.248784	0.00555472	0.117836052	0.005554724	0.168086352		5.58952E-08	2.6349E-09	7.97313E-08	
GWA1	LHDT	0.157466	0.00351582	0.074583461	0.003515822	0.152254351		6.54502E-07	3.0853E-08	1.3361E-06	
GWA2	LHDT	0.122284	0.0027303	0.057919576	0.002730296	0.146154771		3.98373E-07	1.8779E-08	1.00526E-06	
GWA3	LHDT	0.111671	0.00249333	0.05289275	0.002493334	0.144314772		3.63798E-07	1.7149E-08	9.92602E-07	
GWA4	LHDT	0.202005	0.00451027	0.095679271	0.004510266	0.159976174		1.31617E-06	6.2044E-08	2.20064E-06	
GWA5	LHDT	0.017227	0.00038464	0.008159535	0.000384636	0.127940809		5.61216E-08	2.6455E-09	8.79981E-07	
LC1	LHDT	0.147995	0.00330436	0.070097541	0.003304358	0.150612343		2.16129E-07	1.0188E-08	4.64377E-07	
LC2	LHDT	0.232078	0.00518172	0.109923288	0.005181721	0.165189996		3.38922E-07	1.5977E-08	5.09323E-07	
LC3	LHDT	0.255031	0.0056942	0.120794932	0.005694204	0.169169408		1.14597E-07	5.4021E-09	1.6049E-07	
MAG1	LHDT	0.78839	0.01760278	0.373419373	0.017602777	0.261639021		1.7713E-07	8.3498E-09	1.24108E-07	
SFD1	LHDT	0.660864	0.01475544	0.313016934	0.01475544	0.23952956		9.17599E-06	4.3255E-07	7.02173E-06	
SFD2	LHDT	0.238853	0.00533299	0.113132254	0.00533299	0.166364592		3.02128E-06	1.4242E-07	4.44289E-06	
SFD3	LHDT	0.168326	0.0037583	0.079727279	0.003758299	0.154137173		1.65645E-06	7.8084E-08	3.20242E-06	

**Table 2: Road Sources Emission Rates**

SRCID	Vehicle	Length (miles)	DPM Exhaust Emissions (g)	Fugitive Emissions (g)	Total PM Emissions (g)	TOG Exhaust Emissions (g)	TOG Evaporative Emissions (g)	Fugitive Emission Rate (g/s)	Exhaust Emission Rate (g/s)	TOG Exhaust Emission Rate (g/s)	TOG Evaporative Emission Rate (g/s)
SFD4	LHDT	0.34912	0.00779498	0.165360002	0.007794976	0.185481823		8.47131E-07	3.9933E-08	9.50214E-07	
SFD5	LHDT	0.121537	0.00271362	0.057565761	0.002713617	0.146025262		1.3107E-07	6.1785E-09	3.3248E-07	
2A1	MHDT	0.122247	0.00460247	0.060058489	0.004602474	0.129738054		7.89134E-07	6.0474E-08	1.70468E-06	
AP1	MHDT	0.130838	0.00492592	0.064279144	0.004925917	0.130609936		4.20771E-07	3.2245E-08	8.54972E-07	
AP2	MHDT	0.076499	0.00288011	0.037583044	0.002880109	0.125095185		2.46018E-07	1.8853E-08	8.18872E-07	
AP3	MHDT	0.115002	0.00432971	0.056499107	0.004329707	0.129002774		3.69843E-07	2.8342E-08	8.44451E-07	
AP4	MHDT	0.020959	0.00078908	0.010296906	0.000789085	0.119458546		2.55938E-07	1.9613E-08	2.96924E-06	
AP6	MHDT	0.13467	0.00507019	0.06616176	0.005070187	0.130998838		1.6445E-06	1.2602E-07	3.25608E-06	
COL1	MHDT	0.248784	0.00936646	0.122224603	0.009366463	0.14258003		5.10197E-07	3.9098E-08	5.95166E-07	
GWA1	MHDT	0.157466	0.00592843	0.077361162	0.005928433	0.133312357		6.60529E-07	5.0618E-08	1.13825E-06	
GWA2	MHDT	0.122284	0.00460387	0.060076667	0.004603867	0.129741809		3.36267E-07	2.5769E-08	7.26204E-07	
GWA3	MHDT	0.111671	0.0042043	0.054862627	0.004204299	0.128664718		3.07082E-07	2.3533E-08	7.20175E-07	
GWA4	MHDT	0.202005	0.00760528	0.09924264	0.007605281	0.137832527		1.11098E-06	8.5138E-08	1.54298E-06	
GWA5	MHDT	0.017227	0.00064858	0.008463419	0.000648579	0.119079793		4.73723E-08	3.6303E-09	6.66525E-07	
LC1	MHDT	0.147995	0.00557186	0.072708173	0.00557186	0.132351165		4.58703E-07	3.5152E-08	8.3498E-07	
LC2	MHDT	0.232078	0.0087375	0.114017145	0.008737499	0.140884573		7.19314E-07	5.5123E-08	8.88815E-07	
LC3	MHDT	0.255031	0.00960166	0.12529368	0.009601656	0.143214025		1.04602E-06	8.016E-08	1.19562E-06	
MAG1	MHDT	0.78839	0.02968208	0.387326577	0.029682075	0.197343519		1.6168E-06	1.239E-07	8.23762E-07	
SFD1	MHDT	0.660864	0.02488085	0.324674578	0.024880852	0.184401171		1.97439E-05	1.513E-06	1.12137E-05	
SFD2	MHDT	0.238853	0.00899257	0.117345622	0.008992571	0.141572154		6.88546E-06	5.2765E-07	8.307E-06	
SFD3	MHDT	0.168326	0.0063373	0.08269655	0.006337301	0.134414516		3.76578E-06	2.8858E-07	6.12088E-06	
SFD4	MHDT	0.34912	0.01314401	0.17151848	0.01314401	0.152762922		5.38599E-06	4.1275E-07	4.79703E-06	
SFD5	MHDT	0.121537	0.00457574	0.059709674	0.004575743	0.129665997		3.90859E-07	2.9953E-08	8.48793E-07	
2A1	HHDT	0.122247	0.0041068	0.057134184	0.004106799	5.22342705		1.6288E-06	1.1708E-07	0.000148911	
AP1	HHDT	0.130838	0.00439541	0.061149331	0.004395407	5.224236469		7.30952E-07	5.2541E-08	6.24482E-05	
AP2	HHDT	0.076499	0.00256993	0.035753089	0.002569928	5.219116809		4.27376E-07	3.072E-08	6.2387E-05	
AP3	HHDT	0.115002	0.00386341	0.053748111	0.003863408	5.222744448		6.42481E-07	4.6181E-08	6.24303E-05	
AP4	HHDT	0.020959	0.0007041	0.00979554	0.000704102	5.213883994		7.18347E-07	5.1635E-08	0.000382355	
AP6	HHDT	0.13467	0.00452414	0.062940281	0.004524141	5.224597509		4.61567E-06	3.3177E-07	0.000383141	
COL1	HHDT	0.248784	0.00835772	0.116273371	0.008357717	5.235348993		1.40091E-06	1.007E-07	6.30777E-05	
GWA1	HHDT	0.157466	0.00528996	0.073594373	0.005289956	5.22674528		1.63725E-06	1.1769E-07	0.000116279	
GWA2	HHDT	0.122284	0.00410804	0.057151476	0.004108042	5.223430536		5.66592E-07	4.0727E-08	5.17844E-05	
GWA3	HHDT	0.111671	0.00375151	0.052191313	0.003751506	5.222430611		5.17417E-07	3.7192E-08	5.17744E-05	
GWA4	HHDT	0.202005	0.00678621	0.094410421	0.006786211	5.230941614		1.87194E-06	1.3456E-07	0.000103718	
GWA5	HHDT	0.017227	0.00057873	0.008051327	0.000578729	5.213532376		7.98197E-08	5.7374E-09	5.16862E-05	
LC1	HHDT	0.147995	0.00497178	0.069167943	0.004971784	5.225852951		1.04663E-06	7.5231E-08	7.90759E-05	
LC2	HHDT	0.232078	0.00779649	0.108465542	0.007796492	5.233775003		1.64127E-06	1.1797E-07	7.91958E-05	
LC3	HHDT	0.255031	0.00856758	0.119193011	0.008567581	5.235937567		2.87218E-06	2.0645E-07	0.00012617	
MAG1	HHDT	0.78839	0.02648539	0.368467275	0.026485388	5.286189076		4.43945E-06	3.1911E-07	6.36902E-05	
SFD1	HHDT	0.660864	0.02220125	0.308865863	0.022201245	5.274173953		4.60333E-05	3.3089E-06	0.000786062	

**Table 2: Road Sources Emission Rates**

SRCID	Vehicle	Length (miles)	DPM Exhaust Emissions (g)	Fugitive Emissions (g)	Total PM Emissions (g)	TOG Exhaust Emissions (g)	TOG Evaporative Emissions (g)	Fugitive Emission Rate (g/s)	Exhaust Emission Rate (g/s)	TOG Exhaust Emission Rate (g/s)	TOG Evaporative Emission Rate (g/s)
SFD2	HHDT	0.238853	0.00802409	0.111631951	0.008024093	5.234413323		1.62934E-05	1.1712E-06	0.000763998	
SFD3	HHDT	0.168326	0.00565479	0.078669976	0.005654789	5.227768478		9.23966E-06	6.6415E-07	0.000613993	
SFD4	HHDT	0.34912	0.01172843	0.163167081	0.011728432	5.244802354		1.39161E-05	1.0003E-06	0.000447317	
SFD5	HHDT	0.121537	0.00408295	0.056802353	0.004082947	5.223360156		6.7899E-07	4.8806E-08	6.24377E-05	



**Table 3: Distribution of Vehicle Trips to Road Segments**

SRCID	Vehicle	Road Section Weighting by Phase								Trips by Phase								Emissions Weighting			
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8				
2A1	LDT1	0.5	0.5	1						108	140	70	150	150	80	210	110	194			
AP1	LDT1								1	108	140	70	150	150	80	210	110	110			
AP2	LDT1								1	108	140	70	150	150	80	210	110	110			
AP3	LDT1								1	108	140	70	150	150	80	210	110	110			
AP4	LDT1								1	108	140	70	150	150	80	210	110	210			
AP6	LDT1								1	108	140	70	150	150	80	210	110	210			
COL1	LDT1	0.25								108	140	70	150	150	80	210	110	27			
GWA1	LDT1				0.5	0.5	1			108	140	70	150	150	80	210	110	230			
GWA2	LDT1				0.5	0.5				108	140	70	150	150	80	210	110	150			
GWA3	LDT1				0.5	0.5				108	140	70	150	150	80	210	110	150			
GWA4	LDT1				1	1				108	140	70	150	150	80	210	110	300			
GWA5	LDT1				0.5	0.5				108	140	70	150	150	80	210	110	150			
LC1	LDT1	0.25	0.5							108	140	70	150	150	80	210	110	97			
LC2	LDT1	0.25	0.5							108	140	70	150	150	80	210	110	97			
LC3	LDT1	0.5								108	140	70	150	150	80	210	110	54			
MAG1	LDT1	0.25								108	140	70	150	150	80	210	110	27			
SFD1	LDT1	0.5	1	1	1	1	1	1	1	108	140	70	150	150	80	210	110	964			
SFD2	LDT1	0.5	0.5	1	1	1	1	1	1	108	140	70	150	150	80	210	110	894			
SFD3	LDT1				1	1	1	1	1	108	140	70	150	150	80	210	110	700			
SFD4	LDT1								1	108	140	70	150	150	80	210	110	320			
SFD5	LDT1								1	108	140	70	150	150	80	210	110	110			
2A1	LHDT	0.5	0.5	1						40	110	50	120	170	40	60	48	125			
AP1	LHDT									1	40	110	50	120	170	40	60	48	48		
AP2	LHDT									1	40	110	50	120	170	40	60	48	48		
AP3	LHDT									1	40	110	50	120	170	40	60	48	48		
AP4	LHDT									1	40	110	50	120	170	40	60	48	60		
AP6	LHDT									1	40	110	50	120	170	40	60	48	60		
COL1	LHDT	0.25									40	110	50	120	170	40	60	48	10		
GWA1	LHDT				0.5	0.5	1				40	110	50	120	170	40	60	48	185		
GWA2	LHDT				0.5	0.5					40	110	50	120	170	40	60	48	145		
GWA3	LHDT				0.5	0.5					40	110	50	120	170	40	60	48	145		
GWA4	LHDT				1	1					40	110	50	120	170	40	60	48	290		
GWA5	LHDT				0.5	0.5					40	110	50	120	170	40	60	48	145		
LC1	LHDT	0.25	0.5								40	110	50	120	170	40	60	48	65		
LC2	LHDT	0.25	0.5								40	110	50	120	170	40	60	48	65		
LC3	LHDT	0.5									40	110	50	120	170	40	60	48	20		
MAG1	LHDT	0.25									40	110	50	120	170	40	60	48	10		
SFD1	LHDT	0.5	1	1	1	1	1	1	1	1	40	110	50	120	170	40	60	48	618		
SFD2	LHDT	0.5	0.5	1	1	1	1	1	1	1	40	110	50	120	170	40	60	48	563		
SFD3	LHDT				1	1	1	1	1	1	40	110	50	120	170	40	60	48	438		
SFD4	LHDT									1	40	110	50	120	170	40	60	48	108		
SFD5	LHDT									1	40	110	50	120	170	40	60	48	48		
2A1	MHDT	0.5	0.5	1							352	90	56	92	144	62	524	138	277		
AP1	MHDT										1	352	90	56	92	144	62	524	138	138	
AP2	MHDT										1	352	90	56	92	144	62	524	138	138	
AP3	MHDT										1	352	90	56	92	144	62	524	138	138	
AP4	MHDT										1	352	90	56	92	144	62	524	138	524	
AP6	MHDT										1	352	90	56	92	144	62	524	138	524	
COL1	MHDT	0.25										352	90	56	92	144	62	524	138	88	
GWA1	MHDT				0.5	0.5	1					352	90	56	92	144	62	524	138	180	
GWA2	MHDT				0.5	0.5						352	90	56	92	144	62	524	138	118	
GWA3	MHDT				0.5	0.5						352	90	56	92	144	62	524	138	118	
GWA4	MHDT				1	1						352	90	56	92	144	62	524	138	236	
GWA5	MHDT				0.5	0.5						352	90	56	92	144	62	524	138	118	
LC1	MHDT	0.25	0.5									352	90	56	92	144	62	524	138	133	
LC2	MHDT	0.25	0.5									352	90	56	92	144	62	524	138	133	
LC3	MHDT	0.5										352	90	56	92	144	62	524	138	176	
MAG1	MHDT	0.25										352	90	56	92	144	62	524	138	88	
SFD1	MHDT	0.5	1	1	1	1	1	1	1	1		352	90	56	92	144	62	524	138	1282	
SFD2	MHDT	0.5	0.5	1	1	1	1	1	1	1		352	90	56	92	144	62	524	138	1237	
SFD3	MHDT				1	1	1	1	1	1		352	90	56	92	144	62	524	138	960	
SFD4	MHDT										1	352	90	56	92	144	62	524	138	662	
SFD5	MHDT										1	352	90	56	92	144	62	524	138	138	
2A1	HHDT	0.5	0.5	1								1016	130	28	148	270	260	1546	252	601	
AP1	HHDT											1	1016	130	28	148	270	260	1546	252	252
AP2	HHDT											1	1016	130	28	148	270	260	1546	252	252
AP3	HHDT											1	1016	130	28	148	270	260	1546	252	252
AP4	HHDT											1	1016	130	28	148	270	260	1546	252	1546

**Table 3: Distribution of Vehicle Trips to Road Segments**

SRCID	Vehicle	Road Section Weighting by Phase								Trips by Phase								Emissions Weighting
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
AP6	HHDT								1	1016	130	28	148	270	260	1546	252	1546
COL1	HHDT	0.25								1016	130	28	148	270	260	1546	252	254
GWA1	HHDT				0.5	0.5		1		1016	130	28	148	270	260	1546	252	469
GWA2	HHDT				0.5	0.5				1016	130	28	148	270	260	1546	252	209
GWA3	HHDT				0.5	0.5				1016	130	28	148	270	260	1546	252	209
GWA4	HHDT				1	1				1016	130	28	148	270	260	1546	252	418
GWA5	HHDT				0.5	0.5				1016	130	28	148	270	260	1546	252	209
LC1	HHDT	0.25	0.5							1016	130	28	148	270	260	1546	252	319
LC2	HHDT	0.25	0.5							1016	130	28	148	270	260	1546	252	319
LC3	HHDT	0.5								1016	130	28	148	270	260	1546	252	508
MAG1	HHDT	0.25								1016	130	28	148	270	260	1546	252	254
SFD1	HHDT	0.5	1	1	1	1	1	1	1	1016	130	28	148	270	260	1546	252	3142
SFD2	HHDT	0.5	0.5	1	1	1	1	1	1	1016	130	28	148	270	260	1546	252	3077
SFD3	HHDT				1	1	1	1	1	1016	130	28	148	270	260	1546	252	2476
SFD4	HHDT								1	1016	130	28	148	270	260	1546	252	1798
SFD5	HHDT								1	1016	130	28	148	270	260	1546	252	252

**Table 4: Operational Emission Rate and Source Parameters**

SRCID	Emission Rate (g/s)	Stack Height (m)	Temperature (K)	Flow Rate (m/s)	Stack Diameter (m)
EG	3.48076E-05	3.04	765.8	54.28	0.12

**Table 5: Speciation Factors**

Type	CAP	TOG Type	Chemical	Ratio	Speciation Profile
Gasoline Vehicle	TOG	Exhaust	Acetaldehyde	0.0028	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Benzene	0.0247	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	1,3-Butadiene	0.0055	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Ethylbenzene	0.0105	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Formaldehyde	0.0158	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Hexane	0.016	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Methanol	0.0012	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Methyl Ethyl Ketone	0.0002	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	naphthalene	0.0005	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Propylene	0.0306	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Styrene	0.0012	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Toluene	0.0576	BAAQMD Table 14
Gasoline Vehicle	TOG	Exhaust	Xylenes	0.048	BAAQMD Table 14
Gasoline Vehicle	TOG	Evaporative	Benzene	0.0036	BAAQMD Table 15
Gasoline Vehicle	TOG	Evaporative	Ethylbenzene	0.0012	BAAQMD Table 15
Gasoline Vehicle	TOG	Evaporative	Hexane	0.0154	BAAQMD Table 15
Gasoline Vehicle	TOG	Evaporative	Toluene	0.017	BAAQMD Table 15
Gasoline Vehicle	TOG	Evaporative	Xylenes	0.0058	BAAQMD Table 15
OFFROAD	TOG	Exhaust	Acetaldehyde	0.0735	CARB 818
OFFROAD	TOG	Exhaust	Benzene	0.02	CARB 818
OFFROAD	TOG	Exhaust	1,3-Butadiene	0.0019	CARB 818
OFFROAD	TOG	Exhaust	Formaldehyde	0.1471	CARB 818
OFFROAD	TOG	Exhaust	Methanol	0.0003	CARB 818
OFFROAD	TOG	Exhaust	Methyl Ethyl Ketone	0.0148	CARB 818
OFFROAD	TOG	Exhaust	Styrene	0.0006	CARB 818
OFFROAD	TOG	Exhaust	Toluene	0.0147	CARB 818
OFFROAD	TOG	Exhaust	Xylenes	0.0105	CARB 818
Diesel (Acute)	TOG	Exhaust	Acetaldehyde	0.15942	EPA 4674
Diesel (Acute)	TOG	Exhaust	Benzene	0.01045	EPA 4674
Diesel (Acute)	TOG	Exhaust	Formaldehyde	0.08505	EPA 4674
Diesel (Acute)	TOG	Exhaust	Methyl Ethyl Ketone	0.0286	EPA 4674
Diesel (Acute)	TOG	Exhaust	Toluene	0.01518	EPA 4674
Diesel (Acute)	TOG	Exhaust	Xylenes	0.01206	EPA 4674

## Sources:

California Air Resources Board. 2020c. Speciation Profiles Used in ARB Modeling.

Bay Area Air Quality Management District. 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards. May.

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
538933.7	4201716	539058.7	4201541	539083.7	4201616	539108.7	4201616
539383.7	4200966	539308.7	4201166	538883.7	4201766	538883.7	4201791
538958.7	4201691	538908.7	4201791	539183.7	4201516	539258.7	4201391
538908.7	4201766	539008.7	4201691	539258.7	4201141	539408.7	4200891
539383.7	4201016	539033.7	4201641	539333.7	4200966	539208.7	4201366
538933.7	4201691	539108.7	4201466	539233.7	4201366	539408.7	4201091
538933.7	4201766	539333.7	4201116	539208.7	4201416	539083.7	4201641
539358.7	4200991	539308.7	4201191	539283.7	4201066	539058.7	4201491
538958.7	4201766	538958.7	4201641	539033.7	4201691	539333.7	4201216
539358.7	4201041	538983.7	4201766	539333.7	4201166	539283.7	4201041
539383.7	4201041	539083.7	4201591	539383.7	4201091	539433.7	4200941
538958.7	4201741	539283.7	4201241	539358.7	4201116	539183.7	4201541
538983.7	4201666	539033.7	4201566	538933.7	4201816	539358.7	4200916
538933.7	4201791	539133.7	4201441	539433.7	4201016	539233.7	4201316
539383.7	4200941	539008.7	4201716	539208.7	4201391	539158.7	4201391
538958.7	4201666	538908.7	4201691	538983.7	4201791	539233.7	4201416
538908.7	4201716	538983.7	4201616	539033.7	4201541	539383.7	4201116
539333.7	4201016	539283.7	4201091	539258.7	4201216	539433.7	4200916
539408.7	4200966	539008.7	4201591	539433.7	4200966	539233.7	4201441
539358.7	4200966	539083.7	4201491	538958.7	4201816	539233.7	4201216
539408.7	4201016	539358.7	4201091	539308.7	4201316	539233.7	4201241
538983.7	4201641	539358.7	4200941	539433.7	4200991	539333.7	4201241
538908.7	4201741	539308.7	4201216	539283.7	4201341	539033.7	4201516
539008.7	4201616	539058.7	4201616	539108.7	4201441	539283.7	4201391
539108.7	4201491	539183.7	4201441	539008.7	4201566	539233.7	4201291
539308.7	4201066	539258.7	4201191	539208.7	4201466	539258.7	4201416
539133.7	4201466	539408.7	4200916	539383.7	4200991	539433.7	4201066
539358.7	4201066	539183.7	4201491	538933.7	4201641	539233.7	4201191
538983.7	4201716	539183.7	4201416	538958.7	4201616	539233.7	4201266
539083.7	4201516	539308.7	4201241	538983.7	4201591	539333.7	4200941
539408.7	4200991	539258.7	4201166	539233.7	4201341	539033.7	4201741
539033.7	4201591	539133.7	4201566	538883.7	4201741	539258.7	4201091
538958.7	4201791	539383.7	4200916	539333.7	4201191	539358.7	4201166
539408.7	4201041	539333.7	4201141	539083.7	4201466	539383.7	4200891
539333.7	4201066	539308.7	4201266	539133.7	4201416	538883.7	4201716
538983.7	4201741	539158.7	4201541	539283.7	4201366	539308.7	4201366
539283.7	4201216	539033.7	4201666	539183.7	4201391	539908.7	4200616
539333.7	4200991	539258.7	4201316	539433.7	4201041	539933.7	4200566
539333.7	4201091	539108.7	4201591	539258.7	4201116	539333.7	4201266
539133.7	4201541	539408.7	4201066	539033.7	4201716	539058.7	4201691
539108.7	4201566	539158.7	4201416	539908.7	4200591	539008.7	4201541
539308.7	4201116	539308.7	4201016	539133.7	4201591	538983.7	4201816
539308.7	4201041	539258.7	4201341	539308.7	4201341	538908.7	4201816
539283.7	4201116	539308.7	4201291	539158.7	4201566	539183.7	4201366
539283.7	4201191	539058.7	4201516	539008.7	4201766	539208.7	4201516
539158.7	4201516	539058.7	4201641	538908.7	4201666	539208.7	4201341
539283.7	4201141	539258.7	4201241	539308.7	4200991	539433.7	4200891
539308.7	4201141	539258.7	4201291	539358.7	4201141	538983.7	4201566
538933.7	4201666	539258.7	4201266	539208.7	4201491	539108.7	4201416
539383.7	4201066	539008.7	4201741	539058.7	4201666	539233.7	4201466

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539233.7	4201166	539458.7	4201041	539208.7	4201191	539233.7	4201066
538958.7	4201591	539408.7	4200866	539858.7	4200541	539208.7	4201591
539083.7	4201441	539858.7	4200566	538858.7	4201766	539208.7	4201141
539333.7	4201291	538983.7	4201541	539308.7	4201416	539383.7	4201241
539008.7	4201791	539208.7	4201266	538883.7	4201666	539183.7	4201241
539133.7	4201391	539333.7	4200916	539233.7	4201091	539908.7	4200666
539158.7	4201591	539933.7	4200491	539408.7	4201166	538933.7	4201566
539133.7	4201616	539458.7	4200966	538908.7	4201616	539858.7	4200641
539283.7	4201016	539908.7	4200641	539008.7	4201491	539033.7	4201441
539083.7	4201666	539008.7	4201816	539183.7	4201291	539408.7	4200841
538933.7	4201616	539408.7	4201141	539858.7	4200616	539308.7	4201441
539908.7	4200491	539233.7	4201116	539358.7	4201291	539358.7	4201341
539383.7	4201141	539108.7	4201391	539058.7	4201766	539058.7	4201791
539108.7	4201641	539108.7	4201666	539108.7	4201691	539958.7	4200541
539358.7	4201191	539283.7	4200991	539458.7	4200916	539108.7	4201716
539408.7	4201116	539058.7	4201741	538858.7	4201741	539933.7	4200641
539183.7	4201566	539208.7	4201241	539383.7	4201216	539258.7	4201516
539058.7	4201466	539358.7	4201241	539208.7	4201166	539158.7	4201291
539308.7	4200966	539158.7	4201616	539258.7	4201491	538983.7	4201866
539933.7	4200591	538958.7	4201566	538983.7	4201516	539458.7	4201116
539258.7	4201441	539083.7	4201416	539258.7	4201016	538858.7	4201716
538958.7	4201841	539133.7	4201641	538858.7	4201791	539308.7	4200916
539158.7	4201366	539133.7	4201366	539133.7	4201341	539433.7	4201166
539208.7	4201316	539258.7	4201466	539108.7	4201366	539008.7	4201466
539058.7	4201716	539258.7	4201041	539433.7	4201141	539183.7	4201216
539333.7	4201316	539183.7	4201591	539133.7	4201666	538883.7	4201641
539258.7	4201066	538983.7	4201841	539158.7	4201316	539858.7	4200516
539033.7	4201766	539033.7	4201791	539158.7	4201641	539133.7	4201316
539433.7	4201091	539208.7	4201216	539458.7	4201091	539883.7	4200666
539233.7	4201141	539158.7	4201341	538908.7	4201841	538933.7	4201866
538908.7	4201641	538883.7	4201816	539233.7	4201541	539433.7	4200841
539283.7	4201416	539433.7	4201116	539083.7	4201391	539383.7	4201266
539033.7	4201491	539458.7	4200941	539183.7	4201616	539258.7	4200991
539183.7	4201341	539058.7	4201441	539183.7	4201266	539108.7	4201341
539233.7	4201491	539183.7	4201316	539283.7	4200966	539383.7	4200841
539358.7	4201216	539383.7	4201191	539358.7	4201316	539233.7	4201566
539308.7	4201391	538933.7	4201591	538958.7	4201541	539133.7	4201691
538883.7	4201691	539383.7	4200866	539083.7	4201741	538908.7	4201591
539208.7	4201541	539433.7	4200866	539033.7	4201816	539208.7	4201116
538933.7	4201841	539883.7	4200491	538958.7	4201866	539083.7	4201766
539458.7	4201016	539233.7	4201516	539333.7	4201391	538983.7	4201491
539208.7	4201291	539933.7	4200616	539458.7	4200891	539933.7	4200466
539083.7	4201691	539333.7	4201366	539008.7	4201841	539958.7	4200591
539383.7	4201166	539458.7	4201066	539333.7	4200891	539483.7	4201041
539933.7	4200516	539358.7	4201266	539058.7	4201416	539483.7	4201016
539858.7	4200591	539283.7	4201441	539358.7	4200866	539408.7	4201216
539008.7	4201516	539083.7	4201716	539283.7	4201466	539333.7	4201416
539358.7	4200891	539308.7	4200941	539958.7	4200566	539083.7	4201366
539333.7	4201341	539208.7	4201566	539908.7	4200466	539183.7	4201641
539458.7	4200991	539033.7	4201466	539408.7	4201191	539233.7	4201041

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539458.7	4200866	539083.7	4201341	539458.7	4201191	539908.7	4200716
539283.7	4201491	539133.7	4201716	539333.7	4201466	539933.7	4200441
539183.7	4201191	539258.7	4200966	539358.7	4201416	539508.7	4201066
539483.7	4200991	539308.7	4200891	539133.7	4201241	539958.7	4200466
539158.7	4201266	539358.7	4201391	539008.7	4201416	539183.7	4201091
538858.7	4201816	538983.7	4201466	539233.7	4200991	539483.7	4201166
539158.7	4201666	539458.7	4201166	539183.7	4201116	539358.7	4201441
539358.7	4201366	539958.7	4200616	539083.7	4201816	539083.7	4201291
538958.7	4201516	539858.7	4200666	539083.7	4201316	538858.7	4201641
539058.7	4201391	539158.7	4201216	538833.7	4201766	539083.7	4201841
539208.7	4201616	539833.7	4200591	539433.7	4201241	539283.7	4200891
539283.7	4200941	538908.7	4201566	539483.7	4200891	539508.7	4200966
539383.7	4201291	538958.7	4201891	539133.7	4201741	539658.7	4200891
539033.7	4201841	539408.7	4200816	539383.7	4201366	539408.7	4200791
539108.7	4201741	539183.7	4201141	539008.7	4201891	539008.7	4201391
539458.7	4201141	539108.7	4201766	539483.7	4201141	539208.7	4201016
539958.7	4200516	539433.7	4201216	539208.7	4201041	539058.7	4201866
539483.7	4201066	539133.7	4201266	539108.7	4201791	539408.7	4201341
539483.7	4200966	539458.7	4200841	538883.7	4201591	538933.7	4201491
539308.7	4201466	539183.7	4201666	539333.7	4200841	539233.7	4200966
539433.7	4201191	539058.7	4201366	538983.7	4201441	539158.7	4201141
539058.7	4201816	539408.7	4201266	538833.7	4201741	539633.7	4200891
539033.7	4201416	538983.7	4201891	539058.7	4201341	538833.7	4201716
538883.7	4201841	539383.7	4201341	539833.7	4200641	539508.7	4201091
539133.7	4201291	539308.7	4201491	539258.7	4200941	538883.7	4201866
539258.7	4201541	539208.7	4201641	538933.7	4201891	539608.7	4200866
538933.7	4201541	538958.7	4201491	539908.7	4200441	539108.7	4201241
539208.7	4201091	539208.7	4201066	538833.7	4201791	539433.7	4200791
539158.7	4201241	538908.7	4201866	539158.7	4201166	539108.7	4201816
539183.7	4201166	539483.7	4200916	539633.7	4200866	538833.7	4201816
539008.7	4201866	539833.7	4200616	538858.7	4201841	539033.7	4201891
539333.7	4200866	539433.7	4200816	539958.7	4200641	538983.7	4201916
539408.7	4201241	539658.7	4200866	539508.7	4201016	539133.7	4201191
539883.7	4200466	539883.7	4200691	539108.7	4201266	539058.7	4201316
538858.7	4201691	539833.7	4200566	539408.7	4201316	539258.7	4201566
539383.7	4201316	539483.7	4201116	539508.7	4201041	539433.7	4201291
539108.7	4201316	539033.7	4201391	538908.7	4201541	539483.7	4200841
539008.7	4201441	539283.7	4200916	539308.7	4200866	539383.7	4200791
539233.7	4201591	539383.7	4200816	539358.7	4200816	538983.7	4201416
539358.7	4200841	539108.7	4201291	539133.7	4201216	539458.7	4201241
539083.7	4201791	539058.7	4201841	539483.7	4200866	538958.7	4201916
539333.7	4201441	539158.7	4201191	539508.7	4200991	539858.7	4200691
539283.7	4201516	539658.7	4200816	539933.7	4200691	538883.7	4201566
539233.7	4201016	538858.7	4201666	538958.7	4201466	539183.7	4201066
539483.7	4200941	539633.7	4200816	539458.7	4200816	539133.7	4201791
539958.7	4200491	538933.7	4201516	539833.7	4200541	539683.7	4200866
539908.7	4200691	539033.7	4201866	539033.7	4201366	539483.7	4201191
538883.7	4201616	539233.7	4201616	539458.7	4201216	539508.7	4200941
539483.7	4201091	539408.7	4201291	539433.7	4201266	539983.7	4200566
539933.7	4200666	539858.7	4200491	539133.7	4201766	539258.7	4200916

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539158.7	4201691	539608.7	4200841	539808.7	4200616	538808.7	4201791
539033.7	4201341	539233.7	4201641	539508.7	4201191	539983.7	4200641
539083.7	4201266	538983.7	4201391	539708.7	4200841	539508.7	4201216
539508.7	4201116	539633.7	4200791	539808.7	4200591	539183.7	4200991
539833.7	4200666	539083.7	4201241	539208.7	4201666	539158.7	4201716
539883.7	4200716	539158.7	4201091	539158.7	4201066	538858.7	4201566
538908.7	4201516	539033.7	4201316	539083.7	4201216	539633.7	4200916
539658.7	4200791	539508.7	4201166	539533.7	4201091	539583.7	4200866
539958.7	4200666	539683.7	4200816	539308.7	4200816	539858.7	4200766
539308.7	4201516	538933.7	4201916	539333.7	4200791	539933.7	4200741
538958.7	4201441	539508.7	4200891	539833.7	4200691	539158.7	4201041
539333.7	4200816	538883.7	4201541	539108.7	4201866	539533.7	4200916
539008.7	4201916	539408.7	4200766	539858.7	4200716	538958.7	4201391
539158.7	4201116	538833.7	4201841	538983.7	4201941	538833.7	4201641
539883.7	4200441	539108.7	4201191	539608.7	4200816	539008.7	4201316
539308.7	4200841	539133.7	4201141	539133.7	4201841	539508.7	4200816
538858.7	4201616	539608.7	4200891	539883.7	4200766	539983.7	4200491
539108.7	4201216	539458.7	4201291	539483.7	4200791	539258.7	4200866
539133.7	4201166	539033.7	4201916	539458.7	4200766	538908.7	4201466
539208.7	4200991	539533.7	4201016	539258.7	4201591	539533.7	4201141
539433.7	4201316	539883.7	4200741	539508.7	4200841	539083.7	4201191
539658.7	4200841	539908.7	4200741	539083.7	4201891	539833.7	4200491
539983.7	4200541	539433.7	4200766	539233.7	4200916	539733.7	4200841
539458.7	4200791	539533.7	4201041	538933.7	4201441	539858.7	4200741
539408.7	4201366	539433.7	4201341	539133.7	4201116	539133.7	4201091
539983.7	4200591	539258.7	4200891	539108.7	4201166	539208.7	4200941
538908.7	4201891	539983.7	4200616	539458.7	4201316	539708.7	4200791
539008.7	4201366	538858.7	4201866	539958.7	4200691	539808.7	4200666
538833.7	4201691	539533.7	4200991	539908.7	4200416	539483.7	4201291
539458.7	4201266	539333.7	4201491	539533.7	4200941	539908.7	4200766
539683.7	4200841	539158.7	4201791	539033.7	4201291	539108.7	4201141
539083.7	4201866	539958.7	4200441	538808.7	4201766	539408.7	4200741
539058.7	4201291	538958.7	4201416	539808.7	4200641	539433.7	4200741
539508.7	4201141	538908.7	4201491	538983.7	4201366	539583.7	4200891
539358.7	4200791	538858.7	4201591	539483.7	4201266	539533.7	4200891
539183.7	4201041	539408.7	4201391	539933.7	4200416	539033.7	4201941
539508.7	4200916	539358.7	4201466	539283.7	4200841	538808.7	4201716
539833.7	4200516	539483.7	4201241	539658.7	4200916	539033.7	4201266
539483.7	4201216	539533.7	4201066	539008.7	4201941	538908.7	4201916
539108.7	4201841	539058.7	4201266	539533.7	4201116	539158.7	4201766
539383.7	4201391	539508.7	4200866	539158.7	4201816	539133.7	4201866
538933.7	4201466	539183.7	4201016	539808.7	4200566	539483.7	4200766
539233.7	4200941	539208.7	4200966	538883.7	4201891	539433.7	4201391
539858.7	4200466	539383.7	4200766	539058.7	4201916	539658.7	4200766
539933.7	4200716	538833.7	4201666	538808.7	4201741	539108.7	4201891
539283.7	4201541	539683.7	4200891	538958.7	4201941	538808.7	4201816
539283.7	4200866	539008.7	4201341	538883.7	4201516	538983.7	4201341
539483.7	4200816	539683.7	4200791	539708.7	4200866	539508.7	4201241
539058.7	4201891	539533.7	4200966	539358.7	4200766	539583.7	4200841
539133.7	4201816	539983.7	4200516	539058.7	4201241	539533.7	4201166



**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539233.7	4200891	539558.7	4201066	538933.7	4201391	539783.7	4200666
538933.7	4201416	539683.7	4200766	538983.7	4201966	539583.7	4200991
539533.7	4200866	539483.7	4201316	539158.7	4201866	539333.7	4200741
539833.7	4200716	539808.7	4200766	539583.7	4200941	540008.7	4200566
538833.7	4201866	539758.7	4200816	539883.7	4200791	540008.7	4200591
539383.7	4200741	539583.7	4200916	539433.7	4200716	539608.7	4200766
539158.7	4201841	539883.7	4200816	539083.7	4201141	539758.7	4200741
539308.7	4200791	539983.7	4200466	539108.7	4201916	539058.7	4201166
539058.7	4201216	539758.7	4200841	539508.7	4200766	539208.7	4200891
539783.7	4200816	539558.7	4200866	539108.7	4201091	539908.7	4200391
539458.7	4201341	538958.7	4201366	539233.7	4200866	539933.7	4200391
539858.7	4200441	539858.7	4200816	538833.7	4201591	539358.7	4201491
539808.7	4200541	539833.7	4200741	539408.7	4200716	539783.7	4200591
539083.7	4201916	539533.7	4201191	539783.7	4200841	538908.7	4201416
539608.7	4200916	539508.7	4201266	539558.7	4201141	539783.7	4200716
539558.7	4200991	539833.7	4200816	539008.7	4201266	539783.7	4200691
539383.7	4201416	539708.7	4200891	539783.7	4200741	539083.7	4201116
539458.7	4200741	538808.7	4201691	539658.7	4200941	538983.7	4201291
539558.7	4201016	539958.7	4200716	539508.7	4201291	539558.7	4201166
539558.7	4200966	538908.7	4201441	539183.7	4200966	539583.7	4201016
539258.7	4201616	539958.7	4200416	539908.7	4200816	539983.7	4200441
539333.7	4200766	539033.7	4201241	539633.7	4200941	539658.7	4200741
539883.7	4200416	539933.7	4200766	538858.7	4201516	539258.7	4200816
539708.7	4200816	539208.7	4200916	538808.7	4201666	539808.7	4200791
539433.7	4201366	539058.7	4201941	538883.7	4201466	539683.7	4200741
539783.7	4200766	539558.7	4201091	539458.7	4200716	539033.7	4201966
539908.7	4200791	538858.7	4201891	539583.7	4200966	538833.7	4201566
539558.7	4200941	539258.7	4200841	538883.7	4201916	538908.7	4201941
539733.7	4200791	539633.7	4200841	539308.7	4200766	539583.7	4201041
539558.7	4201041	539758.7	4200766	539158.7	4201016	539583.7	4200791
539508.7	4200791	539358.7	4200741	539608.7	4200941	539483.7	4200716
538883.7	4201491	539708.7	4200766	538958.7	4201341	539508.7	4200741
539558.7	4200916	539983.7	4200666	539833.7	4200791	539833.7	4200841
539133.7	4201066	539733.7	4200766	539858.7	4200791	539683.7	4200941
539283.7	4200816	538808.7	4201841	539833.7	4200466	539233.7	4201666
538833.7	4201616	539558.7	4200841	539083.7	4201941	539758.7	4200866
539008.7	4201291	539533.7	4200816	539783.7	4200641	539708.7	4200916
539083.7	4201166	539733.7	4200866	539783.7	4200616	539733.7	4200741
539533.7	4200841	538983.7	4201316	539008.7	4201966	538783.7	4201766
539558.7	4200891	539733.7	4200816	539033.7	4201216	539958.7	4200741
539808.7	4200816	539808.7	4200716	539808.7	4200516	540008.7	4200541
539833.7	4200766	539058.7	4201191	539558.7	4200816	540008.7	4200616
538858.7	4201541	539558.7	4201116	539933.7	4200791	539533.7	4201266
539683.7	4200916	539808.7	4200741	539533.7	4200791	539583.7	4201066
539608.7	4200791	539533.7	4201216	539383.7	4200716	538833.7	4201891
539808.7	4200691	539483.7	4200741	539283.7	4200791	538933.7	4201366
539108.7	4201116	539583.7	4200816	538958.7	4201966	539708.7	4200741
539633.7	4200766	539133.7	4201891	539533.7	4201241	539183.7	4201816
538933.7	4201941	539183.7	4201691	539258.7	4201641	539558.7	4201191
539158.7	4201741	539758.7	4200791	539808.7	4200841	539183.7	4201791

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
538808.7	4201641	538908.7	4201391	538783.7	4201691	540008.7	4200491
539533.7	4200766	539083.7	4201966	539708.7	4200941	539483.7	4200666
539358.7	4200716	539883.7	4200841	539633.7	4200991	539258.7	4200766
539508.7	4201316	539883.7	4200391	539408.7	4201416	539733.7	4200666
538808.7	4201866	539583.7	4200766	539583.7	4201166	539608.7	4201116
539133.7	4201916	539508.7	4200716	538958.7	4201291	539608.7	4200716
539558.7	4200791	539758.7	4200691	539683.7	4200966	538933.7	4201316
538783.7	4201741	539958.7	4200391	538883.7	4201941	538908.7	4201966
539058.7	4201966	539183.7	4200941	539733.7	4200916	539933.7	4200366
539008.7	4201241	539558.7	4200766	539758.7	4200891	539183.7	4201866
539608.7	4200966	538858.7	4201916	538858.7	4201466	539008.7	4201166
539983.7	4200691	539083.7	4201091	539458.7	4201391	539908.7	4200366
539733.7	4200891	539783.7	4200866	539908.7	4200841	539558.7	4201291
539233.7	4200841	539133.7	4201041	539108.7	4201966	538833.7	4201916
539033.7	4201191	539533.7	4200741	539808.7	4200866	540008.7	4200666
539858.7	4200841	539158.7	4201891	539533.7	4201316	539583.7	4201216
539583.7	4201091	538783.7	4201816	539608.7	4201066	539558.7	4200716
539633.7	4200741	539733.7	4200716	538833.7	4201516	539683.7	4200691
539108.7	4201941	539608.7	4200741	539733.7	4200691	538958.7	4201266
539783.7	4200566	539258.7	4200791	539558.7	4200741	539383.7	4200666
539783.7	4200791	539033.7	4201166	539033.7	4201141	539783.7	4200516
538858.7	4201491	539583.7	4201141	539758.7	4200616	539233.7	4200791
538783.7	4201791	538808.7	4201616	538883.7	4201416	539583.7	4200716
539058.7	4201141	539383.7	4200691	539433.7	4200666	539383.7	4201466
539308.7	4201541	539808.7	4200491	539583.7	4200741	539508.7	4201341
539433.7	4200691	540008.7	4200516	539358.7	4200691	539633.7	4201041
539458.7	4201366	539483.7	4200691	538783.7	4201841	539183.7	4200866
539858.7	4200416	539058.7	4201116	539608.7	4201091	539783.7	4200891
539758.7	4200716	539333.7	4201516	539533.7	4200716	539533.7	4200691
539583.7	4201116	539758.7	4200666	539208.7	4200841	539058.7	4201091
538958.7	4201316	539608.7	4201016	539508.7	4200691	538808.7	4201566
538883.7	4201441	539933.7	4200816	538983.7	4201241	539183.7	4200916
539408.7	4200691	538933.7	4201341	539458.7	4200666	539133.7	4201966
539483.7	4201341	539333.7	4200716	539583.7	4201191	539333.7	4200691
539633.7	4200966	539008.7	4201216	539558.7	4201266	539958.7	4200791
539458.7	4200691	539958.7	4200766	538808.7	4201591	539858.7	4200866
539558.7	4201216	539558.7	4201241	539633.7	4200716	539608.7	4201141
539383.7	4201441	539708.7	4200716	539408.7	4200666	538983.7	4201216
539108.7	4201066	539783.7	4200541	539008.7	4201191	539683.7	4200991
538933.7	4201966	539683.7	4200716	539983.7	4200716	539658.7	4200691
539308.7	4200741	539183.7	4201841	538908.7	4201366	539708.7	4200966
539533.7	4201291	539283.7	4201566	538808.7	4201891	538783.7	4201866
538783.7	4201716	539833.7	4200441	539658.7	4200991	539808.7	4200466
539208.7	4200866	539158.7	4200991	539283.7	4200741	539183.7	4201716
539608.7	4200991	539233.7	4200816	539633.7	4201016	538833.7	4201491
539658.7	4200966	539133.7	4201941	539833.7	4200866	539508.7	4200666
539283.7	4200766	539758.7	4200641	539308.7	4200716	539858.7	4200391
538833.7	4201541	539658.7	4200716	539758.7	4200591	539758.7	4200566
540008.7	4200641	539608.7	4201041	539708.7	4200691	539733.7	4200641
538983.7	4201266	539983.7	4200416	538783.7	4201666	539058.7	4201991

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539633.7	4201066	539033.7	4201991	539208.7	4200791	538758.7	4201666
539083.7	4201991	539533.7	4200666	538908.7	4201316	539283.7	4201591
539658.7	4201016	539683.7	4200666	540033.7	4200566	538833.7	4201466
538783.7	4201641	539183.7	4200841	539608.7	4201216	539633.7	4200641
539208.7	4200816	539658.7	4201041	539583.7	4201291	539858.7	4200891
539758.7	4200916	539158.7	4201916	538783.7	4201891	539908.7	4200341
539033.7	4201116	539258.7	4200741	539758.7	4200941	539583.7	4200641
539608.7	4201166	539158.7	4200966	539183.7	4201741	539708.7	4200591
539583.7	4201241	539433.7	4201416	538808.7	4201516	539283.7	4201641
539708.7	4200666	539583.7	4201266	539583.7	4200666	540033.7	4200641
538883.7	4201391	539608.7	4201191	539458.7	4200616	539683.7	4200616
539733.7	4200941	538958.7	4201991	539608.7	4200666	539858.7	4200366
539433.7	4200641	539683.7	4201016	539533.7	4200641	539383.7	4200616
539633.7	4200691	539308.7	4200691	538758.7	4201691	540008.7	4200416
540008.7	4200466	538758.7	4201716	539433.7	4200616	539783.7	4200941
539458.7	4200641	538783.7	4201616	539683.7	4200641	539133.7	4202016
538908.7	4201341	539233.7	4200766	539683.7	4201041	539608.7	4200641
539333.7	4201541	539758.7	4200541	539708.7	4200616	539158.7	4201941
539108.7	4201991	539708.7	4200641	539483.7	4200616	539133.7	4201016
538983.7	4201991	539908.7	4200866	539708.7	4201016	539233.7	4200741
539933.7	4200841	539708.7	4200991	539808.7	4200441	539533.7	4200616
538983.7	4201191	540033.7	4200591	538783.7	4201591	540008.7	4200716
538858.7	4201941	539383.7	4200641	539258.7	4201666	539608.7	4201266
538758.7	4201766	539508.7	4200641	539358.7	4200641	539758.7	4200966
539183.7	4201766	539983.7	4200741	539408.7	4200616	539883.7	4200891
539558.7	4200691	539633.7	4201116	539733.7	4200566	539633.7	4201191
539633.7	4201091	540008.7	4200691	539183.7	4200816	539983.7	4200366
539008.7	4201991	539658.7	4200666	540033.7	4200541	539208.7	4200766
538758.7	4201741	538883.7	4201966	538933.7	4201241	539683.7	4201066
539358.7	4200666	539958.7	4200816	538833.7	4201941	538983.7	4201166
539083.7	4201066	539733.7	4200591	539633.7	4201166	539833.7	4200391
539958.7	4200366	538958.7	4201216	539658.7	4201091	539108.7	4202016
539408.7	4200641	538858.7	4201441	539333.7	4200666	538783.7	4201566
539008.7	4201141	539658.7	4201066	539608.7	4201241	538808.7	4201491
538933.7	4201291	539208.7	4201691	539383.7	4201491	538858.7	4201966
539983.7	4200391	539558.7	4200666	539533.7	4201341	538908.7	4201266
539483.7	4201366	540008.7	4200441	539208.7	4201816	540033.7	4200516
539483.7	4200641	538883.7	4201366	538758.7	4201841	538933.7	4201216
539183.7	4200891	539783.7	4200491	539558.7	4200641	539583.7	4201316
539733.7	4200616	539783.7	4200916	539508.7	4200616	539458.7	4200591
539558.7	4201316	539133.7	4201991	539983.7	4200766	539333.7	4200641
539608.7	4200691	538758.7	4201816	539658.7	4200641	539783.7	4200466
539833.7	4200416	539833.7	4200891	539808.7	4200916	539683.7	4201091
539883.7	4200866	539633.7	4201141	538933.7	4201991	539458.7	4201416
539808.7	4200891	540033.7	4200616	539933.7	4200341	539733.7	4200541
538958.7	4201241	539733.7	4200966	539758.7	4200516	539183.7	4201891
539583.7	4200691	539633.7	4200666	539658.7	4201116	538758.7	4201866
538808.7	4201541	539283.7	4200716	539733.7	4200991	539658.7	4200616
539883.7	4200366	538933.7	4201266	538908.7	4201291	539558.7	4200616
538758.7	4201791	538808.7	4201916	538883.7	4201341	539233.7	4201691

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539483.7	4200591	538733.7	4201741	539358.7	4200591	539708.7	4201116
539958.7	4200341	540033.7	4200666	538883.7	4201266	539658.7	4201241
539433.7	4200591	539633.7	4201241	539733.7	4201041	539808.7	4200391
539283.7	4200691	538758.7	4201616	539533.7	4200566	539258.7	4200666
539308.7	4200666	539383.7	4200591	539258.7	4200691	538733.7	4201666
539933.7	4200866	539708.7	4201066	539783.7	4200441	539183.7	4200741
539958.7	4200841	539758.7	4200991	539158.7	4200841	539733.7	4200491
539658.7	4201141	539683.7	4201116	539683.7	4201141	539483.7	4200541
538758.7	4201641	538883.7	4201991	538758.7	4201591	538758.7	4201566
539708.7	4201041	539283.7	4200666	539158.7	4201991	538783.7	4201491
539183.7	4200791	539658.7	4200591	539833.7	4200941	540058.7	4200591
539158.7	4201966	539558.7	4200591	539483.7	4201416	539983.7	4200816
538908.7	4201991	539108.7	4201041	539408.7	4200566	538833.7	4201441
539358.7	4200616	540008.7	4200391	539158.7	4200866	538783.7	4201941
539258.7	4200716	538733.7	4201791	539058.7	4201066	539708.7	4200516
539633.7	4201216	539783.7	4200966	538858.7	4201316	539458.7	4200541
539033.7	4201091	539333.7	4200616	538733.7	4201691	539958.7	4200316
538858.7	4201416	539358.7	4201516	539208.7	4201716	539158.7	4202016
539508.7	4200591	539208.7	4201791	539833.7	4200366	539508.7	4200541
539608.7	4201291	539508.7	4201366	539758.7	4201016	538858.7	4201291
539833.7	4200916	539208.7	4201841	539983.7	4200341	539633.7	4201291
539583.7	4200616	540033.7	4200491	539133.7	4200991	538883.7	4201241
539283.7	4201616	539983.7	4200791	539658.7	4201216	538758.7	4201916
539408.7	4200591	539208.7	4200741	540033.7	4200691	538808.7	4201466
539708.7	4200566	538758.7	4201891	539658.7	4200566	539083.7	4202016
539683.7	4200591	538733.7	4201716	539558.7	4200566	539958.7	4200866
539633.7	4200616	539733.7	4200516	539858.7	4200341	540008.7	4200366
539883.7	4200341	539858.7	4200916	539933.7	4200316	539433.7	4200541
538883.7	4201316	539458.7	4200566	538858.7	4201391	539133.7	4202041
538783.7	4201916	539583.7	4200591	539308.7	4200616	539858.7	4200941
539608.7	4200616	539483.7	4200566	539283.7	4200641	539408.7	4201466
538958.7	4201191	539183.7	4200766	539783.7	4200991	539533.7	4200541
538858.7	4201366	539658.7	4201191	539208.7	4200716	539158.7	4200791
539733.7	4201016	539233.7	4200716	539908.7	4200316	539758.7	4201041
539158.7	4200941	539683.7	4200566	539883.7	4200916	539158.7	4200916
538783.7	4201541	539633.7	4200591	539158.7	4200816	539233.7	4200691
539533.7	4200591	539633.7	4201266	539583.7	4200566	539158.7	4200891
539408.7	4201441	539558.7	4201341	540033.7	4200466	539008.7	4202016
539483.7	4201391	540008.7	4200741	539758.7	4200466	539358.7	4200566
538908.7	4201241	539433.7	4200566	539733.7	4201066	540058.7	4200566
538808.7	4201941	538783.7	4201516	539633.7	4200566	539258.7	4200641
539008.7	4201116	538833.7	4201966	539383.7	4200566	539658.7	4200541
539808.7	4200416	539608.7	4200591	538733.7	4201841	539558.7	4200541
539758.7	4200491	539708.7	4200541	538908.7	4201216	539683.7	4201191
539658.7	4201166	539208.7	4201866	538858.7	4201991	539883.7	4200316
538883.7	4201291	539508.7	4200566	539808.7	4200966	539283.7	4200616
539908.7	4200891	538733.7	4201816	539683.7	4201166	539933.7	4200891
538733.7	4201766	538858.7	4201341	539333.7	4200591	539658.7	4201266
539808.7	4200941	539308.7	4201566	539608.7	4200566	538808.7	4201966
539308.7	4200641	539708.7	4201091	539683.7	4200541	538733.7	4201641

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539483.7	4201441	538708.7	4201766	539833.7	4200991	539783.7	4201066
540033.7	4200441	539733.7	4201116	539908.7	4200291	539233.7	4200616
539733.7	4201091	539533.7	4200516	538783.7	4201966	539933.7	4200916
539783.7	4201016	539308.7	4201591	538708.7	4201816	539433.7	4200491
538733.7	4201866	538883.7	4201216	538708.7	4201691	539433.7	4201466
539408.7	4200541	539708.7	4201166	539858.7	4200966	539283.7	4200566
539708.7	4201141	540058.7	4200641	539058.7	4202016	539208.7	4201891
540033.7	4200716	540033.7	4200416	538933.7	4202016	540058.7	4200491
539583.7	4200541	539558.7	4200516	540008.7	4200791	539758.7	4201116
539433.7	4201441	539658.7	4200516	539758.7	4201091	538783.7	4201466
539233.7	4200666	539983.7	4200316	539783.7	4200391	539558.7	4201366
539308.7	4200591	539883.7	4200941	539183.7	4200691	539683.7	4201266
539333.7	4201566	539208.7	4201766	539308.7	4201616	539708.7	4201191
539633.7	4200541	538733.7	4201891	540058.7	4200666	539208.7	4200641
539833.7	4200966	539258.7	4200616	539958.7	4200291	539733.7	4201166
539908.7	4200916	539433.7	4200516	539308.7	4201641	539808.7	4201041
539208.7	4200691	538958.7	4202016	539983.7	4200841	539183.7	4201916
539283.7	4201666	538708.7	4201791	539133.7	4200966	538883.7	4202016
539783.7	4200416	538708.7	4201716	538858.7	4201241	539358.7	4200516
539608.7	4200541	538758.7	4201516	539483.7	4200491	539358.7	4201566
539808.7	4200991	539583.7	4200516	539508.7	4200491	539908.7	4200941
538758.7	4201541	539283.7	4200591	539958.7	4200891	538833.7	4201266
539608.7	4201316	539808.7	4200366	539708.7	4200466	540058.7	4200691
540058.7	4200616	539583.7	4201341	540033.7	4200391	539683.7	4200466
538983.7	4201141	539683.7	4201241	538758.7	4201491	539833.7	4201016
538983.7	4202016	539158.7	4202041	539333.7	4200541	539833.7	4200316
540008.7	4200766	539233.7	4200641	539533.7	4200491	538833.7	4201366
539683.7	4200516	539633.7	4200516	539558.7	4200491	539333.7	4201591
539258.7	4201691	539858.7	4200316	539383.7	4200516	539808.7	4200341
539358.7	4201541	539233.7	4201716	539658.7	4200491	539408.7	4200491
539208.7	4201741	539033.7	4202016	538858.7	4202016	538833.7	4201316
538858.7	4201266	539358.7	4200541	538733.7	4201566	539308.7	4200541
540058.7	4200541	539608.7	4200516	539458.7	4200491	538708.7	4201641
539683.7	4201216	539783.7	4201041	538933.7	4201191	538733.7	4201541
539333.7	4200566	539158.7	4200766	538833.7	4201291	539233.7	4201816
539383.7	4200541	538733.7	4201591	538733.7	4201916	539183.7	4200666
538733.7	4201616	539158.7	4200741	539583.7	4200491	539183.7	4202066
539183.7	4200716	539933.7	4200291	539658.7	4201291	538833.7	4201341
539708.7	4200491	539383.7	4201516	539183.7	4202041	538708.7	4201866
539458.7	4201441	540058.7	4200516	539758.7	4200416	539558.7	4200466
538833.7	4201991	539208.7	4200666	538908.7	4202016	539983.7	4200291
539483.7	4200516	539408.7	4201491	538808.7	4201991	539858.7	4200991
539758.7	4200441	540008.7	4200341	539633.7	4200491	538833.7	4202016
539508.7	4200516	540033.7	4200741	539608.7	4200491	539308.7	4201666
539758.7	4201066	539408.7	4200516	539733.7	4200441	539533.7	4200466
539458.7	4200516	538758.7	4201941	538708.7	4201666	539583.7	4200466
539833.7	4200341	539308.7	4200566	539258.7	4200591	539233.7	4201741
539733.7	4200466	539683.7	4200491	538708.7	4201841	539508.7	4200466
539533.7	4201366	539808.7	4201016	539033.7	4201066	539658.7	4200466
538708.7	4201741	539733.7	4201141	539883.7	4200291	539883.7	4200966

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
540008.7	4200816	539708.7	4201216	539583.7	4201366	538958.7	4201166
539483.7	4200466	539908.7	4200266	540083.7	4200541	539508.7	4200416
540033.7	4200366	539683.7	4200441	538708.7	4201916	539308.7	4200491
539758.7	4201141	538683.7	4201716	539333.7	4200491	539158.7	4202066
540008.7	4200316	539383.7	4201541	539733.7	4200391	539958.7	4200941
539783.7	4200366	539933.7	4200941	540083.7	4200641	540083.7	4200516
539158.7	4200716	538708.7	4201591	539758.7	4200366	539133.7	4200741
539608.7	4200466	539483.7	4201466	539258.7	4200541	539483.7	4200416
538833.7	4201416	539183.7	4200641	539333.7	4201641	539333.7	4201666
539083.7	4201041	538683.7	4201791	539208.7	4200591	539708.7	4200391
538758.7	4201466	539358.7	4200491	538683.7	4201666	538833.7	4202041
539708.7	4200441	539958.7	4200266	540083.7	4200616	538833.7	4201241
539633.7	4200466	539333.7	4201616	540008.7	4200291	539883.7	4200991
539183.7	4202016	540083.7	4200566	539433.7	4200441	538783.7	4202016
539858.7	4200291	539308.7	4200516	538833.7	4201391	539308.7	4201691
539383.7	4200491	539233.7	4201766	539683.7	4200416	538708.7	4201941
538708.7	4201616	539558.7	4200441	539283.7	4200516	539933.7	4200966
539333.7	4200516	539408.7	4200466	539908.7	4200966	539933.7	4200241
538758.7	4201966	539583.7	4200441	539183.7	4200616	538683.7	4201866
539458.7	4200466	539533.7	4200441	539983.7	4200266	540058.7	4200766
539258.7	4201716	539408.7	4201516	539608.7	4201341	539458.7	4200416
539458.7	4201466	539658.7	4200441	539008.7	4201091	539808.7	4200291
539233.7	4200591	539508.7	4200441	539258.7	4201741	540033.7	4200316
539733.7	4200416	538808.7	4202016	538683.7	4201841	539208.7	4200566
539758.7	4200391	538683.7	4201691	538733.7	4201466	538683.7	4201616
539258.7	4200566	539608.7	4200441	539758.7	4201166	540058.7	4200391
539958.7	4200916	539483.7	4200441	540058.7	4200416	539783.7	4200316
538733.7	4201941	539858.7	4201016	539383.7	4201566	539233.7	4200541
539158.7	4200691	539808.7	4200316	539558.7	4200416	539358.7	4201616
540058.7	4200466	538733.7	4201491	538733.7	4201966	539183.7	4201941
539783.7	4201091	539633.7	4200441	539833.7	4201066	539733.7	4200366
539808.7	4201066	539708.7	4200416	539833.7	4201066	539733.7	4200716
539283.7	4201691	540058.7	4200441	538758.7	4201991	539133.7	4200716
540058.7	4200716	539883.7	4200266	539708.7	4201241	538708.7	4201516
538808.7	4201441	539158.7	4200666	539858.7	4200266	539383.7	4200441
539208.7	4200616	539158.7	4200666	539233.7	4201866	539908.7	4200241
539108.7	4202041	538683.7	4201816	538708.7	4201541	539183.7	4201991
540033.7	4200766	540033.7	4200341	539583.7	4200416	539758.7	4200341
539933.7	4200266	539433.7	4201491	539358.7	4200466	538908.7	4201191
538683.7	4201741	539358.7	4201591	539658.7	4200416	539183.7	4201966
538783.7	4201991	539833.7	4200291	539983.7	4200866	540083.7	4200691
539433.7	4200466	539208.7	4202066	539533.7	4200416	539258.7	4200516
539108.7	4201016	539783.7	4200341	539208.7	4202041	540033.7	4200816
538683.7	4201766	539233.7	4201841	539408.7	4200441	539683.7	4200391
539283.7	4200541	538708.7	4201566	540083.7	4200666	539333.7	4200466
539633.7	4201316	540058.7	4200741	539608.7	4200416	539408.7	4201541
539833.7	4201041	539458.7	4200441	538683.7	4201641	539183.7	4202091
538733.7	4201516	539233.7	4200566	539508.7	4201391	539683.7	4201291
539233.7	4201791	540033.7	4200791	539158.7	4200641	539183.7	4200591
538708.7	4201891	539383.7	4200466	539283.7	4201716	539958.7	4200241
		540083.7	4200591	539633.7	4200416	539133.7	4200766

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
539058.7	4201041	540083.7	4200716	538683.7	4201541	538658.7	4201866
539258.7	4201766	538733.7	4201991	539533.7	4200366	539633.7	4200341
539433.7	4200416	539133.7	4200791	538783.7	4202041	539208.7	4200516
538983.7	4201116	539358.7	4201641	539208.7	4201916	540108.7	4200541
539133.7	4200691	539983.7	4200241	539383.7	4201616	539783.7	4200266
539833.7	4200266	538658.7	4201691	539283.7	4200466	539408.7	4201591
539558.7	4200391	538783.7	4201441	538658.7	4201841	539458.7	4201516
539458.7	4201491	539458.7	4200391	540058.7	4200341	540108.7	4200616
538658.7	4201741	539008.7	4202041	539508.7	4200366	538808.7	4201316
539583.7	4200391	538683.7	4201566	539708.7	4200341	539133.7	4200816
539283.7	4200491	539208.7	4200541	539933.7	4200216	539333.7	4200416
539208.7	4202091	539733.7	4200341	539358.7	4200416	539883.7	4201016
539658.7	4200391	539858.7	4200241	539358.7	4201666	539433.7	4200366
538983.7	4202041	539258.7	4201816	539133.7	4200641	539158.7	4200566
540083.7	4200491	538658.7	4201816	539408.7	4200391	538808.7	4202066
538658.7	4201766	538708.7	4201966	539833.7	4200241	539333.7	4201716
539233.7	4202066	538758.7	4202016	539483.7	4200366	539258.7	4200466
539883.7	4200241	539683.7	4200366	539908.7	4200216	539583.7	4200341
539733.7	4201191	538808.7	4201366	539283.7	4201766	538733.7	4202016
539158.7	4200616	539308.7	4201716	538658.7	4201641	539983.7	4200916
539608.7	4200391	538883.7	4202041	539658.7	4201316	538708.7	4201991
538683.7	4201591	539233.7	4200516	539558.7	4201391	539558.7	4200341
539633.7	4200391	539383.7	4200416	540058.7	4200791	539033.7	4201041
539383.7	4201591	539783.7	4200291	539508.7	4201416	539258.7	4201841
538808.7	4202041	539758.7	4200316	539958.7	4200216	540083.7	4200766
539533.7	4200391	538683.7	4201916	539308.7	4200441	539258.7	4202091
538683.7	4201891	539333.7	4201691	539433.7	4201541	539533.7	4200341
539358.7	4200441	539708.7	4201266	538683.7	4201941	540033.7	4200266
538658.7	4201716	539183.7	4200566	539683.7	4200341	539383.7	4201641
539433.7	4201516	540033.7	4200291	539733.7	4200316	539808.7	4200241
539508.7	4200391	539258.7	4200491	539458.7	4200366	539133.7	4202066
540008.7	4200841	539783.7	4201116	539908.7	4200991	539983.7	4200216
539583.7	4201391	539408.7	4201566	538683.7	4201516	539133.7	4200916
539858.7	4201041	539333.7	4200441	539883.7	4200216	540058.7	4200316
539133.7	4200941	539808.7	4200266	539083.7	4201016	539858.7	4200216
539408.7	4200416	539583.7	4200366	540083.7	4200441	539708.7	4200316
540008.7	4200266	539658.7	4200366	540008.7	4200241	539283.7	4201791
538658.7	4201791	539433.7	4200391	539758.7	4200291	539133.7	4200616
539708.7	4200366	540083.7	4200466	539308.7	4201741	540108.7	4200641
539108.7	4200991	539233.7	4202091	538808.7	4201266	539808.7	4201091
538708.7	4201491	539608.7	4200366	538808.7	4201291	539183.7	4200541
539133.7	4200666	538658.7	4201666	539658.7	4200341	539233.7	4202116
538858.7	4202041	539633.7	4200366	539483.7	4201491	538633.7	4201741
539258.7	4201791	538708.7	4201466	538883.7	4201191	539508.7	4200341
539483.7	4200391	538958.7	4202041	538708.7	4201441	539033.7	4202041
540058.7	4200366	539158.7	4200591	538658.7	4201616	539283.7	4200441
539233.7	4201891	539558.7	4200366	539533.7	4201391	538658.7	4201591
539283.7	4201741	538808.7	4201341	539383.7	4200391	540108.7	4200591
538858.7	4201216	540083.7	4200741	539233.7	4200491	538683.7	4201491
539308.7	4200466	539958.7	4200966	539608.7	4200341	538633.7	4201766

**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY	UTMX	UTMY	UTMX	UTMY
538808.7	4201416	539383.7	4200366	538633.7	4201841	539333.7	4201766
540108.7	4200566	538633.7	4201816	539108.7	4200641	539383.7	4200341
540083.7	4200416	540083.7	4200391	540033.7	4200241	538633.7	4201866
538758.7	4202041	539933.7	4200191	539358.7	4201716	539533.7	4201416
539358.7	4201691	539783.7	4201141	539483.7	4201966	539333.7	4200366
539508.7	4201441	538933.7	4202041	539358.7	4200366	540108.7	4200766
539358.7	4200391	539208.7	4200491	539483.7	4200316	539708.7	4201291
539983.7	4200891	539383.7	4201666	539733.7	4200266	539533.7	4200291
539933.7	4200991	539583.7	4200316	538708.7	4202016	540108.7	4200466
539133.7	4200591	539783.7	4200241	539108.7	4200691	539833.7	4200191
539483.7	4200341	539558.7	4200316	539433.7	4201591	539983.7	4200941
539408.7	4200366	539333.7	4200391	540083.7	4200366	539258.7	4200416
538633.7	4201716	539283.7	4201816	539408.7	4200341	538658.7	4201516
540108.7	4200516	539908.7	4200191	540108.7	4200741	539108.7	4200716
539758.7	4201191	539258.7	4201866	539658.7	4200291	539758.7	4200241
538658.7	4201891	538683.7	4201466	539208.7	4201941	540083.7	4200341
538758.7	4201441	539233.7	4201916	538908.7	4202041	539433.7	4200316
538733.7	4201441	538658.7	4201916	538733.7	4202041	538808.7	4201241
540108.7	4200666	539133.7	4200891	539633.7	4200291	539458.7	4201991
539683.7	4200316	539333.7	4201741	539133.7	4200866	539383.7	4202066
538683.7	4201966	540108.7	4200716	539408.7	4201641	538633.7	4201616
538633.7	4201791	539258.7	4200441	538633.7	4201641	540033.7	4200841
539208.7	4202016	539433.7	4200341	539858.7	4200191	539508.7	4200291
539208.7	4202116	539708.7	4200291	538683.7	4201991	539458.7	4201566
539733.7	4200291	539533.7	4200316	539308.7	4200391	539283.7	4201841
539433.7	4201566	539958.7	4200191	538708.7	4201391	539683.7	4201316
539308.7	4200416	538633.7	4201666	539258.7	4201891	539283.7	4202116
539608.7	4201366	539158.7	4200541	539983.7	4200191	539783.7	4200216
539733.7	4201216	540108.7	4200491	538658.7	4201941	539433.7	4201616
539083.7	4202041	538658.7	4201541	539108.7	4200616	540058.7	4200266
539658.7	4200316	539508.7	4201466	539308.7	4202116	539483.7	4201941
539858.7	4201066	539633.7	4201341	539308.7	4201791	539408.7	4201666
539633.7	4200316	540008.7	4200216	538683.7	4201441	539283.7	4200391
538658.7	4201566	539058.7	4202041	539458.7	4200316	539783.7	4201166
539458.7	4200341	539133.7	4200841	539258.7	4202116	538683.7	4201416
540108.7	4200691	540058.7	4200291	539383.7	4201691	539083.7	4200991
538708.7	4201416	538783.7	4201366	539608.7	4201391	539708.7	4200266
539833.7	4200216	539883.7	4200191	539233.7	4200441	539358.7	4201741
540058.7	4200816	539458.7	4201541	539233.7	4202041	538608.7	4201741
539308.7	4201766	539108.7	4200666	539583.7	4200291	539208.7	4201966
539108.7	4200966	539133.7	4200566	539608.7	4200291	539933.7	4200166
539758.7	4200266	539508.7	4200316	539183.7	4200491	538658.7	4201966
538633.7	4201691	538858.7	4202066	539733.7	4201241	539483.7	4200291
539408.7	4201616	539308.7	4202091	539333.7	4202091	539508.7	4201491
539233.7	4200466	539483.7	4201516	538808.7	4202091	539908.7	4200166
539258.7	4202066	539283.7	4200416	539558.7	4200291	538633.7	4201591
538833.7	4202066	539183.7	4200516	538808.7	4201391	538608.7	4201766
539283.7	4202091	539008.7	4201066	539208.7	4200466	539408.7	4202041
538783.7	4202066	539808.7	4200216	539358.7	4202066	539408.7	4202066
539608.7	4200316	539683.7	4200291	538758.7	4202066	538608.7	4201716



**Table 6: Receptors**

UTMX	UTMY	UTMX	UTMY
539158.7	4200516	539333.7	4201791
539058.7	4201016	539333.7	4202066
539958.7	4200991	539108.7	4200741
539358.7	4200341	539433.7	4201641
539108.7	4200591	540008.7	4200866
539408.7	4200316	539458.7	4201591
539458.7	4202016	539533.7	4200266
538783.7	4202091	539858.7	4200166
539433.7	4202041	539258.7	4200391
540008.7	4200191	539383.7	4200316
538633.7	4201891	539533.7	4201441
539958.7	4200166	538658.7	4201466
539808.7	4200191	538608.7	4201816
538658.7	4201491	538733.7	4202066
540033.7	4200216	539408.7	4201691
539308.7	4200366	539458.7	4201966
539883.7	4200166	539983.7	4200166
539333.7	4202116	539508.7	4200266
539308.7	4201816	539833.7	4201091
540083.7	4200791	538833.7	4202091
539683.7	4200266	539758.7	4200216
539383.7	4201716	539283.7	4201866
539433.7	4202016	539433.7	4200291
539133.7	4200541	539108.7	4200566
539458.7	4200291	539333.7	4200341
538608.7	4201791	539383.7	4202041
539233.7	4202141	538633.7	4201916
538633.7	4201566	539358.7	4201766
539183.7	4200466	538608.7	4201666
539608.7	4200266	538983.7	4201091
539633.7	4200266	539258.7	4202141
539233.7	4200416	539883.7	4201041
539483.7	4201541	539433.7	4202066
539658.7	4200266	539133.7	4200516
539733.7	4200241	539833.7	4200166
539158.7	4200491	539733.7	4201266
539583.7	4200266	539283.7	4200366
539358.7	4202091	538783.7	4201341
538608.7	4201691	539708.7	4200241
540108.7	4200441	539783.7	4200191
539208.7	4201991	538658.7	4201991
539483.7	4201991	540133.7	4200691
539558.7	4200266	540058.7	4200241
540083.7	4200316	539233.7	4201941
538708.7	4202041	539483.7	4200266
539208.7	4200441	540133.7	4200566
538683.7	4202016	539558.7	4201416
540133.7	4200541	539483.7	4201916
539108.7	4200941	539283.7	4202066
539258.7	4201916	540133.7	4200616

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Sir Francis Drake	VOLUME	SFD1	540945.2656	4200442.565	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540927.7293	4200452.181	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540910.1931	4200461.798	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540892.6568	4200471.415	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540875.1206	4200481.031	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540857.5843	4200490.648	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540840.0481	4200500.265	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540822.5118	4200509.881	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540804.9756	4200519.498	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540787.4393	4200529.115	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540769.9031	4200538.731	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540754.6133	4200551.457	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540739.977	4200565.087	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540725.3407	4200578.717	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540710.7044	4200592.347	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540696.068	4200605.977	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540681.4317	4200619.607	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540666.7954	4200633.237	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540652.1591	4200646.867	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540637.2549	4200660.133	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540619.8736	4200670.027	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540602.4924	4200679.921	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540584.9006	4200689.339	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540565.8903	4200695.553	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540546.88	4200701.767	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540527.8698	4200707.98	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540508.8595	4200714.194	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540489.8493	4200720.408	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540470.839	4200726.621	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540451.8288	4200732.835	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540432.8185	4200739.049	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540413.8082	4200745.263	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540394.798	4200751.476	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540375.7877	4200757.69	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540356.7775	4200763.904	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540337.5931	4200769.383	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540317.8168	4200772.366	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540298.0405	4200775.349	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540278.2642	4200778.332	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540258.4879	4200781.315	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540238.7117	4200784.298	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540218.9354	4200787.281	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540199.1584	4200790.013	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540179.3661	4200787.138	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540159.5738	4200784.264	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540139.7815	4200781.389	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540119.9892	4200778.514	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540100.1969	4200775.639	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540080.4046	4200772.764	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540060.6123	4200769.889	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540040.6955	4200770.877	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540020.7592	4200772.472	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD1	540000.8229	4200774.067	0.018867925	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539994.7746	4200776.516	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539977.0103	4200785.705	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539959.2459	4200794.893	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539941.4816	4200804.082	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539924.853	4200814.762	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539911.2692	4200829.441	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539897.6854	4200844.121	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539884.1016	4200858.8	0.052632	3.048	9.30232558	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Sir Francis Drake	VOLUME	SFD2	539870.5179	4200873.479	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539856.9341	4200888.158	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539843.3503	4200902.838	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539829.7665	4200917.517	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539816.1827	4200932.196	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539802.5989	4200946.875	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539789.0151	4200961.555	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539775.4313	4200976.234	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539761.8475	4200990.913	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539748.2638	4201005.592	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD2	539734.68	4201020.272	0.052632	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539716.2301	4201036.184	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539700.7671	4201048.868	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539685.3041	4201061.553	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539669.8412	4201074.237	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539654.3782	4201086.922	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539638.9152	4201099.606	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539623.641	4201112.513	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539608.6177	4201125.715	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539593.5944	4201138.918	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539578.5711	4201152.12	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539563.5478	4201165.322	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539548.5245	4201178.525	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD3	539533.5012	4201191.727	0.076923	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539510.8574	4201212.735	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539496.3972	4201226.552	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539481.937	4201240.369	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539467.4768	4201254.186	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539453.0166	4201268.002	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539438.5565	4201281.819	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539424.0963	4201295.636	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539409.6361	4201309.453	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539395.1759	4201323.269	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539380.7157	4201337.086	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539366.2555	4201350.903	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539351.7953	4201364.72	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539337.3351	4201378.536	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539322.8749	4201392.353	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539308.4147	4201406.17	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539293.835	4201419.859	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539279.0552	4201433.333	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539264.2754	4201446.807	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539249.4956	4201460.282	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539234.7158	4201473.756	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539219.936	4201487.23	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539205.4309	4201500.997	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539191.0441	4201514.89	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539176.6573	4201528.784	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539162.2704	4201542.677	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539147.8836	4201556.57	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539133.4968	4201570.463	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD4	539117.7755	4201585.645	0.035714	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539106.8819	4201602.418	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539095.9883	4201619.191	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539085.0946	4201635.963	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539074.5118	4201652.924	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539064.7304	4201670.369	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539054.949	4201687.814	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539045.1677	4201705.259	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539035.3863	4201722.704	0.111111	3.048	9.30232558	3.2
Sir Francis Drake	VOLUME	SFD5	539025.6049	4201740.149	0.111111	3.048	9.30232558	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
College	VOLUME	COL1	539655.8799	4200829.216	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539651.7937	4200817.933	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539647.7076	4200806.65	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539643.6215	4200795.367	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539639.5353	4200784.084	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539635.4492	4200772.801	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539631.363	4200761.519	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539627.2769	4200750.236	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539623.1908	4200738.953	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539619.1046	4200727.67	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539615.0185	4200716.387	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539610.9324	4200705.104	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539606.8462	4200693.821	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539602.7601	4200682.538	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539598.6739	4200671.256	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539594.5878	4200659.973	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539590.5017	4200648.69	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539586.2416	4200637.474	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539581.7331	4200626.353	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539577.2247	4200615.232	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539572.7162	4200604.111	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539568.2078	4200592.99	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539566.7407	4200581.126	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539565.6136	4200569.179	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539564.4865	4200557.232	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539563.3594	4200545.285	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539562.2324	4200533.338	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539561.1053	4200521.391	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539560.8533	4200509.398	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539560.7177	4200497.399	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539560.5822	4200485.4	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539560.4466	4200473.401	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539560.311	4200461.401	0.029412	3.048	5.58139535	3.2
College	VOLUME	COL1	539659.966	4200840.499	0.029412	3.048	5.58139535	3.2
Unit 2 Area	VOLUME	2A1	539664.6098	4200851.578	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539669.1674	4200862.679	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539673.7249	4200873.78	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539678.2825	4200884.881	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539682.84	4200895.981	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539687.3976	4200907.082	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539691.9551	4200918.183	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539696.5127	4200929.284	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539701.0702	4200940.385	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539705.6278	4200951.486	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539710.1853	4200962.587	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539714.7429	4200973.687	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539719.3004	4200984.788	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539723.8579	4200995.889	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539727.4892	4201007.299	0.062500	3.048	2.79069767	3.2
Unit 2 Area	VOLUME	2A1	539730.5032	4201018.914	0.062500	3.048	2.79069767	3.2
Magnolia	VOLUME	MAG1	539560.8394	4200445.037	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539561.4173	4200433.05	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539561.9952	4200421.064	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539562.5731	4200409.078	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539563.151	4200397.092	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539563.7289	4200385.106	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539564.3068	4200373.12	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539564.8847	4200361.134	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539565.4626	4200349.148	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539566.0405	4200337.162	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539566.6184	4200325.176	0.009524	3.048	5.58139535	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Magnolia	VOLUME	MAG1	539567.1963	4200313.19	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539567.7742	4200301.204	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539568.3521	4200289.218	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539568.93	4200277.231	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539570.9661	4200265.482	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539574.2049	4200253.927	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539577.4437	4200242.372	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539580.6825	4200230.818	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539587.6984	4200221.374	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539595.8439	4200212.562	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539603.9894	4200203.751	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539612.1349	4200194.939	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539620.8266	4200186.763	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539630.7719	4200180.048	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539640.7172	4200173.333	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539650.6625	4200166.618	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539660.6078	4200159.903	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539670.5531	4200153.188	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539680.4984	4200146.473	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539690.4437	4200139.758	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539700.389	4200133.043	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539710.3343	4200126.328	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539720.2796	4200119.613	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539730.2249	4200112.898	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539740.1702	4200106.183	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539750.0554	4200099.382	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539759.8006	4200092.38	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539769.5459	4200085.378	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539779.2911	4200078.375	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539789.0364	4200071.373	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539798.7816	4200064.371	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539808.5269	4200057.369	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539818.2721	4200050.367	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539828.0174	4200043.365	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539837.7626	4200036.362	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539847.5079	4200029.36	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539857.2531	4200022.358	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539866.9984	4200015.356	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539876.7436	4200008.354	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539886.4889	4200001.352	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539896.2341	4199994.35	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539905.9794	4199987.347	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539915.7246	4199980.345	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539925.4699	4199973.343	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539935.2151	4199966.341	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539944.9604	4199959.339	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539954.7057	4199952.337	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539964.4509	4199945.335	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539974.5342	4199938.878	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539985.1397	4199933.263	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	539995.7451	4199927.648	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540006.3506	4199922.034	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540016.956	4199916.419	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540027.5615	4199910.804	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540038.1669	4199905.19	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540048.7724	4199899.575	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540059.3779	4199893.96	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540069.3634	4199887.452	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540078.3399	4199879.488	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540087.3165	4199871.524	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540096.293	4199863.56	0.009524	3.048	5.58139535	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Magnolia	VOLUME	MAG1	540105.2695	4199855.597	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540114.246	4199847.633	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540123.2226	4199839.669	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540131.6738	4199831.264	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540137.9701	4199821.048	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540144.2664	4199810.833	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540150.5628	4199800.618	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540156.8591	4199790.402	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540163.2133	4199780.227	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540170.7086	4199770.856	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540178.2038	4199761.485	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540185.6991	4199752.113	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540193.1943	4199742.742	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540200.6896	4199733.371	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540209.0819	4199724.924	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540218.6719	4199717.71	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540228.2619	4199710.497	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540237.8519	4199703.284	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540247.4419	4199696.07	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540257.0319	4199688.857	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540266.6219	4199681.644	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540276.2119	4199674.43	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540285.8018	4199667.217	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540295.3918	4199660.004	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540304.9818	4199652.79	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540314.5718	4199645.577	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540324.694	4199639.157	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540335.0068	4199633.022	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540345.3197	4199626.886	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540355.6326	4199620.751	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540365.9455	4199614.615	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540376.2584	4199608.48	0.009524	3.048	5.58139535	3.2
Magnolia	VOLUME	MAG1	540386.5712	4199602.344	0.009524	3.048	5.58139535	3.2
Lower Channel	VOLUME	LC1	539905.9363	4200665.273	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539911.9358	4200665.197	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539917.9353	4200665.12	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539923.9348	4200665.044	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539929.9344	4200664.967	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539935.9339	4200664.891	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539941.9334	4200664.814	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539947.9329	4200664.738	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539953.9324	4200664.661	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539959.9319	4200664.585	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539965.9314	4200664.508	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539971.9309	4200664.431	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539977.9305	4200664.355	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539983.93	4200664.278	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539989.8436	4200664.66	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539995.4075	4200666.905	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540000.9715	4200669.151	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540006.5355	4200671.396	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540012.0995	4200673.642	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540017.6634	4200675.887	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540023.2274	4200678.133	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540028.7914	4200680.378	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540034.3553	4200682.624	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540032.4321	4200687.846	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540029.9295	4200693.3	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540027.4269	4200698.753	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540024.9242	4200704.206	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540022.4216	4200709.659	0.025641	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Lower Channel	VOLUME	LC1	540019.919	4200715.112	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540017.4164	4200720.565	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540014.9137	4200726.019	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540012.4111	4200731.472	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540009.9085	4200736.925	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540007.4058	4200742.378	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540005.0384	4200747.88	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540003.4543	4200753.667	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540001.8702	4200759.454	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	540000.2861	4200765.242	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC1	539998.702	4200771.029	0.025641	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539665.7874	4200839.046	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539671.6089	4200837.593	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539677.1648	4200835.394	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539682.407	4200832.475	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539688.1265	4200830.679	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539693.9303	4200829.163	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539699.7515	4200827.709	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539705.5727	4200826.255	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539711.2948	4200824.453	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539716.8795	4200822.276	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539722.398	4200819.921	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539727.8973	4200817.522	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539733.3714	4200815.065	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539738.8455	4200812.609	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539744.3196	4200810.152	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539749.7938	4200807.696	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539755.3505	4200805.435	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539760.9991	4200803.414	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539766.7296	4200801.644	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539772.5514	4200800.204	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539778.487	4200799.363	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539784.4801	4200799.373	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539790.438	4200800.034	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539796.3734	4200800.912	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539802.3099	4200801.782	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539808.2777	4200802.402	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539814.2525	4200802.937	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539820.2428	4200803.278	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539826.2394	4200803.463	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539832.2376	4200803.609	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539838.2359	4200803.754	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539844.2308	4200803.997	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539850.2257	4200804.204	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539856.2002	4200803.745	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539862.0843	4200802.586	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539867.8619	4200800.977	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539873.4679	4200798.862	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539878.8133	4200796.137	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539883.9769	4200793.086	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539888.9113	4200789.675	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539893.6232	4200785.963	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539897.9663	4200781.826	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539901.9027	4200777.323	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539905.1813	4200772.304	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539907.7942	4200766.909	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539909.8039	4200761.26	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539911.1119	4200755.407	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539911.9876	4200749.473	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539912.4889	4200743.497	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539912.7987	4200737.507	0.016129	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Lower Channel	VOLUME	LC2	539912.7907	4200731.507	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539912.4004	4200725.521	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539911.7255	4200719.562	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539910.7491	4200713.646	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539909.4179	4200707.796	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539908.0868	4200701.945	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539906.7556	4200696.095	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539905.4244	4200690.245	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539904.0933	4200684.394	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539902.7621	4200678.544	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539901.431	4200672.693	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC2	539900.2681	4200666.807	0.016129	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539566.2613	4200457.069	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539572.2611	4200457.116	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539578.261	4200457.163	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539584.2608	4200457.21	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539590.2606	4200457.256	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539596.2604	4200457.303	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539602.2602	4200457.35	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539607.207	4200458.422	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539607.0938	4200464.421	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539606.9805	4200470.42	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539606.8673	4200476.419	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539606.754	4200482.418	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539608.1962	4200486.867	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539614.1955	4200486.775	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539620.1948	4200486.684	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539626.1942	4200486.593	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539632.1935	4200486.501	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539638.1928	4200486.41	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539644.1921	4200486.318	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539650.1914	4200486.227	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539656.1907	4200486.136	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539662.19	4200486.044	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539668.1893	4200485.953	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539674.1886	4200485.862	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539680.1879	4200485.77	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539686.1872	4200485.679	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539692.1865	4200485.587	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539698.1025	4200484.989	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539703.815	4200483.154	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539709.5275	4200481.319	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539715.24	4200479.484	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539720.9525	4200477.649	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539726.6651	4200475.814	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539732.3776	4200473.979	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539738.1747	4200472.74	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539744.1722	4200472.913	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539750.1697	4200473.085	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539756.1673	4200473.257	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539762.1648	4200473.43	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539768.1623	4200473.602	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539774.1598	4200473.775	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539780.1574	4200473.947	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539786.1549	4200474.12	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539792.1524	4200474.292	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539798.1499	4200474.464	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539804.1474	4200474.637	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539810.145	4200474.809	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539816.1425	4200474.982	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539822.14	4200475.154	0.014706	3.048	2.79069767	3.2



**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Lower Channel	VOLUME	LC3	539828.1375	4200475.326	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539834.1351	4200475.499	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539840.1326	4200475.671	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539846.1301	4200475.844	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539852.1276	4200476.016	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539858.1252	4200476.188	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539864.1227	4200476.361	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539870.1202	4200476.533	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539876.1177	4200476.706	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539882.1152	4200476.878	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539882.5182	4200481.557	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539881.4093	4200487.453	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539880.3004	4200493.35	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539879.1915	4200499.247	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539878.0826	4200505.143	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539876.9737	4200511.04	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539875.8647	4200516.937	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539874.7558	4200522.833	0.014706	3.048	2.79069767	3.2
Lower Channel	VOLUME	LC3	539873.6469	4200528.73	0.014706	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539380.5225	4200998.78	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539384.8583	4201002.927	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539388.9405	4201007.288	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539392.2797	4201012.273	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539395.6189	4201017.258	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539398.9581	4201022.243	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539402.2973	4201027.228	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539405.6365	4201032.213	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539408.9758	4201037.198	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539412.315	4201042.182	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539415.6542	4201047.167	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539418.9934	4201052.152	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539422.3326	4201057.137	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539425.6718	4201062.122	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539429.011	4201067.107	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539432.3502	4201072.092	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539435.6894	4201077.077	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539439.0286	4201082.062	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539442.3679	4201087.047	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539445.7071	4201092.032	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539449.0463	4201097.017	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539452.3855	4201102.002	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539455.7247	4201106.987	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539459.0639	4201111.972	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539462.4031	4201116.957	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539465.7423	4201121.942	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539469.0815	4201126.927	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539472.4208	4201131.911	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539475.76	4201136.896	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539479.0992	4201141.881	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539482.8013	4201146.866	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539486.5858	4201151.851	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539490.3702	4201156.836	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539494.1547	4201161.821	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539497.9391	4201166.806	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539501.7236	4201171.791	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539505.508	4201176.776	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539509.2925	4201181.761	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539513.0769	4201186.746	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539516.8614	4201191.731	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539520.6458	4201196.716	0.023810	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA1	539524.4303	4201201.701	0.023810	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Graton Work Area	VOLUME	GWA2	539483.2737	4201156.284	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539478.752	4201160.227	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539474.2303	4201164.171	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539469.7086	4201168.115	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539465.1869	4201172.059	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539460.6652	4201176.003	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539456.1435	4201179.947	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539450.2847	4201180.556	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539444.2909	4201180.829	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539438.2971	4201181.101	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539432.3033	4201181.374	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539426.3095	4201181.646	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539420.3157	4201181.919	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539414.3219	4201182.191	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539408.3281	4201182.464	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539402.3343	4201182.737	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539396.3404	4201183.009	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539390.3466	4201183.282	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539384.3528	4201183.554	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539378.359	4201183.827	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539372.3652	4201184.099	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539366.3714	4201184.372	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539360.3776	4201184.644	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539354.3838	4201184.917	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539348.39	4201185.19	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539342.3962	4201185.462	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539336.4024	4201185.735	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539330.5777	4201186.638	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539325.2509	4201189.4	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539319.924	4201192.161	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539314.5972	4201194.922	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539309.2704	4201197.684	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA2	539305.0115	4201199.891	0.030303	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539318.8357	4201189.378	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539322.0959	4201184.341	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539325.356	4201179.304	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539328.6162	4201174.267	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539331.8763	4201169.23	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539335.1365	4201164.193	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539338.3966	4201159.156	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539341.6568	4201154.119	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539344.9169	4201149.082	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539348.1771	4201144.045	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539351.4372	4201139.008	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539354.6974	4201133.971	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539357.9575	4201128.934	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539361.2176	4201123.897	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539364.4778	4201118.86	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539367.7379	4201113.823	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539370.9981	4201108.786	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539374.2582	4201103.749	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539377.5184	4201098.712	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539380.7785	4201093.675	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539384.0387	4201088.638	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539387.2988	4201083.601	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539390.559	4201078.564	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539393.8191	4201073.527	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539397.0792	4201068.49	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539400.3394	4201063.453	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539403.5995	4201058.416	0.034483	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA3	539406.8597	4201053.379	0.034483	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Graton Work Area	VOLUME	GWA3	539410.1198	4201048.342	0.034483	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538906.6517	4201717.419	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538912.3649	4201719.252	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538918.0782	4201721.085	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538923.7914	4201722.918	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538929.5046	4201724.75	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538935.2178	4201726.583	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538940.9311	4201728.416	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538946.6443	4201730.249	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538952.3575	4201732.082	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538958.0707	4201733.914	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538963.7839	4201735.747	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538969.4972	4201737.58	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538975.2104	4201739.413	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538980.9236	4201741.245	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538986.6368	4201743.078	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538992.35	4201744.911	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	538998.0633	4201746.744	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	539003.7661	4201748.607	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	539009.408	4201750.649	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP2	539015.0498	4201752.691	0.050000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539042.8055	4201578.85	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539037.4836	4201576.237	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539031.5663	4201576.485	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539026.446	4201579.495	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539021.9429	4201583.46	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539017.4398	4201587.425	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539012.9367	4201591.39	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539008.4335	4201595.356	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	539003.9304	4201599.321	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538999.4273	4201603.286	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538994.8795	4201607.199	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538990.3205	4201611.1	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538985.7615	4201615.001	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538981.2025	4201618.901	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538976.6435	4201622.802	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538972.0845	4201626.703	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538967.5591	4201630.642	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538963.0724	4201634.626	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538958.6071	4201638.632	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538954.3288	4201642.839	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538950.0506	4201647.046	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538945.9347	4201651.409	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538941.8759	4201655.828	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538937.904	4201660.323	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538934.0752	4201664.943	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538930.2555	4201669.569	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538927.0317	4201674.629	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538923.8078	4201679.689	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538920.584	4201684.75	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538917.3602	4201689.81	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538914.1363	4201694.87	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538910.9125	4201699.931	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538907.6887	4201704.991	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538904.4648	4201710.051	0.028571	3.048	2.79069767	3.2
Allen Park	VOLUME	AP1	538900.9385	4201715.587	0.028571	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA5	539299.9483	4201196.672	0.250000	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA5	539294.885	4201193.453	0.250000	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA5	539289.8217	4201190.234	0.250000	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA5	539284.7584	4201187.015	0.250000	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539274.7214	4201212.675	0.018519	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Graton Work Area	VOLUME	GWA4	539275.651	4201206.749	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539276.7813	4201200.859	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539278.2002	4201195.029	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539280.0019	4201189.309	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539282.1214	4201183.696	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539284.4655	4201178.175	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539287.0049	4201172.738	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539289.4475	4201167.259	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539291.7377	4201161.713	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539294.0115	4201156.161	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539296.2481	4201150.593	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539298.4287	4201145.004	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539300.6093	4201139.414	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539302.7182	4201133.797	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539304.8036	4201128.171	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539306.9491	4201122.568	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539309.1048	4201116.968	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539311.4059	4201111.428	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539313.7477	4201105.904	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539316.0896	4201100.379	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539318.4587	4201094.867	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539320.9412	4201089.405	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539323.4582	4201083.959	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539326.0505	4201078.548	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539328.6633	4201073.147	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539331.3478	4201067.781	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539334.0632	4201062.43	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539336.8383	4201057.111	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539339.712	4201051.844	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539342.6344	4201046.604	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539345.5804	4201041.378	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539348.645	4201036.219	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539351.7096	4201031.061	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539354.8735	4201025.964	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539358.088	4201020.897	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539361.3236	4201015.845	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539364.6713	4201010.866	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539368.019	4201005.886	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539371.5025	4201001.003	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539375.057	4200996.169	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539378.6316	4200991.35	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539382.316	4200986.615	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539386.0004	4200981.879	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539389.7807	4200977.221	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539393.6125	4200972.604	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539397.5551	4200968.082	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539401.5297	4200963.587	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539405.5042	4200959.092	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539409.5205	4200954.635	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539413.5606	4200950.199	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539417.6008	4200945.763	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539421.641	4200941.327	0.018519	3.048	2.79069767	3.2
Graton Work Area	VOLUME	GWA4	539425.6811	4200936.891	0.018519	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538932.0821	4201719.747	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538935.9453	4201715.156	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538939.8085	4201710.565	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538943.6717	4201705.975	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538947.5348	4201701.384	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538951.398	4201696.793	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538955.2612	4201692.202	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538959.1244	4201687.611	0.032258	3.048	2.79069767	3.2

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Allen Park	VOLUME	AP3	538962.9876	4201683.02	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538966.8508	4201678.43	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538970.714	4201673.839	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538974.5772	4201669.248	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538978.4404	4201664.657	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538982.3035	4201660.066	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538986.1667	4201655.475	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538990.0299	4201650.885	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538993.8931	4201646.294	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	538997.7563	4201641.703	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539001.6195	4201637.112	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539005.4827	4201632.521	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539009.3459	4201627.93	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539013.209	4201623.34	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539017.0722	4201618.749	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539020.9354	4201614.158	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539024.7986	4201609.567	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539028.6618	4201604.976	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539032.525	4201600.385	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539036.3882	4201595.795	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539040.2514	4201591.204	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539044.1146	4201586.613	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP3	539047.3838	4201582.728	0.032258	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539071.0426	4201583.382	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539075.4066	4201579.264	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539079.7705	4201575.147	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539084.1344	4201571.029	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539088.4984	4201566.911	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539092.8623	4201562.793	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539097.2262	4201558.676	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539101.5902	4201554.558	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539105.9542	4201550.44	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539110.3181	4201546.322	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539114.6821	4201542.205	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539119.046	4201538.087	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539123.4099	4201533.969	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539127.7739	4201529.851	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539132.1378	4201525.733	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539136.5018	4201521.616	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539140.8657	4201517.498	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539145.2297	4201513.38	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539149.5936	4201509.262	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539153.9575	4201505.145	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539158.9052	4201501.956	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539164.5087	4201499.811	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539170.1122	4201497.666	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539175.5696	4201495.31	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539179.5559	4201490.825	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539183.5422	4201486.341	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539187.5286	4201481.857	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539191.5149	4201477.372	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539195.5013	4201472.888	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539196.4089	4201467.056	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539198.9753	4201461.779	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539202.2499	4201456.751	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539205.5246	4201451.724	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539208.7992	4201446.696	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539212.0738	4201441.669	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP6	539215.3484	4201436.641	0.027778	3.048	2.79069767	3.2
Allen Park	VOLUME	AP4	539113.5443	4201581.391	0.200000	3.048	2.79069767	3.2
Allen Park	VOLUME	AP4	539109.3132	4201577.137	0.200000	3.048	2.79069767	3.2



**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Allen Park Riparian Corridor	VOLUME	APRC059	539156.8504	4201479.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC060	539156.8504	4201489.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC061	539156.8504	4201499.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC062	539166.8504	4201449.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC063	539166.8504	4201459.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC064	539166.8504	4201469.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC065	539166.8504	4201479.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC066	539166.8504	4201489.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC067	539176.8504	4201449.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC068	539176.8504	4201459.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC069	539176.8504	4201469.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC070	539176.8504	4201479.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC071	539186.8504	4201449.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC072	539186.8504	4201459.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC073	539186.8504	4201469.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC074	539196.8504	4201439.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC075	539196.8504	4201449.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC076	539206.8504	4201429.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC077	539206.8504	4201439.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC078	539216.8504	4201419.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC079	539216.8504	4201429.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC080	539226.8504	4201399.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC081	539226.8504	4201409.082	0.012195122	5	4.65116279	1.4
Allen Park Riparian Corridor	VOLUME	APRC082	539226.8504	4201419.082	0.012195122	5	4.65116279	1.4
Channel Access Ramp	VOLUME	CAR	539286.8504	4201189.082	0.012195122	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG001	538926.8504	4201749.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG002	538936.8504	4201739.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG003	538936.8504	4201749.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG004	538946.8504	4201739.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG005	538956.8504	4201709.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG006	538956.8504	4201719.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG007	538966.8504	4201699.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG008	538966.8504	4201709.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG009	538966.8504	4201719.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG010	538976.8504	4201679.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG011	538976.8504	4201689.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG012	538976.8504	4201699.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG013	538976.8504	4201709.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG014	538986.8504	4201669.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG015	538986.8504	4201679.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG016	538986.8504	4201689.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG017	538986.8504	4201699.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG018	538996.8504	4201659.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG019	538996.8504	4201669.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG020	538996.8504	4201679.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG021	538996.8504	4201689.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG022	539006.8504	4201649.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG023	539006.8504	4201659.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG024	539006.8504	4201669.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG025	539016.8504	4201629.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG026	539016.8504	4201639.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG027	539016.8504	4201649.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG028	539026.8504	4201619.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG029	539026.8504	4201629.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG030	539036.8504	4201609.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG031	539036.8504	4201619.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG032	539046.8504	4201599.082	0.03030303	5	4.65116279	1.4
Fish Passage Transitional Grading	VOLUME	FPTG033	539046.8504	4201609.082	0.03030303	5	4.65116279	1.4
Low Channel Concrete Removal	VOLUME	LCCR001	539866.8504	4200619.082	0.016949153	5	4.65116279	1.4
Low Channel Concrete Removal	VOLUME	LCCR002	539876.8504	4200539.082	0.016949153	5	4.65116279	1.4
Low Channel Concrete Removal	VOLUME	LCCR003	539876.8504	4200549.082	0.016949153	5	4.65116279	1.4





**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
New Fish Pools	VOLUME	NFP006	539266.8504	4201209.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP007	539266.8504	4201219.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP008	539266.8504	4201229.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP009	539266.8504	4201349.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP010	539266.8504	4201359.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP011	539276.8504	4201169.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP012	539276.8504	4201179.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP013	539276.8504	4201189.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP014	539276.8504	4201239.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP015	539276.8504	4201249.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP016	539276.8504	4201259.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP017	539276.8504	4201329.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP018	539276.8504	4201339.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP019	539286.8504	4201149.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP020	539286.8504	4201159.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP021	539286.8504	4201269.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP022	539286.8504	4201279.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP023	539286.8504	4201289.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP024	539286.8504	4201299.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP025	539286.8504	4201309.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP026	539286.8504	4201319.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP027	539286.8504	4201329.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP028	539296.8504	4201119.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP029	539296.8504	4201129.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP030	539296.8504	4201139.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP031	539306.8504	4201099.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP032	539306.8504	4201109.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP033	539316.8504	4201079.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP034	539316.8504	4201089.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP035	539326.8504	4201059.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP036	539326.8504	4201069.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP037	539336.8504	4201039.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP038	539336.8504	4201049.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP039	539346.8504	4201019.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP040	539346.8504	4201029.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP041	539356.8504	4201009.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP042	539356.8504	4201019.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP043	539366.8504	4200989.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP044	539366.8504	4200999.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP045	539376.8504	4200979.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP046	539376.8504	4200989.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP047	539386.8504	4200969.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP048	539396.8504	4200959.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP049	539406.8504	4200949.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP050	539416.8504	4200929.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP051	539416.8504	4200939.082	0.019230769	5	4.65116279	1.4
New Fish Pools	VOLUME	NFP052	539426.8504	4200929.082	0.019230769	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW201	539626.8504	4200839.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW202	539626.8504	4200849.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW203	539636.8504	4200839.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW204	539636.8504	4200849.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW205	539636.8504	4200859.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW206	539646.8504	4200839.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW207	539646.8504	4200849.083	0.125	5	4.65116279	1.4
Flood Wall 2	VOLUME	FW208	539656.8504	4200849.083	0.125	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW101	539676.8504	4200829.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW102	539676.8504	4200839.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW103	539686.8504	4200819.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW104	539686.8504	4200829.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW105	539696.8504	4200819.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW106	539696.8504	4200829.083	0.02173913	5	4.65116279	1.4

**Table 7: Source Location and Parameters**

Source Description	Source Type	SrcID	UTM X (m)	UTM Y (m)	Unit Rate	Release Height (M)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Flood Wall 1	VOLUME	FW107	539706.8504	4200819.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW108	539716.8504	4200809.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW109	539716.8504	4200819.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW110	539726.8504	4200809.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW111	539726.8504	4200819.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW112	539736.8504	4200809.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW113	539746.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW114	539746.8504	4200809.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW115	539756.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW116	539756.8504	4200809.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW117	539766.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW118	539776.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW119	539776.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW120	539786.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW121	539786.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW122	539796.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW123	539796.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW124	539806.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW125	539806.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW126	539816.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW127	539826.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW128	539836.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW129	539846.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW130	539856.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW131	539856.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW132	539866.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW133	539866.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW134	539876.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW135	539876.8504	4200799.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW136	539886.8504	4200779.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW137	539886.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW138	539896.8504	4200769.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW139	539896.8504	4200779.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW140	539896.8504	4200789.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW141	539906.8504	4200739.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW142	539906.8504	4200749.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW143	539906.8504	4200759.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW144	539906.8504	4200769.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW145	539906.8504	4200779.083	0.02173913	5	4.65116279	1.4
Flood Wall 1	VOLUME	FW146	539916.8504	4200739.083	0.02173913	5	4.65116279	1.4

**Table 8: Exposure Factors**

Population	Age bin	ED (yr)	DBR	EF	CF	FAH	ASF	AT	OEHHA Basis
<b>Operational Phase</b>									
Residential	3rd trimester	0.25	361	0.95890411	0.000001	1	10	70	95/80thDBR_30yr
Residential	0-2	2	1090	0.95890411	0.000001	1	10	70	95/80thDBR_30yr
Residential	2-16	14	572	0.95890411	0.000001	1	3	70	95/80thDBR_30yr
Residential	16-30	13.75	261	0.95890411	0.000001	1	1	70	95/80thDBR_30yr
<b>Construction Phase</b>									
Residential	3rd trimester	0.25	361	1	0.000001	1	10	70	95/80thDBR_30yr
Residential	0-2	0.42	1090	1	0.000001	1	10	70	95/80thDBR_30yr

1. A = absorption; ASF = age sensitivity factor; AT = averaging time; CF = conversion factor; DBR = daily breathing rate; ED = exposure duration; EF = exposure frequency; TAF = time adjustment factor.
2. It was assumed that the emergency generator is tested outside of normal school hours so schools and day-care children are not exposed to these emissions.
3. Exposure Frequency (EF) was assumed to be 350 days per year.
4. Residential exposure was assumed to be 30 years with a continuously aging child from third trimester onward from construction through operation.
5. Averaging time is based on a 70-year lifetime cancer risk.

**Table 9: Toxicity Factors**

Chemical	Cancer Potency Factor	Chronic REL	Acute REL
1,3-Butadiene	0.6	2	660
Acetaldehyde	0.01	140	470
Benzene	0.1	3	27
Diesel Particulate Matter	1.1	5	
Ethylbenzene	0.0087	2000	
Formaldehyde	0.021	9	55
Hexane		7000	
Methanol		4000	28000
Methyl Ethyl Ketone			13000
Naphthalene	0.12	9	
Propylene		3000	
Styrene		900	21000
Toluene		420	5000
Xylenes		700	22000

**Table 10: Health Risk Assessment Results at MEIR**

UTM X (m)	UTM Y (m)	Notes	Cancer Risk in a Million		Chronic HI		Acute HI		Mitigated PM 2.5 Concentration (ug/m <sup>3</sup> )	
			Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated	Unmitigated	Mitigated
<b>Construction</b>										
538933.7	4201716	Note 1	16.54	4.42	0.039	0.010			0.12	0.033
538908.7	4201766	Note 2	11.90	3.17	0.028	0.0074	59			
539108.7	4201566	Note 1						0.61		
<b>Operation</b>										
539483.7	4201016	Note 3	0.76	0.76	0.00020	0.00020	0.066	0.066	0.0010	0.0010

1. This represents the maximum of a receptor modeled using residential exposure assumptions.
2. This is the maximum at an actual residence. For the unmitigated acute HI the maximum of any receptor is the same as the maximum residential location.
3. This is the maximum of a receptor modeled using residential exposure assumptions since a person could be around for all Emergency Generator testing.

**Table 11: BAAQMD Permitted Sources**

Name	Address	City	Cancer	Hazard	PM 2.5	Type	Latitude	Longitude	Distance to MEIR (m)		
									Cancer/Chronic	Acute	Operational
Marin General Hospital	250 Bonair Road	Greenbrae	74.6	0.13	0.54	Other	37.946	-122.535	2628	2415	1753
Sanitary District No 1 Kentfield Pump Station	Corte Madera Creek Pathway	Kentfield	19.05	0.01	0.02	Generators	37.951	-122.547	1513	1312	626
Northern California Presbyterian Homes & Services	501 Via Casitas	Greenbrae	3.44	0.02	1.08	Other	37.946	-122.532	2826	2611	1965
32 Shady Lane Residence	32 Shady Lane	Ross	0	0	0	Generators	37.964	-122.559	278	491	1167
Woodlands Gas & Mart	1 Kent Ave	Kentfield	80.91	0.36	0	Gas Dispensing Facility	37.951	-122.55	1381	1196	545

Source

Bay Area Air Quality Management District. 2020. Permitted Sources Risk and Hazards Map.

Available online at: <https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65>.

**Table 12: Estimate of Cumulative Risk**

Name	Cancer	Hazard	PM 2.5	Distance to MEIR (m)			Adjusted Value at MEIR		
				Cancer/Chro	Acute	Operational	Cancer	Hazard	PM 2.5
Marin General Hospital	74.6	0.13	0.54	2628	2415	1753	9.83	0.017	0.071
Sanitary District No 1 Kentfield Pump Station	19.05	0.01	0.02	1513	1312	626	0.76	0.0004	0.022
Northern California Presbyterian Homes & Services	3.44	0.02	1.08	2826	2611	1965	0.45	0.0026	0.14
32 Shady Lane Residence	0	0	0	278	491	1167	0.76	0.0004	0.022
Woodlands Gas & Mart	80.91	0.36	0	1381	1196	545	1.21	0.0054	0
Mitigated Project Construction	4.42	0.0100	0.033				4.42	0.0100	0.0065
<b>Total Construction Cumulative</b>							<b>17.43</b>	<b>0.04</b>	<b>0.26</b>
Mitigated Project Operation	0.76	0.0002	0.066				0.76	0.0002	0.066
<b>Total Operational Cumulative</b>							<b>13.77</b>	<b>0.026</b>	<b>0.321</b>

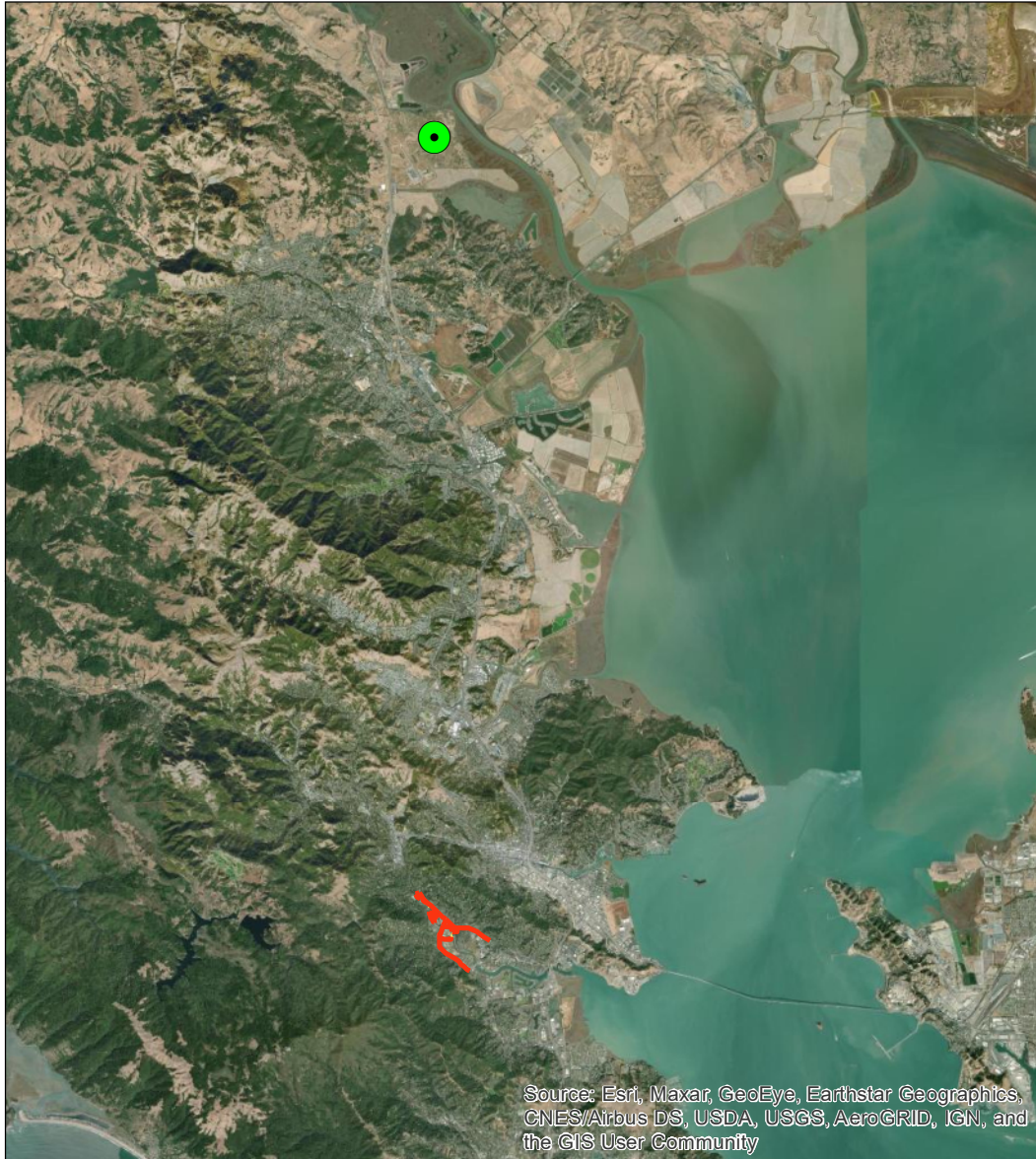
Notes

1. The Distance Multiplier Tool only went to 280 meters for generators, 300 meters for gas stations, and 300 meters for other sources so these were used for the values if distance was greater than this.
2. To be conservative similar Cancer, Hazard and PM 2.5 emissions were used for the generator at 32 Shady Lane Residence as the Sanitary District NO 1 Kentfield Pump Station.

Source

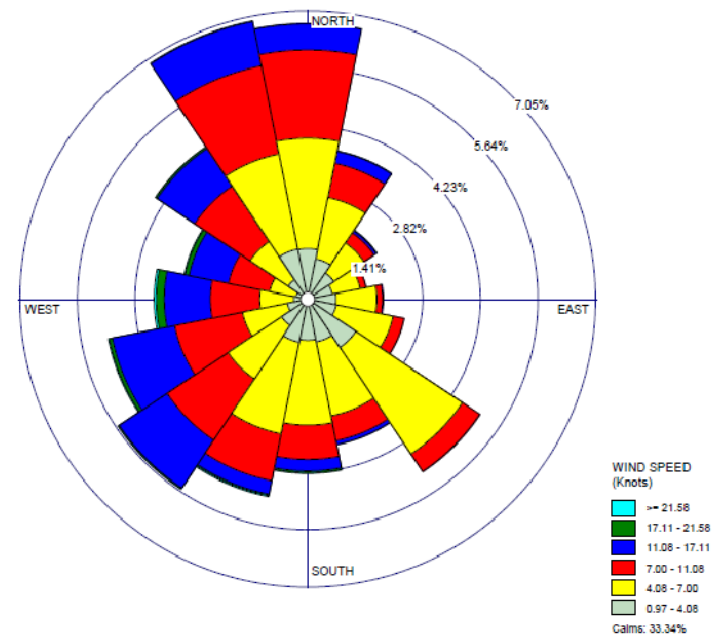
BAAQMD Health Risk Calculator Distance Multiplier

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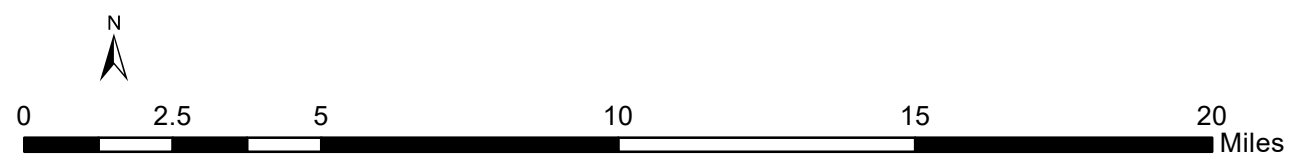


**Legend**

- Gness Airport
- Roads
- Project Work Areas

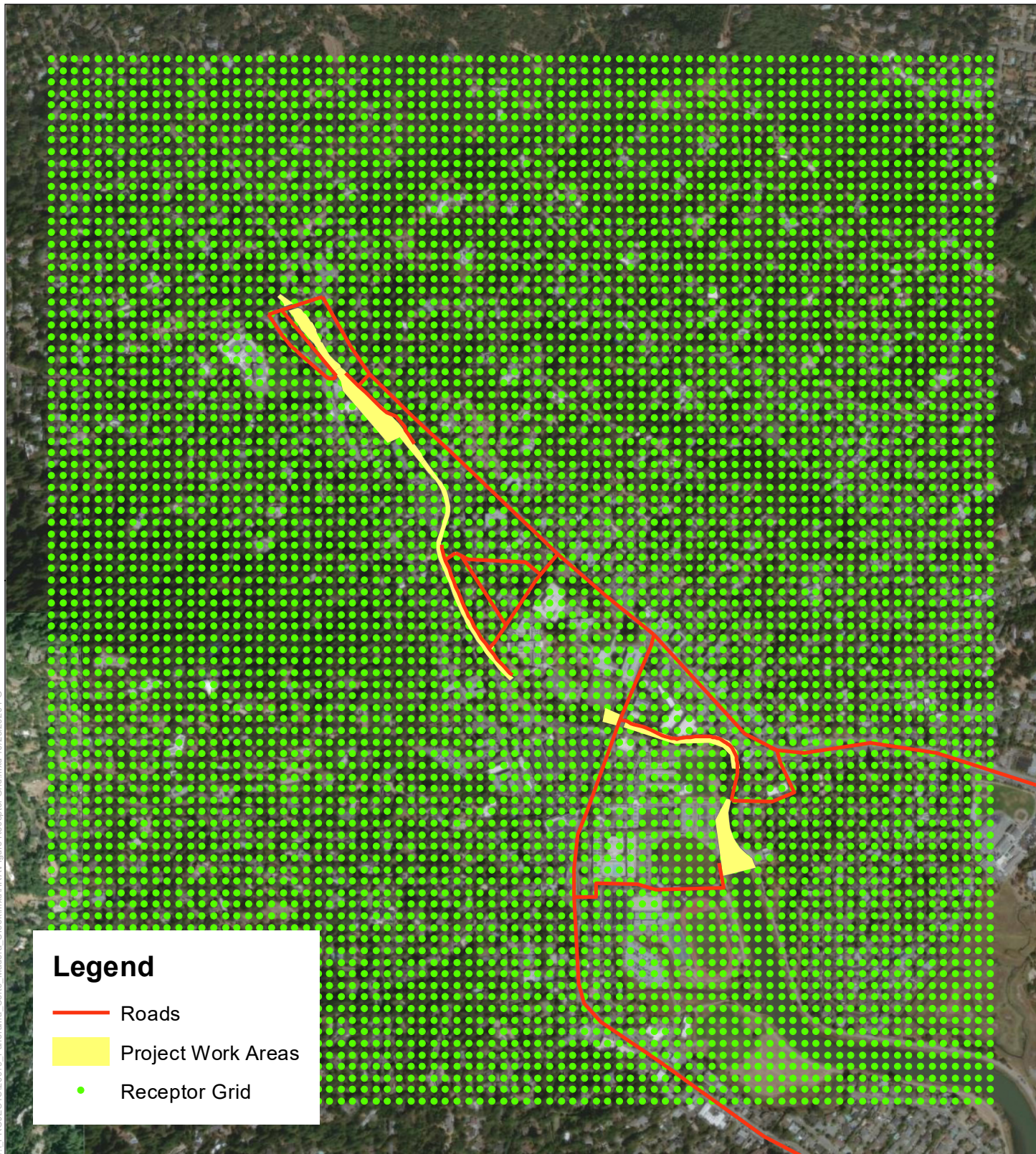


**Figure 1**  
**Location and Windrose**  
**Gness Airport**  
**Health Risk Assessment**





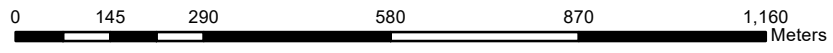
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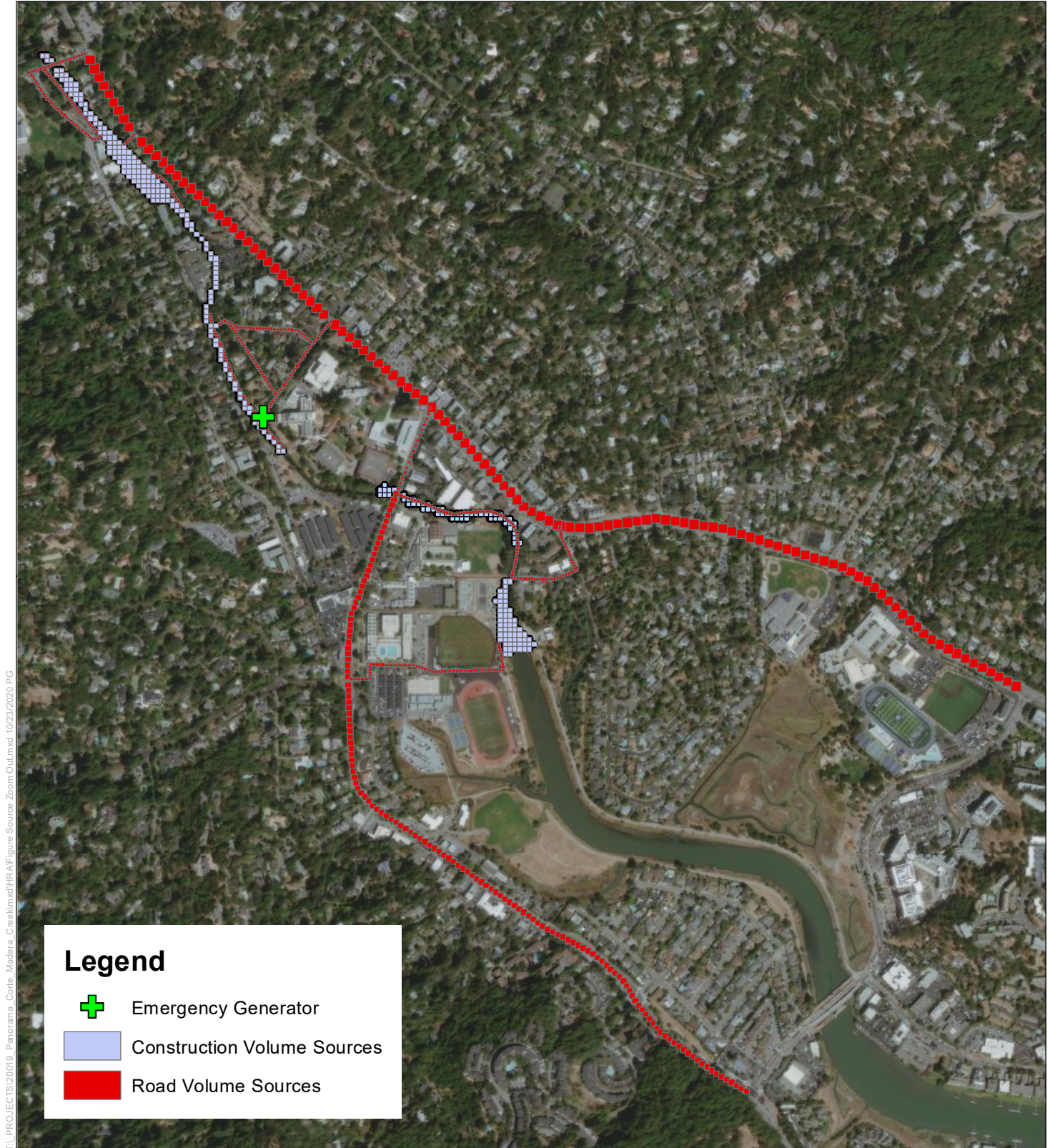
**Legend**

- Roads
- Project Work Areas
- Receptor Grid

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,






**Figure 2**  
**Receptor Grid**  
**Health Risk Assessment**

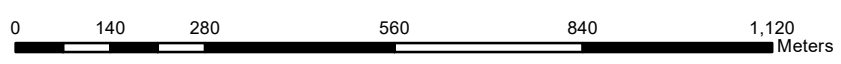


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**Legend**

-  Emergency Generator
-  Construction Volume Sources
-  Road Volume Sources

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,






**Figure 3**  
**Model Sources**  
**Health Risk Assessment**

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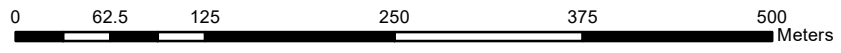
**Legend**

-  Emergency Generator
-  Construction Volume Sources
-  Road Volume Sources

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,

**Figure 4**




**Model Sources Northern End Zoom In Health Risk Assessment**



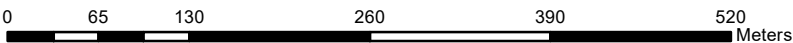
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**Legend**

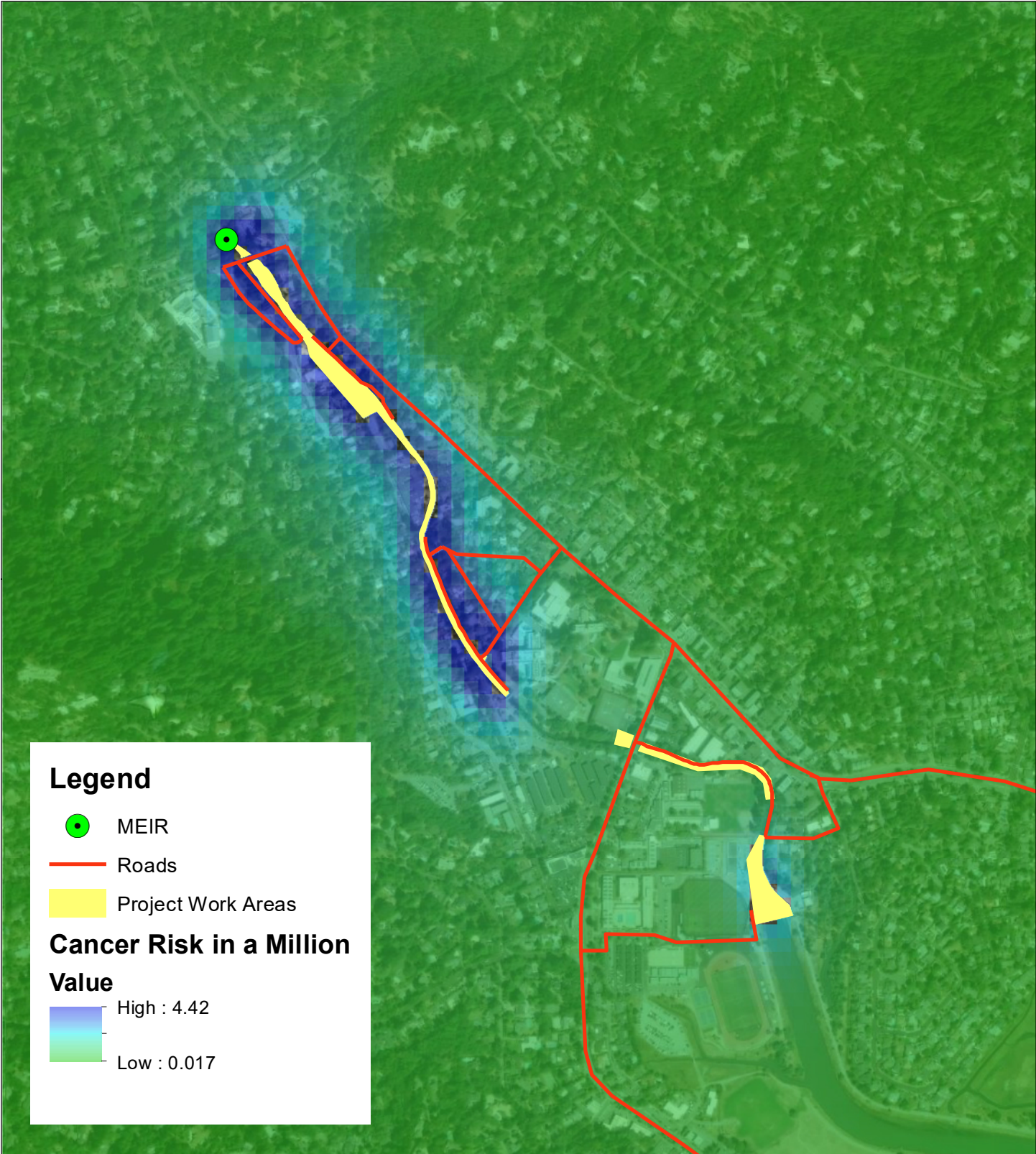
-  Emergency Generator
-  Construction Volume Sources
-  Road Volume Sources

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,



**Figure 5**  
**Model Sources Southern End Zoom In**  
**Health Risk Assessment**

T:\PROJECTS\20019\_Panorama\_Corte\_Madera\_Creek\mxd\HR\Figure Cancer Risk.mxd 10/23/2020 PG



### Legend

- MEIR
- Roads
- Project Work Areas

### Cancer Risk in a Million

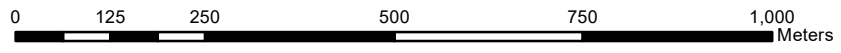
**Value**

High : 4.42

Low : 0.017

**Figure 6**  
**Construction Residential Cancer Risk**  
**Health Risk Assessment**




Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,



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**Legend**

-  Acute and Chronic HI
-  Roads
-  Project Work Areas

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,

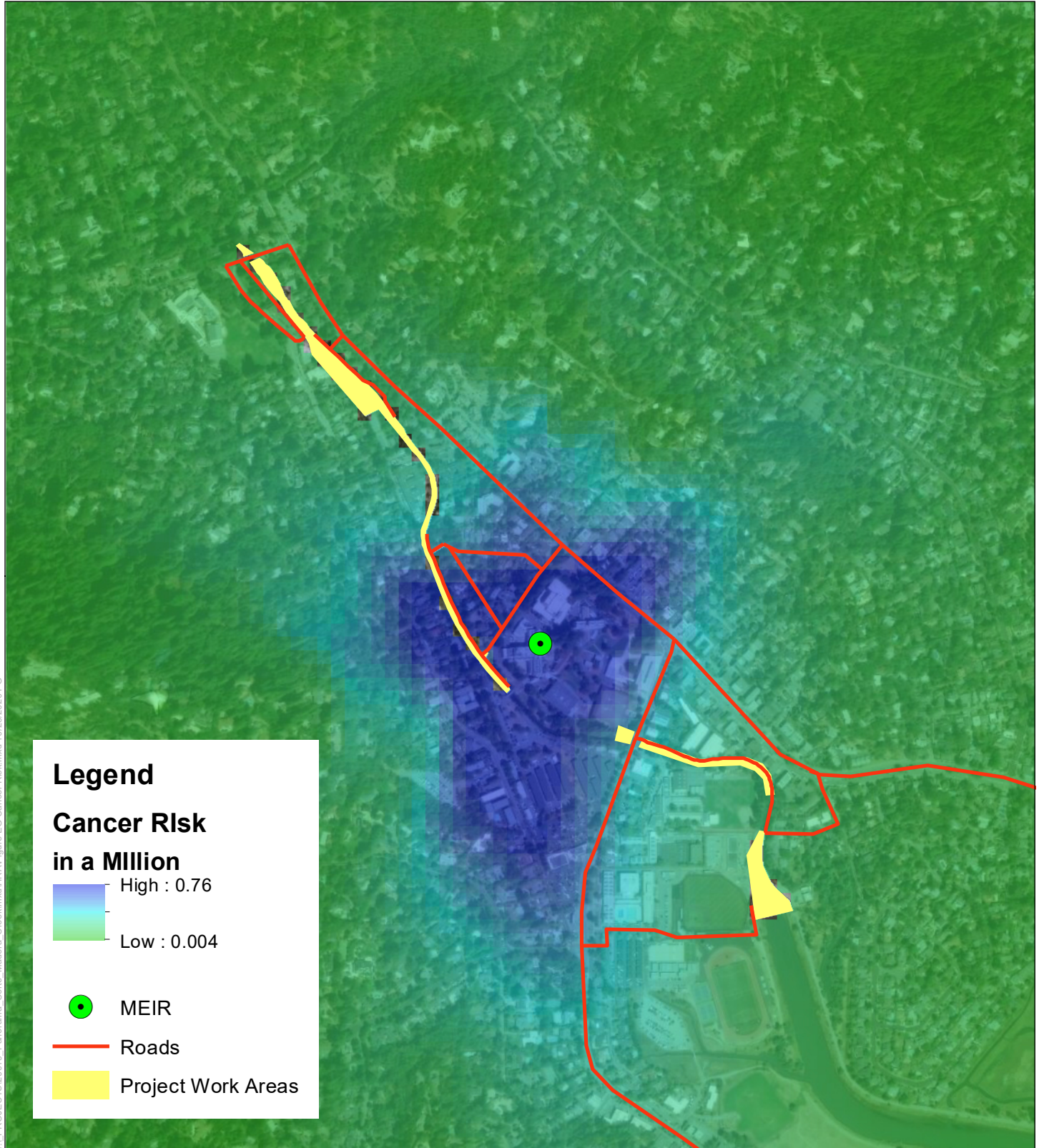


0 125 250 500 750 1,000 Meters



**Figure 7**  
**Construction Chronic and Acute HI**  
**Health Risk Assessment**

TL PROJECTS\20019\_Panorama\_Corte\_Madera\_Creek\mxd\HR\Figure EG\_Cancer Risk.mxd 10/23/2020 PG



**Legend**

**Cancer Risk in a Million**

High : 0.76

Low : 0.004

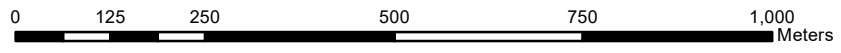
MEIR

Roads

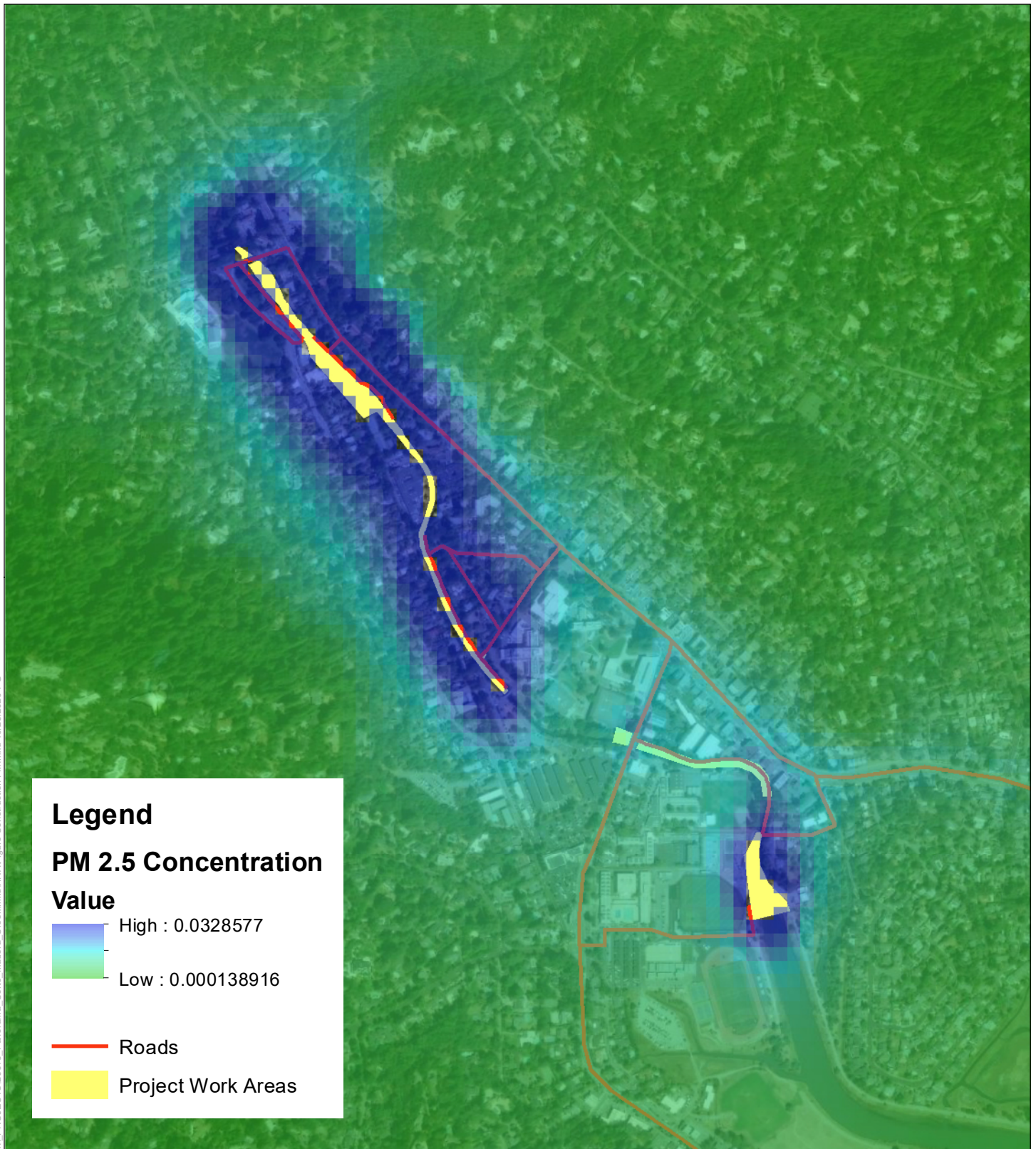
Project Work Areas

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,

**Figure 8**  
**Emergency Generator Cancer Risk**  
**Health Risk Assessment**



T:\PROJECTS\20019\_Panorama\_Corte\_Madera\_Creek\mxd\HR\Figure Construction PM.mxd 10/23/2020 PG



### Legend

#### PM 2.5 Concentration Value

High : 0.0328577  
Low : 0.000138916

Roads  
Project Work Areas

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics,



0 125 250 500 750 1,000 Meters






**Figure 9**  
**Construction PM 2.5 Concentration**  
**Health Risk Assessment**



T:\PROJECTS\20019 - Panoramas - Corte Madera - Creek\mxd\HRA\Figure\_BAAQMD Permitted Facilities.mxd 10/16/2020 PG



### Legend

-  BAAQMD Facilities
-  Roads
-  Project Work Areas



0 250 500 1,000 1,500 2,000 Meters



**Figure 10**  
**BAAQMD Permitted Facilities**  
**Health Risk Assessment**