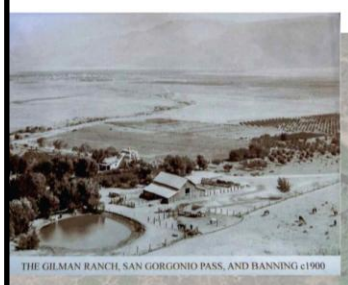
APPENDICES

APPENDIX A
PROJECT PLANS



THE GILMAN RANCH, SAN GORGONIO PASS, AND BANNING c1900

INFORMATION KIOSKS AND HISTORICAL SIGNAGE:

PHASE 1

- **A** NATIVE / MEDICINAL GARDEN: INFORMATION ON NATIVE PLANTS AND THE ENVIRONMENTAL CONDITIONS THAT FACILITATE THEIR GROWTH. PLANT MATERIAL USED BY THE CAHUILLA INDIANS AND THEIR PURPOSES. SUSTAINABILITY AND RESPECT FOR THE ENVIRONMENT SHALL ALSO BE COVERED AT THIS LOCATION.
- **B** HISTORICAL GAMING AREA: DETAILS OF HISTORICALLY ACCURATE GAMES AND RECREATIONAL ACTIVITIES.

FUTURE PHASES

- **C** CAHUILLA INDIANS: TRIBAL REPRESENTATIVES SHALL BE CONSULTED IN THE DEVELOPMENT OF THESE SIGNAGE LOCATIONS.
- **D** GOLD PANNING: ENVIRONMENTAL RAMIFICATIONS OF GOLD RUSH, MIGRATION/THE GLOBAL NATURE OF THE GOLD RUSH, DIVERSITY AND LIFE AT CAMPS.
- **E** NATURAL SPRING / RESERVOIR: HOW WATER IMPACTED THE FORMATION OF THE STAGE COACH LINE AND FACILITATED LIFE ON THE RANCH.
- **F** BLACKSMITH: HISTORY OF AND TOOLS MADE BY BLACKSMITHS THAT WOULD HAVE BEEN USED ON THE RANCH.
- **G** POPE ADOBE: HISTORIES OF THE FAMILIES THAT LIVED ON THE RANCH PRE-GILMAN. DESCRIBE LIFE AT THE STAGE COACH STOP. INTERPRET HOW TRAVEL SHAPED THE REGION (SEGMENTS OF THE BRADFORD TRAIL REMAIN VISIBLE AT THIS LOCATION).
- **H** OUTBUILDINGS (MILK HOUSE, CARRIAGE HOUSE, OLIVE CURING SHED): DAILY LIFE AND LABOR OF THE RANCH WORKERS. HISTORY OF THE GILMAN OLIVE BUSINESS AND THE PROCESS OF OLIVE CURING.

ALL NEW DISPLAYS SHOULD FOCUS ON DIVERSITY AND ELEVATING THOSE STORIES CURRENTLY OMITTED FROM THE GILMAN RANCH NARRATIVE. THIS WILL NOT ONLY REVEAL THE RICHNESS OF THE RANCH'S HISTORY BUT WILL ALSO BROADEN THE APPEAL OF THE RANCH TO A LARGER COMMUNITY OF POTENTIAL VISITORS.

SYMBOL AND HATCH LEGEND

SYMBOL	NOTES
	BRADSHAW TRAIL
	ALQUIST PRIOLO LINE
	STAGE COACH ROUTE
	FAULT LINE
	FAULT SETBACK LINE (100')
	DECOMPOSED GRANITE
	ENHANCED PLANTING
	EXPOSED AGGREGATE CONCRETE WITH ROUGH EDGES
	NATIVE MEDICINAL DEMONSTRATION GARDEN
	LAWN ACTIVITY AREA
	PERVIOUS CONCRETE PARKING LOT PAVING
	EXISTING NATIVE LANDSCAPE
	EXISTING GRAVEL PARKING AREA

TOTAL PARKING STALLS: 344

AMENITY LEGEND

PHASE 1

1. MAIN ENTRY ROAD RE-SLURRY AND WIDENING WITH DROP OFF LOOP AND PIPE GATES.
2. NEW DOCENT ADA PARKING.
3. MAIN ENTRY AND WILSON STREET PLANTING ENHANCEMENT.
4. MAIN ENTRY DRIVE TO BE ENHANCED WITH SPARSELY PLACED TREES WITH PLANTING CLUSTERS AT THE BASE.
5. PARKING
6. TOURNAMENT STYLE HORSESHOE PITS
7. PLAY AREA: TO INCLUDE PAVER PLAZAS, NATURE THEMED PLAY EQUIPMENT, SHADE STRUCTURES AND RESILIENT SURFACING TRANSITIONING TO MULCH PLAY SURFACING. THIS AREA WILL INCLUDE A RESTROOM AS WELL AS NATIVE PLANTING AROUND THE EDGES.
8. NATIVE DEMONSTRATION GARDEN TO BE REHABILITATED.
9. OUTDOOR CLASSROOM: CAPACITY 100.
10. STAGE COACH PATH OF TRAVEL EXTENSION.
11. ADA PARKING AND PATH OF TRAVEL TO EXISITNG RESTROOM AND STAGE COACH MUSEUM.
12. ADA RAMP & STAIR CONNECTION TO RANCH HOUSE & PICNIC AREA FROM MUSEUM PARKING LOT. TWO-RAIL FENCING ALONG THE TOP OF THE EXISTING SLOPE.
13. REPAIR AND IMPROVEMENTS TO BRADSHAW INTERPRETIVE TRAIL.
14. PASSIVE DECOMPOSED GRANITE PEDESTRIAN PATHWAYS WITH SOLAR LIGHTING, PERIODIC SMALL SEATING AREAS AND SHADE TREES.
15. LANDSCAPE ENHANCEMENTS
16. DRINKING FOUNTAIN AND BOTTLE FILLER
17. HISTORICAL GAMING/RECREATION AREA
18. ADA ACCESS RAMP FROM PARKING LOT TO PLAY AREA AND NATIVE GARDEN
19. EXISTING SHADE SHELTER AND HISTORICAL STAGE COACH DISPLAY
20. PREFABRICATED RESTROOM BUILDING

FUTURE PHASES

21. EVENT CENTER 8,000 S.F. FOOTPRINT WITH ROOF TOP SOLAR PANELS. ALL EVENTS SHALL END BY 10 PM.
22. CEREMONY/GATHERING SPACE WITH TRELLISES. 240 SEATING CAPACITY. ALL CEREMONIES SHALL CONCLUDE BY 7 PM.
23. EVENT COURTYARD WITH LARGE CENTER ACCENT TREE, PERIMETER PLANTERS AND INTIMATE SEATING AREAS. 100 SEATING CAPACITY
24. STAIRCASE AND ADA RAMP FROM PARKING TO TO EVENT CENTER.
25. WATER TANK/ ORIGINAL RESERVOIR.
26. POPE ADOBE: EXISTING ENCLOSURE TO BE REMOVED AND REPLACED WITH MUSEUM QUALITY ENCLOSURE.
27. NATIVE GRINDING ROCK DEMONSTRATION AREA.
28. GOLD PANNING INTERACTIVE AREA.
29. NEW RESTROOM BUILDING WITH FIVE ALL GENDER ADA STALLS WITH CHANGING TABLE. RESTROOM FLOOR PLAN, SEE LEFT.
30. OPEN LAWN FOR STAGE/EVENT SEATING OR OPEN SPACE PICNICKING.
31. FARMER'S MARKET /FOOD TRUCK AREA WITH OVERHEAD SCREEN STRUCTURES AND 2 RAIL WOOD FENCE SEPARATING STAGE COACH ROUTE FROM PEDESTRIAN GATHERING AREA.
32. VENDOR SPACE
33. PICNIC TABLE AREA TO BE GRADED FOR ACCESSIBILITY WITH NEW TABLES. EXISTING OLIVES TO BE PROTECTED IN PLACE.
34. EDUCATIONAL /DEMONSTRATION AREA: ALL OUTBUILDINGS (OLIVE CURING SHED, MILK HOUSE, CARRIAGE HOUSE) SHALL BE ADA ACCESSIBLE. AREA IN FRONT OF BLACKSMITH COULD ALSO BE USED FOR SMALLER WEDDING CEREMONIES.
35. ORCHARD: ALL TREES TO BE TRIMMED, TEA LIGHTS AND SMALL SEATING AREAS TO BE ADDED FOR SOCIAL GATHERING AND PHOTO OPPORTUNITIES. SLOPE TO BE TERRACED WITH SMALL RETAINING WALLS IN BETWEEN TREES TO CREATE FLAT AREAS FOR SEATING.
36. DECORATIVE PAVING FOR RANCH HOUSE ENTRY.
37. DECORATIVE PAVING FOR ORCHARD ENTRY FROM HOUSE.
38. STAGING AREA AND PARKING FOR THE COMMUNITY PARK AND BRADSHAW TRAIL WITH HORSE TRAILER SPACES.
39. NATIVE ART DISPLAY.
40. INTERACTIVE INDIGENOUS TRIBE HISTORICAL EXHIBIT: IN COLLABORATION WITH LOCAL TRIBES AREAS SHALL FEATURE ITEMS SUCH AS DISPLAY OF GRINDING STONES, BASKETRY AND OTHER ITEMS OF EVERYDAY LIFE. THIS AREA WILL INCLUDE INFORMATIONAL SIGNS ABOUT THE LIVES OF INDIGENOUS COMMUNITIES AND HOST INDIGENOUS ART, EDUCATIONAL DISPLAYS, AND PERFORMANCES. NATIVE PLANTING AROUND THE EDGES.
41. SOUTHERN COURTYARD: A TRANSITION SPACE BETWEEN THE EVENT CENTER AND OUTDOOR CLASSROOM SETTING.
42. LARGE OUTDOOR CLASSROOM AREA WITH SHADE SAILS
43. ENTRY PAY BOOTH.
44. COMMUNITY PARK WITH SHADED PLAY AREA, PICNIC SHELTERS, SMALL RESTROOM, EXERCISE STATIONS AND COMMUNITY GARDEN.
45. PARKING WITH BUS STALLS
46. STAGE
47. STAGE COACH HOTEL WITH BATHROOM AND SHOWER BUILDING AND LARGE GATHERING SHADE STRUCTURE.

NOTE: ITEMS PRESENT IN BOTH PHASE 1 AND FUTURE PHASES ARE DELINEATED BY CALLOUT COLOR

ITEMS NOT IDENTIFIED ON PLAN

48. GRADING NECESSARY FOR ADA COMPLIANCE AND TO INCREASE USABLE EVENT SPACE.
49. REMOVAL OF ALL INVASIVE TREES.
50. TRIM ALL TREES TO RESTORE HEALTH AND SHAPE.
51. UPGRADE/REPLACE ALL EXISTING IRRIGATION.
52. REPLACE AND INSTALL ADDITIONAL LIGHTING AND SECURITY CAMERAS.
53. PEDESTRIAN WALKING PATH SIGNAGE/MARKERS.

N

Not to Scale

Disclaimer: Illustration provided by RHA Landscape Architects Planners Inc., who has indicated that the information is true and correct. No other warranties are expressed or implied.

Sources: RHA Landscape Architects Planners Inc., July 1, 2026

UltraSystems
environmental•management•planning

Gilman Historic Ranch Master Plan And Stagecoach Stop Park Design

Overall Concept Plan

APPENDIX B

CalEEMod INPUT AND RESULTS FOR AIR QUALITY AND GREENHOUSE GAS ANALYSIS

APPENDIX B.1

PHASE 1 DETAILED REPORT- CONSTRUCTION AND OPERATIONS

7196 Gilman Historic Ranch_Phase 1 Detailed Report

Table of Contents

1. Basic Project Information
   1.1. Basic Project Information
   1.2. Land Use Types
   1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
   2.1. Construction Emissions Compared Against Thresholds
   2.2. Construction Emissions by Year
      2.2.1. Total Construction Emissions by Year, Unmitigated
      2.2.2. Onsite Construction Emissions by Year, Unmitigated
      2.2.3. Offsite Construction Emissions by Year, Unmitigated
      2.2.4. Total Construction Emissions by Year, Mitigated
      2.2.5. Onsite Construction Emissions by Year, Mitigated
      2.2.6. Offsite Construction Emissions by Year, Mitigated
   2.3. Operations Emissions Compared Against Thresholds
   2.4. Operations Emissions by Sector, Unmitigated
   2.5. Operations Emissions by Sector, Mitigated
3. Construction Emissions Details
   3.1. Site Preparation (2027)

3.1.1. Onsite - Unmitigated
3.1.2. Offsite - Unmitigated
3.1.3. Onsite - Mitigated
3.1.4. Offsite - Mitigated
3.2. Grading (2027)
3.2.1. Onsite - Unmitigated
3.2.2. Offsite - Unmitigated
3.2.3. Onsite - Mitigated
3.2.4. Offsite - Mitigated
3.3. Paving (2027)
3.3.1. Onsite - Unmitigated
3.3.2. Offsite - Unmitigated
3.3.3. Onsite - Mitigated
3.3.4. Offsite - Mitigated
3.4. Parking Coatings (2027)
3.4.1. Onsite - Unmitigated
3.4.2. Offsite - Unmitigated
3.4.3. Onsite - Mitigated
3.4.4. Offsite - Mitigated
4. Operations Emissions Details
4.1. Mobile Emissions by Land Use
4.1.1. Unmitigated

4.1.2. Mitigated
4.2. Energy
4.2.1. Electricity Emissions By Land Use - Unmitigated
4.2.2. Electricity Emissions By Land Use - Mitigated
4.2.3. Natural Gas Emissions By Land Use - Unmitigated
4.2.4. Natural Gas Emissions By Land Use - Mitigated
4.3. Area Emissions by Source
4.3.1. Unmitigated
4.3.2. Mitigated
4.4. Water Emissions by Land Use
4.4.1. Unmitigated
4.4.2. Mitigated
4.5. Waste Emissions by Land Use
4.5.1. Unmitigated
4.5.2. Mitigated
4.6. Refrigerant Emissions by Land Use
4.6.1. Unmitigated
4.6.2. Mitigated
4.7. Offroad Emissions By Equipment Type
4.7.1. Unmitigated
4.7.2. Mitigated
4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated
4.8.2. Mitigated
4.9. User Defined Emissions By Equipment Type
4.9.1. Unmitigated
4.9.2. Mitigated
4.10. Soil Carbon Accumulation By Vegetation Type
4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated
4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated
4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated
4.10.6. Avoided and Sequestered Emissions by Species - Mitigated
5. Activity Data
5.1. Construction Schedule
5.2. Off-Road Equipment
5.2.1. Unmitigated
5.2.2. Mitigated
5.3. Construction Vehicles
5.3.1. Unmitigated
5.3.2. Mitigated
5.4. Vehicles
5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings
5.6. Dust Mitigation
5.6.1. Construction Earthmoving Activities
5.6.2. Construction Earthmoving Control Strategies
5.7. Construction Paving
5.8. Construction Electricity Consumption and Emissions Factors
5.9. Operational Mobile Sources
5.9.1. Unmitigated
5.9.2. Mitigated
5.10. Operational Area Sources
5.10.1. Hearths
5.10.2. Architectural Coatings
5.10.3. Landscape Equipment
5.10.4. Landscape Equipment - Mitigated
5.11. Operational Energy Consumption
5.11.1. Unmitigated
5.11.2. Mitigated
5.12. Operational Water and Wastewater Consumption
5.12.1. Unmitigated
5.12.2. Mitigated
5.13. Operational Waste Generation
5.13.1. Unmitigated

5.13.2. Mitigated
5.14. Operational Refrigeration and Air Conditioning Equipment
5.14.1. Unmitigated
5.14.2. Mitigated
5.15. Operational Off-Road Equipment
5.15.1. Unmitigated
5.15.2. Mitigated
5.16. Stationary Sources
5.16.1. Emergency Generators and Fire Pumps
5.16.2. Process Boilers
5.17. User Defined
5.18. Vegetation
5.18.1. Land Use Change
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.1. Biomass Cover Type
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.2. Sequestration
5.18.2.1. Unmitigated
5.18.2.2. Mitigated
6. Climate Risk Detailed Report

6.1. Climate Risk Summary
6.2. Initial Climate Risk Scores
6.3. Adjusted Climate Risk Scores
6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
7.2. Healthy Places Index Scores
7.3. Overall Health & Equity Scores
7.4. Health & Equity Measures
7.5. Evaluation Scorecard
7.6. Health & Equity Custom Measures
8. User Changes to Default Data
8.1. Justifications
8.4. Construction
8.4.1. Construction Phases
8.4.8. Architectural Coatings
8.5. Operations
8.5.2. Area Sources
8.5.2.3. Architectural Coatings

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	7196 Gilman Historic Ranch_Phase 1
Construction Start Date	1/4/2027
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	19.2000
Location	1901 W Wilson St, Banning, CA 92220, USA
County	Riverside-South Coast
City	Banning
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5630
EDFZ	11
Electric Utility	City of Banning Electric Department
Gas Utility	Southern California Gas

Data Field	Value
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	57.6460	1000sqft	1.32337	0.00000	69,965.0	0.00000	—	1) MAIN ENTRY ROAD RE-SLURRY AND WIDENING WITH DROP OFF LOOP (and all associated landscaping), 10) STAGE COACH PATH OF TRAVEL EXTENSION, 12) ADA RAMP & STAIR CONNECTION TO RANCH HOUSE & PICNIC AREA FROM MUSEUM PARKING LOT, 13) REPAIR AND IMPROVEMENTS TO BRADSHAW INTERPRETIVE TRAIL, 14) PASSIVE DECOMPOSED GRANITE PEDESTRIAN PATHWAYS

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Parking Lot	120.000	Space	1.08000	0.00000	0.00000	—	—	2) NEW DOCENT ADA PARKING, 5) PARKING, 11) ADA PARKING AND PATH OF TRAVEL TO EXISITNG RESTROOM AND STAGE COACH MUSEUM (1 ADA assumed to = 2 spaces),

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
City Park	1.46400	Acre	1.46400	0.00000	20,450.0	20,450.0	—	6) TOURNAMENT STYLE HORSESHOE PITS, 7) PLAY AREA: TO INCLUDE PAVER PLAZAS, NATURE THEMED PLAY EQUIPMENT, SHADE STRUCTURES AND RESILIENT SURFACING TRANSITIONING TO MULCH PLAY SURFACING. THIS AREA WILL INCLUDE A RESTROOM AS WELL AS NATIVE PLANTING AROUND THE EDGES, 8) NATIVE DEMONST RATION GARDEN TO BE REHABILITATED, 9) OUTDOOR CLASSROOM: CAPACITY 100.

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1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.13622	6.11242	20.4710	19.8009	0.06695	0.71088	4.93492	5.64580	0.66306	1.86281	2.52587	—	8,845.29	8,845.29	0.23182	0.91980	11.5851	9,136.77
Mit.	6.13622	6.11242	20.4710	19.8009	0.06695	0.71088	4.93492	5.64580	0.66306	1.86281	2.52587	—	8,845.29	8,845.29	0.23182	0.91980	11.5851	9,136.77
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.70681	3.11806	28.0411	29.1580	0.06695	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	8,832.16	8,832.16	0.23215	0.92169	0.30074	9,112.93
Mit.	3.70681	3.11806	28.0411	29.1580	0.06695	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	8,832.16	8,832.16	0.23215	0.92169	0.30074	9,112.93
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.94685	0.79289	7.04540	7.94536	0.01793	0.26361	1.41967	1.68328	0.24401	0.59555	0.83956	—	2,270.80	2,270.80	0.06914	0.16033	0.94380	2,321.25
Mit.	0.94685	0.79289	7.04540	7.94536	0.01793	0.26361	1.41967	1.68328	0.24401	0.59555	0.83956	—	2,270.80	2,270.80	0.06914	0.16033	0.94380	2,321.25
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17280	0.14470	1.28579	1.45003	0.00327	0.04811	0.25909	0.30720	0.04453	0.10869	0.15322	—	375.956	375.956	0.01145	0.02654	0.15626	384.309
Mit.	0.17280	0.14470	1.28579	1.45003	0.00327	0.04811	0.25909	0.30720	0.04453	0.10869	0.15322	—	375.956	375.956	0.01145	0.02654	0.15626	384.309
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.13622	6.11242	20.4710	19.8009	0.06695	0.71088	4.93492	5.64580	0.66306	1.86281	2.52587	—	8,845.29	8,845.29	0.23182	0.91980	11.5851	9,136.77

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.70681	3.11806	28.0411	29.1580	0.06695	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	8,832.16	8,832.16	0.23215	0.92169	0.30074	9,112.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.94685	0.79289	7.04540	7.94536	0.01793	0.26361	1.41967	1.68328	0.24401	0.59555	0.83956	—	2,270.80	2,270.80	0.06914	0.16033	0.94380	2,321.25
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.17280	0.14470	1.28579	1.45003	0.00327	0.04811	0.25909	0.30720	0.04453	0.10869	0.15322	—	375.956	375.956	0.01145	0.02654	0.15626	384.309

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.13622	6.11242	14.2321	17.2743	0.02733	0.59767	3.18988	3.78755	0.54986	1.38244	1.93229	—	2,960.07	2,960.07	0.12007	0.02401	0.00000	2,970.23
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	7.66623	8.83797	1.07799	3.93995	5.01795	—	5,297.82	5,297.82	0.21490	0.04298	0.00000	5,316.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.86763	0.74302	5.93419	7.21038	0.01142	0.24500	1.04945	1.29445	0.22540	0.49711	0.72251	—	1,221.25	1,221.25	0.04954	0.00991	0.00000	1,225.44
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.15834	0.13560	1.08299	1.31589	0.00208	0.04471	0.19152	0.23624	0.04114	0.09072	0.13186	—	202.192	202.192	0.00820	0.00164	0.00000	202.886

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.31480	0.15453	6.23887	2.52657	0.03962	0.11321	1.74504	1.85825	0.11321	0.48037	0.59358	—	5,885.21	5,885.21	0.11175	0.89579	11.5851	6,166.54
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30394	0.14367	6.54187	2.30976	0.03962	0.11321	1.74504	1.85825	0.11321	0.48037	0.59358	—	5,872.09	5,872.09	0.11208	0.89767	0.30074	6,142.70
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.07922	0.04987	1.11120	0.73498	0.00651	0.01861	0.37022	0.38883	0.01861	0.09844	0.11705	—	1,049.55	1,049.55	0.01960	0.15042	0.94380	1,095.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.01446	0.00910	0.20279	0.13413	0.00119	0.00340	0.06757	0.07096	0.00340	0.01797	0.02136	—	173.764	173.764	0.00325	0.02490	0.15626	181.423

2.2.4. Total Construction Emissions by Year, Mitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.13622	6.11242	20.4710	19.8009	0.06695	0.71088	4.93492	5.64580	0.66306	1.86281	2.52587	—	8,845.29	8,845.29	0.23182	0.91980	11.5851	9,136.77
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2027	3.70681	3.11806	28.0411	29.1580	0.06695	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	8,832.16	8,832.16	0.23215	0.92169	0.30074	9,112.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.94685	0.79289	7.04540	7.94536	0.01793	0.26361	1.41967	1.68328	0.24401	0.59555	0.83956	—	2,270.80	2,270.80	0.06914	0.16033	0.94380	2,321.25
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.17280	0.14470	1.28579	1.45003	0.00327	0.04811	0.25909	0.30720	0.04453	0.10869	0.15322	—	375.956	375.956	0.01145	0.02654	0.15626	384.309

2.2.5. Onsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	6.13622	6.11242	14.2321	17.2743	0.02733	0.59767	3.18988	3.78755	0.54986	1.38244	1.93229	—	2,960.07	2,960.07	0.12007	0.02401	0.00000	2,970.23
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	7.66623	8.83797	1.07799	3.93995	5.01795	—	5,297.82	5,297.82	0.21490	0.04298	0.00000	5,316.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.86763	0.74302	5.93419	7.21038	0.01142	0.24500	1.04945	1.29445	0.22540	0.49711	0.72251	—	1,221.25	1,221.25	0.04954	0.00991	0.00000	1,225.44
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.15834	0.13560	1.08299	1.31589	0.00208	0.04471	0.19152	0.23624	0.04114	0.09072	0.13186	—	202.192	202.192	0.00820	0.00164	0.00000	202.886

2.2.6. Offsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.31480	0.15453	6.23887	2.52657	0.03962	0.11321	1.74504	1.85825	0.11321	0.48037	0.59358	—	5,885.21	5,885.21	0.11175	0.89579	11.5851	6,166.54
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30394	0.14367	6.54187	2.30976	0.03962	0.11321	1.74504	1.85825	0.11321	0.48037	0.59358	—	5,872.09	5,872.09	0.11208	0.89767	0.30074	6,142.70
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.07922	0.04987	1.11120	0.73498	0.00651	0.01861	0.37022	0.38883	0.01861	0.09844	0.11705	—	1,049.55	1,049.55	0.01960	0.15042	0.94380	1,095.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.01446	0.00910	0.20279	0.13413	0.00119	0.00340	0.06757	0.07096	0.00340	0.01797	0.02136	—	173.764	173.764	0.00325	0.02490	0.15626	181.423

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04274	0.04123	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	104.655	104.723	0.01275	0.00225	0.11968	105.832
Mit.	0.04274	0.04123	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	104.655	104.723	0.01275	0.00225	0.11968	105.832
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04199	0.04049	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	102.125	102.193	0.01278	0.00231	0.00310	103.203
Mit.	0.04199	0.04049	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	102.125	102.193	0.01278	0.00231	0.00310	103.203
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03534	0.03454	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	0.06785	83.8455	83.9134	0.01212	0.00148	0.02714	84.6860
Mit.	0.03534	0.03454	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	0.06785	83.8455	83.9134	0.01212	0.00148	0.02714	84.6860
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00645	0.00630	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	0.01123	13.8816	13.8928	0.00201	0.00025	0.00449	14.0207
Mit.	0.00645	0.00630	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	0.01123	13.8816	13.8928	0.00201	0.00025	0.00449	14.0207
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Area	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.04274	0.04123	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	104.655	104.723	0.01275	0.00225	0.11968	105.832
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Area	0.02807	0.02807	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.04199	0.04049	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	102.125	102.193	0.01278	0.00231	0.00310	103.203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00726	0.00647	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	—	20.6171	20.6171	0.00074	0.00093	0.02714	20.9389
Area	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.03534	0.03454	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	0.06785	83.8455	83.9134	0.01212	0.00148	0.02714	84.6860
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667
Area	0.00512	0.00512	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	8.47189	8.47189	0.00062	0.00007	—	8.50960
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.99628	1.99628	0.00015	0.00002	—	2.00517
Waste	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.00645	0.00630	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	0.01123	13.8816	13.8928	0.00201	0.00025	0.00449	14.0207

2.5. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Area	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.04274	0.04123	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	104.655	104.723	0.01275	0.00225	0.11968	105.832
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Area	0.02807	0.02807	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.04199	0.04049	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	0.06785	102.125	102.193	0.01278	0.00231	0.00310	103.203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00726	0.00647	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	—	20.6171	20.6171	0.00074	0.00093	0.02714	20.9389
Area	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.03534	0.03454	0.00849	0.06550	0.00020	0.00014	0.01916	0.01931	0.00014	0.00486	0.00500	0.06785	83.8455	83.9134	0.01212	0.00148	0.02714	84.6860

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667
Area	0.00512	0.00512	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	8.47189	8.47189	0.00062	0.00007	—	8.50960
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.99628	1.99628	0.00015	0.00002	—	2.00517
Waste	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	0.00645	0.00630	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	0.01123	13.8816	13.8928	0.00201	0.00025	0.00449	14.0207

3. Construction Emissions Details

3.1. Site Preparation (2027)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24875	0.20902	1.91592	1.93694	0.00335	0.08026	—	0.08026	0.07384	—	0.07384	—	362.864	362.864	0.01472	0.00294	—	364.110
Dust From Material Movement	—	—	—	—	—	—	0.52508	0.52508	—	0.26986	0.26986	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04540	0.03815	0.34966	0.35349	0.00061	0.01465	—	0.01465	0.01347	—	0.01347	—	60.0763	60.0763	0.00244	0.00049	—	60.2825
Dust From Material Movement	—	—	—	—	—	—	0.09583	0.09583	—	0.04925	0.04925	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07504	0.06636	0.06867	0.87868	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	217.856	217.856	0.00309	0.00829	0.01909	220.424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00514	0.00455	0.00519	0.06317	0.00000	0.00000	0.01547	0.01547	0.00000	0.00362	0.00362	—	15.1104	15.1104	0.00021	0.00057	0.02174	15.3068
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00094	0.00083	0.00095	0.01153	0.00000	0.00000	0.00282	0.00282	0.00000	0.00066	0.00066	—	2.50170	2.50170	0.00004	0.00009	0.00360	2.53421
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24875	0.20902	1.91592	1.93694	0.00335	0.08026	—	0.08026	0.07384	—	0.07384	—	362.864	362.864	0.01472	0.00294	—	364.110
Dust From Material Movement	—	—	—	—	—	—	0.52508	0.52508	—	0.26986	0.26986	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.04540	0.03815	0.34966	0.35349	0.00061	0.01465	—	0.01465	0.01347	—	0.01347	—	60.0763	60.0763	0.00244	0.00049	—	60.2825
Dust From Material Movement	—	—	—	—	—	—	0.09583	0.09583	—	0.04925	0.04925	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07504	0.06636	0.06867	0.87868	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	217.856	217.856	0.00309	0.00829	0.01909	220.424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00514	0.00455	0.00519	0.06317	0.00000	0.00000	0.01547	0.01547	0.00000	0.00362	0.00362	—	15.1104	15.1104	0.00021	0.00057	0.02174	15.3068
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00094	0.00083	0.00095	0.01153	0.00000	0.00000	0.00282	0.00282	0.00000	0.00066	0.00066	—	2.50170	2.50170	0.00004	0.00009	0.00360	2.53421
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Grading (2027)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.88795	1.58640	14.2321	17.2743	0.02733	0.59767	—	0.59767	0.54986	—	0.54986	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	—	3.18988	3.18988	—	1.38244	1.38244	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	1.88795	1.58640	14.2321	17.2743	0.02733	0.59767	—	0.59767	0.54986	—	0.54986	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	—	3.18988	3.18988	—	1.38244	1.38244	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31035	0.26078	2.33952	2.83962	0.00449	0.09825	—	0.09825	0.09039	—	0.09039	—	486.587	486.587	0.01974	0.00395	—	488.257
Dust From Material Movement	—	—	—	—	—	—	0.52436	0.52436	—	0.22725	0.22725	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05664	0.04759	0.42696	0.51823	0.00082	0.01793	—	0.01793	0.01650	—	0.01650	—	80.5601	80.5601	0.00327	0.00065	—	80.8365
Dust From Material Movement	—	—	—	—	—	—	0.09570	0.09570	—	0.04147	0.04147	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06763	0.06019	0.05208	0.99638	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	203.036	203.036	0.00231	0.00711	0.63077	205.844
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.24717	0.09434	6.18678	1.53019	0.03962	0.11321	1.54898	1.66219	0.11321	0.43441	0.54762	—	5,682.18	5,682.18	0.10943	0.88868	10.9543	5,960.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06432	0.05688	0.05886	0.75315	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	186.733	186.733	0.00265	0.00711	0.01636	188.935
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.23962	0.08679	6.48301	1.55660	0.03962	0.11321	1.54898	1.66219	0.11321	0.43441	0.54762	—	5,685.35	5,685.35	0.10943	0.89056	0.28438	5,953.76
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01057	0.00935	0.01068	0.12995	0.00000	0.00000	0.03183	0.03183	0.00000	0.00746	0.00746	—	31.0843	31.0843	0.00043	0.00117	0.04473	31.4882
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.04001	0.01520	1.07159	0.25309	0.00651	0.01861	0.25218	0.27078	0.01861	0.07080	0.08941	—	934.276	934.276	0.01799	0.14608	0.77794	979.036
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00193	0.00171	0.00195	0.02372	0.00000	0.00000	0.00581	0.00581	0.00000	0.00136	0.00136	—	5.14636	5.14636	0.00007	0.00019	0.00740	5.21323

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00730	0.00277	0.19557	0.04619	0.00119	0.00340	0.04602	0.04942	0.00340	0.01292	0.01632	—	154.680	154.680	0.00298	0.02419	0.12880	162.091

3.2.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.88795	1.58640	14.2321	17.2743	0.02733	0.59767	—	0.59767	0.54986	—	0.54986	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	—	3.18988	3.18988	—	1.38244	1.38244	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.88795	1.58640	14.2321	17.2743	0.02733	0.59767	—	0.59767	0.54986	—	0.54986	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	—	3.18988	3.18988	—	1.38244	1.38244	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31035	0.26078	2.33952	2.83962	0.00449	0.09825	—	0.09825	0.09039	—	0.09039	—	486.587	486.587	0.01974	0.00395	—	488.257
Dust From Material Movement	—	—	—	—	—	—	0.52436	0.52436	—	0.22725	0.22725	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05664	0.04759	0.42696	0.51823	0.00082	0.01793	—	0.01793	0.01650	—	0.01650	—	80.5601	80.5601	0.00327	0.00065	—	80.8365
Dust From Material Movement	—	—	—	—	—	—	0.09570	0.09570	—	0.04147	0.04147	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06763	0.06019	0.05208	0.99638	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	203.036	203.036	0.00231	0.00711	0.63077	205.844
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.24717	0.09434	6.18678	1.53019	0.03962	0.11321	1.54898	1.66219	0.11321	0.43441	0.54762	—	5,682.18	5,682.18	0.10943	0.88868	10.9543	5,960.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06432	0.05688	0.05886	0.75315	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	186.733	186.733	0.00265	0.00711	0.01636	188.935
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.23962	0.08679	6.48301	1.55660	0.03962	0.11321	1.54898	1.66219	0.11321	0.43441	0.54762	—	5,685.35	5,685.35	0.10943	0.89056	0.28438	5,953.76
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01057	0.00935	0.01068	0.12995	0.00000	0.00000	0.03183	0.03183	0.00000	0.00746	0.00746	—	31.0843	31.0843	0.00043	0.00117	0.04473	31.4882
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.04001	0.01520	1.07159	0.25309	0.00651	0.01861	0.25218	0.27078	0.01861	0.07080	0.08941	—	934.276	934.276	0.01799	0.14608	0.77794	979.036
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00193	0.00171	0.00195	0.02372	0.00000	0.00000	0.00581	0.00581	0.00000	0.00136	0.00136	—	5.14636	5.14636	0.00007	0.00019	0.00740	5.21323
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00730	0.00277	0.19557	0.04619	0.00119	0.00340	0.04602	0.04942	0.00340	0.01292	0.01632	—	154.680	154.680	0.00298	0.02419	0.12880	162.091

3.3. Paving (2027)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79104	0.66333	6.08588	8.82716	0.01296	0.24176	—	0.24176	0.22242	—	0.22242	—	1,350.39	1,350.39	0.05478	0.01096	—	1,355.03
Paving	0.02830	0.02830	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21672	0.18173	1.66736	2.41840	0.00355	0.06623	—	0.06623	0.06094	—	0.06094	—	369.970	369.970	0.01501	0.00300	—	371.240
Paving	0.00775	0.00775	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03955	0.03317	0.30429	0.44136	0.00065	0.01209	—	0.01209	0.01112	—	0.01112	—	61.2528	61.2528	0.00248	0.00050	—	61.4630
Paving	0.00141	0.00141	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09017	0.08025	0.06945	1.32851	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	270.715	270.715	0.00309	0.00948	0.84102	274.459
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02350	0.02078	0.02374	0.28878	0.00000	0.00000	0.07074	0.07074	0.00000	0.01657	0.01657	—	69.0763	69.0763	0.00097	0.00260	0.09939	69.9738
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00429	0.00379	0.00433	0.05270	0.00000	0.00000	0.01291	0.01291	0.00000	0.00302	0.00302	—	11.4364	11.4364	0.00016	0.00043	0.01646	11.5850
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79104	0.66333	6.08588	8.82716	0.01296	0.24176	—	0.24176	0.22242	—	0.22242	—	1,350.39	1,350.39	0.05478	0.01096	—	1,355.03
Paving	0.02830	0.02830	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21672	0.18173	1.66736	2.41840	0.00355	0.06623	—	0.06623	0.06094	—	0.06094	—	369.970	369.970	0.01501	0.00300	—	371.240
Paving	0.00775	0.00775	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03955	0.03317	0.30429	0.44136	0.00065	0.01209	—	0.01209	0.01112	—	0.01112	—	61.2528	61.2528	0.00248	0.00050	—	61.4630
Paving	0.00141	0.00141	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09017	0.08025	0.06945	1.32851	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	270.715	270.715	0.00309	0.00948	0.84102	274.459
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02350	0.02078	0.02374	0.28878	0.00000	0.00000	0.07074	0.07074	0.00000	0.01657	0.01657	—	69.0763	69.0763	0.00097	0.00260	0.09939	69.9738
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00429	0.00379	0.00433	0.05270	0.00000	0.00000	0.01291	0.01291	0.00000	0.00302	0.00302	—	11.4364	11.4364	0.00016	0.00043	0.01646	11.5850
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Parking Coatings (2027)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13715	0.11335	0.83116	1.12539	0.00173	0.01905	—	0.01905	0.01752	—	0.01752	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	5.99907	5.99907	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00188	0.00155	0.01139	0.01542	0.00002	0.00026	—	0.00026	0.00024	—	0.00024	—	1.82894	1.82894	0.00007	0.00001	—	1.83522
Architectural Coatings	0.08218	0.08218	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00034	0.00028	0.00208	0.00281	< 0.000005	0.00005	—	0.00005	0.00004	—	0.00004	—	0.30280	0.30280	0.00001	< 0.000005	—	0.30384
Architectural Coatings	0.01500	0.01500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13715	0.11335	0.83116	1.12539	0.00173	0.01905	—	0.01905	0.01752	—	0.01752	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	5.99907	5.99907	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00188	0.00155	0.01139	0.01542	0.00002	0.00026	—	0.00026	0.00024	—	0.00024	—	1.82894	1.82894	0.00007	0.00001	—	1.83522
Architectural Coatings	0.08218	0.08218	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00034	0.00028	0.00208	0.00281	< 0.000005	0.00005	—	0.00005	0.00004	—	0.00004	—	0.30280	0.30280	0.00001	< 0.000005	—	0.30384

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.01500	0.01500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Total	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Total	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667
Total	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Total	0.01466	0.01315	0.01478	0.14602	0.00041	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	41.4263	41.4263	0.00136	0.00170	0.11968	42.0853
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Total	0.01392	0.01241	0.01586	0.12016	0.00038	0.00028	0.03695	0.03723	0.00026	0.00938	0.00964	—	38.8965	38.8965	0.00140	0.00175	0.00310	39.4557
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667
Total	0.00133	0.00118	0.00155	0.01195	0.00004	0.00003	0.00350	0.00352	0.00002	0.00089	0.00091	—	3.41340	3.41340	0.00012	0.00015	0.00449	3.46667

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.47189	8.47189	0.00062	0.00007	—	8.50960
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	8.47189	8.47189	0.00062	0.00007	—	8.50960

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.1707	51.1707	0.00373	0.00045	—	51.3984
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.47189	8.47189	0.00062	0.00007	—	8.50960

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	8.47189	8.47189	0.00062	0.00007	—	8.50960

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01986	0.01986	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00822	0.00822	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01986	0.01986	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00822	0.00822	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.02807	0.02807	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00362	0.00362	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.00150	0.00150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00512	0.00512	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01986	0.01986	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00822	0.00822	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.02807	0.02807	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01986	0.01986	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.00822	0.00822	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.02807	0.02807	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00362	0.00362	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00150	0.00150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00512	0.00512	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	7.30975	7.30975	0.00053	0.00006	—	7.34228

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	4.74791	4.74791	0.00035	0.00004	—	4.76904
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	7.30975	7.30975	0.00053	0.00006	—	7.34228
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	4.74791	4.74791	0.00035	0.00004	—	4.76904
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.21021	1.21021	0.00009	0.00001	—	1.21560
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.78607	0.78607	0.00006	0.00001	—	0.78957
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.99628	1.99628	0.00015	0.00002	—	2.00517

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	7.30975	7.30975	0.00053	0.00006	—	7.34228
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	4.74791	4.74791	0.00035	0.00004	—	4.76904
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	7.30975	7.30975	0.00053	0.00006	—	7.34228
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	4.74791	4.74791	0.00035	0.00004	—	4.76904
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	12.0577	12.0577	0.00088	0.00011	—	12.1113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.21021	1.21021	0.00009	0.00001	—	1.21560
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.78607	0.78607	0.00006	0.00001	—	0.78957
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	1.99628	1.99628	0.00015	0.00002	—	2.00517

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Total	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Total	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930
Total	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Total	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Total	—	—	—	—	—	—	—	—	—	—	—	0.06785	0.00000	0.06785	0.00678	0.00000	—	0.23740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930
Total	—	—	—	—	—	—	—	—	—	—	—	0.01123	0.00000	0.01123	0.00112	0.00000	—	0.03930

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/4/2027	2/5/2027	5.00000	25.0000	—
Grading	Grading	2/6/2027	4/30/2027	5.00000	60.0000	—
Paving	Paving	5/1/2027	9/17/2027	5.00000	100.0000	—
Parking Coatings	Architectural Coating	9/18/2027	9/24/2027	5.00000	5.00000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	6.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	6.00000	36.0000	0.38000
Paving	Cement and Mortar Mixers	Diesel	Average	2.00000	6.00000	10.00000	0.56000
Paving	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Parking Coatings	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	6.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	6.00000	36.0000	0.38000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Paving	Cement and Mortar Mixers	Diesel	Average	2.00000	6.00000	10.00000	0.56000
Paving	Tractors/Loaders/ Backhoes	Diesel	Average	1.000000	8.00000	84.0000	0.37000
Parking Coatings	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	85.5833	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Paving	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Parking Coatings	Worker	0.00000	18.5000	LDA,LDT1,LDT2
Parking Coatings	Vendor	—	10.2000	HHDT,MHDT
Parking Coatings	Hauling	0.00000	20.0000	HHDT
Parking Coatings	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	85.5833	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Paving	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Parking Coatings	Worker	0.00000	18.5000	LDA,LDT1,LDT2
Parking Coatings	Vendor	—	10.2000	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Parking Coatings	Hauling	0.00000	20.0000	HHDT
Parking Coatings	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Parking Coatings	0.00000	0.00000	0.00000	0.00000	6,469.63

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00000	0.00000	37.5000	0.00000	0.00000
Grading	41,073.0	0.00000	60.0000	0.00000	0.00000

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Paving	0.00000	0.00000	0.00000	0.00000	2.40337

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Other Non-Asphalt Surfaces	1.32337	0%
Paving	Parking Lot	1.08000	100%
Paving	City Park	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	453.209	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	1.14192	2.86944	3.20616	614.514	18.5869	46.7057	52.1864	10,002.4

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	1.14192	2.86944	3.20616	614.514	18.5869	46.7057	52.1864	10,002.4

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
City Park	Wood Fireplaces	0	0
City Park	Gas Fireplaces	0	0
City Park	Propane Fireplaces	0	0
City Park	Electric Fireplaces	0	0
City Park	No Fireplaces	0	0
City Park	Conventional Wood Stoves	0	0
City Park	Catalytic Wood Stoves	0	0
City Park	Non-Catalytic Wood Stoves	0	0
City Park	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	0.00000	0.00000	6,469.63

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000
Parking Lot	41,211.2	453.209	0.0330	0.0040	0.00000
City Park	0.00000	453.209	0.0330	0.0040	0.00000

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000
Parking Lot	41,211.2	453.209	0.0330	0.0040	0.00000
City Park	0.00000	453.209	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00000	1,109,345
Parking Lot	0.00000	0.00000
City Park	0.00000	720,554

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00000	1,109,345
Parking Lot	0.00000	0.00000
City Park	0.00000	720,554

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
City Park	0.12590	0.00000

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
City Park	0.12590	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000

5.14.2. Mitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	31.7700	annual days of extreme heat
Extreme Precipitation	5.45000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	23.6300	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction

measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.5980
AQ-PM	22.5638
AQ-DPM	1.29434
Drinking Water	61.4712
Lead Risk Housing	44.8393
Pesticides	0.13793
Toxic Releases	29.1073
Traffic	7.35000
Effect Indicators	—
CleanUp Sites	46.0806
Groundwater	0.00000
Haz Waste Facilities/Generators	1.80013

Indicator	Result for Project Census Tract
Impaired Water Bodies	0.00000
Solid Waste	2.52005
Sensitive Population	—
Asthma	85.6555
Cardio-vascular	96.1989
Low Birth Weights	43.5463
Socioeconomic Factor Indicators	—
Education	62.6803
Housing	51.3561
Linguistic	23.7651
Poverty	63.9070
Unemployment	46.9938

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	42.37135891
Employed	9.534197357
Median HI	41.13948415
Education	—

Indicator	Result for Project Census Tract
Bachelor's or higher	25.84370589
High school enrollment	11.40767355
Preschool enrollment	34.36417298
Transportation	—
Auto Access	41.51161299
Active commuting	3.58013602
Social	—
2-parent households	10.79173617
Voting	40.40805851
Neighborhood	—
Alcohol availability	97.0101373
Park access	58.02643398
Retail density	6.544334659
Supermarket access	13.83292699
Tree canopy	33.14513025
Housing	—
Homeownership	71.67971256
Housing habitability	81.14974978
Low-inc homeowner severe housing cost burden	26.6521237
Low-inc renter severe housing cost burden	91.09457205
Uncrowded housing	54.63877839

Indicator	Result for Project Census Tract
Health Outcomes	—
Insured adults	30.92518927
Arthritis	0.0
Asthma ER Admissions	12.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	20.7
Cognitively Disabled	28.0
Physically Disabled	29.8
Heart Attack ER Admissions	0.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—

Indicator	Result for Project Census Tract
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	19.0
SLR Inundation Area	0.0
Children	68.4
Elderly	34.5
English Speaking	85.7
Foreign-born	20.8
Outdoor Workers	57.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	4.4
Traffic Access	23.0
Other Indices	—
Hardship	69.9
Other Decision Support	—
2016 Voting	50.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	38.0000
Healthy Places Index Score for Project Location (b)	23.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Co. estimates overall construction 9-12 months.
Construction: Architectural Coatings	SCAQMD Rule 1113

Screen	Justification
Operations: Architectural Coatings	SCAQMD Rule 1113

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	Start Date	2/2/2027	1/4/2027
Site Preparation	Site Preparation	End Date	2/9/2027	2/5/2027
Site Preparation	Site Preparation	Work Days per Phase	5.00000	25.0000
Grading	Grading	Start Date	2/10/2027	2/6/2027
Grading	Grading	End Date	2/21/2027	4/30/2027
Grading	Grading	Work Days per Phase	8.00000	60.0000
Paving	Paving	Start Date	1/11/2028	5/1/2027
Paving	Paving	End Date	2/5/2028	9/17/2027
Paving	Paving	Work Days per Phase	18.0000	100.0000

8.4.8. Architectural Coatings

Phase Name	Model Parameter	Units	Default Value	New Value
Parking Coatings	Non-Residential Interior VOC	g/L	100.0000	50.0000
Parking Coatings	Non-Residential Exterior VOC	g/L	100.0000	50.0000
Parking Coatings	Parking Area	sq ft	6,281.45	6,469.63

8.5. Operations

8.5.2. Area Sources

8.5.2.3. Architectural Coatings

Model Parameter	Units	Default Value	New Value
Non-Residential Interior VOC	g/L	100.0000	50.0000
Non-Residential Exterior VOC	g/L	100.0000	50.0000
Parking Area	sq ft	6,281.45	6,469.63

APPENDIX B.2
MASTER PLAN DETAILED REPORT- CONSTRUCTION AND OPERATIONS

7196 Master Plan Detailed Report

Table of Contents

1. Basic Project Information
   1.1. Basic Project Information
   1.2. Land Use Types
   1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
   2.1. Construction Emissions Compared Against Thresholds
   2.2. Construction Emissions by Year
      2.2.1. Total Construction Emissions by Year, Unmitigated
      2.2.2. Onsite Construction Emissions by Year, Unmitigated
      2.2.3. Offsite Construction Emissions by Year, Unmitigated
      2.2.4. Total Construction Emissions by Year, Mitigated
      2.2.5. Onsite Construction Emissions by Year, Mitigated
      2.2.6. Offsite Construction Emissions by Year, Mitigated
   2.3. Operations Emissions Compared Against Thresholds
   2.4. Operations Emissions by Sector, Unmitigated
   2.5. Operations Emissions by Sector, Mitigated
3. Construction Emissions Details
   3.1. Demolition (2029)

3.1.1. Onsite - Unmitigated
3.1.2. Offsite - Unmitigated
3.1.3. Onsite - Mitigated
3.1.4. Offsite - Mitigated
3.2. Site Preparation (2029)
3.2.1. Onsite - Unmitigated
3.2.2. Offsite - Unmitigated
3.2.3. Onsite - Mitigated
3.2.4. Offsite - Mitigated
3.3. Grading (2029)
3.3.1. Onsite - Unmitigated
3.3.2. Offsite - Unmitigated
3.3.3. Onsite - Mitigated
3.3.4. Offsite - Mitigated
3.4. Building Construction (2029)
3.4.1. Onsite - Unmitigated
3.4.2. Offsite - Unmitigated
3.4.3. Onsite - Mitigated
3.4.4. Offsite - Mitigated
3.5. Building Construction (2030)
3.5.1. Onsite - Unmitigated
3.5.2. Offsite - Unmitigated

3.5.3. Onsite - Mitigated
3.5.4. Offsite - Mitigated
3.6. Paving (2030)
3.6.1. Onsite - Unmitigated
3.6.2. Offsite - Unmitigated
3.6.3. Onsite - Mitigated
3.6.4. Offsite - Mitigated
3.7. Architectural Coating (2030)
3.7.1. Onsite - Unmitigated
3.7.2. Offsite - Unmitigated
3.7.3. Onsite - Mitigated
3.7.4. Offsite - Mitigated
4. Operations Emissions Details
4.1. Mobile Emissions by Land Use
4.1.1. Unmitigated
4.1.2. Mitigated
4.2. Energy
4.2.1. Electricity Emissions By Land Use - Unmitigated
4.2.2. Electricity Emissions By Land Use - Mitigated
4.2.3. Natural Gas Emissions By Land Use - Unmitigated
4.2.4. Natural Gas Emissions By Land Use - Mitigated
4.3. Area Emissions by Source

4.3.1. Unmitigated
4.3.2. Mitigated
4.4. Water Emissions by Land Use
4.4.1. Unmitigated
4.4.2. Mitigated
4.5. Waste Emissions by Land Use
4.5.1. Unmitigated
4.5.2. Mitigated
4.6. Refrigerant Emissions by Land Use
4.6.1. Unmitigated
4.6.2. Mitigated
4.7. Offroad Emissions By Equipment Type
4.7.1. Unmitigated
4.7.2. Mitigated
4.8. Stationary Emissions By Equipment Type
4.8.1. Unmitigated
4.8.2. Mitigated
4.9. User Defined Emissions By Equipment Type
4.9.1. Unmitigated
4.9.2. Mitigated
4.10. Soil Carbon Accumulation By Vegetation Type
4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated
4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated
4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated
4.10.6. Avoided and Sequestered Emissions by Species - Mitigated
5. Activity Data
5.1. Construction Schedule
5.2. Off-Road Equipment
5.2.1. Unmitigated
5.2.2. Mitigated
5.3. Construction Vehicles
5.3.1. Unmitigated
5.3.2. Mitigated
5.4. Vehicles
5.4.1. Construction Vehicle Control Strategies
5.5. Architectural Coatings
5.6. Dust Mitigation
5.6.1. Construction Earthmoving Activities
5.6.2. Construction Earthmoving Control Strategies
5.7. Construction Paving
5.8. Construction Electricity Consumption and Emissions Factors
5.9. Operational Mobile Sources

5.9.1. Unmitigated
5.9.2. Mitigated
5.10. Operational Area Sources
5.10.1. Hearths
5.10.2. Architectural Coatings
5.10.3. Landscape Equipment
5.10.4. Landscape Equipment - Mitigated
5.11. Operational Energy Consumption
5.11.1. Unmitigated
5.11.2. Mitigated
5.12. Operational Water and Wastewater Consumption
5.12.1. Unmitigated
5.12.2. Mitigated
5.13. Operational Waste Generation
5.13.1. Unmitigated
5.13.2. Mitigated
5.14. Operational Refrigeration and Air Conditioning Equipment
5.14.1. Unmitigated
5.14.2. Mitigated
5.15. Operational Off-Road Equipment
5.15.1. Unmitigated
5.15.2. Mitigated

5.16. Stationary Sources
5.16.1. Emergency Generators and Fire Pumps
5.16.2. Process Boilers
5.17. User Defined
5.18. Vegetation
5.18.1. Land Use Change
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.1. Biomass Cover Type
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.2. Sequestration
5.18.2.1. Unmitigated
5.18.2.2. Mitigated
6. Climate Risk Detailed Report
6.1. Climate Risk Summary
6.2. Initial Climate Risk Scores
6.3. Adjusted Climate Risk Scores
6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores
7.4. Health & Equity Measures
7.5. Evaluation Scorecard
7.6. Health & Equity Custom Measures
8. User Changes to Default Data
8.1. Justifications
8.4. Construction
8.4.8. Architectural Coatings
8.5. Operations
8.5.2. Area Sources
8.5.2.3. Architectural Coatings

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	7196 Master Plan
Construction Start Date	1/1/2029
Operational Year	2032
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	19.2000
Location	1937 W Gilman St, Banning, CA 92220, USA
County	Riverside-South Coast
City	Banning
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5630
EDFZ	11
Electric Utility	City of Banning Electric Department
Gas Utility	Southern California Gas

Data Field	Value
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	5.17900	1000sqft	0.11889	5,179.00	0.00000	—	—	Restrooms, Stage, entry Kiosk, Adobe museum enclosure
Hotel	9.00000	Room	0.30000	13,068.0	0.00000	—	—	Stagecoach Hotel
City Park	5.08000	Acre	5.08000	0.00000	221,284	221,284	—	Event Lawn and Native medicinal garden, community park, outdoor classroom, playground
Other Non-Asphalt Surfaces	1.01000	Acre	1.01000	0.00000	0.00000	—	—	Pedestrian Improvements (museum plaza, DG pathways, ADA ramps, terraces, secondary stairs, seating areas)
Parking Lot	143.000	Space	1.28700	0.00000	0.00000	—	—	Parking Lot
Arena	8.00000	1000sqft	2.57143	8,000.00	0.00000	—	—	Event Center

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction

Sector	#	Measure Title
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.78315	7.76154	8.73512	13.5486	0.02436	0.27758	0.19606	0.45170	0.25553	0.04596	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
Mit.	7.78315	7.76154	8.73512	13.5486	0.02436	0.27758	0.19606	0.45170	0.25553	0.04596	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
Mit.	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Mit.	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
Mit.	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.19872	1.00672	8.73512	13.5486	0.02436	0.27758	0.17413	0.45170	0.25553	0.04236	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
2030	7.78315	7.76154	8.53541	13.4885	0.02436	0.26205	0.19606	0.43618	0.24124	0.04596	0.28360	—	2,649.05	2,649.05	0.10063	0.04250	0.54673	2,664.77
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	1.16518	0.97374	8.54621	13.3550	0.02436	0.26205	0.17413	0.43618	0.24124	0.04236	0.28360	—	2,638.39	2,638.39	0.10086	0.04250	0.01418	2,653.59
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
2030	0.80646	0.74457	2.78147	4.38658	0.00768	0.08601	0.06024	0.14625	0.07917	0.01454	0.09371	—	840.045	840.045	0.03202	0.01307	0.07827	844.818
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
2030	0.14718	0.13588	0.50762	0.80055	0.00140	0.01570	0.01099	0.02669	0.01445	0.00265	0.01710	—	139.079	139.079	0.00530	0.00216	0.01296	139.869

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	7.77564	7.75498	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.53388	2.96944	25.9333	28.0793	0.06092	1.08794	7.66623	8.75418	1.00091	3.93995	4.94086	—	6,596.13	6,596.13	0.26757	0.05351	0.00000	6,618.77
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.13710	0.95316	8.26609	11.0082	0.02086	0.29541	0.71074	1.00615	0.27178	0.24735	0.51913	—	2,178.96	2,178.96	0.08839	0.01768	0.00000	2,186.44

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.79177	0.73261	2.73555	4.20861	0.00741	0.08547	0.00000	0.08547	0.07863	0.00000	0.07863	—	760.828	760.828	0.03086	0.00617	0.00000	763.439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.20752	0.17395	1.50856	2.00900	0.00381	0.05391	0.12971	0.18362	0.04960	0.04514	0.09474	—	360.752	360.752	0.01463	0.00293	0.00000	361.990
2030	0.14450	0.13370	0.49924	0.76807	0.00135	0.01560	0.00000	0.01560	0.01435	0.00000	0.01435	—	125.964	125.964	0.00511	0.00102	0.00000	126.396

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.04535	0.04159	0.15346	0.64734	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	258.077	258.077	0.00340	0.02306	0.61638	265.649
2030	0.05357	0.04679	0.14345	0.80656	0.00097	0.00193	0.19606	0.19606	0.00193	0.04596	0.04596	—	252.213	252.213	0.00340	0.02306	0.54673	259.716
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.07143	0.06195	0.16330	0.86928	0.00097	0.00193	0.26142	0.26142	0.00193	0.06128	0.06128	—	247.218	247.218	0.00363	0.02306	0.01750	254.195
2030	0.04146	0.03341	0.15425	0.47021	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	241.559	241.559	0.00363	0.02306	0.01418	248.535
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.03410	0.02827	0.10175	0.42067	0.00054	0.00110	0.13221	0.13331	0.00110	0.03183	0.03293	—	173.209	173.209	0.00247	0.01427	0.18917	177.711
2030	0.01469	0.01196	0.04592	0.17797	0.00027	0.00054	0.06024	0.06079	0.00054	0.01454	0.01508	—	79.2173	79.2173	0.00116	0.00690	0.07827	81.3797
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.00622	0.00516	0.01857	0.07677	0.00010	0.00020	0.02413	0.02433	0.00020	0.00581	0.00601	—	28.6767	28.6767	0.00041	0.00236	0.03132	29.4221

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.00268	0.00218	0.00838	0.03248	0.00005	0.00010	0.01099	0.01109	0.00010	0.00265	0.00275	—	13.1153	13.1153	0.00019	0.00114	0.01296	13.4733

2.2.4. Total Construction Emissions by Year, Mitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.19872	1.00672	8.73512	13.5486	0.02436	0.27758	0.17413	0.45170	0.25553	0.04236	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
2030	7.78315	7.76154	8.53541	13.4885	0.02436	0.26205	0.19606	0.43618	0.24124	0.04596	0.28360	—	2,649.05	2,649.05	0.10063	0.04250	0.54673	2,664.77
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
2030	1.16518	0.97374	8.54621	13.3550	0.02436	0.26205	0.17413	0.43618	0.24124	0.04236	0.28360	—	2,638.39	2,638.39	0.10086	0.04250	0.01418	2,653.59
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
2030	0.80646	0.74457	2.78147	4.38658	0.00768	0.08601	0.06024	0.14625	0.07917	0.01454	0.09371	—	840.045	840.045	0.03202	0.01307	0.07827	844.818
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
2030	0.14718	0.13588	0.50762	0.80055	0.00140	0.01570	0.01099	0.02669	0.01445	0.00265	0.01710	—	139.079	139.079	0.00530	0.00216	0.01296	139.869

2.2.5. Onsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	7.77564	7.75498	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.53388	2.96944	25.9333	28.0793	0.06092	1.08794	7.66623	8.75418	1.00091	3.93995	4.94086	—	6,596.13	6,596.13	0.26757	0.05351	0.00000	6,618.77
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.13710	0.95316	8.26609	11.0082	0.02086	0.29541	0.71074	1.00615	0.27178	0.24735	0.51913	—	2,178.96	2,178.96	0.08839	0.01768	0.00000	2,186.44
2030	0.79177	0.73261	2.73555	4.20861	0.00741	0.08547	0.00000	0.08547	0.07863	0.00000	0.07863	—	760.828	760.828	0.03086	0.00617	0.00000	763.439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.20752	0.17395	1.50856	2.00900	0.00381	0.05391	0.12971	0.18362	0.04960	0.04514	0.09474	—	360.752	360.752	0.01463	0.00293	0.00000	361.990
2030	0.14450	0.13370	0.49924	0.76807	0.00135	0.01560	0.00000	0.01560	0.01435	0.00000	0.01435	—	125.964	125.964	0.00511	0.00102	0.00000	126.396

2.2.6. Offsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2029	0.04535	0.04159	0.15346	0.64734	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	258.077	258.077	0.00340	0.02306	0.61638	265.649
2030	0.05357	0.04679	0.14345	0.80656	0.00097	0.00193	0.19606	0.19606	0.00193	0.04596	0.04596	—	252.213	252.213	0.00340	0.02306	0.54673	259.716
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.07143	0.06195	0.16330	0.86928	0.00097	0.00193	0.26142	0.26142	0.00193	0.06128	0.06128	—	247.218	247.218	0.00363	0.02306	0.01750	254.195
2030	0.04146	0.03341	0.15425	0.47021	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	241.559	241.559	0.00363	0.02306	0.01418	248.535
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.03410	0.02827	0.10175	0.42067	0.00054	0.00110	0.13221	0.13331	0.00110	0.03183	0.03293	—	173.209	173.209	0.00247	0.01427	0.18917	177.711
2030	0.01469	0.01196	0.04592	0.17797	0.00027	0.00054	0.06024	0.06079	0.00054	0.01454	0.01508	—	79.2173	79.2173	0.00116	0.00690	0.07827	81.3797
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.00622	0.00516	0.01857	0.07677	0.00010	0.00020	0.02413	0.02433	0.00020	0.00581	0.00601	—	28.6767	28.6767	0.00041	0.00236	0.03132	29.4221
2030	0.00268	0.00218	0.00838	0.03248	0.00005	0.00010	0.01099	0.01109	0.00010	0.00265	0.00275	—	13.1153	13.1153	0.00019	0.00114	0.01296	13.4733

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Mit.	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Mit.	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Mit.	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757
Mit.	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Area	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Area	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.72361	0.64267	0.79467	6.73399	0.02238	0.01393	2.29335	2.30728	0.01309	0.58191	0.59500	—	2,289.64	2,289.64	0.07577	0.09889	1.95094	2,322.95
Area	0.87651	0.86578	0.00658	0.78189	0.00005	0.00139	—	0.00139	0.00105	—	0.00105	—	3.21520	3.21520	0.00013	0.00003	—	3.22679

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591
Area	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.0000 05	—	0.53423
Energy	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	134.217	134.217	0.01050	0.00086	—	134.736
Water	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556
Waste	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252
Total	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757

2.5. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Area	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Area	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.72361	0.64267	0.79467	6.73399	0.02238	0.01393	2.29335	2.30728	0.01309	0.58191	0.59500	—	2,289.64	2,289.64	0.07577	0.09889	1.95094	2,322.95
Area	0.87651	0.86578	0.00658	0.78189	0.00005	0.00139	—	0.00139	0.00105	—	0.00105	—	3.21520	3.21520	0.00013	0.00003	—	3.22679
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591
Area	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.0000 05	—	0.53423
Energy	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	134.217	134.217	0.01050	0.00086	—	134.736
Water	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556
Waste	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252
Total	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757

3. Construction Emissions Details

3.1. Demolition (2029)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	2.54926	2.13956	18.5895	18.4678	0.03253	0.73633	—	0.73633	0.67742	—	0.67742	—	3,426.75	3,426.75	0.13900	0.02780	—	3,438.51
Demolition	—	—	—	—	—	—	0.03141	0.03141	—	0.00476	0.00476	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13969	0.11724	1.01860	1.01194	0.00178	0.04035	—	0.04035	0.03712	—	0.03712	—	187.767	187.767	0.00762	0.00152	—	188.412
Demolition	—	—	—	—	—	—	0.00172	0.00172	—	0.00026	0.00026	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02549	0.02140	0.18589	0.18468	0.00033	0.00736	—	0.00736	0.00677	—	0.00677	—	31.0870	31.0870	0.00126	0.00025	—	31.1937
Demolition	—	—	—	—	—	—	0.00031	0.00031	—	0.00005	0.00005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04646	0.05175	0.65196	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	180.060	180.060	0.00231	0.00711	0.01312	182.250
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00168	0.00061	0.04291	0.01044	0.00028	0.00079	0.01086	0.01165	0.00079	0.00305	0.00384	—	38.0433	38.0433	0.00077	0.00597	0.00168	39.8419
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00294	0.00255	0.00284	0.03779	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.99042	9.99042	0.00013	0.00039	0.01194	10.1216
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00009	0.00004	0.00236	0.00057	0.00002	0.00004	0.00059	0.00063	0.00004	0.00017	0.00021	—	2.08385	2.08385	0.00004	0.00033	0.00154	2.18385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00054	0.00046	0.00052	0.00690	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.65403	1.65403	0.00002	0.00006	0.00198	1.67575
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00002	0.00001	0.00043	0.00010	< 0.000005	0.00001	0.00011	0.00012	0.00001	0.00003	0.00004	—	0.34501	0.34501	0.00001	0.00005	0.00025	0.36156

3.1.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54926	2.13956	18.5895	18.4678	0.03253	0.73633	—	0.73633	0.67742	—	0.67742	—	3,426.75	3,426.75	0.13900	0.02780	—	3,438.51
Demolition	—	—	—	—	—	—	0.03141	0.03141	—	0.00476	0.00476	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13969	0.11724	1.01860	1.01194	0.00178	0.04035	—	0.04035	0.03712	—	0.03712	—	187.767	187.767	0.00762	0.00152	—	188.412
Demolition	—	—	—	—	—	—	0.00172	0.00172	—	0.00026	0.00026	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02549	0.02140	0.18589	0.18468	0.00033	0.00736	—	0.00736	0.00677	—	0.00677	—	31.0870	31.0870	0.00126	0.00025	—	31.1937
Demolition	—	—	—	—	—	—	0.00031	0.00031	—	0.00005	0.00005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04646	0.05175	0.65196	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	180.060	180.060	0.00231	0.00711	0.01312	182.250
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00168	0.00061	0.04291	0.01044	0.00028	0.00079	0.01086	0.01165	0.00079	0.00305	0.00384	—	38.0433	38.0433	0.00077	0.00597	0.00168	39.8419
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00294	0.00255	0.00284	0.03779	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.99042	9.99042	0.00013	0.00039	0.01194	10.1216
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00009	0.00004	0.00236	0.00057	0.00002	0.00004	0.00059	0.00063	0.00004	0.00017	0.00021	—	2.08385	2.08385	0.00004	0.00033	0.00154	2.18385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00054	0.00046	0.00052	0.00690	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.65403	1.65403	0.00002	0.00006	0.00198	1.67575
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00002	0.00001	0.00043	0.00010	< 0.000005	0.00001	0.00011	0.00012	0.00001	0.00003	0.00004	—	0.34501	0.34501	0.00001	0.00005	0.00025	0.36156

3.2. Site Preparation (2029)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.53388	2.96944	25.9333	28.0793	0.04889	1.08794	—	1.08794	1.00091	—	1.00091	—	5,296.00	5,296.00	0.21483	0.04297	—	5,314.17
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09682	0.08135	0.71050	0.76929	0.00134	0.02981	—	0.02981	0.02742	—	0.02742	—	145.096	145.096	0.00589	0.00118	—	145.594
Dust From Material Movement	—	—	—	—	—	—	0.21003	0.21003	—	0.10794	0.10794	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01767	0.01485	0.12967	0.14040	0.00024	0.00544	—	0.00544	0.00500	—	0.00500	—	24.0223	24.0223	0.00097	0.00019	—	24.1047

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.03833	0.03833	—	0.01970	0.01970	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06250	0.05421	0.06038	0.76062	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	210.070	210.070	0.00270	0.00829	0.01531	212.625
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00171	0.00149	0.00165	0.02204	0.00000	0.00000	0.00619	0.00619	0.00000	0.00145	0.00145	—	5.82774	5.82774	0.00007	0.00023	0.00696	5.90428
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00031	0.00027	0.00030	0.00402	0.00000	0.00000	0.00113	0.00113	0.00000	0.00026	0.00026	—	0.96485	0.96485	0.00001	0.00004	0.00115	0.97752

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.53388	2.96944	25.9333	28.0793	0.04889	1.08794	—	1.08794	1.00091	—	1.00091	—	5,296.00	5,296.00	0.21483	0.04297	—	5,314.17
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09682	0.08135	0.71050	0.76929	0.00134	0.02981	—	0.02981	0.02742	—	0.02742	—	145.096	145.096	0.00589	0.00118	—	145.594

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.21003	0.21003	—	0.10794	0.10794	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01767	0.01485	0.12967	0.14040	0.00024	0.00544	—	0.00544	0.00500	—	0.00500	—	24.0223	24.0223	0.00097	0.00019	—	24.1047
Dust From Material Movement	—	—	—	—	—	—	0.03833	0.03833	—	0.01970	0.01970	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06250	0.05421	0.06038	0.76062	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	210.070	210.070	0.00270	0.00829	0.01531	212.625
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00171	0.00149	0.00165	0.02204	0.00000	0.00000	0.00619	0.00619	0.00000	0.00145	0.00145	—	5.82774	5.82774	0.00007	0.00023	0.00696	5.90428
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00031	0.00027	0.00030	0.00402	0.00000	0.00000	0.00113	0.00113	0.00000	0.00026	0.00026	—	0.96485	0.96485	0.00001	0.00004	0.00115	0.97752
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading (2029)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32309	2.79232	22.7310	26.8680	0.06092	0.91614	—	0.91614	0.84285	—	0.84285	—	6,596.13	6,596.13	0.26757	0.05351	—	6,618.77

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	6.07097	6.07097	—	1.69292	1.69292	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27313	0.22951	1.86830	2.20832	0.00501	0.07530	—	0.07530	0.06928	—	0.06928	—	542.148	542.148	0.02199	0.00440	—	544.008
Dust From Material Movement	—	—	—	—	—	—	0.49898	0.49898	—	0.13914	0.13914	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04985	0.04188	0.34096	0.40302	0.00091	0.01374	—	0.01374	0.01264	—	0.01264	—	89.7587	89.7587	0.00364	0.00073	—	90.0668
Dust From Material Movement	—	—	—	—	—	—	0.09106	0.09106	—	0.02539	0.02539	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07143	0.06195	0.06900	0.86928	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	240.080	240.080	0.00309	0.00948	0.01750	243.000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00587	0.00509	0.00567	0.07558	0.00000	0.00000	0.02122	0.02122	0.00000	0.00497	0.00497	—	19.9808	19.9808	0.00025	0.00078	0.02387	20.2432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00107	0.00093	0.00104	0.01379	0.00000	0.00000	0.00387	0.00387	0.00000	0.00091	0.00091	—	3.30806	3.30806	0.00004	0.00013	0.00395	3.35150
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32309	2.79232	22.7310	26.8680	0.06092	0.91614	—	0.91614	0.84285	—	0.84285	—	6,596.13	6,596.13	0.26757	0.05351	—	6,618.77
Dust From Material Movement	—	—	—	—	—	—	6.07097	6.07097	—	1.69292	1.69292	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27313	0.22951	1.86830	2.20832	0.00501	0.07530	—	0.07530	0.06928	—	0.06928	—	542.148	542.148	0.02199	0.00440	—	544.008
Dust From Material Movement	—	—	—	—	—	—	0.49898	0.49898	—	0.13914	0.13914	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04985	0.04188	0.34096	0.40302	0.00091	0.01374	—	0.01374	0.01264	—	0.01264	—	89.7587	89.7587	0.00364	0.00073	—	90.0668

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.09106	0.09106	—	0.02539	0.02539	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07143	0.06195	0.06900	0.86928	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	240.080	240.080	0.00309	0.00948	0.01750	243.000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00587	0.00509	0.00567	0.07558	0.00000	0.00000	0.02122	0.02122	0.00000	0.00497	0.00497	—	19.9808	19.9808	0.00025	0.00078	0.02387	20.2432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00107	0.00093	0.00104	0.01379	0.00000	0.00000	0.00387	0.00387	0.00000	0.00091	0.00091	—	3.30806	3.30806	0.00004	0.00013	0.00395	3.35150

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Building Construction (2029)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.62747	0.52507	4.66869	7.01868	0.01273	0.14996	—	0.14996	0.13796	—	0.13796	—	1,303.95	1,303.95	0.05289	0.01058	—	1,308.43
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11451	0.09582	0.85204	1.28091	0.00232	0.02737	—	0.02737	0.02518	—	0.02518	—	215.884	215.884	0.00876	0.00175	—	216.625
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03961	0.03891	0.03150	0.60764	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	137.072	137.072	0.00139	0.00498	0.35355	138.944
Vendor	0.00575	0.00267	0.12196	0.03970	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.005	121.005	0.00201	0.01808	0.26283	126.705
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03254	0.03625	0.45663	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	126.112	126.112	0.00162	0.00498	0.00919	127.646
Vendor	0.00556	0.00248	0.12705	0.04074	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.105	121.105	0.00201	0.01808	0.00683	126.549
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02041	0.01770	0.01972	0.26278	0.00000	0.00000	0.07379	0.07379	0.00000	0.01728	0.01728	—	69.4720	69.4720	0.00088	0.00271	0.08300	70.3844
Vendor	0.00308	0.00140	0.06950	0.02191	0.00053	0.00105	0.01982	0.02087	0.00105	0.00548	0.00653	—	65.8537	65.8537	0.00109	0.00983	0.06186	68.8735
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00373	0.00323	0.00360	0.04796	0.00000	0.00000	0.01347	0.01347	0.00000	0.00315	0.00315	—	11.5019	11.5019	0.00015	0.00045	0.01374	11.6529
Vendor	0.00056	0.00026	0.01268	0.00400	0.00010	0.00019	0.00362	0.00381	0.00019	0.00100	0.00119	—	10.9028	10.9028	0.00018	0.00163	0.01024	11.4028
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62747	0.52507	4.66869	7.01868	0.01273	0.14996	—	0.14996	0.13796	—	0.13796	—	1,303.95	1,303.95	0.05289	0.01058	—	1,308.43
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11451	0.09582	0.85204	1.28091	0.00232	0.02737	—	0.02737	0.02518	—	0.02518	—	215.884	215.884	0.00876	0.00175	—	216.625
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03961	0.03891	0.03150	0.60764	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	137.072	137.072	0.00139	0.00498	0.35355	138.944
Vendor	0.00575	0.00267	0.12196	0.03970	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.005	121.005	0.00201	0.01808	0.26283	126.705
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.03752	0.03254	0.03625	0.45663	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	126.112	126.112	0.00162	0.00498	0.00919	127.646
Vendor	0.00556	0.00248	0.12705	0.04074	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.105	121.105	0.00201	0.01808	0.00683	126.549
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02041	0.01770	0.01972	0.26278	0.00000	0.00000	0.07379	0.07379	0.00000	0.01728	0.01728	—	69.4720	69.4720	0.00088	0.00271	0.08300	70.3844
Vendor	0.00308	0.00140	0.06950	0.02191	0.00053	0.00105	0.01982	0.02087	0.00105	0.00548	0.00653	—	65.8537	65.8537	0.00109	0.00983	0.06186	68.8735
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00373	0.00323	0.00360	0.04796	0.00000	0.00000	0.01347	0.01347	0.00000	0.00315	0.00315	—	11.5019	11.5019	0.00015	0.00045	0.01374	11.6529
Vendor	0.00056	0.00026	0.01268	0.00400	0.00010	0.00019	0.00362	0.00381	0.00019	0.00100	0.00119	—	10.9028	10.9028	0.00018	0.00163	0.01024	11.4028
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2030)

3.5.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31447	0.26315	2.34844	3.60572	0.00655	0.07279	—	0.07279	0.06697	—	0.06697	—	670.738	670.738	0.02721	0.00544	—	673.040
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05739	0.04802	0.42859	0.65804	0.00119	0.01328	—	0.01328	0.01222	—	0.01222	—	111.048	111.048	0.00450	0.00090	—	111.429
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03277	0.02698	0.56491	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	134.763	134.763	0.00139	0.00498	0.31433	136.596
Vendor	0.00584	0.00267	0.11646	0.03883	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.450	117.450	0.00201	0.01808	0.23240	123.119
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03590	0.03092	0.03173	0.43034	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	124.008	124.008	0.00162	0.00498	0.00815	125.541
Vendor	0.00556	0.00248	0.12251	0.03987	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.551	117.551	0.00201	0.01808	0.00603	122.994
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00992	0.00852	0.00888	0.12662	0.00000	0.00000	0.03795	0.03795	0.00000	0.00889	0.00889	—	35.1383	35.1383	0.00045	0.00139	0.03807	35.6030
Vendor	0.00161	0.00072	0.03421	0.01100	0.00027	0.00054	0.01019	0.01073	0.00054	0.00282	0.00336	—	32.8795	32.8795	0.00056	0.00506	0.02807	34.4291
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00181	0.00156	0.00162	0.02311	0.00000	0.00000	0.00693	0.00693	0.00000	0.00162	0.00162	—	5.81755	5.81755	0.00008	0.00023	0.00630	5.89449
Vendor	0.00029	0.00013	0.00624	0.00201	0.00005	0.00010	0.00186	0.00196	0.00010	0.00051	0.00061	—	5.44357	5.44357	0.00009	0.00084	0.00465	5.70012
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31447	0.26315	2.34844	3.60572	0.00655	0.07279	—	0.07279	0.06697	—	0.06697	—	670.738	670.738	0.02721	0.00544	—	673.040
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05739	0.04802	0.42859	0.65804	0.00119	0.01328	—	0.01328	0.01222	—	0.01222	—	111.048	111.048	0.00450	0.00090	—	111.429
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03277	0.02698	0.56491	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	134.763	134.763	0.00139	0.00498	0.31433	136.596
Vendor	0.00584	0.00267	0.11646	0.03883	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.450	117.450	0.00201	0.01808	0.23240	123.119
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03590	0.03092	0.03173	0.43034	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	124.008	124.008	0.00162	0.00498	0.00815	125.541
Vendor	0.00556	0.00248	0.12251	0.03987	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.551	117.551	0.00201	0.01808	0.00603	122.994
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00992	0.00852	0.00888	0.12662	0.00000	0.00000	0.03795	0.03795	0.00000	0.00889	0.00889	—	35.1383	35.1383	0.00045	0.00139	0.03807	35.6030
Vendor	0.00161	0.00072	0.03421	0.01100	0.00027	0.00054	0.01019	0.01073	0.00054	0.00282	0.00336	—	32.8795	32.8795	0.00056	0.00506	0.02807	34.4291
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00181	0.00156	0.00162	0.02311	0.00000	0.00000	0.00693	0.00693	0.00000	0.00162	0.00162	—	5.81755	5.81755	0.00008	0.00023	0.00630	5.89449
Vendor	0.00029	0.00013	0.00624	0.00201	0.00005	0.00010	0.00186	0.00196	0.00010	0.00051	0.00061	—	5.44357	5.44357	0.00009	0.00084	0.00465	5.70012
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Paving (2030)

3.6.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76655	0.64411	6.28020	9.89564	0.01395	0.22035	—	0.22035	0.20272	—	0.20272	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.16860	0.16860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04200	0.03529	0.34412	0.54223	0.00076	0.01207	—	0.01207	0.01111	—	0.01111	—	82.7740	82.7740	0.00336	0.00067	—	83.0580
Paving	0.00924	0.00924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00767	0.00644	0.06280	0.09896	0.00014	0.00220	—	0.00220	0.00203	—	0.00203	—	13.7042	13.7042	0.00056	0.00011	—	13.7512

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.00169	0.00169	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04679	0.03853	0.80656	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	192.412	192.412	0.00198	0.00711	0.44880	195.029
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00277	0.00238	0.00248	0.03540	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.82344	9.82344	0.00013	0.00039	0.01064	9.95335
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00051	0.00043	0.00045	0.00646	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.62638	1.62638	0.00002	0.00006	0.00176	1.64789
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76655	0.64411	6.28020	9.89564	0.01395	0.22035	—	0.22035	0.20272	—	0.20272	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.16860	0.16860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04200	0.03529	0.34412	0.54223	0.00076	0.01207	—	0.01207	0.01111	—	0.01111	—	82.7740	82.7740	0.00336	0.00067	—	83.0580
Paving	0.00924	0.00924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00767	0.00644	0.06280	0.09896	0.00014	0.00220	—	0.00220	0.00203	—	0.00203	—	13.7042	13.7042	0.00056	0.00011	—	13.7512
Paving	0.00169	0.00169	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04679	0.03853	0.80656	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	192.412	192.412	0.00198	0.00711	0.44880	195.029
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00277	0.00238	0.00248	0.03540	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.82344	9.82344	0.00013	0.00039	0.01064	9.95335
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00051	0.00043	0.00045	0.00646	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.62638	1.62638	0.00002	0.00006	0.00176	1.64789
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Architectural Coating (2030)

3.7.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11905	0.09839	0.78473	1.10719	0.00173	0.01097	—	0.01097	0.01009	—	0.01009	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	7.65659	7.65659	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00652	0.00539	0.04300	0.06067	0.00009	0.00060	—	0.00060	0.00055	—	0.00055	—	7.31577	7.31577	0.00030	0.00006	—	7.34088
Architectural Coatings	0.41954	0.41954	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00119	0.00098	0.00785	0.01107	0.00002	0.00011	—	0.00011	0.00010	—	0.00010	—	1.21121	1.21121	0.00005	0.00001	—	1.21537
Architectural Coatings	0.07657	0.07657	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00750	0.00655	0.00540	0.11298	0.00000	0.00000	0.02746	0.02746	0.00000	0.00644	0.00644	—	26.9527	26.9527	0.00028	0.00100	0.06287	27.3193
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00033	0.00035	0.00496	0.00000	0.00000	0.00149	0.00149	0.00000	0.00035	0.00035	—	1.37605	1.37605	0.00002	0.00005	0.00149	1.39424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00007	0.00006	0.00006	0.00090	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.22782	0.22782	< 0.000005	0.00001	0.00025	0.23083
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11905	0.09839	0.78473	1.10719	0.00173	0.01097	—	0.01097	0.01009	—	0.01009	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	7.65659	7.65659	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00652	0.00539	0.04300	0.06067	0.00009	0.00060	—	0.00060	0.00055	—	0.00055	—	7.31577	7.31577	0.00030	0.00006	—	7.34088
Architectural Coatings	0.41954	0.41954	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00119	0.00098	0.00785	0.01107	0.00002	0.00011	—	0.00011	0.00010	—	0.00010	—	1.21121	1.21121	0.00005	0.00001	—	1.21537

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.07657	0.07657	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00750	0.00655	0.00540	0.11298	0.00000	0.00000	0.02746	0.02746	0.00000	0.00644	0.00644	—	26.9527	26.9527	0.00028	0.00100	0.06287	27.3193
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00033	0.00035	0.00496	0.00000	0.00000	0.00149	0.00149	0.00000	0.00035	0.00035	—	1.37605	1.37605	0.00002	0.00005	0.00149	1.39424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00007	0.00006	0.00006	0.00090	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.22782	0.22782	< 0.000005	0.00001	0.00025	0.23083

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.19068	0.17041	0.18194	1.97685	0.00591	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	604.611	604.611	0.01852	0.02379	1.13022	613.293
Hotel	0.28441	0.25418	0.27138	2.94860	0.00882	0.00520	0.86635	0.87154	0.00488	0.21979	0.22467	—	901.820	901.820	0.02762	0.03548	1.68581	914.769
City Park	0.04205	0.03758	0.04013	0.43599	0.00130	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	133.346	133.346	0.00408	0.00525	0.24927	135.260
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	0.32398	0.28954	0.30913	3.35875	0.01005	0.00592	0.98686	0.99277	0.00556	0.25036	0.25592	—	1,027.26	1,027.26	0.03147	0.04041	1.92030	1,042.01
Total	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18244	0.16224	0.19520	1.62388	0.00555	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	567.373	567.373	0.01892	0.02452	0.02931	575.181
Hotel	0.27213	0.24200	0.29115	2.42213	0.00827	0.00520	0.86635	0.87155	0.00488	0.21979	0.22467	—	846.277	846.277	0.02822	0.03657	0.04371	857.924
City Park	0.04024	0.03578	0.04305	0.35814	0.00122	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	125.133	125.133	0.00417	0.00541	0.00646	126.855
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.30998	0.27566	0.33165	2.75904	0.00942	0.00592	0.98686	0.99278	0.00556	0.25036	0.25592	—	963.992	963.992	0.03214	0.04166	0.04979	977.259
Total	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.02501	0.02221	0.02746	0.23271	0.00077	0.00048	0.07925	0.07973	0.00045	0.02011	0.02056	—	71.7794	71.7794	0.00238	0.00310	0.06116	72.8238
Hotel	0.04710	0.04183	0.05173	0.43832	0.00146	0.00091	0.14928	0.15018	0.00085	0.03788	0.03873	—	135.203	135.203	0.00447	0.00584	0.11520	137.170
City Park	0.00383	0.00340	0.00420	0.03560	0.00012	0.00007	0.01213	0.01220	0.00007	0.00308	0.00315	—	10.9820	10.9820	0.00036	0.00047	0.00936	11.1417

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.05613	0.04985	0.06164	0.52232	0.00174	0.00108	0.17788	0.17896	0.00102	0.04514	0.04615	—	161.112	161.112	0.00533	0.00696	0.13728	163.456
Total	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.19068	0.17041	0.18194	1.97685	0.00591	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	604.611	604.611	0.01852	0.02379	1.13022	613.293
Hotel	0.28441	0.25418	0.27138	2.94860	0.00882	0.00520	0.86635	0.87154	0.00488	0.21979	0.22467	—	901.820	901.820	0.02762	0.03548	1.68581	914.769
City Park	0.04205	0.03758	0.04013	0.43599	0.00130	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	133.346	133.346	0.00408	0.00525	0.24927	135.260
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	0.32398	0.28954	0.30913	3.35875	0.01005	0.00592	0.98686	0.99277	0.00556	0.25036	0.25592	—	1,027.26	1,027.26	0.03147	0.04041	1.92030	1,042.01
Total	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18244	0.16224	0.19520	1.62388	0.00555	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	567.373	567.373	0.01892	0.02452	0.02931	575.181
Hotel	0.27213	0.24200	0.29115	2.42213	0.00827	0.00520	0.86635	0.87155	0.00488	0.21979	0.22467	—	846.277	846.277	0.02822	0.03657	0.04371	857.924
City Park	0.04024	0.03578	0.04305	0.35814	0.00122	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	125.133	125.133	0.00417	0.00541	0.00646	126.855
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.30998	0.27566	0.33165	2.75904	0.00942	0.00592	0.98686	0.99278	0.00556	0.25036	0.25592	—	963.992	963.992	0.03214	0.04166	0.04979	977.259
Total	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.02501	0.02221	0.02746	0.23271	0.00077	0.00048	0.07925	0.07973	0.00045	0.02011	0.02056	—	71.7794	71.7794	0.00238	0.00310	0.06116	72.8238
Hotel	0.04710	0.04183	0.05173	0.43832	0.00146	0.00091	0.14928	0.15018	0.00085	0.03788	0.03873	—	135.203	135.203	0.00447	0.00584	0.11520	137.170
City Park	0.00383	0.00340	0.00420	0.03560	0.00012	0.00007	0.01213	0.01220	0.00007	0.00308	0.00315	—	10.9820	10.9820	0.00036	0.00047	0.00936	11.1417

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.05613	0.04985	0.06164	0.52232	0.00174	0.00108	0.17788	0.17896	0.00102	0.04514	0.04615	—	161.112	161.112	0.00533	0.00696	0.13728	163.456
Total	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	18.5710	18.5710	0.00135	0.00016	—	18.6537
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	43.2795	43.2795	0.00315	0.00038	—	43.4722

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	10.0957	10.0957	0.00074	0.00009	—	10.1406
Arena	—	—	—	—	—	—	—	—	—	—	—	—	15.7371	15.7371	0.00115	0.00014	—	15.8071
Total	—	—	—	—	—	—	—	—	—	—	—	—	87.6833	87.6833	0.00638	0.00077	—	88.0736

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	18.5710	18.5710	0.00135	0.00016	—	18.6537
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	43.2795	43.2795	0.00315	0.00038	—	43.4722

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	10.0957	10.0957	0.00074	0.00009	—	10.1406
Arena	—	—	—	—	—	—	—	—	—	—	—	—	15.7371	15.7371	0.00115	0.00014	—	15.8071
Total	—	—	—	—	—	—	—	—	—	—	—	—	87.6833	87.6833	0.00638	0.00077	—	88.0736

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00077	0.00039	0.00700	0.00588	0.00004	0.00053	—	0.00053	0.00053	—	0.00053	—	7.58075	7.58075	0.00067	0.00001	—	7.60178
Hotel	0.00211	0.00105	0.01914	0.01608	0.00011	0.00145	—	0.00145	0.00145	—	0.00145	—	20.7210	20.7210	0.00183	0.00004	—	20.7784

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.00185	0.00093	0.01684	0.01415	0.00010	0.00128	—	0.00128	0.00128	—	0.00128	—	18.2316	18.2316	0.00161	0.00003	—	18.2821
Total	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	46.5333	46.5333	0.00412	0.00009	—	46.6623

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00077	0.00039	0.00700	0.00588	0.00004	0.00053	—	0.00053	0.00053	—	0.00053	—	7.58075	7.58075	0.00067	0.00001	—	7.60178
Hotel	0.00211	0.00105	0.01914	0.01608	0.00011	0.00145	—	0.00145	0.00145	—	0.00145	—	20.7210	20.7210	0.00183	0.00004	—	20.7784

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.00185	0.00093	0.01684	0.01415	0.00010	0.00128	—	0.00128	0.00128	—	0.00128	—	18.2316	18.2316	0.00161	0.00003	—	18.2821
Total	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	46.5333	46.5333	0.00412	0.00009	—	46.6623

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20328	0.18762	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.12690	0.12690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00766	0.00766	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02541	0.02345	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.000005	—	0.53423
Total	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.000005	—	0.53423

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20328	0.18762	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Total	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.12690	0.12690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00766	0.00766	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Landscape Equipment	0.02541	0.02345	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.00005	—	0.53423
Total	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.00005	—	0.53423

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.29203	1.28812	1.58015	0.03004	0.00072	—	2.54650
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.07243	0.31948	0.39191	0.00745	0.00018	—	0.63159
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	8.50586	8.50586	0.00062	0.00008	—	8.54372

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	1.09331	4.82255	5.91586	0.11246	0.00271	—	9.53374
Total	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.29203	1.28812	1.58015	0.03004	0.00072	—	2.54650
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.07243	0.31948	0.39191	0.00745	0.00018	—	0.63159
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	8.50586	8.50586	0.00062	0.00008	—	8.54372

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	1.09331	4.82255	5.91586	0.11246	0.00271	—	9.53374
Total	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.42976	0.00000	0.42976	0.04295	0.00000	—	1.50359
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43967	0.00000	0.43967	0.04394	0.00000	—	1.53825

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03898	0.00000	0.03898	0.00390	0.00000	—	0.13638
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.01964	0.00000	0.01964	0.00196	0.00000	—	0.06873
Total	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.42976	0.00000	0.42976	0.04295	0.00000	—	1.50359
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43967	0.00000	0.43967	0.04394	0.00000	—	1.53825

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03898	0.00000	0.03898	0.00390	0.00000	—	0.13638
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.01964	0.00000	0.01964	0.00196	0.00000	—	0.06873
Total	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00209	0.00209
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38219	3.38219
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00825	0.00825
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00209	0.00209
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38219	3.38219

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00825	0.00825
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2029	1/29/2029	5.00000	20.0000	—
Site Preparation	Site Preparation	1/30/2029	2/13/2029	5.00000	10.00000	—
Grading	Grading	2/14/2029	3/28/2029	5.00000	30.0000	—
Building Construction	Building Construction	3/29/2029	5/23/2030	5.00000	300.000	—
Paving	Paving	5/24/2030	6/21/2030	5.00000	20.0000	—
Architectural Coating	Architectural Coating	6/22/2030	7/20/2030	5.00000	20.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	0.60000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Worker	10.5058	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	4.30188	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	2.10117	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	0.60000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	10.5058	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	4.30188	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	2.10117	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	33,904.5	11,301.5	10,425.7

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	988.000	0.00000
Site Preparation	—	—	15.0000	0.00000	0.00000
Grading	—	—	90.0000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	2.29700

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Office Building	0.00000	0%
Paving	Hotel	0.00000	0%
Paving	City Park	0.00000	0%
Paving	Other Non-Asphalt Surfaces	1.01000	0%
Paving	Parking Lot	1.28700	100%
Paving	Arena	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2029	0.00000	453.209	0.03300	0.00400
2030	0.00000	453.209	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	50.4435	11.4456	3.62530	13,937.2	821.064	186.299	59.0087	226,854
Hotel	75.2400	73.7100	53.5500	26,251.8	1,224.68	1,199.77	871.629	427,299
City Park	3.96240	9.95680	11.1252	2,132.33	64.4957	162.066	181.084	34,707.8

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	85.7057	85.7057	85.7057	31,282.6	1,395.03	1,395.03	1,395.03	509,184

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	50.4435	11.4456	3.62530	13,937.2	821.064	186.299	59.0087	226,854
Hotel	75.2400	73.7100	53.5500	26,251.8	1,224.68	1,199.77	871.629	427,299
City Park	3.96240	9.95680	11.1252	2,132.33	64.4957	162.066	181.084	34,707.8
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	85.7057	85.7057	85.7057	31,282.6	1,395.03	1,395.03	1,395.03	509,184

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0
Hotel	Wood Fireplaces	0	0
Hotel	Gas Fireplaces	0	0
Hotel	Propane Fireplaces	0	0
Hotel	Electric Fireplaces	0	0
Hotel	No Fireplaces	0	0
Hotel	Conventional Wood Stoves	0	0
Hotel	Catalytic Wood Stoves	0	0
Hotel	Non-Catalytic Wood Stoves	0	0
Hotel	Pellet Wood Stoves	0	0
City Park	Wood Fireplaces	0	0
City Park	Gas Fireplaces	0	0
City Park	Propane Fireplaces	0	0
City Park	Electric Fireplaces	0	0
City Park	No Fireplaces	0	0
City Park	Conventional Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
City Park	Catalytic Wood Stoves	0	0
City Park	Non-Catalytic Wood Stoves	0	0
City Park	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Arena	Wood Fireplaces	0	0
Arena	Gas Fireplaces	0	0
Arena	Propane Fireplaces	0	0
Arena	Electric Fireplaces	0	0
Arena	No Fireplaces	0	0
Arena	Conventional Wood Stoves	0	0
Arena	Catalytic Wood Stoves	0	0
Arena	Non-Catalytic Wood Stoves	0	0
Arena	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	33,904.5	11,301.5	10,425.7

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	90,338.2	453.209	0.0330	0.0040	142,871
Hotel	210,532	453.209	0.0330	0.0040	390,520
City Park	0.00000	453.209	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000
Parking Lot	49,110.1	453.209	0.0330	0.0040	0.00000
Arena	76,552.6	453.209	0.0330	0.0040	343,603

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	90,338.2	453.209	0.0330	0.0040	142,871
Hotel	210,532	453.209	0.0330	0.0040	390,520
City Park	0.00000	453.209	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Parking Lot	49,110.1	453.209	0.0330	0.0040	0.00000
Arena	76,552.6	453.209	0.0330	0.0040	343,603

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	920,483	0.00000
Hotel	228,301	0.00000
City Park	0.00000	7,796,923
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	3,446,161	0.00000

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	920,483	0.00000
Hotel	228,301	0.00000
City Park	0.00000	7,796,923
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	3,446,161	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	4.81647	0.00000
Hotel	4.92750	0.00000
City Park	0.43688	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	0.22016	0.00000

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	4.81647	0.00000
Hotel	4.92750	0.00000
City Park	0.43688	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	0.22016	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Hotel	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Hotel	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Hotel	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000

5.14.2. Mitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Hotel	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Hotel	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Hotel	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	31.7700	annual days of extreme heat
Extreme Precipitation	5.45000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	23.6300	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.5980
AQ-PM	22.5638
AQ-DPM	1.29434
Drinking Water	61.4712
Lead Risk Housing	44.8393
Pesticides	0.13793
Toxic Releases	29.1073
Traffic	7.35000
Effect Indicators	—
CleanUp Sites	46.0806
Groundwater	0.00000
Haz Waste Facilities/Generators	1.80013
Impaired Water Bodies	0.00000
Solid Waste	2.52005
Sensitive Population	—
Asthma	85.6555
Cardio-vascular	96.1989
Low Birth Weights	43.5463
Socioeconomic Factor Indicators	—
Education	62.6803

Indicator	Result for Project Census Tract
Housing	51.3561
Linguistic	23.7651
Poverty	63.9070
Unemployment	46.9938

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	42.37135891
Employed	9.534197357
Median HI	41.13948415
Education	—
Bachelor's or higher	25.84370589
High school enrollment	11.40767355
Preschool enrollment	34.36417298
Transportation	—
Auto Access	41.51161299
Active commuting	3.58013602
Social	—
2-parent households	10.79173617

Indicator	Result for Project Census Tract
Voting	40.40805851
Neighborhood	—
Alcohol availability	97.0101373
Park access	58.02643398
Retail density	6.544334659
Supermarket access	13.83292699
Tree canopy	33.14513025
Housing	—
Homeownership	71.67971256
Housing habitability	81.14974978
Low-inc homeowner severe housing cost burden	26.6521237
Low-inc renter severe housing cost burden	91.09457205
Uncrowded housing	54.63877839
Health Outcomes	—
Insured adults	30.92518927
Arthritis	0.0
Asthma ER Admissions	12.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0

Indicator	Result for Project Census Tract
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	20.7
Cognitively Disabled	28.0
Physically Disabled	29.8
Heart Attack ER Admissions	0.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	19.0
SLR Inundation Area	0.0
Children	68.4
Elderly	34.5

Indicator	Result for Project Census Tract
English Speaking	85.7
Foreign-born	20.8
Outdoor Workers	57.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	4.4
Traffic Access	23.0
Other Indices	—
Hardship	69.9
Other Decision Support	—
2016 Voting	50.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	38.0000
Healthy Places Index Score for Project Location (b)	23.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Architectural Coatings	SCAQMD Rule 1113

8.4. Construction

8.4.8. Architectural Coatings

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Non-Residential Interior VOC	g/L	100.0000	50.0000
Architectural Coating	Non-Residential Exterior VOC	g/L	100.0000	50.0000
Architectural Coating	Non-Residential Interior Area	sq ft	39,370.5	33,904.5

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Non-Residential Exterior Area	sq ft	13,123.5	11,301.5
Architectural Coating	Parking Area	sq ft	6,003.44	10,425.7

8.5. Operations

8.5.2. Area Sources

8.5.2.3. Architectural Coatings

Model Parameter	Units	Default Value	New Value
Non-Residential Interior VOC	g/L	100.0000	50.0000
Non-Residential Exterior VOC	g/L	100.0000	50.0000
Non-Residential Interior Area	sq ft	39,370.5	33,904.5
Non-Residential Exterior Area	sq ft	13,123.5	11,301.5
Parking Area	sq ft	6,003.44	10,425.7

APPENDIX B.3

PHASE 1 PLUS MASTER PLAN DETAILED REPORT-CONSTRUCTION AND OPERATIONS

7196 Master Plan Detailed Report

Table of Contents

1. Basic Project Information
   1.1. Basic Project Information
   1.2. Land Use Types
   1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
   2.1. Construction Emissions Compared Against Thresholds
   2.2. Construction Emissions by Year
      2.2.1. Total Construction Emissions by Year, Unmitigated
      2.2.2. Onsite Construction Emissions by Year, Unmitigated
      2.2.3. Offsite Construction Emissions by Year, Unmitigated
      2.2.4. Total Construction Emissions by Year, Mitigated
      2.2.5. Onsite Construction Emissions by Year, Mitigated
      2.2.6. Offsite Construction Emissions by Year, Mitigated
   2.3. Operations Emissions Compared Against Thresholds
   2.4. Operations Emissions by Sector, Unmitigated
   2.5. Operations Emissions by Sector, Mitigated
3. Construction Emissions Details
   3.1. Demolition (2029)

3.1.1. Onsite - Unmitigated
3.1.2. Offsite - Unmitigated
3.1.3. Onsite - Mitigated
3.1.4. Offsite - Mitigated
3.2. Site Preparation (2029)
3.2.1. Onsite - Unmitigated
3.2.2. Offsite - Unmitigated
3.2.3. Onsite - Mitigated
3.2.4. Offsite - Mitigated
3.3. Grading (2029)
3.3.1. Onsite - Unmitigated
3.3.2. Offsite - Unmitigated
3.3.3. Onsite - Mitigated
3.3.4. Offsite - Mitigated
3.4. Building Construction (2029)
3.4.1. Onsite - Unmitigated
3.4.2. Offsite - Unmitigated
3.4.3. Onsite - Mitigated
3.4.4. Offsite - Mitigated
3.5. Building Construction (2030)
3.5.1. Onsite - Unmitigated
3.5.2. Offsite - Unmitigated

3.5.3. Onsite - Mitigated
3.5.4. Offsite - Mitigated
3.6. Paving (2030)
3.6.1. Onsite - Unmitigated
3.6.2. Offsite - Unmitigated
3.6.3. Onsite - Mitigated
3.6.4. Offsite - Mitigated
3.7. Architectural Coating (2030)
3.7.1. Onsite - Unmitigated
3.7.2. Offsite - Unmitigated
3.7.3. Onsite - Mitigated
3.7.4. Offsite - Mitigated
4. Operations Emissions Details
4.1. Mobile Emissions by Land Use
4.1.1. Unmitigated
4.1.2. Mitigated
4.2. Energy
4.2.1. Electricity Emissions By Land Use - Unmitigated
4.2.2. Electricity Emissions By Land Use - Mitigated
4.2.3. Natural Gas Emissions By Land Use - Unmitigated
4.2.4. Natural Gas Emissions By Land Use - Mitigated
4.3. Area Emissions by Source

4.3.1. Unmitigated
4.3.2. Mitigated
4.4. Water Emissions by Land Use
4.4.1. Unmitigated
4.4.2. Mitigated
4.5. Waste Emissions by Land Use
4.5.1. Unmitigated
4.5.2. Mitigated
4.6. Refrigerant Emissions by Land Use
4.6.1. Unmitigated
4.6.2. Mitigated
4.7. Offroad Emissions By Equipment Type
4.7.1. Unmitigated
4.7.2. Mitigated
4.8. Stationary Emissions By Equipment Type
4.8.1. Unmitigated
4.8.2. Mitigated
4.9. User Defined Emissions By Equipment Type
4.9.1. Unmitigated
4.9.2. Mitigated
4.10. Soil Carbon Accumulation By Vegetation Type
4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated
4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated
4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated
4.10.6. Avoided and Sequestered Emissions by Species - Mitigated
5. Activity Data
5.1. Construction Schedule
5.2. Off-Road Equipment
5.2.1. Unmitigated
5.2.2. Mitigated
5.3. Construction Vehicles
5.3.1. Unmitigated
5.3.2. Mitigated
5.4. Vehicles
5.4.1. Construction Vehicle Control Strategies
5.5. Architectural Coatings
5.6. Dust Mitigation
5.6.1. Construction Earthmoving Activities
5.6.2. Construction Earthmoving Control Strategies
5.7. Construction Paving
5.8. Construction Electricity Consumption and Emissions Factors
5.9. Operational Mobile Sources

5.9.1. Unmitigated
5.9.2. Mitigated
5.10. Operational Area Sources
5.10.1. Hearths
5.10.2. Architectural Coatings
5.10.3. Landscape Equipment
5.10.4. Landscape Equipment - Mitigated
5.11. Operational Energy Consumption
5.11.1. Unmitigated
5.11.2. Mitigated
5.12. Operational Water and Wastewater Consumption
5.12.1. Unmitigated
5.12.2. Mitigated
5.13. Operational Waste Generation
5.13.1. Unmitigated
5.13.2. Mitigated
5.14. Operational Refrigeration and Air Conditioning Equipment
5.14.1. Unmitigated
5.14.2. Mitigated
5.15. Operational Off-Road Equipment
5.15.1. Unmitigated
5.15.2. Mitigated

5.16. Stationary Sources
5.16.1. Emergency Generators and Fire Pumps
5.16.2. Process Boilers
5.17. User Defined
5.18. Vegetation
5.18.1. Land Use Change
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.1. Biomass Cover Type
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.2. Sequestration
5.18.2.1. Unmitigated
5.18.2.2. Mitigated
6. Climate Risk Detailed Report
6.1. Climate Risk Summary
6.2. Initial Climate Risk Scores
6.3. Adjusted Climate Risk Scores
6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores
7.4. Health & Equity Measures
7.5. Evaluation Scorecard
7.6. Health & Equity Custom Measures
8. User Changes to Default Data
8.1. Justifications
8.4. Construction
8.4.8. Architectural Coatings
8.5. Operations
8.5.2. Area Sources
8.5.2.3. Architectural Coatings

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	7196 Master Plan
Construction Start Date	1/1/2029
Operational Year	2032
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	19.2000
Location	1937 W Gilman St, Banning, CA 92220, USA
County	Riverside-South Coast
City	Banning
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5630
EDFZ	11
Electric Utility	City of Banning Electric Department
Gas Utility	Southern California Gas

Data Field	Value
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	5.17900	1000sqft	0.11889	5,179.00	0.00000	—	—	Restrooms, Stage, entry Kiosk, Adobe museum enclosure
Hotel	9.00000	Room	0.30000	13,068.0	0.00000	—	—	Stagecoach Hotel
City Park	5.08000	Acre	5.08000	0.00000	221,284	221,284	—	Event Lawn and Native medicinal garden, community park, outdoor classroom, playground
Other Non-Asphalt Surfaces	1.01000	Acre	1.01000	0.00000	0.00000	—	—	Pedestrian Improvements (museum plaza, DG pathways, ADA ramps, terraces, secondary stairs, seating areas)
Parking Lot	143.000	Space	1.28700	0.00000	0.00000	—	—	Parking Lot
Arena	8.00000	1000sqft	2.57143	8,000.00	0.00000	—	—	Event Center

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction

Sector	#	Measure Title
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.78315	7.76154	8.73512	13.5486	0.02436	0.27758	0.19606	0.45170	0.25553	0.04596	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
Mit.	7.78315	7.76154	8.73512	13.5486	0.02436	0.27758	0.19606	0.45170	0.25553	0.04596	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
Mit.	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Mit.	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
Mit.	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.19872	1.00672	8.73512	13.5486	0.02436	0.27758	0.17413	0.45170	0.25553	0.04236	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
2030	7.78315	7.76154	8.53541	13.4885	0.02436	0.26205	0.19606	0.43618	0.24124	0.04596	0.28360	—	2,649.05	2,649.05	0.10063	0.04250	0.54673	2,664.77
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	1.16518	0.97374	8.54621	13.3550	0.02436	0.26205	0.17413	0.43618	0.24124	0.04236	0.28360	—	2,638.39	2,638.39	0.10086	0.04250	0.01418	2,653.59
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
2030	0.80646	0.74457	2.78147	4.38658	0.00768	0.08601	0.06024	0.14625	0.07917	0.01454	0.09371	—	840.045	840.045	0.03202	0.01307	0.07827	844.818
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
2030	0.14718	0.13588	0.50762	0.80055	0.00140	0.01570	0.01099	0.02669	0.01445	0.00265	0.01710	—	139.079	139.079	0.00530	0.00216	0.01296	139.869

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	7.77564	7.75498	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.53388	2.96944	25.9333	28.0793	0.06092	1.08794	7.66623	8.75418	1.00091	3.93995	4.94086	—	6,596.13	6,596.13	0.26757	0.05351	0.00000	6,618.77
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.13710	0.95316	8.26609	11.0082	0.02086	0.29541	0.71074	1.00615	0.27178	0.24735	0.51913	—	2,178.96	2,178.96	0.08839	0.01768	0.00000	2,186.44

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.79177	0.73261	2.73555	4.20861	0.00741	0.08547	0.00000	0.08547	0.07863	0.00000	0.07863	—	760.828	760.828	0.03086	0.00617	0.00000	763.439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.20752	0.17395	1.50856	2.00900	0.00381	0.05391	0.12971	0.18362	0.04960	0.04514	0.09474	—	360.752	360.752	0.01463	0.00293	0.00000	361.990
2030	0.14450	0.13370	0.49924	0.76807	0.00135	0.01560	0.00000	0.01560	0.01435	0.00000	0.01435	—	125.964	125.964	0.00511	0.00102	0.00000	126.396

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.04535	0.04159	0.15346	0.64734	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	258.077	258.077	0.00340	0.02306	0.61638	265.649
2030	0.05357	0.04679	0.14345	0.80656	0.00097	0.00193	0.19606	0.19606	0.00193	0.04596	0.04596	—	252.213	252.213	0.00340	0.02306	0.54673	259.716
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.07143	0.06195	0.16330	0.86928	0.00097	0.00193	0.26142	0.26142	0.00193	0.06128	0.06128	—	247.218	247.218	0.00363	0.02306	0.01750	254.195
2030	0.04146	0.03341	0.15425	0.47021	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	241.559	241.559	0.00363	0.02306	0.01418	248.535
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.03410	0.02827	0.10175	0.42067	0.00054	0.00110	0.13221	0.13331	0.00110	0.03183	0.03293	—	173.209	173.209	0.00247	0.01427	0.18917	177.711
2030	0.01469	0.01196	0.04592	0.17797	0.00027	0.00054	0.06024	0.06079	0.00054	0.01454	0.01508	—	79.2173	79.2173	0.00116	0.00690	0.07827	81.3797
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.00622	0.00516	0.01857	0.07677	0.00010	0.00020	0.02413	0.02433	0.00020	0.00581	0.00601	—	28.6767	28.6767	0.00041	0.00236	0.03132	29.4221

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.00268	0.00218	0.00838	0.03248	0.00005	0.00010	0.01099	0.01109	0.00010	0.00265	0.00275	—	13.1153	13.1153	0.00019	0.00114	0.01296	13.4733

2.2.4. Total Construction Emissions by Year, Mitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.19872	1.00672	8.73512	13.5486	0.02436	0.27758	0.17413	0.45170	0.25553	0.04236	0.29788	—	2,654.91	2,654.91	0.10063	0.04250	0.61638	2,670.71
2030	7.78315	7.76154	8.53541	13.4885	0.02436	0.26205	0.19606	0.43618	0.24124	0.04596	0.28360	—	2,649.05	2,649.05	0.10063	0.04250	0.54673	2,664.77
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.59638	3.02364	25.9937	28.8399	0.06092	1.08794	7.89497	8.98292	1.00091	3.99357	4.99448	—	6,836.21	6,836.21	0.27065	0.06299	0.01750	6,861.77
2030	1.16518	0.97374	8.54621	13.3550	0.02436	0.26205	0.17413	0.43618	0.24124	0.04236	0.28360	—	2,638.39	2,638.39	0.10086	0.04250	0.01418	2,653.59
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.17120	0.98143	8.36784	11.4289	0.02140	0.29651	0.84295	1.13946	0.27287	0.27918	0.55205	—	2,352.17	2,352.17	0.09086	0.03194	0.18917	2,364.15
2030	0.80646	0.74457	2.78147	4.38658	0.00768	0.08601	0.06024	0.14625	0.07917	0.01454	0.09371	—	840.045	840.045	0.03202	0.01307	0.07827	844.818
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.21374	0.17911	1.52713	2.08577	0.00391	0.05411	0.15384	0.20795	0.04980	0.05095	0.10075	—	389.429	389.429	0.01504	0.00529	0.03132	391.412
2030	0.14718	0.13588	0.50762	0.80055	0.00140	0.01570	0.01099	0.02669	0.01445	0.00265	0.01710	—	139.079	139.079	0.00530	0.00216	0.01296	139.869

2.2.5. Onsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	7.77564	7.75498	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	3.53388	2.96944	25.9333	28.0793	0.06092	1.08794	7.66623	8.75418	1.00091	3.93995	4.94086	—	6,596.13	6,596.13	0.26757	0.05351	0.00000	6,618.77
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.13710	0.95316	8.26609	11.0082	0.02086	0.29541	0.71074	1.00615	0.27178	0.24735	0.51913	—	2,178.96	2,178.96	0.08839	0.01768	0.00000	2,186.44
2030	0.79177	0.73261	2.73555	4.20861	0.00741	0.08547	0.00000	0.08547	0.07863	0.00000	0.07863	—	760.828	760.828	0.03086	0.00617	0.00000	763.439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.20752	0.17395	1.50856	2.00900	0.00381	0.05391	0.12971	0.18362	0.04960	0.04514	0.09474	—	360.752	360.752	0.01463	0.00293	0.00000	361.990
2030	0.14450	0.13370	0.49924	0.76807	0.00135	0.01560	0.00000	0.01560	0.01435	0.00000	0.01435	—	125.964	125.964	0.00511	0.00102	0.00000	126.396

2.2.6. Offsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2029	0.04535	0.04159	0.15346	0.64734	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	258.077	258.077	0.00340	0.02306	0.61638	265.649
2030	0.05357	0.04679	0.14345	0.80656	0.00097	0.00193	0.19606	0.19606	0.00193	0.04596	0.04596	—	252.213	252.213	0.00340	0.02306	0.54673	259.716
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.07143	0.06195	0.16330	0.86928	0.00097	0.00193	0.26142	0.26142	0.00193	0.06128	0.06128	—	247.218	247.218	0.00363	0.02306	0.01750	254.195
2030	0.04146	0.03341	0.15425	0.47021	0.00097	0.00193	0.17413	0.17606	0.00193	0.04236	0.04429	—	241.559	241.559	0.00363	0.02306	0.01418	248.535
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.03410	0.02827	0.10175	0.42067	0.00054	0.00110	0.13221	0.13331	0.00110	0.03183	0.03293	—	173.209	173.209	0.00247	0.01427	0.18917	177.711
2030	0.01469	0.01196	0.04592	0.17797	0.00027	0.00054	0.06024	0.06079	0.00054	0.01454	0.01508	—	79.2173	79.2173	0.00116	0.00690	0.07827	81.3797
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.00622	0.00516	0.01857	0.07677	0.00010	0.00020	0.02413	0.02433	0.00020	0.00581	0.00601	—	28.6767	28.6767	0.00041	0.00236	0.03132	29.4221
2030	0.00268	0.00218	0.00838	0.03248	0.00005	0.00010	0.01099	0.01109	0.00010	0.00265	0.00275	—	13.1153	13.1153	0.00019	0.00114	0.01296	13.4733

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Mit.	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Mit.	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Mit.	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757
Mit.	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Area	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Area	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.72361	0.64267	0.79467	6.73399	0.02238	0.01393	2.29335	2.30728	0.01309	0.58191	0.59500	—	2,289.64	2,289.64	0.07577	0.09889	1.95094	2,322.95
Area	0.87651	0.86578	0.00658	0.78189	0.00005	0.00139	—	0.00139	0.00105	—	0.00105	—	3.21520	3.21520	0.00013	0.00003	—	3.22679

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591
Area	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.0000 05	—	0.53423
Energy	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	134.217	134.217	0.01050	0.00086	—	134.736
Water	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556
Waste	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252
Total	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757

2.5. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Area	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.80759	1.68956	1.04774	10.0596	0.02757	0.03529	2.56213	2.59743	0.03388	0.64999	0.68387	14.4105	3,572.62	3,587.03	1.61500	0.13242	25.4766	3,692.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Area	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Total	1.56797	1.46591	1.09660	7.36106	0.02588	0.03327	2.56213	2.59541	0.03235	0.64999	0.68234	14.4105	3,403.67	3,418.08	1.61656	0.13560	20.6203	3,519.52
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.72361	0.64267	0.79467	6.73399	0.02238	0.01393	2.29335	2.30728	0.01309	0.58191	0.59500	—	2,289.64	2,289.64	0.07577	0.09889	1.95094	2,322.95
Area	0.87651	0.86578	0.00658	0.78189	0.00005	0.00139	—	0.00139	0.00105	—	0.00105	—	3.21520	3.21520	0.00013	0.00003	—	3.22679
Energy	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	810.676	810.676	0.06344	0.00520	—	813.812
Water	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Waste	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	1.62603	1.52140	1.03681	7.71375	0.02384	0.03322	2.29335	2.32657	0.03204	0.58191	0.61395	14.4105	3,193.74	3,208.16	1.60901	0.12637	22.4420	3,308.48
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591
Area	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.0000 05	—	0.53423
Energy	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	134.217	134.217	0.01050	0.00086	—	134.736
Water	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556
Waste	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252
Total	0.29675	0.27766	0.18922	1.40776	0.00435	0.00606	0.41854	0.42460	0.00585	0.10620	0.11205	2.38582	528.761	531.147	0.26639	0.02092	3.71552	547.757

3. Construction Emissions Details

3.1. Demolition (2029)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	2.54926	2.13956	18.5895	18.4678	0.03253	0.73633	—	0.73633	0.67742	—	0.67742	—	3,426.75	3,426.75	0.13900	0.02780	—	3,438.51
Demolition	—	—	—	—	—	—	0.03141	0.03141	—	0.00476	0.00476	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13969	0.11724	1.01860	1.01194	0.00178	0.04035	—	0.04035	0.03712	—	0.03712	—	187.767	187.767	0.00762	0.00152	—	188.412
Demolition	—	—	—	—	—	—	0.00172	0.00172	—	0.00026	0.00026	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02549	0.02140	0.18589	0.18468	0.00033	0.00736	—	0.00736	0.00677	—	0.00677	—	31.0870	31.0870	0.00126	0.00025	—	31.1937
Demolition	—	—	—	—	—	—	0.00031	0.00031	—	0.00005	0.00005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04646	0.05175	0.65196	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	180.060	180.060	0.00231	0.00711	0.01312	182.250
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00168	0.00061	0.04291	0.01044	0.00028	0.00079	0.01086	0.01165	0.00079	0.00305	0.00384	—	38.0433	38.0433	0.00077	0.00597	0.00168	39.8419
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00294	0.00255	0.00284	0.03779	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.99042	9.99042	0.00013	0.00039	0.01194	10.1216
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00009	0.00004	0.00236	0.00057	0.00002	0.00004	0.00059	0.00063	0.00004	0.00017	0.00021	—	2.08385	2.08385	0.00004	0.00033	0.00154	2.18385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00054	0.00046	0.00052	0.00690	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.65403	1.65403	0.00002	0.00006	0.00198	1.67575
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00002	0.00001	0.00043	0.00010	< 0.000005	0.00001	0.00011	0.00012	0.00001	0.00003	0.00004	—	0.34501	0.34501	0.00001	0.00005	0.00025	0.36156

3.1.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54926	2.13956	18.5895	18.4678	0.03253	0.73633	—	0.73633	0.67742	—	0.67742	—	3,426.75	3,426.75	0.13900	0.02780	—	3,438.51
Demolition	—	—	—	—	—	—	0.03141	0.03141	—	0.00476	0.00476	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13969	0.11724	1.01860	1.01194	0.00178	0.04035	—	0.04035	0.03712	—	0.03712	—	187.767	187.767	0.00762	0.00152	—	188.412
Demolition	—	—	—	—	—	—	0.00172	0.00172	—	0.00026	0.00026	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02549	0.02140	0.18589	0.18468	0.00033	0.00736	—	0.00736	0.00677	—	0.00677	—	31.0870	31.0870	0.00126	0.00025	—	31.1937
Demolition	—	—	—	—	—	—	0.00031	0.00031	—	0.00005	0.00005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04646	0.05175	0.65196	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	180.060	180.060	0.00231	0.00711	0.01312	182.250
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00168	0.00061	0.04291	0.01044	0.00028	0.00079	0.01086	0.01165	0.00079	0.00305	0.00384	—	38.0433	38.0433	0.00077	0.00597	0.00168	39.8419
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00294	0.00255	0.00284	0.03779	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.99042	9.99042	0.00013	0.00039	0.01194	10.1216
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00009	0.00004	0.00236	0.00057	0.00002	0.00004	0.00059	0.00063	0.00004	0.00017	0.00021	—	2.08385	2.08385	0.00004	0.00033	0.00154	2.18385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00054	0.00046	0.00052	0.00690	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.65403	1.65403	0.00002	0.00006	0.00198	1.67575
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00002	0.00001	0.00043	0.00010	< 0.000005	0.00001	0.00011	0.00012	0.00001	0.00003	0.00004	—	0.34501	0.34501	0.00001	0.00005	0.00025	0.36156

3.2. Site Preparation (2029)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.53388	2.96944	25.9333	28.0793	0.04889	1.08794	—	1.08794	1.00091	—	1.00091	—	5,296.00	5,296.00	0.21483	0.04297	—	5,314.17
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09682	0.08135	0.71050	0.76929	0.00134	0.02981	—	0.02981	0.02742	—	0.02742	—	145.096	145.096	0.00589	0.00118	—	145.594
Dust From Material Movement	—	—	—	—	—	—	0.21003	0.21003	—	0.10794	0.10794	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01767	0.01485	0.12967	0.14040	0.00024	0.00544	—	0.00544	0.00500	—	0.00500	—	24.0223	24.0223	0.00097	0.00019	—	24.1047

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.03833	0.03833	—	0.01970	0.01970	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06250	0.05421	0.06038	0.76062	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	210.070	210.070	0.00270	0.00829	0.01531	212.625
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00171	0.00149	0.00165	0.02204	0.00000	0.00000	0.00619	0.00619	0.00000	0.00145	0.00145	—	5.82774	5.82774	0.00007	0.00023	0.00696	5.90428
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00031	0.00027	0.00030	0.00402	0.00000	0.00000	0.00113	0.00113	0.00000	0.00026	0.00026	—	0.96485	0.96485	0.00001	0.00004	0.00115	0.97752

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.53388	2.96944	25.9333	28.0793	0.04889	1.08794	—	1.08794	1.00091	—	1.00091	—	5,296.00	5,296.00	0.21483	0.04297	—	5,314.17
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09682	0.08135	0.71050	0.76929	0.00134	0.02981	—	0.02981	0.02742	—	0.02742	—	145.096	145.096	0.00589	0.00118	—	145.594

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.21003	0.21003	—	0.10794	0.10794	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01767	0.01485	0.12967	0.14040	0.00024	0.00544	—	0.00544	0.00500	—	0.00500	—	24.0223	24.0223	0.00097	0.00019	—	24.1047
Dust From Material Movement	—	—	—	—	—	—	0.03833	0.03833	—	0.01970	0.01970	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06250	0.05421	0.06038	0.76062	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	210.070	210.070	0.00270	0.00829	0.01531	212.625
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00171	0.00149	0.00165	0.02204	0.00000	0.00000	0.00619	0.00619	0.00000	0.00145	0.00145	—	5.82774	5.82774	0.00007	0.00023	0.00696	5.90428
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00031	0.00027	0.00030	0.00402	0.00000	0.00000	0.00113	0.00113	0.00000	0.00026	0.00026	—	0.96485	0.96485	0.00001	0.00004	0.00115	0.97752
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading (2029)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32309	2.79232	22.7310	26.8680	0.06092	0.91614	—	0.91614	0.84285	—	0.84285	—	6,596.13	6,596.13	0.26757	0.05351	—	6,618.77

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	6.07097	6.07097	—	1.69292	1.69292	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27313	0.22951	1.86830	2.20832	0.00501	0.07530	—	0.07530	0.06928	—	0.06928	—	542.148	542.148	0.02199	0.00440	—	544.008
Dust From Material Movement	—	—	—	—	—	—	0.49898	0.49898	—	0.13914	0.13914	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04985	0.04188	0.34096	0.40302	0.00091	0.01374	—	0.01374	0.01264	—	0.01264	—	89.7587	89.7587	0.00364	0.00073	—	90.0668
Dust From Material Movement	—	—	—	—	—	—	0.09106	0.09106	—	0.02539	0.02539	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07143	0.06195	0.06900	0.86928	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	240.080	240.080	0.00309	0.00948	0.01750	243.000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00587	0.00509	0.00567	0.07558	0.00000	0.00000	0.02122	0.02122	0.00000	0.00497	0.00497	—	19.9808	19.9808	0.00025	0.00078	0.02387	20.2432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00107	0.00093	0.00104	0.01379	0.00000	0.00000	0.00387	0.00387	0.00000	0.00091	0.00091	—	3.30806	3.30806	0.00004	0.00013	0.00395	3.35150
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32309	2.79232	22.7310	26.8680	0.06092	0.91614	—	0.91614	0.84285	—	0.84285	—	6,596.13	6,596.13	0.26757	0.05351	—	6,618.77
Dust From Material Movement	—	—	—	—	—	—	6.07097	6.07097	—	1.69292	1.69292	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27313	0.22951	1.86830	2.20832	0.00501	0.07530	—	0.07530	0.06928	—	0.06928	—	542.148	542.148	0.02199	0.00440	—	544.008
Dust From Material Movement	—	—	—	—	—	—	0.49898	0.49898	—	0.13914	0.13914	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04985	0.04188	0.34096	0.40302	0.00091	0.01374	—	0.01374	0.01264	—	0.01264	—	89.7587	89.7587	0.00364	0.00073	—	90.0668

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.09106	0.09106	—	0.02539	0.02539	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07143	0.06195	0.06900	0.86928	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	240.080	240.080	0.00309	0.00948	0.01750	243.000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00587	0.00509	0.00567	0.07558	0.00000	0.00000	0.02122	0.02122	0.00000	0.00497	0.00497	—	19.9808	19.9808	0.00025	0.00078	0.02387	20.2432
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00107	0.00093	0.00104	0.01379	0.00000	0.00000	0.00387	0.00387	0.00000	0.00091	0.00091	—	3.30806	3.30806	0.00004	0.00013	0.00395	3.35150

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Building Construction (2029)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.62747	0.52507	4.66869	7.01868	0.01273	0.14996	—	0.14996	0.13796	—	0.13796	—	1,303.95	1,303.95	0.05289	0.01058	—	1,308.43
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11451	0.09582	0.85204	1.28091	0.00232	0.02737	—	0.02737	0.02518	—	0.02518	—	215.884	215.884	0.00876	0.00175	—	216.625
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03961	0.03891	0.03150	0.60764	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	137.072	137.072	0.00139	0.00498	0.35355	138.944
Vendor	0.00575	0.00267	0.12196	0.03970	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.005	121.005	0.00201	0.01808	0.26283	126.705
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03254	0.03625	0.45663	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	126.112	126.112	0.00162	0.00498	0.00919	127.646
Vendor	0.00556	0.00248	0.12705	0.04074	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.105	121.105	0.00201	0.01808	0.00683	126.549
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02041	0.01770	0.01972	0.26278	0.00000	0.00000	0.07379	0.07379	0.00000	0.01728	0.01728	—	69.4720	69.4720	0.00088	0.00271	0.08300	70.3844
Vendor	0.00308	0.00140	0.06950	0.02191	0.00053	0.00105	0.01982	0.02087	0.00105	0.00548	0.00653	—	65.8537	65.8537	0.00109	0.00983	0.06186	68.8735
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00373	0.00323	0.00360	0.04796	0.00000	0.00000	0.01347	0.01347	0.00000	0.00315	0.00315	—	11.5019	11.5019	0.00015	0.00045	0.01374	11.6529
Vendor	0.00056	0.00026	0.01268	0.00400	0.00010	0.00019	0.00362	0.00381	0.00019	0.00100	0.00119	—	10.9028	10.9028	0.00018	0.00163	0.01024	11.4028
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62747	0.52507	4.66869	7.01868	0.01273	0.14996	—	0.14996	0.13796	—	0.13796	—	1,303.95	1,303.95	0.05289	0.01058	—	1,308.43
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11451	0.09582	0.85204	1.28091	0.00232	0.02737	—	0.02737	0.02518	—	0.02518	—	215.884	215.884	0.00876	0.00175	—	216.625
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03961	0.03891	0.03150	0.60764	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	137.072	137.072	0.00139	0.00498	0.35355	138.944
Vendor	0.00575	0.00267	0.12196	0.03970	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.005	121.005	0.00201	0.01808	0.26283	126.705
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.03752	0.03254	0.03625	0.45663	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	126.112	126.112	0.00162	0.00498	0.00919	127.646
Vendor	0.00556	0.00248	0.12705	0.04074	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	121.105	121.105	0.00201	0.01808	0.00683	126.549
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02041	0.01770	0.01972	0.26278	0.00000	0.00000	0.07379	0.07379	0.00000	0.01728	0.01728	—	69.4720	69.4720	0.00088	0.00271	0.08300	70.3844
Vendor	0.00308	0.00140	0.06950	0.02191	0.00053	0.00105	0.01982	0.02087	0.00105	0.00548	0.00653	—	65.8537	65.8537	0.00109	0.00983	0.06186	68.8735
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00373	0.00323	0.00360	0.04796	0.00000	0.00000	0.01347	0.01347	0.00000	0.00315	0.00315	—	11.5019	11.5019	0.00015	0.00045	0.01374	11.6529
Vendor	0.00056	0.00026	0.01268	0.00400	0.00010	0.00019	0.00362	0.00381	0.00019	0.00100	0.00119	—	10.9028	10.9028	0.00018	0.00163	0.01024	11.4028
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2030)

3.5.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31447	0.26315	2.34844	3.60572	0.00655	0.07279	—	0.07279	0.06697	—	0.06697	—	670.738	670.738	0.02721	0.00544	—	673.040
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05739	0.04802	0.42859	0.65804	0.00119	0.01328	—	0.01328	0.01222	—	0.01222	—	111.048	111.048	0.00450	0.00090	—	111.429
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03277	0.02698	0.56491	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	134.763	134.763	0.00139	0.00498	0.31433	136.596
Vendor	0.00584	0.00267	0.11646	0.03883	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.450	117.450	0.00201	0.01808	0.23240	123.119
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03590	0.03092	0.03173	0.43034	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	124.008	124.008	0.00162	0.00498	0.00815	125.541
Vendor	0.00556	0.00248	0.12251	0.03987	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.551	117.551	0.00201	0.01808	0.00603	122.994
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00992	0.00852	0.00888	0.12662	0.00000	0.00000	0.03795	0.03795	0.00000	0.00889	0.00889	—	35.1383	35.1383	0.00045	0.00139	0.03807	35.6030
Vendor	0.00161	0.00072	0.03421	0.01100	0.00027	0.00054	0.01019	0.01073	0.00054	0.00282	0.00336	—	32.8795	32.8795	0.00056	0.00506	0.02807	34.4291
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00181	0.00156	0.00162	0.02311	0.00000	0.00000	0.00693	0.00693	0.00000	0.00162	0.00162	—	5.81755	5.81755	0.00008	0.00023	0.00630	5.89449
Vendor	0.00029	0.00013	0.00624	0.00201	0.00005	0.00010	0.00186	0.00196	0.00010	0.00051	0.00061	—	5.44357	5.44357	0.00009	0.00084	0.00465	5.70012
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31447	0.26315	2.34844	3.60572	0.00655	0.07279	—	0.07279	0.06697	—	0.06697	—	670.738	670.738	0.02721	0.00544	—	673.040
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05739	0.04802	0.42859	0.65804	0.00119	0.01328	—	0.01328	0.01222	—	0.01222	—	111.048	111.048	0.00450	0.00090	—	111.429
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03752	0.03277	0.02698	0.56491	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	134.763	134.763	0.00139	0.00498	0.31433	136.596
Vendor	0.00584	0.00267	0.11646	0.03883	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.450	117.450	0.00201	0.01808	0.23240	123.119
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03590	0.03092	0.03173	0.43034	0.00000	0.00000	0.13732	0.13732	0.00000	0.03219	0.03219	—	124.008	124.008	0.00162	0.00498	0.00815	125.541
Vendor	0.00556	0.00248	0.12251	0.03987	0.00097	0.00193	0.03681	0.03874	0.00193	0.01017	0.01210	—	117.551	117.551	0.00201	0.01808	0.00603	122.994
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00992	0.00852	0.00888	0.12662	0.00000	0.00000	0.03795	0.03795	0.00000	0.00889	0.00889	—	35.1383	35.1383	0.00045	0.00139	0.03807	35.6030
Vendor	0.00161	0.00072	0.03421	0.01100	0.00027	0.00054	0.01019	0.01073	0.00054	0.00282	0.00336	—	32.8795	32.8795	0.00056	0.00506	0.02807	34.4291
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00181	0.00156	0.00162	0.02311	0.00000	0.00000	0.00693	0.00693	0.00000	0.00162	0.00162	—	5.81755	5.81755	0.00008	0.00023	0.00630	5.89449
Vendor	0.00029	0.00013	0.00624	0.00201	0.00005	0.00010	0.00186	0.00196	0.00010	0.00051	0.00061	—	5.44357	5.44357	0.00009	0.00084	0.00465	5.70012
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Paving (2030)

3.6.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76655	0.64411	6.28020	9.89564	0.01395	0.22035	—	0.22035	0.20272	—	0.20272	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.16860	0.16860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04200	0.03529	0.34412	0.54223	0.00076	0.01207	—	0.01207	0.01111	—	0.01111	—	82.7740	82.7740	0.00336	0.00067	—	83.0580
Paving	0.00924	0.00924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00767	0.00644	0.06280	0.09896	0.00014	0.00220	—	0.00220	0.00203	—	0.00203	—	13.7042	13.7042	0.00056	0.00011	—	13.7512

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.00169	0.00169	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04679	0.03853	0.80656	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	192.412	192.412	0.00198	0.00711	0.44880	195.029
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00277	0.00238	0.00248	0.03540	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.82344	9.82344	0.00013	0.00039	0.01064	9.95335
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00051	0.00043	0.00045	0.00646	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.62638	1.62638	0.00002	0.00006	0.00176	1.64789
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76655	0.64411	6.28020	9.89564	0.01395	0.22035	—	0.22035	0.20272	—	0.20272	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.16860	0.16860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04200	0.03529	0.34412	0.54223	0.00076	0.01207	—	0.01207	0.01111	—	0.01111	—	82.7740	82.7740	0.00336	0.00067	—	83.0580
Paving	0.00924	0.00924	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00767	0.00644	0.06280	0.09896	0.00014	0.00220	—	0.00220	0.00203	—	0.00203	—	13.7042	13.7042	0.00056	0.00011	—	13.7512
Paving	0.00169	0.00169	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04679	0.03853	0.80656	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	192.412	192.412	0.00198	0.00711	0.44880	195.029
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00277	0.00238	0.00248	0.03540	0.00000	0.00000	0.01061	0.01061	0.00000	0.00249	0.00249	—	9.82344	9.82344	0.00013	0.00039	0.01064	9.95335
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00051	0.00043	0.00045	0.00646	0.00000	0.00000	0.00194	0.00194	0.00000	0.00045	0.00045	—	1.62638	1.62638	0.00002	0.00006	0.00176	1.64789
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Architectural Coating (2030)

3.7.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11905	0.09839	0.78473	1.10719	0.00173	0.01097	—	0.01097	0.01009	—	0.01009	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	7.65659	7.65659	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00652	0.00539	0.04300	0.06067	0.00009	0.00060	—	0.00060	0.00055	—	0.00055	—	7.31577	7.31577	0.00030	0.00006	—	7.34088
Architectural Coatings	0.41954	0.41954	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00119	0.00098	0.00785	0.01107	0.00002	0.00011	—	0.00011	0.00010	—	0.00010	—	1.21121	1.21121	0.00005	0.00001	—	1.21537
Architectural Coatings	0.07657	0.07657	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00750	0.00655	0.00540	0.11298	0.00000	0.00000	0.02746	0.02746	0.00000	0.00644	0.00644	—	26.9527	26.9527	0.00028	0.00100	0.06287	27.3193
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00033	0.00035	0.00496	0.00000	0.00000	0.00149	0.00149	0.00000	0.00035	0.00035	—	1.37605	1.37605	0.00002	0.00005	0.00149	1.39424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00007	0.00006	0.00006	0.00090	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.22782	0.22782	< 0.000005	0.00001	0.00025	0.23083
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11905	0.09839	0.78473	1.10719	0.00173	0.01097	—	0.01097	0.01009	—	0.01009	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	7.65659	7.65659	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00652	0.00539	0.04300	0.06067	0.00009	0.00060	—	0.00060	0.00055	—	0.00055	—	7.31577	7.31577	0.00030	0.00006	—	7.34088
Architectural Coatings	0.41954	0.41954	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00119	0.00098	0.00785	0.01107	0.00002	0.00011	—	0.00011	0.00010	—	0.00010	—	1.21121	1.21121	0.00005	0.00001	—	1.21537

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.07657	0.07657	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00750	0.00655	0.00540	0.11298	0.00000	0.00000	0.02746	0.02746	0.00000	0.00644	0.00644	—	26.9527	26.9527	0.00028	0.00100	0.06287	27.3193
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00033	0.00035	0.00496	0.00000	0.00000	0.00149	0.00149	0.00000	0.00035	0.00035	—	1.37605	1.37605	0.00002	0.00005	0.00149	1.39424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00007	0.00006	0.00006	0.00090	0.00000	0.00000	0.00027	0.00027	0.00000	0.00006	0.00006	—	0.22782	0.22782	< 0.000005	0.00001	0.00025	0.23083

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.19068	0.17041	0.18194	1.97685	0.00591	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	604.611	604.611	0.01852	0.02379	1.13022	613.293
Hotel	0.28441	0.25418	0.27138	2.94860	0.00882	0.00520	0.86635	0.87154	0.00488	0.21979	0.22467	—	901.820	901.820	0.02762	0.03548	1.68581	914.769
City Park	0.04205	0.03758	0.04013	0.43599	0.00130	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	133.346	133.346	0.00408	0.00525	0.24927	135.260
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	0.32398	0.28954	0.30913	3.35875	0.01005	0.00592	0.98686	0.99277	0.00556	0.25036	0.25592	—	1,027.26	1,027.26	0.03147	0.04041	1.92030	1,042.01
Total	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18244	0.16224	0.19520	1.62388	0.00555	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	567.373	567.373	0.01892	0.02452	0.02931	575.181
Hotel	0.27213	0.24200	0.29115	2.42213	0.00827	0.00520	0.86635	0.87155	0.00488	0.21979	0.22467	—	846.277	846.277	0.02822	0.03657	0.04371	857.924
City Park	0.04024	0.03578	0.04305	0.35814	0.00122	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	125.133	125.133	0.00417	0.00541	0.00646	126.855
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.30998	0.27566	0.33165	2.75904	0.00942	0.00592	0.98686	0.99278	0.00556	0.25036	0.25592	—	963.992	963.992	0.03214	0.04166	0.04979	977.259
Total	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.02501	0.02221	0.02746	0.23271	0.00077	0.00048	0.07925	0.07973	0.00045	0.02011	0.02056	—	71.7794	71.7794	0.00238	0.00310	0.06116	72.8238
Hotel	0.04710	0.04183	0.05173	0.43832	0.00146	0.00091	0.14928	0.15018	0.00085	0.03788	0.03873	—	135.203	135.203	0.00447	0.00584	0.11520	137.170
City Park	0.00383	0.00340	0.00420	0.03560	0.00012	0.00007	0.01213	0.01220	0.00007	0.00308	0.00315	—	10.9820	10.9820	0.00036	0.00047	0.00936	11.1417

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.05613	0.04985	0.06164	0.52232	0.00174	0.00108	0.17788	0.17896	0.00102	0.04514	0.04615	—	161.112	161.112	0.00533	0.00696	0.13728	163.456
Total	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.19068	0.17041	0.18194	1.97685	0.00591	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	604.611	604.611	0.01852	0.02379	1.13022	613.293
Hotel	0.28441	0.25418	0.27138	2.94860	0.00882	0.00520	0.86635	0.87154	0.00488	0.21979	0.22467	—	901.820	901.820	0.02762	0.03548	1.68581	914.769
City Park	0.04205	0.03758	0.04013	0.43599	0.00130	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	133.346	133.346	0.00408	0.00525	0.24927	135.260
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	0.32398	0.28954	0.30913	3.35875	0.01005	0.00592	0.98686	0.99277	0.00556	0.25036	0.25592	—	1,027.26	1,027.26	0.03147	0.04041	1.92030	1,042.01
Total	0.84112	0.75172	0.80258	8.72019	0.02609	0.01536	2.56213	2.57750	0.01444	0.64999	0.66443	—	2,667.04	2,667.04	0.08170	0.10493	4.98561	2,705.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.18244	0.16224	0.19520	1.62388	0.00555	0.00348	0.58083	0.58431	0.00327	0.14735	0.15063	—	567.373	567.373	0.01892	0.02452	0.02931	575.181
Hotel	0.27213	0.24200	0.29115	2.42213	0.00827	0.00520	0.86635	0.87155	0.00488	0.21979	0.22467	—	846.277	846.277	0.02822	0.03657	0.04371	857.924
City Park	0.04024	0.03578	0.04305	0.35814	0.00122	0.00077	0.12810	0.12887	0.00072	0.03250	0.03322	—	125.133	125.133	0.00417	0.00541	0.00646	126.855
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.30998	0.27566	0.33165	2.75904	0.00942	0.00592	0.98686	0.99278	0.00556	0.25036	0.25592	—	963.992	963.992	0.03214	0.04166	0.04979	977.259
Total	0.80479	0.71568	0.86104	7.16319	0.02446	0.01537	2.56213	2.57751	0.01445	0.64999	0.66444	—	2,502.78	2,502.78	0.08345	0.10815	0.12928	2,537.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.02501	0.02221	0.02746	0.23271	0.00077	0.00048	0.07925	0.07973	0.00045	0.02011	0.02056	—	71.7794	71.7794	0.00238	0.00310	0.06116	72.8238
Hotel	0.04710	0.04183	0.05173	0.43832	0.00146	0.00091	0.14928	0.15018	0.00085	0.03788	0.03873	—	135.203	135.203	0.00447	0.00584	0.11520	137.170
City Park	0.00383	0.00340	0.00420	0.03560	0.00012	0.00007	0.01213	0.01220	0.00007	0.00308	0.00315	—	10.9820	10.9820	0.00036	0.00047	0.00936	11.1417

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	0.05613	0.04985	0.06164	0.52232	0.00174	0.00108	0.17788	0.17896	0.00102	0.04514	0.04615	—	161.112	161.112	0.00533	0.00696	0.13728	163.456
Total	0.13206	0.11729	0.14503	1.22895	0.00408	0.00254	0.41854	0.42108	0.00239	0.10620	0.10859	—	379.076	379.076	0.01254	0.01637	0.32300	384.591

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	18.5710	18.5710	0.00135	0.00016	—	18.6537
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	43.2795	43.2795	0.00315	0.00038	—	43.4722

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	10.0957	10.0957	0.00074	0.00009	—	10.1406
Arena	—	—	—	—	—	—	—	—	—	—	—	—	15.7371	15.7371	0.00115	0.00014	—	15.8071
Total	—	—	—	—	—	—	—	—	—	—	—	—	87.6833	87.6833	0.00638	0.00077	—	88.0736

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	112.170	112.170	0.00817	0.00099	—	112.669
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	261.411	261.411	0.01903	0.00231	—	262.574
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	60.9784	60.9784	0.00444	0.00054	—	61.2498
Arena	—	—	—	—	—	—	—	—	—	—	—	—	95.0529	95.0529	0.00692	0.00084	—	95.4759
Total	—	—	—	—	—	—	—	—	—	—	—	—	529.612	529.612	0.03856	0.00467	—	531.969
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	18.5710	18.5710	0.00135	0.00016	—	18.6537
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	43.2795	43.2795	0.00315	0.00038	—	43.4722

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	10.0957	10.0957	0.00074	0.00009	—	10.1406
Arena	—	—	—	—	—	—	—	—	—	—	—	—	15.7371	15.7371	0.00115	0.00014	—	15.8071
Total	—	—	—	—	—	—	—	—	—	—	—	—	87.6833	87.6833	0.00638	0.00077	—	88.0736

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00077	0.00039	0.00700	0.00588	0.00004	0.00053	—	0.00053	0.00053	—	0.00053	—	7.58075	7.58075	0.00067	0.00001	—	7.60178
Hotel	0.00211	0.00105	0.01914	0.01608	0.00011	0.00145	—	0.00145	0.00145	—	0.00145	—	20.7210	20.7210	0.00183	0.00004	—	20.7784

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.00185	0.00093	0.01684	0.01415	0.00010	0.00128	—	0.00128	0.00128	—	0.00128	—	18.2316	18.2316	0.00161	0.00003	—	18.2821
Total	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	46.5333	46.5333	0.00412	0.00009	—	46.6623

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00422	0.00211	0.03838	0.03224	0.00023	0.00292	—	0.00292	0.00292	—	0.00292	—	45.7881	45.7881	0.00405	0.00009	—	45.9151
Hotel	0.01154	0.00577	0.10489	0.08811	0.00063	0.00797	—	0.00797	0.00797	—	0.00797	—	125.156	125.156	0.01108	0.00024	—	125.503
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.01015	0.00508	0.09229	0.07753	0.00055	0.00701	—	0.00701	0.00701	—	0.00701	—	110.120	110.120	0.00975	0.00021	—	110.425
Total	0.02591	0.01296	0.23556	0.19787	0.00141	0.01790	—	0.01790	0.01790	—	0.01790	—	281.063	281.063	0.02487	0.00053	—	281.843
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.00077	0.00039	0.00700	0.00588	0.00004	0.00053	—	0.00053	0.00053	—	0.00053	—	7.58075	7.58075	0.00067	0.00001	—	7.60178
Hotel	0.00211	0.00105	0.01914	0.01608	0.00011	0.00145	—	0.00145	0.00145	—	0.00145	—	20.7210	20.7210	0.00183	0.00004	—	20.7784

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	0.00185	0.00093	0.01684	0.01415	0.00010	0.00128	—	0.00128	0.00128	—	0.00128	—	18.2316	18.2316	0.00161	0.00003	—	18.2821
Total	0.00473	0.00236	0.04299	0.03611	0.00026	0.00327	—	0.00327	0.00327	—	0.00327	—	46.5333	46.5333	0.00412	0.00009	—	46.6623

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20328	0.18762	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.12690	0.12690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00766	0.00766	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02541	0.02345	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.000005	—	0.53423
Total	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.000005	—	0.53423

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20328	0.18762	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Total	0.94056	0.92489	0.00961	1.14155	0.00007	0.00203	—	0.00203	0.00153	—	0.00153	—	4.69419	4.69419	0.00020	0.00004	—	4.71111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69532	0.69532	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04195	0.04195	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.73727	0.73727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.12690	0.12690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00766	0.00766	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Landscape Equipment	0.02541	0.02345	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.00005	—	0.53423
Total	0.15996	0.15800	0.00120	0.14269	0.00001	0.00025	—	0.00025	0.00019	—	0.00019	—	0.53231	0.53231	0.00002	< 0.00005	—	0.53423

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.29203	1.28812	1.58015	0.03004	0.00072	—	2.54650
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.07243	0.31948	0.39191	0.00745	0.00018	—	0.63159
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	8.50586	8.50586	0.00062	0.00008	—	8.54372

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	1.09331	4.82255	5.91586	0.11246	0.00271	—	9.53374
Total	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.76386	7.78033	9.54419	0.18143	0.00437	—	15.3810
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43748	1.92970	2.36718	0.04500	0.00108	—	3.81484
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	51.3759	51.3759	0.00374	0.00045	—	51.6045
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	6.60366	29.1285	35.7321	0.67925	0.01635	—	57.5843
Total	—	—	—	—	—	—	—	—	—	—	—	8.80500	90.2144	99.0194	0.90942	0.02225	—	128.385
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.29203	1.28812	1.58015	0.03004	0.00072	—	2.54650
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.07243	0.31948	0.39191	0.00745	0.00018	—	0.63159
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	8.50586	8.50586	0.00062	0.00008	—	8.54372

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	1.09331	4.82255	5.91586	0.11246	0.00271	—	9.53374
Total	—	—	—	—	—	—	—	—	—	—	—	1.45777	14.9360	16.3938	0.15056	0.00368	—	21.2556

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.42976	0.00000	0.42976	0.04295	0.00000	—	1.50359
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43967	0.00000	0.43967	0.04394	0.00000	—	1.53825

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03898	0.00000	0.03898	0.00390	0.00000	—	0.13638
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.01964	0.00000	0.01964	0.00196	0.00000	—	0.06873
Total	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.59578	0.00000	2.59578	0.25944	0.00000	—	9.08176
Hotel	—	—	—	—	—	—	—	—	—	—	—	2.65562	0.00000	2.65562	0.26542	0.00000	—	9.29112
City Park	—	—	—	—	—	—	—	—	—	—	—	0.23545	0.00000	0.23545	0.02353	0.00000	—	0.82377
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.11865	0.00000	0.11865	0.01186	0.00000	—	0.41513
Total	—	—	—	—	—	—	—	—	—	—	—	5.60551	0.00000	5.60551	0.56025	0.00000	—	19.6118
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.42976	0.00000	0.42976	0.04295	0.00000	—	1.50359
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.43967	0.00000	0.43967	0.04394	0.00000	—	1.53825

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03898	0.00000	0.03898	0.00390	0.00000	—	0.13638
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	0.01964	0.00000	0.01964	0.00196	0.00000	—	0.06873
Total	—	—	—	—	—	—	—	—	—	—	—	0.92806	0.00000	0.92806	0.09276	0.00000	—	3.24695

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00209	0.00209
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38219	3.38219
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00825	0.00825
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01260	0.01260
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4286	20.4286
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04983	0.04983
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4910	20.4910
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00209	0.00209
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38219	3.38219

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00825	0.00825
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39252	3.39252

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2029	1/29/2029	5.00000	20.0000	—
Site Preparation	Site Preparation	1/30/2029	2/13/2029	5.00000	10.00000	—
Grading	Grading	2/14/2029	3/28/2029	5.00000	30.0000	—
Building Construction	Building Construction	3/29/2029	5/23/2030	5.00000	300.000	—
Paving	Paving	5/24/2030	6/21/2030	5.00000	20.0000	—
Architectural Coating	Architectural Coating	6/22/2030	7/20/2030	5.00000	20.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/ Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	0.60000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Worker	10.5058	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	4.30188	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	2.10117	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	0.60000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	10.5058	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	4.30188	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	2.10117	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	33,904.5	11,301.5	10,425.7

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	988.000	0.00000
Site Preparation	—	—	15.0000	0.00000	0.00000
Grading	—	—	90.0000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	2.29700

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Office Building	0.00000	0%
Paving	Hotel	0.00000	0%
Paving	City Park	0.00000	0%
Paving	Other Non-Asphalt Surfaces	1.01000	0%
Paving	Parking Lot	1.28700	100%
Paving	Arena	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2029	0.00000	453.209	0.03300	0.00400
2030	0.00000	453.209	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	50.4435	11.4456	3.62530	13,937.2	821.064	186.299	59.0087	226,854
Hotel	75.2400	73.7100	53.5500	26,251.8	1,224.68	1,199.77	871.629	427,299
City Park	3.96240	9.95680	11.1252	2,132.33	64.4957	162.066	181.084	34,707.8

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	85.7057	85.7057	85.7057	31,282.6	1,395.03	1,395.03	1,395.03	509,184

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	50.4435	11.4456	3.62530	13,937.2	821.064	186.299	59.0087	226,854
Hotel	75.2400	73.7100	53.5500	26,251.8	1,224.68	1,199.77	871.629	427,299
City Park	3.96240	9.95680	11.1252	2,132.33	64.4957	162.066	181.084	34,707.8
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Arena	85.7057	85.7057	85.7057	31,282.6	1,395.03	1,395.03	1,395.03	509,184

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0
Hotel	Wood Fireplaces	0	0
Hotel	Gas Fireplaces	0	0
Hotel	Propane Fireplaces	0	0
Hotel	Electric Fireplaces	0	0
Hotel	No Fireplaces	0	0
Hotel	Conventional Wood Stoves	0	0
Hotel	Catalytic Wood Stoves	0	0
Hotel	Non-Catalytic Wood Stoves	0	0
Hotel	Pellet Wood Stoves	0	0
City Park	Wood Fireplaces	0	0
City Park	Gas Fireplaces	0	0
City Park	Propane Fireplaces	0	0
City Park	Electric Fireplaces	0	0
City Park	No Fireplaces	0	0
City Park	Conventional Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
City Park	Catalytic Wood Stoves	0	0
City Park	Non-Catalytic Wood Stoves	0	0
City Park	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Arena	Wood Fireplaces	0	0
Arena	Gas Fireplaces	0	0
Arena	Propane Fireplaces	0	0
Arena	Electric Fireplaces	0	0
Arena	No Fireplaces	0	0
Arena	Conventional Wood Stoves	0	0
Arena	Catalytic Wood Stoves	0	0
Arena	Non-Catalytic Wood Stoves	0	0
Arena	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	33,904.5	11,301.5	10,425.7

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	90,338.2	453.209	0.0330	0.0040	142,871
Hotel	210,532	453.209	0.0330	0.0040	390,520
City Park	0.00000	453.209	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000
Parking Lot	49,110.1	453.209	0.0330	0.0040	0.00000
Arena	76,552.6	453.209	0.0330	0.0040	343,603

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	90,338.2	453.209	0.0330	0.0040	142,871
Hotel	210,532	453.209	0.0330	0.0040	390,520
City Park	0.00000	453.209	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	453.209	0.0330	0.0040	0.00000

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Parking Lot	49,110.1	453.209	0.0330	0.0040	0.00000
Arena	76,552.6	453.209	0.0330	0.0040	343,603

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	920,483	0.00000
Hotel	228,301	0.00000
City Park	0.00000	7,796,923
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	3,446,161	0.00000

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	920,483	0.00000
Hotel	228,301	0.00000
City Park	0.00000	7,796,923
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	3,446,161	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	4.81647	0.00000
Hotel	4.92750	0.00000
City Park	0.43688	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	0.22016	0.00000

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	4.81647	0.00000
Hotel	4.92750	0.00000
City Park	0.43688	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Parking Lot	0.00000	0.00000
Arena	0.22016	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Hotel	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Hotel	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Hotel	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000

5.14.2. Mitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Hotel	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Hotel	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Hotel	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Arena	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	31.7700	annual days of extreme heat
Extreme Precipitation	5.45000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	23.6300	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.5980
AQ-PM	22.5638
AQ-DPM	1.29434
Drinking Water	61.4712
Lead Risk Housing	44.8393
Pesticides	0.13793
Toxic Releases	29.1073
Traffic	7.35000
Effect Indicators	—
CleanUp Sites	46.0806
Groundwater	0.00000
Haz Waste Facilities/Generators	1.80013
Impaired Water Bodies	0.00000
Solid Waste	2.52005
Sensitive Population	—
Asthma	85.6555
Cardio-vascular	96.1989
Low Birth Weights	43.5463
Socioeconomic Factor Indicators	—
Education	62.6803

Indicator	Result for Project Census Tract
Housing	51.3561
Linguistic	23.7651
Poverty	63.9070
Unemployment	46.9938

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	42.37135891
Employed	9.534197357
Median HI	41.13948415
Education	—
Bachelor's or higher	25.84370589
High school enrollment	11.40767355
Preschool enrollment	34.36417298
Transportation	—
Auto Access	41.51161299
Active commuting	3.58013602
Social	—
2-parent households	10.79173617

Indicator	Result for Project Census Tract
Voting	40.40805851
Neighborhood	—
Alcohol availability	97.0101373
Park access	58.02643398
Retail density	6.544334659
Supermarket access	13.83292699
Tree canopy	33.14513025
Housing	—
Homeownership	71.67971256
Housing habitability	81.14974978
Low-inc homeowner severe housing cost burden	26.6521237
Low-inc renter severe housing cost burden	91.09457205
Uncrowded housing	54.63877839
Health Outcomes	—
Insured adults	30.92518927
Arthritis	0.0
Asthma ER Admissions	12.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0

Indicator	Result for Project Census Tract
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	20.7
Cognitively Disabled	28.0
Physically Disabled	29.8
Heart Attack ER Admissions	0.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	19.0
SLR Inundation Area	0.0
Children	68.4
Elderly	34.5

Indicator	Result for Project Census Tract
English Speaking	85.7
Foreign-born	20.8
Outdoor Workers	57.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	4.4
Traffic Access	23.0
Other Indices	—
Hardship	69.9
Other Decision Support	—
2016 Voting	50.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	38.0000
Healthy Places Index Score for Project Location (b)	23.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Architectural Coatings	SCAQMD Rule 1113

8.4. Construction

8.4.8. Architectural Coatings

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Non-Residential Interior VOC	g/L	100.0000	50.0000
Architectural Coating	Non-Residential Exterior VOC	g/L	100.0000	50.0000
Architectural Coating	Non-Residential Interior Area	sq ft	39,370.5	33,904.5

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Non-Residential Exterior Area	sq ft	13,123.5	11,301.5
Architectural Coating	Parking Area	sq ft	6,003.44	10,425.7

8.5. Operations

8.5.2. Area Sources

8.5.2.3. Architectural Coatings

Model Parameter	Units	Default Value	New Value
Non-Residential Interior VOC	g/L	100.0000	50.0000
Non-Residential Exterior VOC	g/L	100.0000	50.0000
Non-Residential Interior Area	sq ft	39,370.5	33,904.5
Non-Residential Exterior Area	sq ft	13,123.5	11,301.5
Parking Area	sq ft	6,003.44	10,425.7

APPENDIX C1

BIOLOGICAL RESOURCES TECHNICAL REPORT

Biological Resources Technical Report

Gilman Historic Ranch Master Plan Project Site
City of Banning, California

FINAL REPORT



Prepared for:

UltraSystems Environmental
16431 Scientific Way
Irvine, CA 92618
Contact: Michael Milroy (949) 788-4900

Prepared by:

Cadre Environmental
701 Palomar Airport Road, Suite 300
Carlsbad, CA 92011
Contact: Ruben Ramirez (949) 300-0212

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CADRE Environmental

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
PROJECT LOCATION & DESCRIPTION	1
METHODOLOGY	5
LITERATURE REVIEW	5
FIELD SURVEYS	5
EXISTING ENVIRONMENTAL SETTING	13
SURROUNDING LAND USES/TOPOGRAPHY/SOILS	13
VEGETATION COMMUNITIES	13
GENERAL WILDLIFE SPECIES	14
JURISDICTIONAL RESOURCES	23
SENSITIVE BIOLOGICAL RESOURCES	24
FEDERAL PROTECTION AND CLASSIFICATIONS	24
STATE PROTECTION AND CLASSIFICATIONS	26
SENSITIVE HABITATS	28
SENSITIVE PLANTS	28
SENSITIVE WILDLIFE	33
REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT CORRIDORS	47
REGIONAL AND REGULATORY SETTING	49
LOCAL/MSHCP COMPLIANCE ANALYSIS	49
FEDERAL	54
STATE	57
ENVIRONMENTAL IMPACTS	58
THRESHOLD OF SIGNIFICANCE	59
DIRECT IMPACTS	61
INDIRECT IMPACTS	67
CUMULATIVE IMPACTS	68
CONSERVATION MEASURES	70
LITERATURE CITED	72

LIST OF FIGURES

	PAGE
1 – Regional Location Map	2
2 – Project Site Map	3
3 – MSHCP Relationship Map	4
4 – Vegetation Communities Map	15
5 – Current Project Site Photographs	16
6 – Current Project Site Photographs	17
7 – Current Project Site Photographs	18
8 – Current Project Site Photographs	19
9 – Current Project Site Photographs	20
10 – Current Project Site Photographs	21
11 – Soils Association Map	22
12 – Vegetation Communities Impact Map	66

LIST OF TABLES

	PAGE
1 – Vegetation Communities Acreages	13
2 – Sensitive Plant Species with Potential to Occur Onsite	29
3 – Sensitive Wildlife Species with Potential to Occur Onsite	35
4 – Project Site Vegetation Community Impacts	64

GLOSSARY

AMSL	Above Mean Sea Level
APN	Assessor's Parcel Number
CAPSA	Criteria Area Plant Survey Areas
CDFG	California Department of Fish and Game (CDFW effective Jan 1st 2013)
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranks
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
CWA	Clean Water Act
DBESP	Determination of Biological Equivalent or Superior Preservation
FE	Federal Endangered
FESA	Federal Endangered Species Act
GIS	Geographic Information System
HANS	Habitat Acquisition and Negotiation Strategy
JPR	Joint Project Review
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MS4	Municipal Separate Storm Sewer System Program
MSHCP	Multiple Species Habitat Conservation Plan
NCCP	Natural Communities Conservation Plan
NEPS	Narrow Endemic Plant Species
NEPSA	Narrow Endemic Plant Survey Areas
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
OHWM	Ordinary High Water Mark
PQP	Public/Quasi-Public
RCA	Western Riverside County Regional Conservation Authority
RCIP	Riverside County Integrated Project
RWQCB	Regional Water Quality Control Board
SE	State Endangered
SF	Square Feet
SSC	California Species of Special Concern
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

INTRODUCTION

The following biological technical report describes a detailed assessment of potential sensitive natural resources located within and immediately adjacent to the County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site. Specifically, the report has been prepared to support the California Environmental Quality Act (CEQA), Mitigated Negative Declaration (MND) and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) documentation, compliance, and review process conducted by the City of Banning and County of Riverside Regional Park and Open-Space District (MSHCP Permittees). As discussed below, the assessment includes a thorough literature review, site reconnaissance characterizing baseline conditions (including floral and faunal and dominate vegetation communities), focused sensitive species surveys, impact analysis, and proposed mitigation/conservation measures.

PROJECT LOCATION & DESCRIPTION

The 41.80-acre Project Site is located within portions of Assessor's Parcel Numbers (APNs) Portion of 535-070-018, 535-070-023, and 535-070-038. The Project Site is located within United States Geological Survey (USGS) 7.5' Series Beaumont Quadrangle, Riverside County, Township 3 South, Range 1 East, Section 5. Specifically, the Project Site is located north of West Wilson Street, east of West Gilman Street within the Gilman Historic Ranch and Wagon Museum property, as shown in Figure 1, *Regional Location Map*, and Figure 2, *Project Site Map*.

The Project Site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as shown, as shown in Figure 3, *MSHCP Relationship Map* (Western Riverside County Regional Conservation Authority (RCA) Geographic Information System (GIS) Data Downloads 2026). The Project Site gently slopes from northwest to southeast with dominant vegetation communities including non-native grassland/ruderal and ornamental vegetation.

The Project proposes improvements to existing Gilman Historic Ranch and Wagon Museum property infrastructure, buildings and development including but not limited to an 8,000 square foot (SF) event center, parking areas, farmers market food truck area, picnic area, education/demonstration area, interpretive signs, orchard, play area, museum plaza, stage coach hotel, and recreational vehicle campsites.



APNs Portion of 535-070-018, -023, and -038

Figure 1 - Regional Location Map

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

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N

not to scale

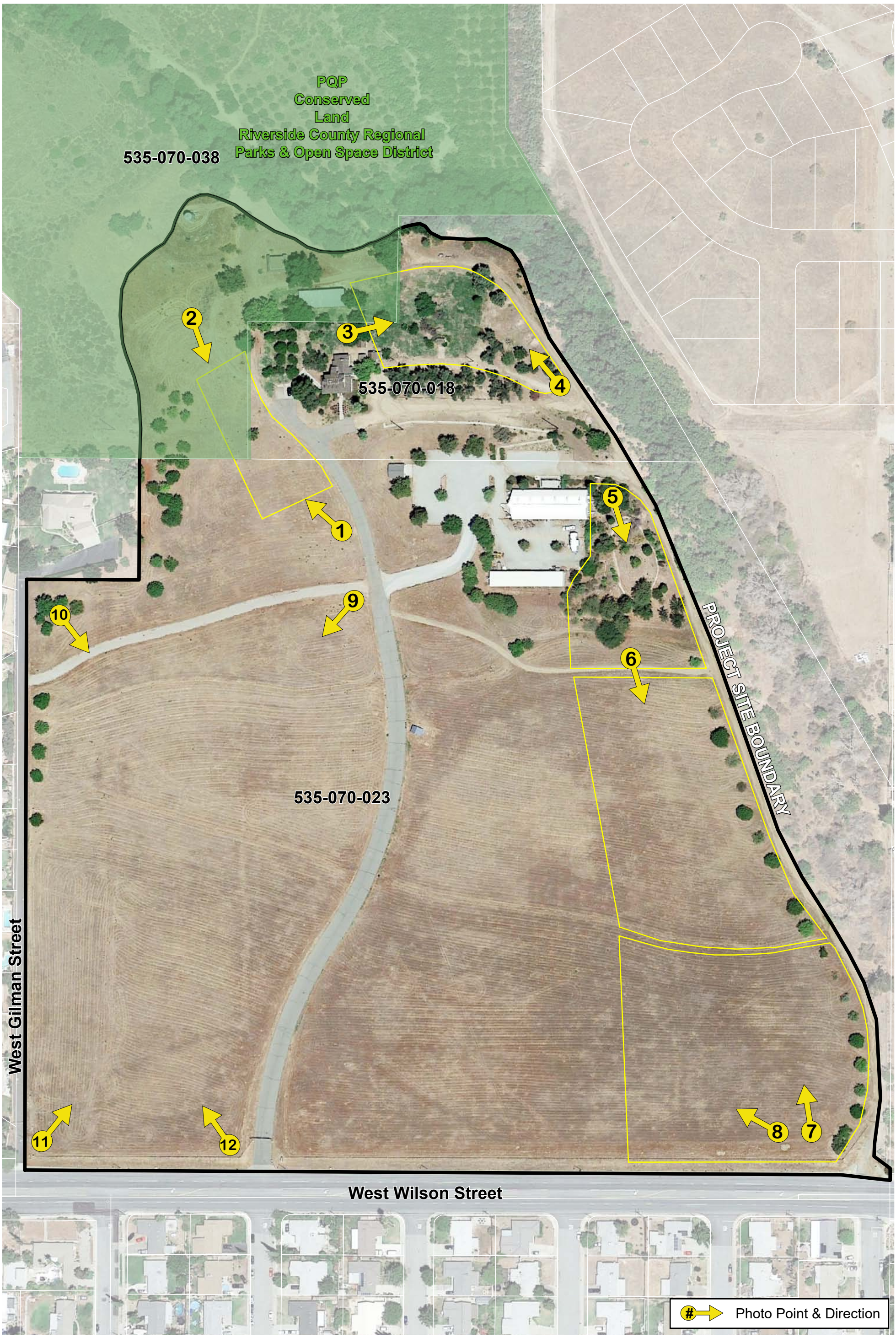

Figure 2 - Project Site Map

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet

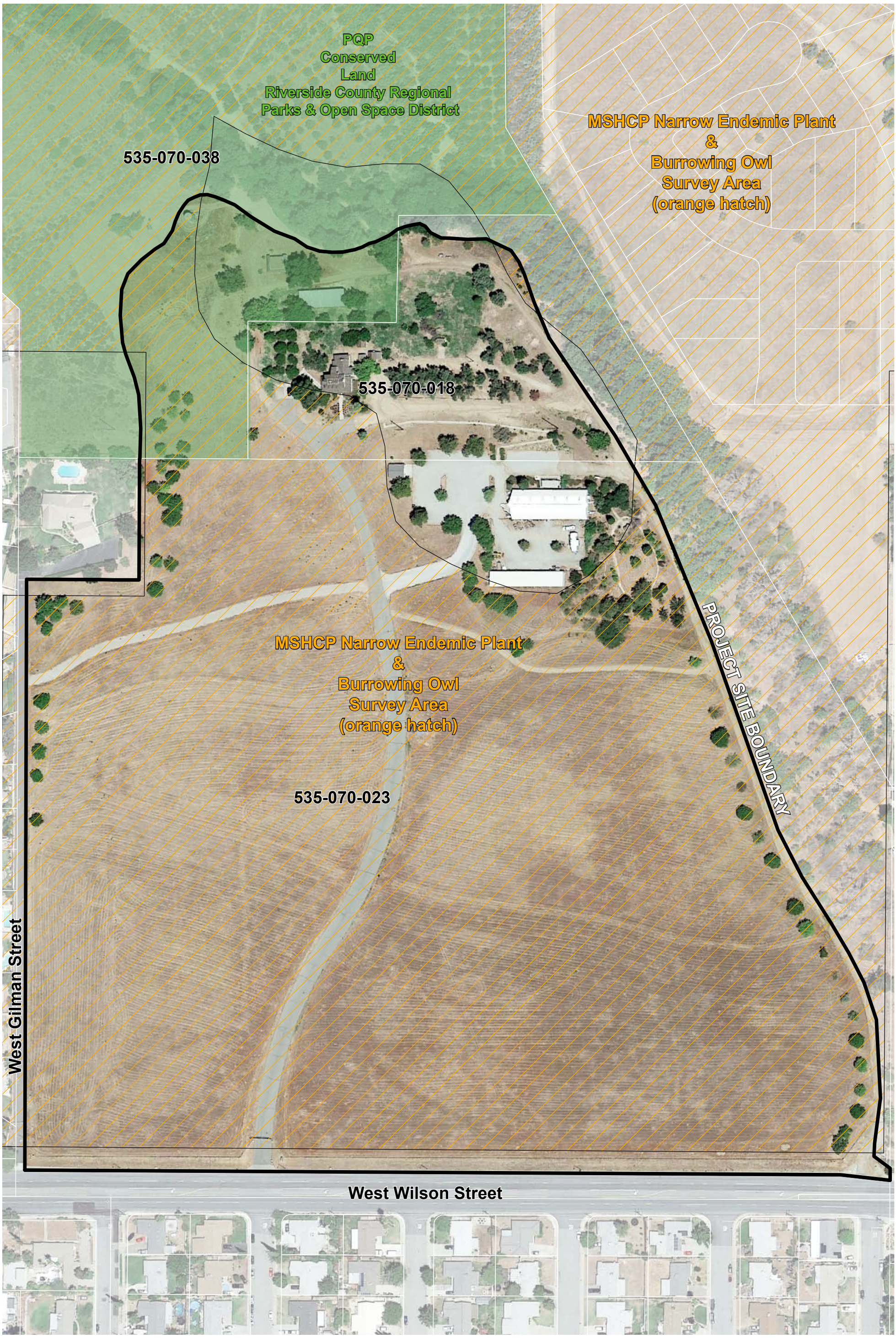

Figure 3 - MSHCP Relationship Map

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

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N

1 inch = 150 feet

METHODOLOGY

The following section details the methods implemented prior to and during the reconnaissance survey conducted throughout the Project Site.

LITERATURE REVIEW

Existing biological resource conditions within and adjacent to the Project Site were initially investigated through review of pertinent scientific literature and industry standard databases including but not limited to the following:

- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants in California (CNPS 2026).
- United States Fish and Wildlife Service (USFWS) Species Occurrence Database (USFWS 2026a).
- The Information for Planning and Consultation (IPaC) database from the USFWS (USFWS 2026b).
- USFWS Critical Habitat Mapper (USFWS 2026c).
- The California Natural Diversity Database (CNDDB) (CDFW 2026a), a California Department of Fish and Wildlife (CDFW) Natural Heritage Division species account database – Beaumont and Surrounding Quadrangles.
- Special Animals (CDFW 2026b).
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2026c).
- Endangered, Threatened, and Rare Plants of California (CDFW 2026d).
- Special Vascular Plants and Bryophytes List (CDFW 2026e).
- iNaturalist Database. (iNaturalist 2026).
- eBird (eBird 2026).
- City of Banning Municipal Codes (City of Banning 2026).
- City of Banning General Plan (City of Banning 2006).

FIELD SURVEYS

An initial reconnaissance survey of the Project Site impact areas was conducted by Ruben Ramirez, Cadre Environmental on March 17th, 2023 and March 28th, 2024 in order to characterize and identify potential wildlife habitats, sensitive resources, and to establish the accuracy of the data identified in the literature search and previous surveys.

Geologic and soil maps were examined to identify local soil types that may support sensitive taxa. Aerial photograph, topographic maps, and vegetation and rare plant maps prepared by previous studies in the region were used to determine community types and other physical features that may support sensitive plants/wildlife, uncommon taxa, or rare communities that occur within the Project Site.

The MSHCP has determined that all of the sensitive species potentially occurring within the Project Site have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for narrow endemic plant, criteria area, and specific wildlife species if

suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004). Based on the initial MSHCP review of predetermined Survey Areas, habitat assessments and focused surveys (as warranted) were conducted for the following six (6) species.

Narrow Endemic Species

- Yucaipa (Marvin's) onion (*Allium marvinii)* [California Rare Plant Ranks (CRPR) 1B.2];
- many-stemmed dudleya (*Dudleya multicaulis)* [CRPR 1B.2];

Section 6.1.2 Riparian, Riverine, Vernal Pool Species

- least Bell's vireo (*Vireo bellii pusillus*) [Federal Endangered (FE)/State Endangered (SE)];
- southwestern willow flycatcher (*Empidonax traillii extimus*) [FE/SE];
- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) [Federal Threatened (FT)/SE].

Wildlife Species

- burrowing owl (*Athene cunicularia*) [State Candidate Endangered (SCE)/California Species of Special Concern (SSC)].

A habitat assessment was also conducted for, but not limited to, the following target species not covered by the MSHCP.

- Crotch's bumble bee (*Bombus crotchii*), SCE

Vegetation Communities/Habitat Classification Mapping

Natural community names and hierarchical structure follow the CDFW "List of California Terrestrial Natural Communities" and/or Holland (1986) classification systems, which have been refined and augmented where appropriate to better characterize the habitat types observed onsite when not addressed by the MSHCP classification system.

Floristic Plant Inventory

A general plant survey was conducted throughout the Project Site during the initial reconnaissance in a collective effort to identify all species occurring onsite. All plants observed during the survey efforts were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy follows Jepson Flora Project (eds.) (Jepson eFlora 2026). Scientific names are included only at the first mention of a species; thereafter, common names alone are used.

Wildlife Resources Inventory

All animals identified during the reconnaissance survey by sight, call, tracks, scat, or other characteristic sign were documented. In addition to species actually detected, expected use of the site by other wildlife was derived from the analysis of habitats on the site,

combined with known habitat preferences of regionally occurring wildlife species. Vertebrate taxonomy followed in this report is according to the Center for North American Herpetology (2026) for amphibians and reptiles, the American Ornithological Society (2026) for birds, and American Society of Mammalogists (2026) for mammals. Both common and scientific names are used during the first mention of a species; common names only are used in the remainder of the text.

Regional Connectivity/Wildlife Movement Corridors

The analysis of wildlife movement corridors associated with the Project Site and immediate vicinity is based on information compiled from literature, analysis of the aerial photograph and direct observations made in the field during the reconnaissance site visit.

A literature review was conducted that includes documents on island biogeography (studies of fragmented and isolated habitat "islands"), reports on wildlife home range sizes and migration patterns, and studies on wildlife dispersal. Wildlife movement studies conducted in southern California were also reviewed. Use of field-verified digital data, in conjunction with the GIS database, allowed proper identification of regional vegetation communities and drainage features. This information was crucial to assessing the relationship of the Project Site to large open space areas in the immediate vicinity and was also evaluated in terms of connectivity and habitat linkages. Relative to corridor issues, the discussions in this report are intended to focus on wildlife movement associated within the Project Site and the immediate vicinity.

MSHCP Narrow Endemic Sensitive Plant Surveys

The Project Site lies partially within a predetermined Survey Area for two (2) MSHCP narrow endemic sensitive plant species as shown in Figure 3, *MSHCP Relationship Map* (RCA GIS Data Downloads 2026), which includes Yucaipa (Marvin's) onion and many-stemmed dudleya.

According to the MSHCP guidelines, focused surveys are required during the appropriate flowering season to identify and document the presence/absence of target sensitive plant species if suitable habitat is present and if the property is located within a predetermined Survey Area (MSHCP 2004). Although the Yucaipa (Marvin's) onion and many-stemmed dudleya are not expected to occur onsite based on a lack of clay substrates, focused spring surveys for both MSHCP Narrow Endemic Plant Species (NEPS) were conducted during the spring of 2023 within a 9.0-acre Survey Area and 2024 throughout the 41.80-acre Project Site to determine presence/absence.

A site-specific survey program was developed to achieve the following goals: (1) characterize the vegetation; (2) prepare a detailed floristic compendium; (3) conduct focused surveys to document the distribution and abundance, or absence, of MSHCP narrow endemic plant species at the site; and 4) prepare botanical resource maps showing the distribution of vegetation communities and the location of the MSHCP target species observed onsite. The project surveys also proposed to document other California Native Plant Society (CNPS) sensitive plants or species of local concern onsite, if present.

The methodology and focus of the survey program are consistent with the MSHCP guidelines, but also conforms to scientific and technical standards listed by USFWS (1996), CNPS (2001), and CDFW (2009) for sensitive plant species surveys. Existing biological resources within and adjacent to the Project Site were initially investigated through a review of pertinent literature and online data. The California Natural Diversity Database (CNDDB 2026a), and CNPS (2026). In addition, soil, local floras, and consultation with local experts were utilized in the identification of species, soils, or habitats that could support the target MSHCP sensitive plants within or adjacent to the Project Site.

Prior to conducting fieldwork, a thorough archival review was conducted using the following baseline resources:

- California Native Plant Society 8th Inventory Online (2026);
- California Natural Diversity Data Base for the USGS 7.5' Beaumont Quadrangle (CNDDB 2026a);
- Soil Survey of Western Riverside Area (Knecht 1971; USDA-NRCS 2026);
- Vegetation Alliances of Western Riverside County, California (Klein and Evens 2005);
- Vascular Flora of Western Riverside County (Roberts et al. 2004); and
- Reports prepared by the Regional Conservation Authority, Western Riverside County (http://www.wrc-rca.org/about-rca/monitoring/monitoring-surveys/);

Floristic and focused plant surveys were conducted in order to identify all species observed on the Project Site. Additionally, program goals would also locate, census, and map the target MSHCP plants, and other CNPS or species of local concern, if present, occurring onsite. Field notes and site photographs were taken during each field survey. These notes recorded the date, location, plant species observed, and general habitat characteristics of each area of the project and habitats examined that day. All plant species encountered during the field surveys were identified and recorded in the field notes, including any special-status plants occurring on the Project Site. Surveys were performed in a manner consistent with the MSHCP and other applicable survey protocol requirements as outlined by USFWS (1996), CNPS (2001), and CDFW (2009).

Fieldwork was coordinated throughout the spring and blooming periods, site-specific habitat conditions, and vegetation-soil associations of the target species. Accordingly, seven (7) surveys were conducted onsite, including March 17th, May 2nd, 16th, June 5th, 2023, and , March 28th, May 18th, and June 7th, 2024.

All portions of the Project Site were surveyed on-foot by walking slowly and methodically across each habitat type. Scientific nomenclature and common names used in this report generally follow Roberts et al. (2004) and Baldwin et al. (2012), or Jepson Project eFlora (2026) for updated taxonomy.

Crotch's Bumble Bee Focused Surveys

A habitat assessment was conducted on April 21st, 2026 of the Project Site and Offsite Assessment Area by Crotch's bumble bee approved biologist and surveyor Garrett Huffman (Huffman Environmental 2026a). The primary objective of the assessment was

to identify optimal nectar resources, thereby determining areas with the highest likelihood of Crotch's bumble bee occurrence. Nectar patches were delineated based on the relative abundance of blooming or soon-to-bloom floral species known to be preferred by Crotch's bumble bee. These mapped patches defined the Crotch's bumble bee Survey Area.

Excluded habitat types were determined based on the absence or scarcity of suitable nectar resources. Habitat types unlikely to support foraging or presenting low detectability for Crotch's bumble bee included disturbed or developed areas (e.g., access roads), and non-native grasslands dominated by invasive species that had already senesced. Survey areas were delineated using GPS polygons collected in Field Maps (ArcGIS), and dominant nectar species were recorded on digital datasheets via the Fulcrum mobile application. Nectar patches were reevaluated during each subsequent survey round to guide survey effort. Once a nectar patch senesced, it was revisited briefly to confirm its low suitability and was not surveyed further.

Three survey rounds were conducted on April 21st, May 7th, and June 5th, 2026 maintaining a minimum of two weeks between each survey in accordance with protocol guidelines. Survey efforts were scheduled to coincide with the peak blooming periods of potential nectar and pollen sources and the expected active flight periods of Crotch's bumble bee. Biologists concentrated their efforts in areas with the highest quality and density of flowering plant species commonly associated with Crotch's bumble bee foraging behavior. Survey speed was generally maintained at a rate of approximately three acres per hour, although this rate was adjusted at the discretion of the biologist based on environmental conditions. Factors influencing survey pace included nectar source availability, floral density, overall vegetation cover, terrain complexity, and observed invertebrate activity.

Surveys were conducted using a combination of meandering transects and passive visual monitoring with the aid of binoculars. If a bee individual was encountered, it was observed and identified through a combination of field observation and photography, without physical capture. All surveys were conducted under protocol-defined weather conditions, which included ambient temperatures between 60°F and 90°F, sustained wind speeds less than 10 mph, and the absence of fog or precipitation (CDFW, 2023).

MSHCP Focused Burrowing Owl Surveys

In accordance with the MSHCP Burrowing Owl Survey Instructions (2006), survey protocol consists of two steps, Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. Step II is comprised of two parts, Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys.

Each step is briefly outlined below, followed by the methodology and results of each survey conducted within the Project Site. All initial habitat assessment, burrow and focused surveys were conducted by Ruben Ramirez, Cadre Environmental.

Surveys were conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys were not conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. None of the surveys were conducted within five (5) days of measurable precipitation.

In addition to the MSHCP guidelines, field notes were taken daily. These notes recorded the date, location, animal species observed, and general habitat characteristics of each area and habitat examined that day.

Step I – Habitat Assessment

Step 1 of the MSHCP habitat assessment for burrowing owl consists of a walking survey to determine if suitable habitat is present onsite. Cadre Environmental conducted the initial habitat assessment during the spring of 2023 and 2024. Upon arrival at the Project Site, and prior to initiating the assessment survey, Cadre Environmental used binoculars to scan all suitable habitats on and adjacent to the property, including perch locations, to ascertain owl presence.

All suitable areas of the Project Site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels (*Otospermophilus beecheyi*) or badgers (*Taxidea taxus*), but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles, or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

According to the MSHCP guidelines, if suitable habitat is present the biologist should also walk the perimeter of the property, which consists of a 150-meter (approximately 500 feet) buffer zone around the Project Site boundary. If permission to access the buffer area cannot be obtained, the biologist shall not trespass, but visually inspect adjacent habitats with binoculars. Results from the habitat assessment indicated that suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented within the property including foraging habitat within the disturbed and non-native grassland vegetation. Accordingly, if suitable habitat is documented onsite, both Step II surveys and the 30-day pre-construction surveys are required in order to comply with the MSHCP guidelines.

Step II – Locating Burrows and Burrowing Owls

Concurrent with the initial habitat assessment, a detailed focused burrow survey was conducted and included documentation of appropriately sized natural burrows or suitable man-made structures that may be utilized by burrowing owl - as part of the MSHCP protocol, which is described below under Part A. Focused Burrow Survey.

Part A: Focused Burrow Survey

A systematic survey for burrows, including burrowing owl sign, was conducted by walking across all suitable habitats mapped within the Project Site. Pedestrian survey transects were spaced to allow 100% visual coverage of the ground surface. The distances

between transect centerlines were no more than 20 meters (approximately 66 ft.) apart to the extent possible. Transect routes were also adjusted to account for topography and in general ground surface visibility. All observations of suitable burrows or dens, natural or man-made, or sightings of burrowing owl, were recorded and mapped during the survey.

Part B: Focused Burrowing Owl Surveys

Four (4) focused burrowing owl surveys were conducted during the spring of 2023 within the initial 9.0-acre Survey Area on March 17th, May 2nd, 16th, and June 5th, from one hour before sunrise to two hours after sunrise. Updated surveys were conducted on March 28th, May 3rd,18th, and June 7th, 2024 throughout the 41.80-acre Project Site. During visual surveys, all potentially suitable burrow or structure entrances were investigated for signs of owl occupation, such as feathers, tracks, or pellets, and carefully observed to determine if burrowing owls utilize these features, when present. All burrows are monitored at a short distance from the entrance, and at a location that would not interfere with potential owl behavior, when present. In addition to monitoring potential burrow locations, all suitable habitats in the Project Site were walked along travel routes which allowed for visual assessments of all suitable habitats

Surveys were conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys will not be conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. None of the surveys were conducted within five (5) days of measurable precipitation. In addition to the MSHCP guidelines, field notes were taken daily. These notes record the date, location, animal species observed, and general habitat characteristics of each area and habitat examined each survey effort.

Jurisdictional Resources Assessment

A jurisdictional resources assessment was conducted by Cadre Environmental on March 17th 2023 and March 28th 2024. The assessment determined the boundaries or absence of potential wetland and non-wetland waters of the United States subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Clean Water Act (CWA) Section 404; wetland and non-wetland waters of the State subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWCQB) pursuant to CWA Section 401 and State Porter-Cologne Water Quality Control Act (Porter-Cologne); streambed and riparian habitat subject to the regulatory jurisdiction of the CDFW pursuant Sections 1600 *et seq*. of the California Fish and Game Code (CDFG Code).

All resources delineated as potential CDFW jurisdictional features were also defined as Western Riverside County MSHCP Section 6.1.2 resources. Wetlands are identified by the presence of three characteristics: hydrophytic vegetation, wetland hydrology, and hydric soils. If any of these criteria were met, one or more transects were run to determine the extent of the wetland. Specifically, the presence of wetland hydrology was evaluated throughout the Project Site by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil pits, where applicable. In addition, indicators of wetland or riverine hydrology were recorded, including water marks, drift lines, rack, debris, and sediment deposits, as warranted. Any

indicators of hydric soils, such as redoximorphic features, buried organic matter, organic streaking, reduced soil conditions, gleyed or low-chroma soils, or sulfidic odor were also recorded.

MSHCP Section 6.1.2 Riparian/Riverine/Vernal Pool Resources

The Project Site was assessed for potential jurisdiction by MSHCP Section 6.1.2. Regulated activities within inland streams, wetlands and riparian areas in Western Riverside County California fall under the jurisdiction of the MSHCP Section 6.1.2. The MSHCP requires, among other things, assessments for riparian/riverine and vernal pool resources. As projects are proposed within the MSHCP Plan Area, an assessment of the potentially significant effects of those projects on riparian/riverine areas, and vernal pools are required, as currently mandated by CEQA, using available information augmented by project-specific mapping provided to and reviewed by the permittee's biologist(s). Riparian/riverine areas and vernal pools are defined for this section as follows in accordance with Section 6.1.2, Vol. I, of the Final MSHCP Plan:

> "*Riparian/Riverine Areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year*." (MSHCP 2004)

It is assumed the first part of the definition defines riparian habitat, and the second part defines riverine areas. Vernal pools are defined as:

> "…*seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season*". (MSHCP 2004)

SURROUNDING LAND USES/TOPOGRAPHY/SOILS

The Project Site gently slopes from the northwest corner at 2,651 Above Mean Sea Level (AMSL) to the southeast corner at 2,535 AMSL. Dominant vegetation communities including non-native grassland/ruderal and ornamental, as illustrated in Figure 4, *Vegetation Communities Map* and Figures 5 to 10, *Current Project Site Photographs*. The Soil Survey of Western Riverside Area has the following soils mapped within the boundary of the Project Site as shown on Figure 11, *Soils Association Map*:

- GyC2 Greenfield sandy loam, 2 to 8 percent slopes, eroded
- HcD2 Hanford course sandy loam, 8 to 15 percent slopes. eroded
- HcC Hanford course sandy loam, 2 to 8 precent slopes
- SsD Soboba stony loamy sand, 2 to 15 percent slopes
- TeG Terrace escarpments

VEGETATION COMMUNITIES

Natural community names follow the CDFW "List of California Terrestrial Natural Communities" and/or Holland (1986) classification system, which have been refined and where appropriate to better characterize the habitat types onsite when not addressed by the MSHCP classification system. Acreage totals for vegetation communities documented onsite are listed in Table 1. *Vegetation Communities Acreages*.

Table 1.
Vegetation Communities Acreages

*Vegetation Type	Acres
Non-native Grassland/Ruderal	33.44
Ornamental	3.72
Developed	2.89
Disturbed	1.75
TOTALS	**41.80**

**Source: Cadre Environmental 2023, 2024*

Non-native Grassland/Ruderal

The majority of the Project Site is characterized as non-native grassland/ruderal characterized as having a generally even distribution of grasses and invasive species. Grass species documented within this vegetation community include wild oat (*Avena fatua*), slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and goldentop (*Lamarckia aurea*). Other species documented throughout this vegetation community include stinknet (*Oncosiphon piluliferum*), black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*Erodium moschatum*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), California poppy (*Eschscholzia californica*), and common fiddleneck (*Amsinckia menziesii*).

Ornamental

Several recreational common areas adjacent to the Gilman Historic Museum including the Marshall French Gilman Native Plant Garden are characterized as ornamental plantings. Species documented within this vegetation community include but are not limited to chinaberry (*Melia azedarach*), olive (*Olea europaea*), Incense cedar (*Calocedrus decurrens*), palo verde (*Parkinsonia aculeata*), tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), Arizona ash (*Fraxinus velutina*), and citrus trees.

Disturbed

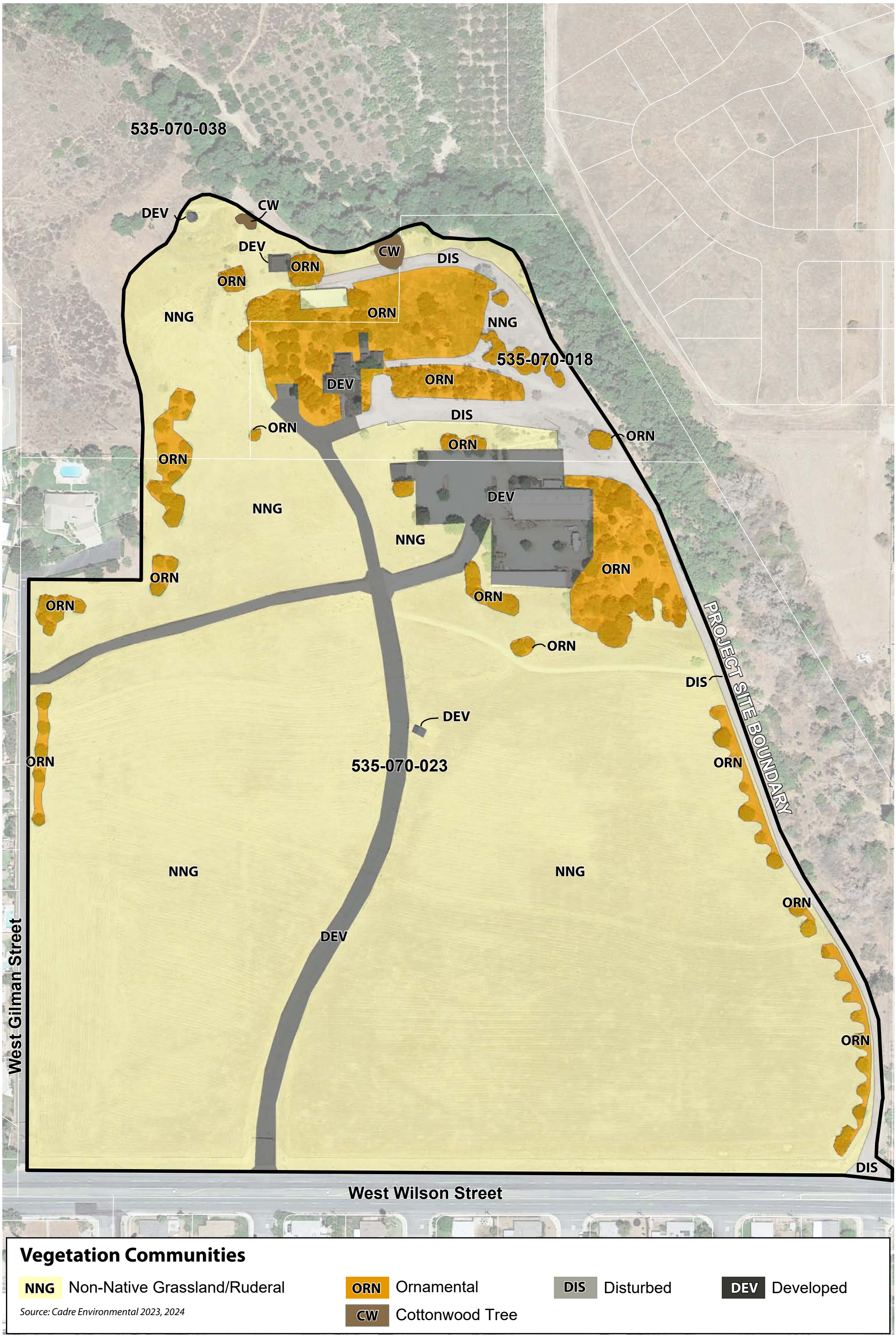
Disturbed regions of the Project Site include dirt roads generally devoid of vegetation.

Developed

Developed region of the Project Site included paved roads, museum and support structures.

GENERAL WILDLIFE SPECIES

General wildlife species documented on site include but are not limited to red-tailed hawk (*Buteo jamaicensis*), rock dove (*Columba livia*), American kestrel (*Falco sparverius*), Anna's hummingbird (*Calypte anna*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*), northern flicker (*Colaptes auratus*), mourning dove (*Zenaida macroura*), Cassin's kingbird (*Tyrannus vociferans*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), cliff swallow (*Petrochelidon pyrrhonota*), northern rough-winged swallow (*Stelgidopteryx serripennis*), American crow (*Corvus brachyrhynchos*), California towhee (*Pipilo crissalis*), western scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), house sparrow (*Passer domesticus*), desert cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel.



Vegetation Communities

NNG	Non-Native Grassland/Ruderal	ORN	Ornamental	DIS	Disturbed	DEV	Developed
		CW	Cottonwood Tree				

Source: Cadre Environmental 2023, 2024

Figure 3 - Vegetation Communities Map

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Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

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N

1 inch = 150 feet



PHOTOGRAPH 1



PHOTOGRAPH 2

Refer to Figure 2 - Vicinity Map for Photograph Key

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Figure 5 - Current Project Site Photographs

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PHOTOGRAPH 3



PHOTOGRAPH 4

Refer to Figure 2 - Vicinity Map for Photograph Key

Figure 6 - Current Project Site Photographs

Biological Resources Technical Report
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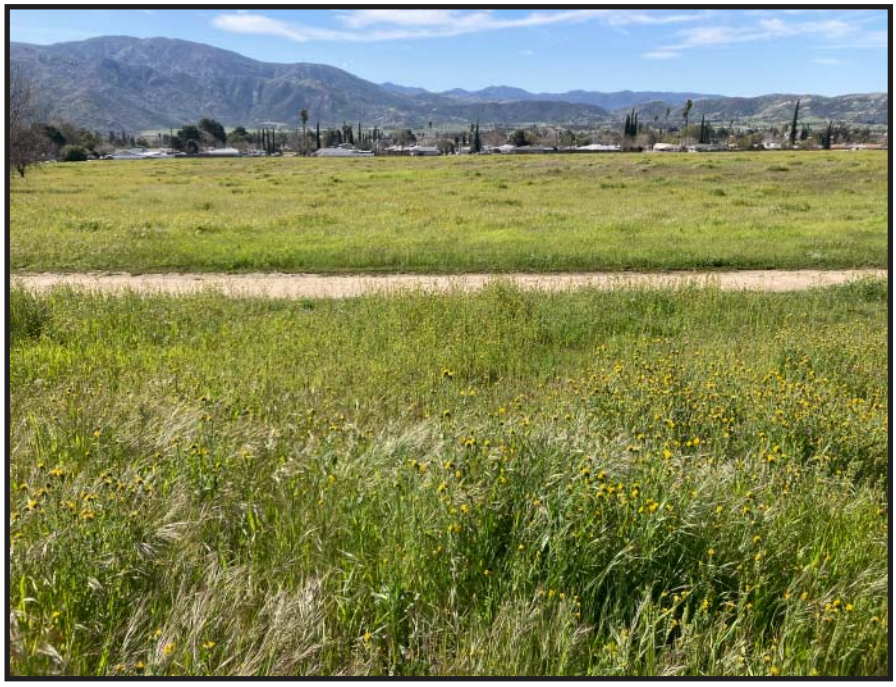
PHOTOGRAPH 5



PHOTOGRAPH 6

Refer to Figure 2 - Vicinity Map for Photograph Key

Figure 7 - Current Project Site Photographs

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 7



PHOTOGRAPH 8

Refer to Figure 2 - Vicinity Map for Photograph Key

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Figure 8 - Current Project Site Photographs

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 9



PHOTOGRAPH 10

Refer to Figure 2 - Vicinity Map for Photograph Key

Figure 9 - Current Project Site Photographs

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 11



PHOTOGRAPH 12

Refer to Figure 2 - Vicinity Map for Photograph Key

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Figure 10 - Current Project Site Photographs

Biological Resources Technical Report
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

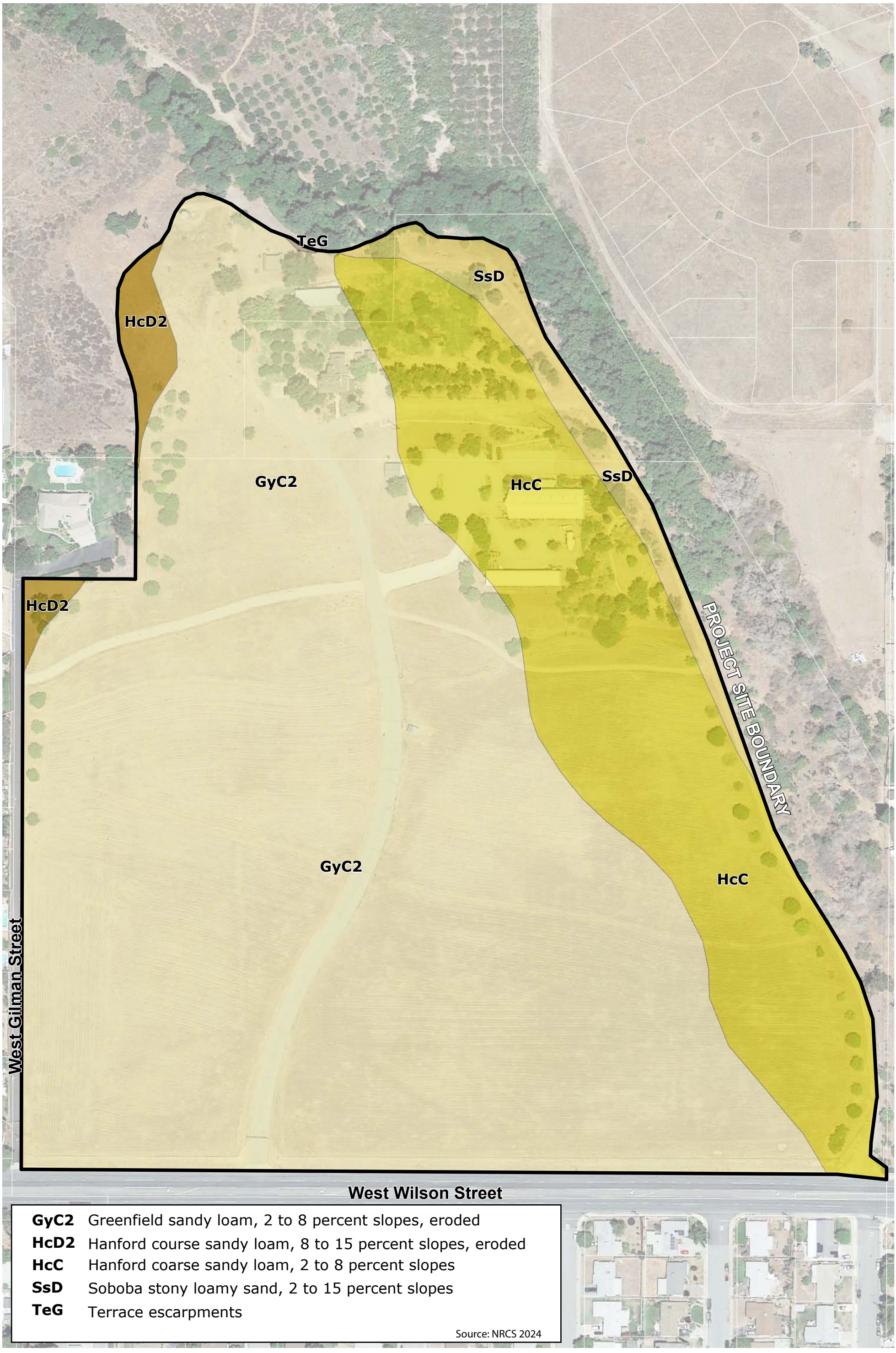

Figure 11 - Soils Association Map

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JURISDICTIONAL RESOURCES

Vernal Pool Resources

No evidence of vernal pools, seasonal depressions, seasonally inundated road ruts or other wetland features were recorded on the Project Site. Vernal pools are depressions in areas where a hard-underground layer prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime, the water gradually evaporates away, until the pools became completely dry in the summer and fall. Vernal pools tend to have an impermeable layer that results in ponded water. The soil texture (the amount of sand, silt, and clay particles) typically contains higher amounts of fine silts and clays with lower percolation rates. Pools that retain water for a sufficient length of time will develop hydric cells. Hydric cells form when the soil is saturated from flooding for extended periods of time and anaerobic conditions (lacking oxygen or air) develop.

No indication of clay substrates or hydric soils were documented within the Project Site.

A review of historic aerials was conducted to determine if inundated features were present during years of high rainfall when features would certainly be documented. Historic aerials taken in 2011 and 2023 represent an ideal baseline during which know (previously documented) inundated vernal pools, seasonal depressions and road ruts can easily be seen. No sign or indication of inundation was documented within the Project Site during a review of historic aerials. In summary, none of the conditions (i.e., no inundated depressions including road ruts, hydric soils, historic inundation, etc.) were observed on documented within the Project Site. No features are present that would support fairy shrimp. No standing water or other sign of areas that pond water was recorded.

Riparian/Riverine Resources

No MSHCP Section 6.1.2 riparian scrub, forest, woodland or riverine habitat is located within the Project Site.

Regulatory Resources

No features regulated by the USACE, CDFW, or RWQCB were documented within the Project Site. A formal jurisdictional delineation, permits, and certifications are not required.

SENSITIVE BIOLOGICAL RESOURCES

The following discussion describes the plant and wildlife species present, or potentially present within the property boundaries, that have been afforded special recognition by federal, state, or local resource conservation agencies and organizations, principally due to the species' declining or limited population sizes, usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected sensitive species are classified by state and/or federal resource management agencies, or both, as threatened or endangered, under provisions of the state and federal endangered species act. Vulnerable or "at-risk" species that are proposed for listing as threatened or endangered (and thereby for protected status) are categorized administratively as "candidates" by the USFWS. CDFW uses various terminology and classifications to describe vulnerable species. There are additional sensitive species classifications applicable in California. These are described below.

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. The CDFW, USFWS, and special groups like the California Native Plant Society maintain watch lists of such resources. For the purpose of this assessment sources used to determine the sensitive status of biological resources are:

Plants: USFWS (2026), CNDDB (CDFW 2026a), CDFW (2026d, 2026e), California Native Plant Society (CNPS 2026), and Skinner and Pavlik (1994),

Invertebrate - Crotch's bumble bee *Bombus crotchii:* Leif Richardson, Paul Williams, Robbin Thorp and Sheila Colla, et al. (2022), CDFW (2019), CDFW (2023), Hatfield, et al. (2019).

Wildlife: California Wildlife Habitat Relationships (2008), USFWS (2026), CNDDB (CDFW 2026a), and CDFW (2026b, 2026c).

Habitats: CNDDB (CDFW 2026a, 2026f).

FEDERAL PROTECTION AND CLASSIFICATIONS

The Federal Endangered Species Act of 1973 (FESA) defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range..." Threatened species are defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined as follows in Section 3(18) of the FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of a "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks

permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants. Recently, the USFWS instituted changes in the listing status of former candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing at this time) and C3 species (either extinct, no longer a valid taxon or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. However, some USFWS field offices have issued memoranda stating that former C2 species are henceforth to be considered Federal Species of Concern. This term is employed in this document but carries no official protections. All references to federally protected species in this report (whether listed, proposed for listing or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS. For purposes of this assessment, the following acronyms are used for federal status species:

FE	Federal Endangered
FT	Federal Threatened
FPE	Federal Proposed Endangered
FPT	Federal Proposed Threatened
FC	Federal Candidate for Listing

The designation of critical habitat can also have a significant impact on the development of land designated as "*critical habitat*." The FESA prohibits federal agencies from taking any action that will "*adversely modify or destroy*" critical habitat (16 U.S.C. § 1536(a)(2)). This provision of the FESA applies to the issuance of permits by federal agencies. Before approving an action affecting critical habitat, the federal agency is required to consult with the USFWS who then issues a biological opinion evaluating whether the action will "*adversely modify"* critical habitat. Thus, the designation of critical habitat effectively gives the USFWS extensive regulatory control over the development of land designated as critical habitat.

The federal Migratory Bird Treaty Act (MBTA) makes it unlawful to "*take*" any migratory bird or part, nest, or egg of such bird listed in wildlife protection treaties between the United States and Great Britain, the Republic of Mexico, Japan, and the Union of Soviet States. For purposes of the MBTA, "*take*" is defined as to pursue, hunt, capture, kill, or possess or attempt to do the same.

The Bald Eagle and Golden Eagle Protection Act explicitly protects the bald eagle and golden eagle and imposes its own prohibition on any taking of these species. As defined in this act, take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb. Current USFWS policy is not to refer the incidental take of bald eagles for prosecution under the Bald Eagle and Golden Eagle Protection Act (16 U.S.C. 668-668d).

STATE PROTECTION AND CLASSIFICATIONS

California's Endangered Species Act (CESA) defines an endangered species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission.

Article 3, Sections 2080 through 2085, of CESA addresses the taking of threatened or endangered species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided..." Under CESA, "take" is defined as "...hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require "...permits or memorandums of understanding..." and can be authorized for "...endangered species, threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

Additionally, some sensitive mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern (SSC) listings include special status species, including all state and federal protected and candidate taxa, Bureau of Land Management and US Forest Service sensitive species, species considered to be declining or rare by the National Audubon Society, and a selection of species which are considered to be under population stress but are not formally proposed for listing. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected per se but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites. For the purposes of this assessment, the following acronyms are used for State status species:

SE	State Endangered
ST	State Threatened

SCE	State Candidate Endangered
SCT	State Candidate Threatened
SFP	State Fully Protected
SP	State Protected
SR	State Rare
SSC	California Species of Special Concern
SWL	California Watch List

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” In addition, under California Fish and Game Code Section 3503.5, “it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto”. Passerines and non-passerine land birds are further protected under California Fish and Game Code 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by CDFW.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in the State. This organization has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California (Tibor 2001). The list serves as the candidate list for listing as threatened and endangered by CDFW. The CNPS has developed five categories of rarity references as California Rare Plant Ranks (CRPR):

CRPR 1A	Plants presumed extirpated in California and either rare or extinct elsewhere.
CRPR 1B	Rare, threatened, or endangered in California and elsewhere.
CRPR 2A	Plants presumed extirpated in California but common elsewhere
CRPR 2B	Plants rare, threatened, or endangered in California but more common elsewhere
CRPR 3	Plants about which we need more information – a review list.
CRPR 4	Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.

As stated by the CNPS:

"*Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered. A Threat Rank is present for all California Rare Plant Rank 1B's, 2's, 4's, and the majority of California Rare Plant Rank 3's. California Rare Plant Rank 4 plants are seldom assigned a Threat Rank of 0.1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a California Rare Plant Rank. In addition, all California Rare Plant Rank 1A (presumed extinct in California), and some California Rare Plant Rank 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension." (CNPS 2026)*

0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

SENSITIVE HABITATS

Natural communities are evaluated using NatureServe's Heritage Methodology, the same system used to assign global and state rarity ranks for plant and animal species in the CNDDB. The basic ranking concepts of rarity and threats used in the "Heritage Methodology" since the 1970's remain the same, using the best and most recent scientific information available. For rarity, the ranking involves the knowledge of range and distribution of a given type of vegetation, and the proportion of occurrences that are of good ecological integrity. Threats and trends are likewise considered in categories such as residential and commercial development, agriculture, energy production and mining, and invasive and other problematic species and genes (among others). Threat scope (typically assessed within a 20-year timeframe for vegetation) and severity are used to calculate an overall threat score, which is added to the overall rarity score for a single rank of 1 through 5. Evaluation is done at both the Global (full natural range within and outside of California) and State (within California) levels resulting in a single G (global) and S (state) rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure). Natural Communities with ranks of S1-S3 are considered Sensitive Natural Communities to be addressed in the environmental review processes of CEQA and its equivalents. (CDFW 2026f)

SENSITIVE PLANTS

The following discussion is presented in three (3) parts:

I) MSHCP Narrow Endemic Plant Species Subject to Focused Surveys or Evaluated by Habitat Suitability Assessment and Not Found or Expected to Occur Onsite;

II) Species that can be Excluded from the Project Site Based on Lack of Suitable Habitat Onsite; and
III) Special-Status Species Potentially Occurring Onsite.

I: MSHCP Narrow Endemic Plant Species Subject to Focused Surveys or Evaluated by Habitat Suitability Assessment and Not Found or Expected to Occur Onsite

Narrow Endemic Plants: Although the Yucaipa (Marvin's) onion and many-stemmed dudleya are not expected onsite based on a lack of clay substrates, focused spring surveys for both MSHCP Narrow Endemic Plant Species (NEPS) were conducted during the spring of 2023 and 2024 to determine presence/absence. Neither of the MSHCP narrow endemic plant species was documented onsite during the 2023 or 2024 focused surveys as summarized in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*.

II: Sensitive Species that can be Excluded from the Project Site Based on Lack of Suitable Habitat Onsite

No state or federally listed threatened or endangered plant species were documented onsite during the focused surveys, as outlined in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*.

III. Special-Status Species Potentially Occurring Onsite

No sensitive plants including other CNPS special-status plants, species of local concern or species not covered by the MSHCP were observed or expected onsite as outlined in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*.

Table 2.
Sensitive Plant Species with Potential to Occur Onsite.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
MSHCP Narrow Endemic Species		
Yucaipa (Marvin's) onion (*Allium marvinii*) CRPR 1B.2 MSHCP Covered	Perennial bulbiferous herb generally blooming from April to May within chaparral habitats. Often occurring in clay soils.	No Potential. Not expected to occur on site due to a lack of suitable habitat and clay substrates. Not detected during focused surveys conducted in 2023 and 2024.
Many-stemmed dudleya (*Dudleya multicaulis*) CRPR 1B.2 MSHCP Covered	Chaparral, coastal sage scrub, valley and foothill grassland. Often occurring in clay soils.	No Potential. Not expected to occur on site due to a lack of suitable habitat and clay substrates. Not detected during focused surveys conducted in 2023 and 2024.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Other Sensitive Species Considered		
Chaparral sand-verbena (*Abronia villosa* var. *aurita*) CRPR 1B.1	Sandy soils in sage-scrub, chaparral.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*) CVMSHCP Covered FE CRPR 1B.2	Annual/perennial herb generally blooms from February to May in dessert dunes and Sonoran Desert scrub habitats (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Jaeger's milkvetch (*Astragalus pachypus* var. *jaegeri*) CRPR 1B.1 MSHCP Covered	Perennial shrub generally blooming from December to June within chaparral, cismontane, coastal sage and valley/foothill grasslands. (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*) FE CRPR List 1B.1 MSHCP CAPSA CA Endemic	The San Jacinto Valley crownscale occurs primarily in floodplains that support alkali scrub, alkali playas, vernal pools, and occasionally alkali grasslands.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Thread-leaved brodiaea (*Brodiaea filifolia*) FT/SE CRPR 1B.1 MSHCP Covered	Typically occurs on gentle hillsides, valleys, and floodplains in semi-alkaline flats of riparian areas, vernal pools, mesic southern needlegrass grassland, mixed native-annual grassland, and alkali grassland plant communities in association with clay, clay loam, or alkaline silty-clay soils.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Plummer's mariposa lily (*Calochortus plummerae*) CRPR 4.2 MSHCP Covered	Granitic, rock soils within chaparral, cismontane woodland, coastal sage scrub, lower montane coniferous forest, and valley and foothill grassland.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Payson's jewelflower (*Caulanthus simulans*) CRPR List 4.2 MSHCP Covered	Annual herb generally blooming from February to June within chaparral and costal scrub habitats in association with granitic and sandy substrates (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*) CRPR 1B.1 MSHCP Covered	Alkaline soils in chenopod scrub, meadows and seeps, playas, and disturbed habitats.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*) CRPR 1B.1 MSHCP Covered	Sandy or rocky soils in open habitats of chaparral and coastal sage scrub.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
White-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*) CRPR 1B.2	Annual herb generally blooming from April to June within coastal scrub (alluvial fans), Mojavean desert scrub and pinyon and juniper woodland habitats (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Mojave tarplant (*Deinandra mohavensis*) SE CRPR 1B.3 MSHCP Covered	Annual herb generally blooming from January to October within chaparral, coastal scrub and riparian scrub habitats in association with mesic conditions.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Cleveland's bush monkeyflower (*Diplacus clevelandii*) CRPR 4.2 MSHCP Covered	Perennial rhizomatous herb generally blooming form April to July within chaparral, cismontane woodland and lower montane coniferous forest (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Slender-horned spineflower (*Dodecahema leptoceras*) FE/SE CRPR 1B.1 MSHCP Covered	Sandy soils in alluvial scrub, chaparral, cismontane woodland.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Mesa horkelia (*Horkelia cuneata* ssp. *puberula*) CRPR 1B.1	Perennial herb generally blooming from February to September within chaparral (maritime), cismontane woodland, and coastal scrub (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) CRPR 4.3	Annual herb generally blooming from January to July within chaparral and coastal scrub habitats (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Spiny-hair blazing star (*Mentzelia tricuspis*) CRPR 2B.1	Annual herb generally blooming from March to May within Mojavean desert scrub (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Spreading navarretia (*Navarretia fossalis*) FT CRPR 1B.1 MSHCP Covered	Vernal pools, playas, chenopod scrub, marshes and swamps (assorted shallow freshwater).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Narrow-leaf sandpaper-plant (*Petalonyx linearis*) CRPR 2B.3	Perennial shrub generally blooming from March to May within Mojavean and Sonoran Desert scrub habitats (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*) State Listed as Rare CRPR 1B.2	Perennial herb generally blooming from May to August within chaparral, cismontane woodland and lower montane coniferous forest (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
San Bernardino aster (*Symphyotrichum defoliatum*) CRPR 1B.2	Occurs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland (vernally mesic)/near ditches, streams springs.	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.
California dandelion (*Taraxacum californicum*) FE CRPR 1B.1	Perennial herb generally blooming from May to August within meadows and seeps (mesic conditions) (CNPS 2026).	No Potential. Not detected or expected to occur on site due to a lack of suitable habitats and soils.

California Native Plant Society (CNPS): California Rare Plant Rank (CRPR)
CRPR 1A – plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B – plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 2A – plants presumed extirpated in California but common elsewhere
CRPR 2B – plants rare, threatened, or endangered in California but more common elsewhere
CRPR 3 – plants about which we need more information, a review list
CRPR 4 – plants of limited distribution, a watch list
.1 – Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Federal (USFWS) Protection and Classification

Species Name (*Scientific Name*) Status	Habitat Description	Comments
FE – Federally Endangered FT – Federally Threatened FC – Federal Candidate for Listing **State (CDFW) Protection and Classification** SE – State Endangered ST – State Threatened		

Source : Cadre Environmental 2023/2025.

SENSITIVE WILDLIFE

The following discussion is presented in two parts:

I) MSHCP planning species detected on or adjacent to the Project Site;
II) MSHCP and sensitive species that can be excluded from occurring within the Project Site or may occur onsite based on the presence of suitable habitat.

I: MSHCP Planning Species Documented on or Adjacent to the Project Site

A total of four (4) MSHCP Planning Species have the potential to occur within the Project Site including Cooper's hawk (*Astur cooperii*), white-tailed kite (*Elanus leucurus*), bobcat (*Lynx rufus*), and mountain lion (*Puma concolor*). As previously stated, the MSHCP has determined that these sensitive species potentially occurring within Project Site have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004).

The Project Site is not located within an MSHCP mammal species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2.

The Project Site occurs partially within a predetermined Survey Area for the burrowing owl (*Athene cunicularia*). Suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented adjacent to the property including foraging habitat documented throughout the majority of the Project Site. Based on the presence of suitable habitat, focused MSHCP burrowing owl surveys were conducted during the spring of 2023 and 2024. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 and 2024 survey efforts.

A total of three (3) sensitive species has the potential to occur within the Project Site including grasshopper sparrow (*Ammodramus savannarum*), California horned lark (*Eremophila alpestris actia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). As previously stated, the MSHCP has determined that these sensitive species potentially occurring within Project Site have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). Sensitive species that can be excluded from occurring onsite or known to occur within the region

with potential to occur onsite are presented in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*.

II. MSHCP and sensitive species that can be excluded from occurring within the Project Site or may occur onsite based on the presence of suitable habitat

Suitable habitat was documented onsite for one (1) special-status invertebrate species not covered under the MSHCP including Crotch's bumble bee (*Bombus crotchii*) State Candidate Endangered (SCE), as outlined in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*. Scattered plant species in the genera of several food resources documented to be utilized by Crotch's bumble bee were documented within the Project Site including , *Medicago, Eschscholzia, Eriogonum, Lupinus,* and *Salvia.* Burrows representing suitable nesting resources were also documented throughout the Project Site. As stated by Hatfield, et al.:

> "*Bombus crotchii inhabits open grassland and scrub habitats. Nesting occurs underground. Males perch and chase moving objects in search of mates. This species is classified as a short-tongued species, whose food plants include Asclepias, Chaenactis, Lupinus, Medicago, Phacelia, and Salvia (Williams et al. 2014). Bumble bees are social insects that live in colonies composed of a queen, workers, and reproductives (males and new queens). Colonies are annual and only the new, mated queens overwinter. These queens emerge from hibernation in the early spring and immediately start foraging for pollen and nectar and begin to search for a nest site. Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Initially, the queen does all of the foraging and care for the colony until the first workers emerge and assist with these duties. Bumble bees collect both nectar and pollen of the plants that they pollinate. In general, bumble bees forage from a diversity of plants, although individual species can vary greatly in their plant preferences, largely due to differences in tongue length. Bumble bees are well-known to engage in "buzz pollination," a very effective foraging technique in which they sonicate the flowers to vibrate the pollen loose from the anthers. Tomatoes (Solanaceae), blueberries (Ericaceae), and many other important food plants are pollinated by bumble bees in this way*." Hatfield, et al. (2019).

Based on the presence of suitable habitat, focused Crotch's bumble bee surveys were conducted during the spring of 2026. The Crotch's bumble bee was not detected within the Project Site (Huffman Environmental 2026).

Suitable roosting habitat was documented onsite for two (2) special-status bat species not covered under the MSHCP including western yellow bat (*Lasiurus xanthinus*) and pocketed free-tailed bat (*Nyctinomops femorosaccus*), as outlined in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*.

Table 3.
Sensitive Wildlife Species with Potential to Occur Onsite.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
INVERTEBRATES		
Crotch's bumble bee (*Bombus crotchii*) SCE	Range extends from southern to northern California within a variety of habitats including grassland, scrub, chaparral and desert habitats. Food plants include but are not limited to the following genera: *Antirrhinum, Phacelia, Clarkia, Cordylanthus, Dendromecon, Medicago Eschscholzia, Chaenactis, Eriogonum, Hypericum, Lantana, Lupinus, Salvia, Asclepias, Cirsium, Monardella, Keckiella, Acmispon, Euthamia, Ehrendorferia, Vicia,* and/or *Trichostema*.	Potential. The grassland an ornamental vegetation provide suitable habitat for the species based on the presence of the following scattered genera, *Medicago Eschscholzia, Eriogonum, Lupinus, Salvia,* and presence of scattered mammal burrows. Species not detected onsite during focused surveys conducted during the spring of 2026 (Huffman Environmental 2026)
Riverside fairy shrimp (*Streptocephalus woottoni*) FE MSHCP Covered Species	*S. woottoni* is restricted to deep seasonal vernal pools/ephemeral ponds, and stock ponds and other human modified depressions (Eng, Belk, and Eriksen 1990, USFWS 1993, USFWS 2001). Riverside fairy shrimp prefer warm-water pools that have low to moderate dissolved solids, are less predictable, and remained filled for extended periods of time (MSHCP 2004).	No Potential. No suitable habitat including vernal pools, seasonal depressions or indication of inundation was documented within or adjacent to the Project Site.
Monarch butterfly (*Danaus plexippus*) FPT	Winter migrant along CA coast. Known to roost in eucalyptus trees. Usually encountered in lowland areas. Obligate milkweed host plant (primarily Asclepias spp.) during larval stage. Nectar and milkweed resources are often associated with	No Potential. Based on a lack of food sources (milkweed species) documented onsite and no documented overwintering sites in western Riverside County.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
	riparian corridors. Overwinter in groves along the coast of California and Baja California, typically close to the coast, populated by a variety of tree species, including blue gum eucalyptus (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*).	
AMPHIBIANS		
Arroyo toad (*Anaxyrus californicus*) FE/SSC MSHCP Covered Species	Shallow, slow moving active and braided stream channels with sandy substrates for breeding, bench and terrace habitats for foraging and aestivation, willow scrub, coastal sage scrub and riparian/oak woodlands.	No Potential. No suitable breeding or upland habitat documented within or adjacent to the Project Site.
Western spadefoot (*Spea hammondii*) FPT/SSC MSHCP Covered Species	The western spadefoot population is patchily but widely distributed throughout the Riverside Lowlands and San Jacinto Foothills Bioregions. Habitat for this species includes suitable breeding habitat below 1500 meters (i.e., vernal pools or other standing water is free of exotic species) secondary habitats including adjacent chaparral, sage scrub, grassland, and alluvial scrub habitats (MSHCP 2004).	No Potential. No suitable breeding habitat including vernal pools, seasonal depressions or indication of inundation was documented within the Project Site.
Southern mountain yellow-legged frog (*Rana muscosa*) FE/SE MSHCP Covered Species	Southern mountain yellow-legged frog is typically described from sunny riverbanks, meadow streams, isolated pools, lake borders, and rocky stream courses (MSHCP 2004).	No Potential. No suitable breeding habitat was documented within the Project Site.

Species Name (*Scientific Name*) Status	Habitat Description	Comments
REPTILES		
Orange-throated whiptail (*Aspidoscelis hyperythra*) SWL MSHCP Covered Species	The orange-throated whiptail occurs primarily in a wide variety of habitats but is more closely tied to coastal sage scrub and chaparral habitats with less than 90 percent vegetative cover.	No Potential. No suitable habitat documented within the Project Site.
Coastal western whiptail (*Aspidoscelis tigris stejnegeri*) SSC MSHCP Covered Species	The coastal western whiptail occurs in a wide variety of habitats including coastal sage scrub, desert scrub, Riversidean alluvial fan scrub, woodlands, grasslands, playas, and respective ecotones between these habitats (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
San Diego banded gecko (*Coleonyx variegatus abbotti*) SSC MSHCP Covered Species	San Diego banded gecko is a microhabitat generalist and also occurs in habitats ranging from cismontane chaparral and desert scrub to open sand dunes and arid tropical forests (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
Southern California legless lizard (*Anniella stebbinsi*) SSC	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	No Potential. No suitable habitat documented within the Project Site.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*) SSC	The coast patch-nosed snake prefers brushy coastal sage scrub/ chaparral habitats.	No Potential. No suitable habitat documented within the Project Site.
Red-diamond rattlesnake (*Crotalus ruber*) SSC MSHCP Covered Species	The red-diamond rattlesnake is often found in areas with dense vegetation especially chaparral and sage scrub up to 1,520 meters in elevation (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Granite night lizard (*Xantusia henshawi henshawi*) MSHCP Covered Species	Restricted to narrow microenvironment conditions where it is rarely found far from rock outcrop crevices massive rocks, rock outcrops, and flaking granite, in a variety of desert, chaparral, and woodland habitats (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*) MSHCP Covered Species	San Bernardino mountain kingsnake occurs in well-illuminated canyons with rocky outcrops or rock talus in association with bigcone spruce and various canyon chaparral species at lower elevations, and with black oak, incense cedar, Jeffrey pine, and ponderosa pine at higher elevations (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
Coast horned lizard (*Phrynosoma blainvillii*) SSC MSHCP Covered Species	The horned lizard occurs primarily in scrub, chaparral, and grassland habitats. The species is common in most areas of the Plan Area except where adjacent to urban situations (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
Granite spiny lizard (*Sceloporus orcuttii*) MSHCP Covered Species	Granite spiny lizard is often present under granite flakes on boulders, being the most abundant lizard on rock outcrops in Riverside County (MSHCP 2004).	No Potential. No suitable habitat documented within the Project Site.
Two-striped gartersnake (*Thamnophis hammondii*) SSC	Marsh and swamp, riparian scrub, riparian woodland, and wetland. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	No Potential. No suitable habitat documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
BIRDS		
Tri-colored blackbird (*Agelaius tricolor*) ST/SSC MSHCP Covered Species	Marshes and grasslands. Breeding colonies require nearby water, nesting substrate, and open range foraging habitat of natural grassland, woodland, or agricultural cropland.	No Potential. No suitable habitat documented within the Project Site.
Cooper's hawk (*Astur cooperii*) *SWL* MSHCP Covered Species	Cooper's hawk is most commonly found within or adjacent to riparian/oak forest and woodland habitats. This uncommon resident of California increases in numbers during winter migration.	Potential. The species is expected to forage onsite and potentially nest in the mature trees documented within and adjacent to the Project Site.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) SWL MSHCP Covered Species	Southern California rufous-crowned sparrow is a non-migratory bird species that primarily occurs within sage scrub and grassland habitats and to a lesser extent chaparral sub-associations (Unitt 2004). This species generally breeds on the ground within grassland and scrub communities in the western and central regions of California.	No Potential. No suitable habitat documented within the Project Site.
Grasshopper sparrow (*Ammodramus savannarum*) SSC MSHCP Covered Species	The grasshopper sparrow generally prefers moderately open grasslands and prairies with patchy bare ground (MSHCP 2004).	Potential. The non-native grassland/ruderal vegetation documented onsite provides suitable habitat for the species.
Turkey vulture (breeding) (*Cathartes aura*) MSHCP Covered Species	The focus of this planning effort is on the nesting of the turkey vulture. There are two recorded nest sites within the Plan Area: Bernasconi Hills near Lake Perris and Rawson Canyon near Lake Skinner (MSHCP 2004).	No Potential. No suitable nesting habitat was documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Cactus wren (*Campylorhynchus brunneicapillus)* SSC MSHCP Covered Species	This species is a rare localized resident that is found in maritime succulent scrub and coastal sage scrub that contain *Opuntia* thickets.	No Potential. No suitable habitat was documented within the Project Site.
Golden eagle (*Aquila chrysaetos*) SWL, SFP MSHCP Covered Species	Within southern California, the species prefers grasslands, brushlands (coastal sage scrub and chaparral), deserts, oak savannas, open coniferous forests, and montane valleys (MSHCP 2004).	No Potential. No suitable nesting habitat was documented within the Project Site.
Bell's sage sparrow (*Artemisiospiza belli belli*) SWL MSHCP Covered Species	Bell's sage sparrow is an uncommon to fairly common but localized resident breeder in dry chaparral and coastal sage scrub along the coastal lowlands, inland valleys, and in the lower foothills of local mountains (MSHCP 2004).	No Potential. No suitable habitat was documented within the Project Site.
Burrowing owl (*Athene cunicularia*) SCE/SSC MSHCP Covered Species	The burrowing owl uses predominantly open land, including grassland, agriculture (e.g., dry-land farming and grazing areas), playa, and sparse coastal sage scrub and desert scrub habitats (Garrett and Dunn 1981). Some breeding burrowing owls are year-round residents and additional individuals from the north may winter throughout the MSHCP Area Plan (MSHCP 2004).	No Potential. The Project Site provides suitable foraging habitat and burrows larger than 4 inches in diameter were detected within and adjacent to the property boundaries. Not detected during focused surveys conducted in spring 2023 and 2024.
Ferruginous hawk (*Buteo regalis*) SWL MSHCP Covered Species	Range-wide, within California, ferruginous hawks winter in open terrain and grasslands of plains and foothills (Grinnell and Miller 1944). Within southern California, including the ferruginous hawks typically winter in	No Potential. No suitable nesting habitat was documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
	open fields, grasslands, and agricultural areas.	
Northern harrier (*Circus hudsonius*) SSC MSHCP Covered Species	The northern harrier frequents open wetlands, wet/lightly grazed pastures, fields, dry uplands/prairies, mesic grasslands, drained marshlands, croplands, meadows, grasslands, open rangelands, fresh and saltwater emergent wetlands.	No Potential. No suitable nesting habitat was documented within the Project Site.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) FT/SE MSHCP Covered Species	Although the preferred habitat, riparian scrub and forest, is well distributed at scattered locations within the Plan Area in the Riverside Lowland Bioregions, the western yellow-billed cuckoo apparently no longer inhabits much of this habitat (MSHCP 2004).	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within the Project Site.
White-tailed kite (*Elanus leucurus*) SFP MSHCP Covered Species	The white-tailed kite is found in riparian, oak woodlands adjacent to large open spaces including grasslands, wetlands, savannahs and agricultural fields. This non-migratory bird species occurs throughout the lower elevations of California and commonly nests in coast live oaks (Unitt 2004).	Potential. May occasionally forage onsite.
Southwestern willow flycatcher (*Empidonax traillii extimus*) FE/SE MSHCP Covered Species	The southwestern willow flycatcher is narrowly distributed at few locations within the Plan Area. Although the preferred habitat, riparian woodland and select other forests, is well distributed within all bioregions and spread over the entire Plan Area, few current locations for the willow flycatcher have been	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
	documented (MSHCP 2004).	
California horned lark (*Eremophila alpestris actia*) SWL MSHCP Covered Species	Habitat for the California horned lark includes agriculture (field croplands), grassland, cismontane alkali marsh, playa and vernal pool habitat, Riversidean alluvial fan sage scrub, and coastal sage scrub (Garrett and Dunn 1988). It has been recorded in chaparral and riparian habitat - however these are not typical habitats used by the species.	Potential. May occasionally forage onsite.
Prairie falcon (*Falco mexicanus*) SWL MSHCP Covered Species	Habitat use of the prairie falcon includes annual grasslands to alpine meadows. The prairie falcon is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields during the winter season, and desert scrub areas, all typically dry environments of western North American where there are cliffs or bluffs for nest sites (MSHCP 2004)	No Potential. No suitable nesting habitat was documented within the Project Site.
American peregrine falcon (*Falco peregrinus anatum*) MSHCP Covered Species	Throughout the species' range, peregrine falcons are found in a large variety of open habitats, including tundra, marshes, seacoasts, savannahs and high mountains (AOU 1998, MSHCP 2004).	No Potential. No suitable nesting habitat was documented within the Project Site.
Yellow-breasted chat (*Icteria virens*) SSC MSHCP Covered Species	The yellow-breasted chat is associated with riparian woodland and riparian scrub habitats (MSHCP 2004)	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within or the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Loggerhead shrike (*Lanius ludovicianus*) SSC MSHCP Covered *Species*	Loggerhead shrike prefer open ground for foraging and thick trees and shrubs including sage scrub, chaparral, and desert scrub habitats for nesting.	No Potential. No suitable habitat was documented within the Project Site.
Downy woodpecker (*Picoides pubescens*)	Potential habitat for the downy woodpecker includes riparian scrub, woodland, forest, and oak woodland habitat in all Bioregions within the Plan Area (MSHCP 2004).	No Potential. No suitable habitat was documented within the Project Site.
Coastal California gnatcatcher (*Polioptila californica californica*) FT/SSC MSHCP Covered Species	The coastal California gnatcatcher is a non-migratory bird species that primarily occurs within sage scrub habitats in coastal southern California dominated by California sagebrush (*Artemisia californica*), and California buckwheat (*Eriogonum fasciculatum*).	No Potential. No suitable habitat was documented within the Project Site.
Yellow warbler (*Setophaga petechia*) SSC MSHCP Covered Species	Habitat characteristics of the yellow warbler are well known to include riparian scrub and forest and woodland (MSHCP 2004)	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within the Project Site.
LeConte's thrasher (*Toxostoma lecontei*) SSC CVMSHCP Covered	The Le Conte's thrasher's typical habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills having a high proportion of one or more species of saltbush (*Atriplex* spp.) and/or cylindrical cholla cactus (*Opuntia* spp.) 0.9 - 1.9 meters high. CVMSHCP 2017.	No Potential. No suitable habitat was documented within the Project Site.
Tree swallow (*Tachycineta bicolor*) MSHCP Covered Species	Suitable habitat is provided for the tree swallow by the riparian forest and woodland up through the lodgepole pine belt for breeding habitats. It frequents valley foothill and montane riparian habitats below 2,700 meters	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within the Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
	(9,000 feet) for breeding within its range (MSHCP 2004).	
Least Bell's vireo (*Vireo bellii pusillus*) FE/SE MSHCP Covered Species	Least Bell's vireo resides in riparian habitats with a well-defined understory including southern willow scrub, mule fat, and riparian forest/woodland habitats.	No Potential. No suitable riparian scrub, forest or woodland habitat was documented within the Project Site.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) SSC	Prefers freshwater marshes habitat dominated by cattails and tule.	No Potential. No suitable marsh habitat was documented within or adjacent to the Project Site.
MAMMALS		
Pallid bat (*Antrozous pallidus*) SSC	In California, the species as occurring in a variety of habitats, including coniferous forests, oak woodlands, brushy terrain, rocky canyons, open farmland, and desert. Roosts are selected on the basis of temperature/proximity to foraging habitat. They are generalists in their roosting requirements, using a variety of structures including rock crevices, tree hollows, mines/caves, structures.	No Potential. No suitable roosting habitat documented within Project Site.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) MSHCP Covered Species	The northwestern San Diego pocket mouse occurs throughout the Plan Area in coastal sage scrub (including Diegan and Riversidean upland sage scrubs and alluvial fan sage scrub), sage scrub/grassland ecotones, chaparral at all elevations up to 6,000 feet (MSHCP 2004).	No Potential. No suitable habitat was documented within the Project Site.
Townsend's big-eared bat (*Corynorhinus townsendii*) SSC	A wide variety of habitats including woodlands and arid grasslands. Roosts in mines and caves.	No Potential. No suitable roosting habitat documented within Project Site.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Dulzura kangaroo rat (*Dipodomys simulans*) MSHCP Covered Species	The Dulzura kangaroo rat occurs throughout the Plan Area in coastal sage scrub (including Diegan and Riversidean upland sage scrubs and alluvial fan sage scrub), sage scrub/grassland ecotones, chaparral, and desert scrubs at all elevations up to 2,600 feet (MSHCP 2004)	No Potential. No suitable habitat was documented within the Project Site.
San Bernardino kangaroo rat (*Dipodomys merriami parvus*) FE/SE/SSC MSHCP Covered Species	Alluvial sage scrub on alluvial fans, flood plains, along washes, in adjacent upland areas, and in areas with historic braided stream channels; these habitats characterized by sand, loam, sandy loam, or gravelly soils. Prefers the more open early and intermediate phases of alluvial sage scrub, but mature sage scrub is important as refugia during floods.	No Potential. No suitable habitat documented onsite.
Stephens' kangaroo rat (*Dipodomys stephensi*) FT/ST MSHCP Covered Species	The Stephens' kangaroo rat is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50 percent during the summer (MSHCP 2004).	No Potential. No suitable habitat was documented within the Project Site.
Western mastiff bat (*Eumops perotis californicus*) SSC	Western mastiff bats are found in a variety of biotic environments from low desert scrub to chaparral, oak woodland and ponderosa pine.	No Potential. No suitable roosting habitat documented within Project Site.
Western yellow bat (*Lasiurus xanthinus*) SSC	Although formerly associated only with the desert palm oasis in California (Bond, 1970), yellow bats appear to be expanding their range to the coast and northward, possibly as a result of the planting of ornamental palms.	Potential. A few scattered Mexican fan palm (*Washingtonia robusta*) - Suitable roosting habitat documented onsite.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) MSHCP Covered Species	The San Diego black-tailed jackrabbit in open habitats, primarily including grasslands, sage scrub, alluvial fan sage scrub, and Great Basin sage scrub.	Potential. Suitable habitat documented onsite.
Bobcat (*Lynx rufus*) MSHCP Covered Species	The bobcat requires large expanses of relatively undisturbed brushy and rocky habitats near springs or other perennial water sources.	Potential. Not frequently expected onsite based on a lack of unrestricted movement routes, refugia and restricted access along western and southern boundaries.
San Diego desert woodrat (*Neotoma lepida intermedia*) MSHCP Covered Species	The San Diego desert woodrat is found throughout the Plan Area in sage scrub and chaparral wherever there are rock outcrops, boulders, cactus patches and dense undergrowth (MSHCP 2004).	No Potential. No suitable habitat documented onsite.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*) SSC	Usually associated with rugged canyons, high cliffs, and rock outcroppings. Roosts in rock crevices and caves during the day; may also roost in buildings or under roof tiles (Ziener et al. 1988-1990).	Potential. Buildings provide suitable roosting habitat.
Big free-tailed bat (*Nyctinomops macrotis*) SSC	Desert habitats. Roosts in rock crevices in cliffs	No Potential. No suitable roosting habitat documented onsite.
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) SSC MSHCP Covered Species	The Los Angeles pocket mouse appears to be limited to sparsely vegetated habitat areas in patches of fine sandy soils associated with washes or of aeolian (windblown) origin, such as dunes (MSHCP 2004)	No Potential. No suitable habitat documented onsite.
Mountain lion (*Puma concolor*) MSHCP Covered Species	Mountain lions use rocky areas, cliffs, and ledges that provide cover within open woodlands and chaparral, as well as riparian areas that provide	Potential. Not frequently expected onsite based on a lack of unrestricted movement routes, refugia and restricted access along

Species Name (*Scientific Name*) Status	Habitat Description	Comments
	protective habitat connections for movement between fragmented core habitats (MSHCP 2004)	western and southern boundaries.
American badger (*Taxidea taxus*) SSC	The American badger prefers friable soils in open grassland and scrub habitat in southern California.	No Potential. No burrows documented onsite.

Federal (USFWS) Protection and Classification
FE – Federally Endangered
FT – Federally Threatened
FPT – Federally Proposed Threatened
FC – Federal Candidate for Listing

State (CDFW) Protection and Classification
SE – State Endangered
SCE – State Candidate Endangered
ST – State Threatened
SSC – State Species of Special Concern
SWL – California Watch List
SPF – State Fully Protected

Sources: Cadre Environmental 2023/2026.

Critical habitat designations by the USFWS were researched to determine if any of the Project Site is located within USFWS critical habitat. The Project Site does not occur within a designated critical habitat for federally endangered or threatened species.

REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT CORRIDORS

Overview

Wildlife corridors link areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated “islands” of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallager 1989; Bennett 1990). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed “demes”) linked together via a system of corridors is termed a “metapopulation.” The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a

population's genetic variability is generally associated with an increase in a population's health. Corridors mitigate the effects of habitat fragmentation by:

(1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity;
(2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and
(3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983; Fahrig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as "wildlife corridor", "travel route", "habitat linkage", and "wildlife crossing" to refer to areas in which wildlife moves from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

Travel Route: A landscape feature (such as a ridge line, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

Wildlife Corridor: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

Wildlife Crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often "choke points" along a movement corridor.

Wildlife Movement within Project Site

The Project Site is not located within or adjacent to an MSHCP designated core, extension of existing core, non-contiguous habitat block, constrained linkage, or linkage area. The

Project Site is bound to the west and south by high density residential development and high traffic road (West Wilson Street) and does not represent or contribute to a regional wildlife movement corridor.

REGIONAL AND REGULATORY SETTING

LOCAL/Western Riverside County Multiple Species Habitat Conservation Plan Compliance Analysis

The proposed Project Site is located completely within the MSHCP, which is a comprehensive multi-jurisdictional effort that includes western Riverside County and eighteen (18) cities including the City of Banning. Rather than addressing sensitive species on an individual basis, the MSHCP focuses on conservation of 146 species, including those listed at the federal and state levels and those that could become listed in the future. The MSHCP proposed a reserve system of approximate 500,000 acres, of which 347,000 acres are currently within public ownership and 153,000 acres will need to be assembled from lands currently in private ownership. The MHSCP allows the County and other permittees to issue take permits for listed species so that applicants do not need to receive endangered species incidental take authorization from the USFWS and CDFW.

On June 7th, 2003, the County Board of Supervisors adopted the MSHCP, certified the Environmental Impact Report/Environmental Impact Statement, and authorized the Chairman to sign the Implementing Agreement with the respective wildlife agencies. The Incidental Take Permit was issued by the wildlife agencies on June 22nd, 2004. The City of Banning and County of Riverside Regional Park and Open-Space District are Permittees under the MSHCP.

MSHCP Reserve Design & Criteria Area Objectives

Regions of the MHSCP have been organized into Area Plans that generally coincide with logical political boundaries, including city limits or long-standing unincorporated communities.

The County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site is located within the Pass Area Plan. The Pass Area Plan has a target conservation acreage of 22,510 - 27,895 acres; it is composed of approximately 13,970-acres of existing Public/Quasi-Public Lands and 8,540 - 13,925 acres of Additional Reserve Lands. The City of Banning, City of Beaumont, and City of Calimesa sit entirely within The Pass Area Plan. The target acreage range within the City of Banning is 50-90 acres (MSHCP 2004).

The Project Site is not located within an MSHCP Criteria Area Cell or Cell Group. Therefore, no Habitat Evaluation and Acquisition Negotiation Strategy (HANS) or Joint Project Review (JPR) are required.

The Pass - Special Linkage Area

The Project Site is not located within or adjacent to an MSHCP designated core, extension of existing core, non-contiguous habitat block, constrained linkage, or linkage area.

MSHCP Sensitive Species Surveys

The Project Site occurs partially within a predetermined Survey Area for two (2) MSHCP narrow endemic plant species including Yucaipa (Marvin's) onion, and many-stemmed dudleya (RCA GIS Data Downloads 2026). No suitable habitat or clay substrates were documented onsite and the species are not expected to occur onsite. However, to ensure MSHCP narrow endemic plants species are adequately addressed, focused surveys were conducted during the spring of 2023 and 2024, as outlined in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*. Neither species was documented onsite during focused surveys conducted during the spring of 2023 and 2024. The project is consistent with MSHCP Section 6.1.3.

The Project Site is not located within an MSHCP Criteria Area Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2.

The Project Site is not located within an MSHCP Amphibian or Mammal Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2.

The Project Site occurs partially within a predetermined Survey Area for the burrowing owl. Suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented adjacent to the property including foraging habitat documented throughout the Project Site. Based on the presence of suitable habitat, focused MSHCP burrowing owl surveys were conducted during the spring of 2023 and 2024. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 and 2024 survey efforts. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP. If burrowing owls are detected onsite during the burrowing owl 30-day preconstruction survey, a burrowing owl relocation plan will be developed for the passive/active translocation of individuals as directed by the City of Banning and MSHCP wildlife agencies. Following completion of the burrowing owl 30-day preconstruction survey and compliance with MSHCP species guidelines, if detected, the project will be consistent with MSHCP Section 6.3.2.

MSHCP Riparian, Riverine, Vernal Pool Resources (Section 6.1.2)

Regulated activities within inland streams, wetlands and riparian areas in Western Riverside County California fall under the jurisdiction of the MSHCP. The MSHCP requires, among other things, assessments for riparian/riverine and vernal pool resources. As projects are proposed within the MSHCP Plan Area, an assessment of the potentially significant effects of those projects on riparian/riverine areas, and vernal pools are required, as currently mandated by CEQA, using available information augmented by

project-specific mapping provided to and reviewed by the permittee's biologist(s). Riparian/riverine areas and vernal pools are defined for this section as follows in accordance with Section 6.1.2, Vol. I, of the Final MSHCP Plan:

> "*Riparian/Riverine Areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year*." (MSHCP 2004)

It is assumed the first part of the definition defines riparian habitat, and the second part defines riverine areas. Vernal pools are defined as:

> "…*seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season*". (MSHCP 2004)

No MSHCP Section 6.1.2 riparian scrub, forest or woodland habitat is located within the Project Site. No suitable habitat for the least Bell's vireo, southwestern willow flycatcher or western yellow-billed cuckoo was detected within the Project Site; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2.

No MSHCP Section 6.1.2 riverine habitat is located within the Project Site. The project is consistent with MSHCP Section 6.3.2.

No evidence of vernal pools, seasonal depressions, seasonally inundated road ruts or other wetland features were recorded on the Project Site. Vernal pools are depressions in areas where a hard-underground layer prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime, the water gradually evaporates away, until the pools became completely dry in the summer and fall. Vernal pools tend to have an impermeable layer that results in ponded water. The soil texture (the amount of sand, silt, and clay particles) typically contains higher amounts of fine silts and clays with lower percolation rates. Pools that retain water for a sufficient length of time will develop hydric cells. Hydric cells form when the soil is saturated from flooding for extended periods of time and anaerobic conditions (lacking oxygen or air) develop.

Consistent with conditions documented onsite and as previously stated, the Project Site is characterized as Greenfield sandy loam, Hanford course sandy loam, Soboba stony loamy sand and Terrace escarpments – all possessing well drained substrates (drainage class). No indication of clay substrates or hydric soils were documented within the Project Site. A review of historic aerials was conducted to determine if inundated features were present during years of high rainfall when features would certainly be documented.

Historic aerials taken in 2011 and 2023 represent an ideal baseline during which know (previously documented) inundated vernal pools, seasonal depressions and road ruts can easily be seen. No sign or indication of inundation was documented within the Project Site during a review of historic aerials. In summary, none of the conditions (i.e., no inundated depressions including road ruts, hydric soils, historic inundation, etc.) were observed on documented within the Project Site. No features are present that would support fairy shrimp. No standing water or other sign of areas that pond water was recorded.

The project is consistent with MSHCP Section 6.3.2 and a Determination of Biological Equivalent or Superior Preservation (DBESP) is not required.

MSHCP Urban/Wildlands Interface Guidelines

The MSHCP Urban/Wildlands Interface guidelines presented in Section 6.1.4 are intended to address indirect effects associated with locating commercial, mixed uses and residential developments in proximity to an MSHCP Conservation Area.

The Project Site is not located adjacent to an existing or proposed MSHCP Conservation Area. However, the northern region of the Project Site is located within and adjacent to Public/Quasi-Public (PQP) Conserved Land - County of Riverside Regional Park and Open-Space District. Therefore, as addressed in the following report all proposed Urban/Wildlands Interface Guidelines will be required and implemented. The project is consistent with MSHCP Section 6.1.4.

MSHCP Fuels Management Guidelines

The fuels management guidelines presented in Section 6.4 of the MSHCP are intended to address brush management activities around new development within or adjacent to MSHCP Conservation Areas.

The Project Site is not located within or adjacent to an existing or proposed MSHCP Conservation Area. However, the northern region of the Project Site is located within and adjacent to PQP Conserved Land - County of Riverside Regional Park and Open-Space District. Therefore, as addressed in the following report all proposed MSHCP Fuels Management Guidelines will be required and implemented as directed by the City of Banning. The project is consistent with MSHCP Section 6.4.

MSHCP Public Projects Fee

The project proponent shall pay MSHCP Public Projects fees as established by the RCA and implemented by the County of Riverside Regional Park and Open-Space District.

City of Banning General Plan

As stated in the City of Banning General Plan:

> "*The City's participation in the Western Riverside County MSHCP provides a good opportunity to work towards long-term protection of important*

biological resources. The Plan establishes a regional ecological system that will be able to support important and intact ecosystems and communities. Through implementation of the General Plan, and the thoughtful adoption of Zoning, Subdivision and Grading Ordinances, the City can find ways to establish a means to make the built environment more harmonious with the natural environment." (City of Banning 2006)

Goals, Polices, and Programs

Goal - A pattern of community development that supports a functional, productive, harmonious and balanced relationship between the built and natural environment.

Policy 1 - The City shall continue to participate in the preservation of habitat for endangered, threatened and sensitive species.

The project proposed mitigation and avoidance measures to address those adverse impacts determined to be potentially significant or are relevant to the protection of endangered, threatened and sensitive species as part of ensuring compliance and consistency with all MSHCP conservation goals and CEQA guidelines.

Policy 2 - As part of the development review process, the City shall evaluate projects based on their impact on existing habitat and wildlife, and for the land's value as viable open space.

The project proposed mitigation and avoidance measures to address those adverse impacts determined to be potentially significant or are relevant to the protection of endangered, threatened and sensitive species as part of ensuring compliance and consistency with all MSHCP conservation goals and CEQA guidelines.

Policy 3 - The City shall encourage and cooperate with other agencies in establishing multiple use corridors that take advantage of drainage channels and utility easements as wildlife corridors, public access and links between open space areas and the built environment.

The MSHCP Urban/Wildlands Interface guidelines presented in Section 6.1.4 are intended to address indirect effects associated with locating commercial, mixed uses and residential developments in proximity to an MSHCP Conservation Area. The Project Site is not located adjacent to an existing or proposed MSHCP Conservation Area. However, the northern region of the Project Site is located within and adjacent to PQP Conserved Land - County of Riverside Regional Park and Open-Space District. Therefore, as addressed in the following report all proposed Urban/Wildlands Interface Guidelines will be required and implemented. The project is consistent with MSHCP Section 6.1.4.

Policy 4 - Drainage channels, utility corridors and pipeline easements shall be preserved in natural open space to the greatest extent possible.

No impacts to drainage channels, utility corridors or pipeline easements are proposed. No impact.

Policy 5 - The City shall promote the protection of biodiversity and encourage an appreciation of the natural environment and biological resources.

The Project proposes improvements to existing Gilman Historic Ranch and Wagon Museum property infrastructure, buildings and development including but not limited to an 8,000 square foot (SF) event center, parking areas, farmers market food truck area, picnic area, education/demonstration area, interpretive signs, orchard, play area, museum plaza, stage coach hotel, and recreational vehicle campsites.

County of Riverside Protected Trees

The following regulations apply to tree removal within Riverside County.

- Riverside County Ordinance No. 499.
- Riverside County Ordinance No. 559.
- The Riverside County Oak Tree Management Guidelines address the treatment of oak woodlands and their preservation.

The County of Riverside Regional Park and Open-Space District issue its own permits for tree removals. The project involves removal of one mature tree in the east-central part of the project site. Riverside County does not have an ordinance pertaining to this tree. The following Riverside County ordinances govern tree removals:

- Ordinance No. 559, Native Tree Removal, applies to unincorporated county areas above 5,000 feet elevation on parcels greater than 0.5 acres. Ordinance No. 559 also sets forth guidelines for management of oak trees in unincorporated County area; the tree to be removed is not an oak tree.[1]

- Ordinance No. 499, Roadside Trees, requires a permit for trimming or removal of a tree planted in a county highway right-of-way. No county highway rights-of-way are in or next to the project site.

Project implementation, including the removal of one mature tree, would not conflict with Riverside County ordinances referenced above, and impacts would be less than significant.

FEDERAL

Federal Endangered Species Act

The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the FESA of 1973, allowing participating jurisdictions to authorize "*take*" of plant and wildlife species. The MSHCP has been issued under this Section and provides incidental take for all covered species.

Clean Water Act

[1] County oak tree management guidelines apply to oak trees in unincorporated County area at any elevation, not just trees at over 5,000 feet elevation.

The Clean Water Act, Section 401 provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator to obtain a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Board administers the certification program in California. Section 404 establishes a permit program administered by the USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. The USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with the USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetland Definition Pursuant to Section 404 of the Clean Water Act

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and fall under the jurisdiction of several regulatory agencies. The USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as the portion that falls within the limits of the Ordinary High-Water Mark (OHWM). The OHWM is defined as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

On April 21, 2020 the U.S. Environmental Protection Agency (EPA) and the USACE published the Navigable Waters Protection Rule to define "Waters of the United States" in the Federal Register. The April 2020 definition includes four simple categories of jurisdictional waters, including: (1) the territorial seas and traditional navigable waters; (2) perennial and intermittent tributaries to those waters; (3) certain lakes, ponds and impoundments; and (4) wetlands adjacent to jurisdictional waters.

The April 2020 definition provides clear exclusions for many water features that traditionally have been regulated, such as ephemeral drainages. The April 2020 definition has been formally adopted by EPA and the USACE and was used for this Jurisdictional Delineation.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland

parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE 1987).

It is important to note that the RWQCB definition of wetland was redefined and the new definition went into effect May 28th, 2020. The definition of a wetland is as follows: An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. This RWQCB modified three-parameter definition is similar to the federal definition in that it identifies three wetland characteristics that determine the presence of a wetland: wetland hydrology, hydric soils, and hydrophytic vegetation. Unlike the federal definition, however, the RWQCB wetland definition allows for the presence of hydric substrates as a criterion for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5% cover) to be considered a wetland.

However, if any vegetation is present, then the USACE delineation procedures would apply to the vegetated component (i.e., hydrophytes must dominate). Examples of waters that would be considered wetlands by the RWQCB definition, but not by the federal wetland definition, are non-vegetated wetlands, or wetlands characterized by exposed bare substrates like mudflats and playas, as long as they meet the three-parameters as described in the RWQCB definition. It is important to note that while the USACE may not designate a feature as a wetland, that feature could be considered a special aquatic site or other water of the U.S. by the USACE and potentially subject to USACE jurisdiction.

Migratory Bird Treaty and Bald and Golden Eagle Protection Acts

Migratory birds including resident raptors and passerines are protected under the federal MBTA. The MBTA of 1918 implemented the 1916 convention between the United States and Great Britain for the protection of birds migrating between the U.S. and Canada. Similar conventions between the United States and Mexico (1936), Japan (1972) and the Union of Soviet Socialists Republics (1976) further expanded the scope of international protection of migratory birds. Each new treaty has been incorporated into the MBTA as an amendment and the provisions of the new treaty are implemented domestically. These four treaties and their enabling legislation, the MBTA, established Federal responsibilities for the protection of nearly all species of birds, their eggs and nests. The MBTA made it illegal for people to "take" migratory birds, their eggs, feathers or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. The Bald and Golden Eagle Protection Act affords additional protection to all bald and golden eagles.

STATE

California Endangered Species Act

The CESA is similar to FESA in that it contains a process for listing of species regulating potential impacts to listed species. Section 2081 of the CESA authorizes the CDFW to enter into a memorandum of agreement for take of listed species for scientific, educational, or management purposes. The MSHCP serves as an HCP pursuant the Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001, allowing participating jurisdictions to authorize "*Take*" of plant and wildlife species.

As stated by CDFW:

> "*On June 22, 2004, the Department issued NCCP Approval and Take Authorization for the Western Riverside County MSCHP per Section 2800 et seq. of the California Fish and Game Code. The MSHCP establishes a multiple species conservation program to minimize and mitigate habitat loss and the incidental take of covered species in association with activities covered under the permit*." (CDFG 2004)

California Fish and Game Code 3503 and 3513

As stated by CDFW:

> "*CHAPTER 1. General Provisions [3500 - 3516] (Chapter 1 enacted by Stats. 1957, Ch. 456.) It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. (Amended by Stats. 1971, Ch. 1470.)"*

Native Plant Protection Act

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates collection, transport, and commerce in plants that are listed. The CESA follows the NPPA and covers both plants and wildlife determined to be threatened with extinction or endangered. Plants listed as rare under the NPPA are designated as threated under the CESA. No plants listed under the CESA occur on the Project Site onsite impact areas.

Regional Water Quality Control Board

The RWQCB also has jurisdiction over waters deemed "isolated" or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County v. Corps decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

Under Section 401 of the CWA, the local RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state is required.

CDFW Streambed Alteration Agreement

Waters of the State are regulated by the California Department of Fish and Wildlife (CDFW) through Section 1600 et seq. of the California Fish and Game Code. Section 1600 et seq. requires notifying the CDFW prior to any project activity that might (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. If, after this notification, the CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will need to be obtained. CDFW may then place conditions in the Section 1602 Streambed Alteration Agreement to avoid, minimize, and mitigate any potentially significant adverse impacts within CDFW jurisdictional limits.

The limits of Waters of the State are defined as the “body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Therefore, the limits extend from the channel bed to the top of the bank, with the addition of the canopy of any riparian habitat associated with the watercourse.

ENVIRONMENTAL IMPACTS

The following sections include an analysis of the direct impacts, indirect impacts, and cumulative effects of the proposed action on sensitive biological resources. This analysis characterizes the project related activities that are anticipated to adversely impact the species, and when feasible, quantifies such impacts. Direct effects are defined as actions that may cause an immediate effect on the species or its habitat, including the effects of interrelated actions and interdependent actions. Indirect effects are caused by or result from the proposed actions, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the proposed action.

Cumulative impacts refer to incremental, individual environmental effects of two or more projects when considered together. These impacts taken individually may be minor but may be collectively significant. Cumulative effects include future tribal, local, or private actions that are reasonably certain to occur in the proposal vicinity considered in this report. A cumulative impact to biological resources may occur if a project has the potential to collectively degrade the quality of the environment, substantially reduce the habitat of wildlife species or cause a population to drop below self-sustaining levels, thereby

threatening to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal species.

THRESHOLD OF SIGNIFICANCE

The environmental impacts relative to biological resources are assessed using impact significance criteria which mirror the policy statement contained in the CEQA at Section 21001 (c) of the Public Resources Code. This section reflects that the legislature has established it to be the policy of the state to:

> "*Prevent the elimination of fish and wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities*…"

The following definitions apply to the significance criteria for biological resources:

- "*Endangered*" means that the species is listed as endangered under state or federal law.

- "*Threatened*" means that the species is listed as threatened under state or federal law.

- "*Rare*" means that the species exists in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens.

- "*Region*" refers to the area within southern California that is within the range of the individual species.

- "*Sensitive habitat*" refers to habitat for plants and animals (1) which plays a special role in perpetuating species utilizing the habitat on the property, and (2) without which there would be substantial danger that the population of that species would drop below self-perpetuating levels.

- "*Substantial effect*" means significance loss or harm of a magnitude which, based on current scientific data and knowledge, (1) would cause a species or a native plant or animal community to drop below self-perpetuating levels on a statewide or regional basis or (2) would cause a species to become threatened or endangered.

Impacts to biological resources may result in a significant adverse impact if one or more of the following conditions would result from implementation of the proposed project.

- Have a substantial adverse effect, either directly or through habitat modification, on any endangered, or threatened species, as listed in Tittle 14 of the California Code of Regulations (Sections 670.2 or 670.5) or Title 50, Code of Federal Regulations (Sections 17.11 or 17.12).
- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or

regional plans, policies, or regulations, or by the CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident migratory wildlife corridors, or impede the use of native nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state conservation plan.

Also, the determination of impacts has been made according to the federal definition of "*take*". The federal FESA prohibits the "*taking*" of a member of an endangered or threatened wildlife species or removing, damaging, or destroying a listed plant species by any person (including private individuals and private or government entities). The FESA defines "*take*" as "*to harass, harm, pursue, hunt, shoot, would, kill, trap, capture or collect*" an endangered or threatened species, or to attempt to engage in these activities.

Specifically, the biological resources assessment report addresses the following CEQA Environmental Checklist items.

Environmental Issues	**Potentially Significant Impact**	**Less than Significant with Mitigation**	**Less than Significant Impact**	**No Impact**
Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				**X**

Environmental Issues	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			**X**	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			**X**	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Native Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		**X**		

DIRECT IMPACTS

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Sensitive Plants

The Project Site occurs partially within a predetermined Survey Area for two (2) MSHCP narrow endemic plant species including Yucaipa (Marvin's) onion, and many-stemmed dudleya (RCA GIS Data Downloads 2026). According to the MSHCP guidelines, focused surveys are required during the appropriate flowering season to document the presence/absence of these species if suitable habitat is present and if the property is located within a predetermined Survey Area (MSHCP 2004). No suitable habitat or clay substrates were documented onsite and the species are not expected to occur onsite. However, to ensure MSHCP narrow endemic plants species are adequately addressed, focused surveys were conducted during the spring of 2023 and 2024, as outlined in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*. Neither species was documented onsite during the spring 2023 and 2024 focused surveys. No Impact.

No state or federally listed threatened or endangered plant species were documented onsite during the focused surveys. No sensitive plants including other CNPS special-status plants, species of local concern or species not covered by the MSHCP were

observed or expected onsite as outlined in Table 2, *Sensitive Plant Species with Potential to Occur Onsite*. No Impact.

The Project Site is not located within an MSHCP Criteria Area Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2. No Impact.

Sensitive Wildlife

No evidence of vernal pools, seasonal depressions, seasonally inundated road ruts or other wetland features were recorded on the Project Site. Vernal pools are depressions in areas where a hard-underground layer prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime, the water gradually evaporates away, until the pools became completely dry in the summer and fall. Vernal pools tend to have an impermeable layer that results in ponded water. The soil texture (the amount of sand, silt, and clay particles) typically contains higher amounts of fine silts and clays with lower percolation rates. Pools that retain water for a sufficient length of time will develop hydric cells. Hydric cells form when the soil is saturated from flooding for extended periods of time and anaerobic conditions (lacking oxygen or air) develop. Consistent with conditions documented onsite and as previously stated, the Project Site is characterized as Greenfield sandy loam, Hanford course sandy loam, Soboba stony loamy sand and Terrace escarpments – all possessing well drained substrates (drainage class). No indication of clay substrates or hydric soils were documented within the Project Site. A review of historic aerials was conducted to determine if inundated features were present during years of high rainfall when features would certainly be documented. Historic aerials taken in 2011 represent an ideal baseline during which know (previously documented) inundated vernal pools, seasonal depressions and road ruts can easily be seen. No sign or indication of inundation was documented within the Project Site during a review of historic aerials. In summary, none of the conditions (i.e., no inundated depressions including road ruts, hydric soils, historic inundation, etc.) were observed on documented within the Project Site. No features are present that would support fairy shrimp. No standing water or other sign of areas that pond water was recorded. No Impact.

Suitable habitat was documented onsite for one (1) special-status invertebrate species not covered under the MSHCP including Crotch's bumble bee, as outlined in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*. Focused surveys for the Crotch's bumble bee were conducted during in the spring 2026 and no individuals were detected (Huffman Environmental 2026). Although focused surveys did not result in the detection of Crotch's bumble bee, based on the presence of suitable habitat, the following preconstruction survey has been included as a conservation measure (**BIO-CM2** Crotch's Bumble Bee Preconstruction Survey). Less than Significant with Mitigation.

The Project Site is not located within an MSHCP Amphibian Species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2. No Impact.

The Project Site occurs partially within a predetermined Survey Area for the burrowing owl. Suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented adjacent to the property including foraging habitat documented throughout the Project Site. Based on the presence of suitable habitat, focused MSHCP burrowing owl surveys were conducted during the spring of 2023 and 2024. No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 and 2024 survey efforts. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP. If burrowing owls are detected onsite during the burrowing owl 30-day preconstruction survey, a burrowing owl relocation plan will be developed for the passive/active translocation of individuals as directed by the City of Banning and MSHCP wildlife agencies. Following completion of the burrowing owl 30-day preconstruction survey in compliance with MSHCP conservation goals for the target species, the project will be consistent with MSHCP Section 6.3.2 (**BIO-CM3** MSHCP Burrowing Owl 30-Day Preconstruction Surveys). Less than Significant with Mitigation.

No MSHCP Section 6.1.2 riparian scrub, forest or woodland habitat is located within the Project Site. No suitable habitat for the least Bell's vireo, southwestern willow flycatcher or western yellow-billed cuckoo was detected within the Project Site; therefore, no surveys are required (RCA GIS Data Downloads 2026). The project is consistent with MSHCP Section 6.3.2. No Impact

A total of four (4) MSHCP Planning Species have the potential to occur within the Project Site including Cooper's hawk, white-tailed kite, bobcat, and mountain lion, as presented in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*. As previously stated, the MSHCP has determined that these sensitive species potentially occurring within Project Site have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). Potential impacts to MSHCP Planning Species will be reduced to less than significant following payment of the MSHCP Public Projects Fee (**BIO-CM1** MSHCP Public Projects Fee). Less than Significant with Mitigation.

A total of three (3) sensitive species has the potential to occur within the Project Site including grasshopper sparrow, California horned lark, and San Diego black-tailed jackrabbit. As previously stated, the MSHCP has determined that these sensitive species potentially occurring within Project Site have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). Sensitive species that can be excluded from occurring onsite or known to occur within the region with potential to occur onsite are presented in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*. Potential impacts to MSHCP sensitive species will be reduced to less than significant following payment of the MSHCP Public Projects Fee (**BIO-CM1** MSHCP Public Projects Fee). Less than Significant with Mitigation.

The Project Site possess vegetation including shrubs and trees expected to potentially provide nesting habitat for migratory birds protected under the CDFG Codes. Measures for potential direct/indirect impacts to common and sensitive bird and raptor species will require compliance with the CDFG Code Section 3503. Construction outside the nesting season (between September 1st and January 31st) does not require preconstruction

nesting bird surveys. However, if construction is proposed between February 1st and August 31st, a qualified biologist will conduct a preconstruction nesting bird and raptor survey(s) no more than three (3) days prior to initiation of grading to document the presence or absence of nesting birds within or directly adjacent to the Project Site. Loss of an active nest would be considered a potentially significant impact. Potential impacts to nesting birds would be reduced to less than significant with the implementation of Conservation Measure **BIO-CM4**: Nesting Bird Preconstruction Surveys. Less than Significant Impact.

The Project Site is not located within an MSHCP mammal species Survey Area; therefore, no surveys are required (RCA GIS Data Downloads 2026). No Impact.

Suitable roosting habitat was documented onsite for two (2) special-status bat species not covered under the MSHCP including western yellow bat and pocketed free-tailed bat, as outlined in Table 3, *Sensitive Wildlife Species with Potential to Occur Onsite*. Potential impacts to roosting bats would be reduced to less than significant with the implementation of Conservation Measure **BIO-CM5** Preconstruction Bat Surveys. Less than Significant Impact.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?

No riparian scrub, forest or woodlands habitats are located within the Project Site. Also, as previously stated, no vegetation communities listed by CDFW as sensitive were documented within or adjacent to the Project Site. No Impact. A total of 28.81-acres of non-native grassland/disturbed, ornamental and disturbed vegetation communities will be directly and permanently impacted as a result of project implementation as summarized in Table 4, *Vegetation Community Impacts,* and illustrated on Figure 12*, Vegetation Communities Impact Map*. No Impact.

Table 4.
Project Site Vegetation Community Impacts

***Vegetation Type**	**Acres**	**Impacts (ac)**
Non-native Grassland/Ruderal	33.44	21.14
Ornamental	3.72	3.27
Developed	2.89	2.73
Disturbed	1.75	1.67
TOTALS	**41.80**	**28.81**

**Source: Cadre Environmental 2023, 2026*

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No features regulated by the USACE, CDFW, or RWQCB were documented within the Project Site. A formal jurisdictional delineation, permits, and certifications are not

required. No MSHCP Section 6.1.2 vernal pools, riparian scrub, forest, woodland or riverine habitat is located within the Project Site. No Impact.

The project will comply with all applicable water quality regulations, including National Pollutant Discharge Elimination System (NPDES) regulations and Municipal Separate Storm Sewer System Program (MS4) permit requirements. The MS4 permit places pollution prevention requirements on planned developments, construction sites, commercial and industrial businesses, municipal facilities and activities, and residential communities. Both of these permits include the treatment of all surface runoff from paved and developed areas to ensure adequate long-term treatment of water before entering into any stream course or municipal system.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Project Site is not located within or adjacent to an MSHCP designated core, extension of existing core, non-contiguous habitat block, constrained linkage, or linkage area. The Project Site is bound to the west and south by high density residential development and a high traffic road (West Wilson Street) and does not represent or contribute to a regional wildlife movement corridor. No Impact.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The County of Riverside Regional Park and Open-Space District issue its own permits for tree removals. The project involves removal of one mature tree in the east-central part of the project site. Riverside County does not have an ordinance pertaining to this tree. The following Riverside County ordinances govern tree removals:

- Ordinance No. 559, Native Tree Removal, applies to unincorporated county areas above 5,000 feet elevation on parcels greater than 0.5 acres. Ordinance No. 559 also sets forth guidelines for management of oak trees in unincorporated County area; the tree to be removed is not an oak tree.[1]

- Ordinance No. 499, Roadside Trees, requires a permit for trimming or removal of a tree planted in a county highway right-of-way. No county highway rights-of-way are in or next to the project site.

Project implementation, including the removal of one mature tree, would not conflict with Riverside County ordinances referenced above, and impacts would be less than significant.

[1] County oak tree management guidelines apply to oak trees in unincorporated County area at any elevation, not just trees at over 5,000 feet elevation.

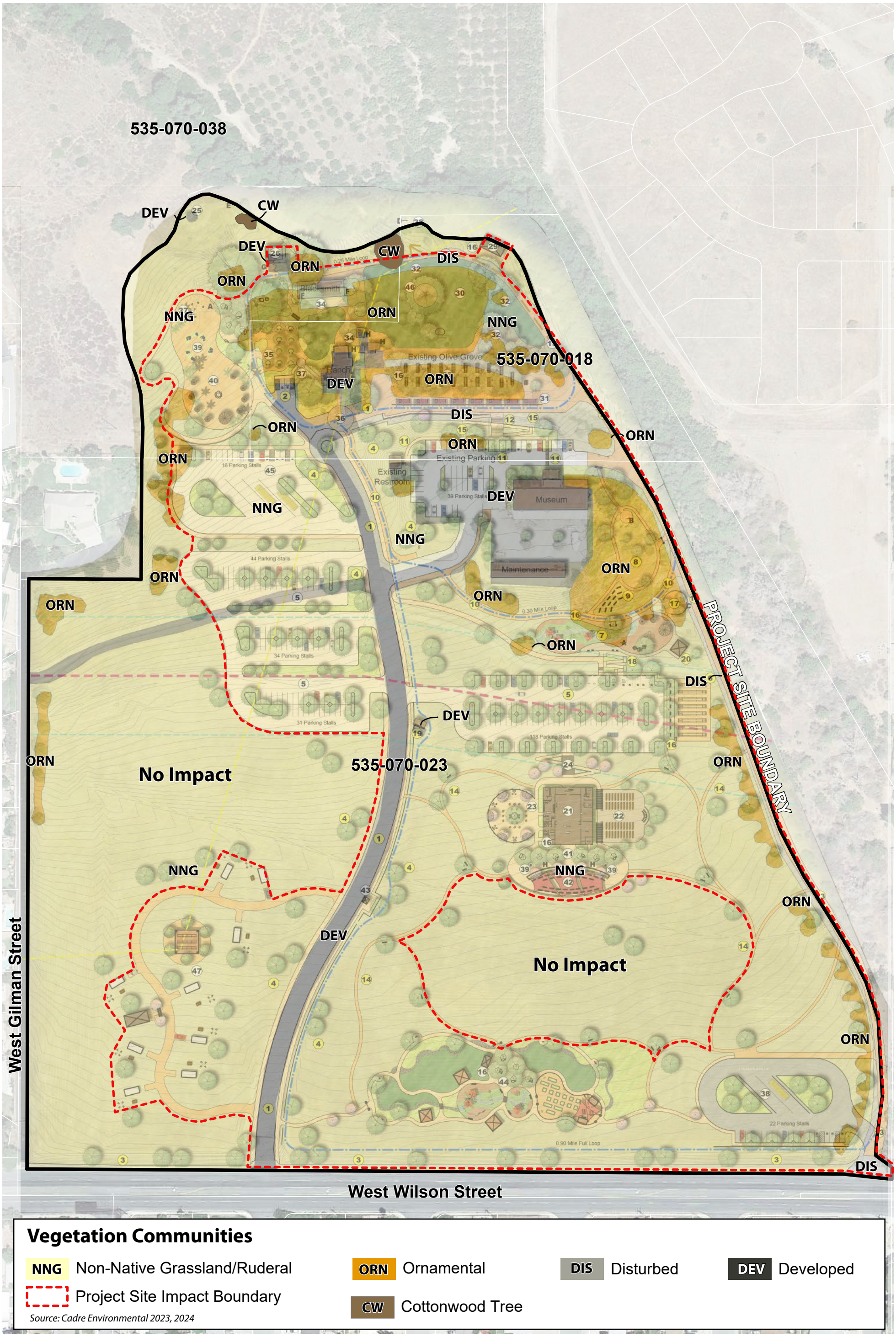

Figure 12 - Vegetation Communities Impact Map

Biological Resources Technical Report

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Native Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Project Site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as shown, as shown in Figure 3, *MSHCP Relationship Map* (Western Riverside County RCA GIS Data Downloads 2026). Following implementation of **BIO-CM1** MSHCP Public Projects Fee, **BIO-CM3** MSHCP Burrowing Owl 30-Day Preconstruction Surveys, and compliance with **BIO-CM4** Nesting Bird Preconstruction Surveys, the proposed action would not conflict with the MSHCP and impacts would be reduced to less than significant. Less than Significant Impact with Mitigation. A detailed summary of MSHCP compliance is presented in the Regional and Regulatory Setting/Local/ Western Riverside County MSHCP Compliance Analysis section of the report.

INDIRECT IMPACTS

MSHCP Urban/Wildlands Interface Guidelines

The MSHCP Urban/Wildlands Interface guidelines presented in Section 6.1.4 are intended to address indirect effects associated with locating commercial, mixed uses and residential developments in proximity to an MSHCP Conservation Area. The Project Site is not located within or adjacent to an existing or proposed MSHCP Conservation Area. However, the northern region of the Project Site is located within and adjacent to PQP Conserved Land - County of Riverside Regional Park and Open-Space District. Therefore, as addressed in the following report all proposed Urban/Wildlands Interface Guidelines will be required and implemented. The project is consistent with MSHCP Section 6.1.4.

Water Quality/Hydrology

The project will comply with all applicable water quality regulations, including obtaining and complying with those conditions established in NPDES permits and MS4. This permit includes the treatment of all surface runoff from paved and developed areas to ensure adequate long-term treatment of water before entering into offsite conserved lands. No significant impacts are anticipated.

Toxics

Storm water treatment systems will be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant material, or other elements that could degrade or harm downstream biological or aquatic resources. Toxic sources within the Project Site would be limited to those commonly associated with recreational development, such as pesticides, insecticides, herbicides, fertilizers, and vehicle emissions. In order to mitigate the potential effects of these toxics, the project will comply with the NPDES permit system, in order to reduce or prevent the level of toxins introduced to conserved lands.

Lighting

Night lighting associated with the proposed development will be directed away from northern PQP conserved lands.

Noise

Because the proposed project development will not result in noise levels that exceed noise standards established for the City of Banning, wildlife within PQP conserved lands extending north of the Project Site will not be subject to noise that exceeds these established standards. Short-term construction-related noise impacts will be reduced by the implementation of the following:

- During all Project Site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards.
- The construction contractor shall limit all construction-related activities that would result in high noise levels according to the construction hours to be determined by City of Banning staff.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.

No significant impacts are anticipated.

Invasive Species

The landscape plans for the development shall avoid the use of invasive species for the portions of the development areas adjacent to the PQP conserved lands extending north of the Project Site. Therefore, the following plants will be avoided as outlined in Table 6-2 of the MSHCP, *Plants That Should Be Avoided Adjacent to the MSHCP Conservation Area*. No significant impacts are anticipated.

Barriers

Barriers are intended to reduce or minimize unauthorized public access and associated impacts to protected resources. No barriers are proposed.

CUMULATIVE IMPACTS

The temporary direct and/or indirect impacts of the project would not result in cumulative impacts (CEQA Section 15310) to environmental resources within the region of the Project Site. Cumulative impacts refer to incremental effects of an individual project when assessed with the effects of past, current, and proposed projects. The Project Site is located completely within the City of Banning, an MSHCP permittee. As stated in the County of Riverside Transportation and Land Management Agency:

> "*Implementation of the MSHCP and Covered Projects will not result in a cumulative adverse effect, either directly or through habitat modifications,*

on any of the Covered Species, including the 31 species that are currently listed as threatened or endangered and the one species that is currently proposed for listing. Implementation of the MSHCP will benefit the Covered Species by preserving their habitat in order to address their life cycle needs. Thus, based on the features of the Plan itself, impacts to Covered Species are mitigated below a level of significance." (County of Riverside Transportation and Land Management Agency 2003)

Although the project would result in the permanent loss of 28.81-acres of primarily non-native grassland/ruderal habitat, as referenced above, the MSHCP was developed to address the comprehensive regional planning effort and anticipated growth in the City of Banning. As stated in the County of Riverside Transportation and Land Management Agency:

"*The Plan will not cause adverse cumulative effects related to the reduction of sensitive vegetation communities within the Plan Area; rather, the Plan is designed to preserve sufficient acreage of the sensitive vegetation communities present in western Riverside County. Similarly, the Plan will not cause adverse cumulative effects related to interference with the movement of any native resident or migratory fish or wildlife species or obstruction of genetic flow for the identified Planning Species. Part of the purpose and goals of the MSHCP is to use regional planning efforts to assemble a reserve that will preserve contiguous blocks of habitat in large enough areas to ensure that the reserve will allow movement of species and flow of genetic information. The MSHCP will not cause adverse cumulative impacts by conflicting with the provisions of any adopted Habitat Conservation Plan, Natural Communities Conservation Plan or other approved local, regional, or State habitat conservation plan either within or outside of the Plan area. Rather, the MSHCP has been written specifically to complement existing HCPs, such as the Stephens' kangaroo rat long-term HCP." (County of Riverside Transportation and Land Management Agency 2003)*

The proposed project has been designed and conservation measures will be implemented to remain in compliance with all MSHCP conservation goals and guidelines and therefore will not result in an adverse cumulative impact. No Impact.

The following biological conservation and mitigation measures address those adverse impacts determined to be potentially significant or are relevant to the protection of biological resources to the extent practicable as part of ensuring compliance and consistency with all MSHCP conservation goals and CEQA guidelines.

BIO-CM1 MSHCP Public Projects Fee

The project proponent shall pay MSHCP Public Projects fees as established by the RCA and implemented by the County of Riverside Regional Park and Open-Space District.

BIO-CM2 Crotch's Bumble Bee Preconstruction Survey

Although focused surveys did not result in the detection of Crotch's bumble bee, based on the presence of suitable habitat, the following preconstruction survey has been included as a conservation measure. This conservation and avoidance measure shall only be required if Crotch's bumble bee remains as a candidate state endangered species or is listed as a state endangered species at the time of project construction. If Crotch's bumble bee is delisted, this measure shall not be required. Due to the presence of suitable habitat for Crotch's bumble within the Project Site, the following measures shall be implemented to reduce potential impacts to this species:

Pre-construction Survey: To the extent feasible, construction activities (i.e., demolition, earthwork, clearing, and grubbing) shall occur outside of the Crotch's bee flight season (February 1st through October 31st). If construction activities must occur during the flight season, a qualified biologist shall conduct a pre-construction survey for Crotch's bumble bee queens, gynes, and colonies. The survey shall be conducted no more than 14 days prior to construction during optimal weather conditions (e.g., warm, sunny days between 65- and 90-degrees Fahrenheit). If the pre-construction survey is negative, no further assessment shall be required, and construction activities shall be allowed to proceed without any further requirements. If Crotch's bumble bee is detected during the pre-construction survey, the measures below shall be implemented.

CESA Compliance: Prior to issuance of a grading permit, it shall be demonstrated that CESA-required consultation with CDFW regarding the project's effects to Crotch's bumble bee has occurred, and, if take of Crotch's bumble bee is expected, that CDFW has authorized such take through an incidental take permit, as applicable.

BIO-CM3 MSHCP Burrowing Owl 30-Day Preconstruction Surveys

A 30-day pre-construction survey for burrowing owls is required prior to initial ground-disturbing activities (e.g., vegetation clearing, clearing and grubbing, grading, tree removal, site watering, equipment staging) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform the City of Banning and the Wildlife Agencies and will need to coordinate further with City and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground

disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure that burrowing owl have not colonized the site since it was last disturbed. If burrowing owl is found, the same coordination described above will be necessary.

Following completion of the burrowing owl 30-day preconstruction survey in compliance with MSHCP conservation goals for the target species, the project will be consistent with MSHCP Section 6.3.2.

BIO-CM4 Nesting Bird Preconstruction Surveys

Regulatory requirement for potential direct/indirect impacts to nesting common and sensitive bird species will require compliance with the MBTA and CDFG Code Section 3503, 3503.5, and 3513. Construction outside the nesting season (between September 1st and January 31st) do not require pre-removal nesting bird surveys. If construction is proposed between February 1st and August 31st, a qualified biologist will conduct a preconstruction nesting bird and raptor survey(s) no more than three (3) days prior to initiation of grading to document the presence or absence of nesting birds within or directly adjacent to the Project Site.

The survey(s) will focus on identifying any bird nests that would be directly or indirectly affected by construction activities. If active nests are documented, species-specific measures will be prepared by a qualified biologist and implemented to prevent abandonment of the active nest. At a minimum, grading in the vicinity of a nest will be postponed until the young birds have fledged. The perimeter of the nest setback zone will be fenced or adequately demarcated with stakes and flagging at 20-foot intervals, and construction personnel and activities restricted from the area. A survey report by a qualified biologist verifying that no active nests are present, or that the young have fledged, will be submitted to the City of Banning for review and approval prior to initiation of grading in the nest-setback zone.

The qualified biologist will serve as a construction monitor during those periods when construction activities occur near active nest areas to ensure that no inadvertent impacts on these nests occur. A final monitoring report of the findings, prepared by a qualified biologist, will be submitted to the City of Banning documenting compliance with the CDFG Code. Any nest permanently vacated for the season would not warrant protection pursuant to the CDFG Code.

BIO-CM5 Preconstruction Bat Survey

Suitable roosting habitat was documented onsite for two special-status bat species not covered under the MSHCP including western yellow bat (Lasiurus xanthinus) and pocketed free-tailed bat (Nyctinomops femorosaccus). Suitable habitat onsite for western yellow bat consists of a few Mexican fan palm trees. Buildings onsite provide suitable roosting habitat for pocketed free-tailed bat. To avoid potential impacts to special-status bat species and identify roosting habitat, a preconstruction bat survey shall be conducted by a qualified bat biologist prior to initiation of Project activities.

The survey shall be conducted within the Project Site and 100-foot buffer during appropriate weather conditions per the bat biologist's recommendations. Note that the project does not propose removal or disturbance of Mexican fan palm trees; the only disturbances to existing buildings would occur after Phase 1 of the project. Thus, this mitigation measure will only be implemented subsequent to Phase 1. If bats are identified, the qualified bat biologist shall identify the bats to the species level and evaluate the colony to determine its size and significance, and presence of a maternal colony. If any evidence of bat occupation is identified during the survey, the qualified bat biologist shall then provide additional measures to avoid impacts to roosting bats, and if the observed species has special status, as recommended by the CDFW. Measures provided shall be specific to the individual roost species present, and proposed construction activities, and shall include: a) postponement of Project activities within a no-work buffer specified by the bat biologist to outside of the bat maternity season (typically, maternity season is April 1st through August 31st) if a maternity colony is identified to be present and b) monitoring of Project activities by a qualified bat biologist. Project activities that do not produce noise or vibrations substantially higher than ambient conditions may be conducted if a nonmaternal roosting colony is present at the qualified bat biologist's discretion. If the qualified bat biologist determines that nonmaternal colony roosting bats are disturbed by construction activities, construction activities shall cease immediately and additional avoidance measures (e.g., installation of a noise shroud or sound curtain) shall be required before activities resume. If a maternity colony is present, tree removal and/or building structure modifications shall occur outside the bat maternity season (typically April 1st through August 31st) in the fall (after flightless young have become volant as determined by the qualified bat biologist) and under the supervision of a qualified bat biologist.

A report of the findings prepared by a qualified biologist shall be submitted to the City of Banning prior to initiation of construction.

Implementation of Mitigation and Conservation Measures **BIO-CM1** through **BIO-CM5** would reduce all potential significant unavoidable impacts on biological resources below a level of significance and ensure compliance with MSHCP conservation requirements.

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Certification "*I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge.*

Author:_____Date:__October 1, 2026___

Contact: Ruben S. Ramirez, Jr. 949-300-0212, r.ramirez@cadreenvironmental.com

APPENDIX C2

FOCUSED BURROWING OWL SURVEYS

INFORMATION SUMMARY

A. Report Date: June 7th, 2023 (Updated June 19th, 2024)

B. Report Title: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Focused Burrowing Owl Surveys for the 41.80-Acre County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site, City of Banning, Western Riverside County, California.

C. APN#s: Portion of 535-070-018, 535-070-023, and 535-070-038.

D. Project Location: USGS 7.5' Series Beaumont Quadrangle, Township 3 South, Range 1 East, Section 5, Extending North of West Wilson Street within the Gilman Historic Ranch Property, as shown in Attachment A, *Regional Location Map* and Attachment B, *Vicinity Map*.

E. Applicant: UltraSystems Environmental
13431 Scientific Way
Irvine, CA 92618
Contact: Michael Milroy (949) 788-4900

F. MOU Principal: Cadre Environmental
701 Palomar Airport Road, Suite 300,
Carlsbad, CA 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212

G. Date of Surveys: March 17th, May 2nd, 16th, June 5th, 2023, March 28th, May 3rd,18th, and June 7th, 2024.

H. Summary: The 41.80-acre project site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as illustrated in Attachment C, *MSHCP Relationship Map*.

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for narrow endemic plants, criteria area species, and specific wildlife species, if suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004).

The project site occurs partially within a predetermined Survey Area for the burrowing owl (*Athene cunicularia*). Suitable burrowing owl burrows potentially utilized for refugia and/or nesting, and foraging habitat were documented throughout the project site. Therefore, focused surveys were conducted by Cadre Environmental during the spring of 2023 and 2024.

No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the project site during the 2023 or 2024 survey efforts. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

SUBJECT

Western Riverside County Multiple Species Habitat Conservation Plan Focused Burrowing Owl Surveys for the 41.80-Acre County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site, City of Banning, Western Riverside County, California.

This report presents the findings of focused Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) burrowing owl (*Athene cunicularia*) surveys conducted for the County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design project site ("Project Site") located within the City of Banning, Riverside County, California, as shown in Attachment A, *Regional Location Map.*

The Project Site is located partially within Assessor Parcel Numbers (APNs) 535-070-018, 535-070-023, and 535-070-038 and United States Geological Survey (USGS) 7.5' Series Beaumont Quadrangle, Riverside County, Township 3 South, Range 1 East, Section 5, extending north of West Wilson Street within the Gilman Historic Ranch property, as shown in Attachment B, *Vicinity Map*.

The Project Site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as shown in Attachment C, *MSHCP Relationship Map*.

METHODS OF STUDY

APPROACH

Prior to initiating the focused survey efforts, a review of all available and relevant data on the biological characteristics, sensitive habitats, and species potentially present on or adjacent to the Project Site was conducted. Additionally, aerial photography, and USGS topographic map data were examined. After reviewing the available information, Cadre Environmental conducted a physical site assessment and initiated focused surveys.

Plant Community/Habitat Classification and Mapping

Plant communities were preliminarily mapped with the aid of an aerial photograph using the MSHCP uncollapsed vegetation communities classification system during the initial focused survey conducted during the spring of 2023. When a vegetation community could not be accurately characterized using this classification system, an updated community classification code was developed to more accurately represent onsite habitat types. Vegetation communities and Project Site photographs are shown in Attachment D, *Vegetation Communities Map*, and Attachment E to J, *Project Site Photographs*.

General Wildlife Inventory

All animals identified during the focused surveys by sight, call, tracks, scat, or other characteristic sign were recorded onto a 1:200 scale orthorectified color aerial photograph or documented using a global positioning system (GPS). In addition to species actually detected, expected use of the site by other wildlife was derived from the analysis of habitats on the site, combined with known habitat preferences of regionally occurring wildlife species.

Vertebrate taxonomy followed in this report is according to the Center for North American Herpetology (2024 for amphibians and reptiles), the American Ornithologists' Union (1988 and supplemental) for birds, and Baker et al. (2003) for mammals. Both common and scientific names are used during the first mention of a species; common names only are used in the remainder of the text.

Burrowing Owl Surveys

In accordance with the MSHCP Burrowing Owl Survey Instructions (2006), survey protocol consists of two steps, Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. Step II is comprised of two parts, Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys.

Each step is briefly outlined below, followed by the methodology and results of each survey conducted within the Project Site. All initial habitat assessment, burrow and focused surveys were conducted by Ruben Ramirez, Cadre Environmental.

Surveys were conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys were not conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90 °F. None of the surveys were conducted within five (5) days of measurable precipitation. In addition to the MSHCP guidelines, field notes were taken daily. These notes recorded the date, location, animal species observed, and general habitat characteristics of each area and habitat examined that day.

Step I – Habitat Assessment

Step 1 of the MSHCP habitat assessment for burrowing owl consists of a walking survey to determine if suitable habitat is present onsite. Cadre Environmental conducted the initial habitat assessment during the spring of 2023. Upon arrival at the Project Site, and prior to initiating the assessment survey, Cadre Environmental used binoculars to scan all suitable habitats on and adjacent to the property, including perch locations, to ascertain owl presence.

All suitable areas of the Project Site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat

onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels (*Otospermophilus beecheyi*) or badgers (*Taxidea taxus*), but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles, or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

According to the MSHCP guidelines, if suitable habitat is present the biologist should also walk the perimeter of the property, which consists of a 150-meter (approximately 500 feet) buffer zone around the Project Site boundary. If permission to access the buffer area cannot be obtained, the biologist shall not trespass, but visually inspect adjacent habitats with binoculars. Results from the habitat assessment indicated that suitable burrowing owl burrows potentially utilized for refugia and/or nesting were documented within the property including foraging habitat within the disturbed and non-native grassland vegetation. Accordingly, if suitable habitat is documented onsite, both Step II surveys and the 30-day pre-construction surveys are required in order to comply with the MSHCP guidelines.

Step II – Locating Burrows and Burrowing Owls

Concurrent with the initial habitat assessment, a detailed focused burrow survey was conducted and included documentation of appropriately sized natural burrows or suitable man-made structures that may be utilized by burrowing owl - as part of the MSHCP protocol, which is described below under Part A. Focused Burrow Survey.

Part A: Focused Burrow Survey

A systematic survey for burrows, including burrowing owl sign, was conducted by walking across all suitable habitats mapped within the Project Site. Pedestrian survey transects were spaced to allow 100% visual coverage of the ground surface. The distances between transect centerlines were no more than 20 meters (approximately 66 ft.) apart to the extent possible. Transect routes were also adjusted to account for topography and in general ground surface visibility. All observations of suitable burrows or dens, natural or man-made, or sightings of burrowing owl, were recorded and mapped during the survey.

Part B: Focused Burrowing Owl Surveys

Four (4) focused burrowing owl surveys were conducted during the spring of 2023 within the initial 9.0-acre Survey Area on March 17th, May 2nd, 16th, and June 5th, from one hour before sunrise to two hours after sunrise as outlined in Table 1, *Burrowing Owl Survey Schedule*. Updated surveys were conducted on March 28th, May 3rd,18th, and June 7th,

2024 throughout the 41.80-acre Project Site. During visual surveys, all potentially suitable burrow or structure entrances were investigated for signs of owl occupation, such as feathers, tracks, or pellets, and carefully observed to determine if burrowing owls utilize these features, when present. All burrows are monitored at a short distance from the entrance, and at a location that would not interfere with potential owl behavior, when present. In addition to monitoring potential burrow locations, all suitable habitats in the Project Site were walked along travel routes which allowed for visual assessments of all suitable habitats, as shown in Attachment K, Current Project Site Photographs, and Attachment L, *Burrowing Owl Survey Area Map*.

Table 1.
Burrowing Owl Survey Schedule

Survey	Dates (Conditions) 2023	Results
1	March 17th, 55°F to 66°F, winds 2-8 mph, no rain	No burrowing owls detected.
2	May 2nd, 56°F to 70°F, winds 2-10 mph, no rain	No burrowing owls detected.
3	May 16th, 60°F to 75°F, winds 2-4 mph, no rain	No burrowing owls detected.
4	June 5th, 62 °F to 74°F, winds 4-10 mph, no rain	No burrowing owls detected.
Survey	**Dates (Conditions) 2024**	**Results**
1	March 28th, 50°F to 58°F, winds 4-8 mph, no rain	No burrowing owls detected.
2	May 3rd, 55°F to 62°F, winds 4-8 mph, no rain	No burrowing owls detected.
3	May 18th, 56°F to 70°F, winds 2-10 mph, no rain	No burrowing owls detected.
4	June 7th, 58 °F to 72°F, winds 0-4 mph, no rain	No burrowing owls detected.

EXISTING CONDITIONS

As previously stated, plant communities were mapped using the MSHCP uncollapsed vegetation communities classification system when appropriate. When a vegetation community could not be accurately characterized using this information, an updated community classification code was developed to more accurately represent onsite habitat types. A total of three (3) vegetation communities and developed regions were mapped onsite as shown in Attachment D, *Vegetation Communities Map*, Attachments E to J, *Current Project Site Photographs* outlined in Table 2, *Vegetation Communities Acreages*.

Table 2.
Vegetation Communities Acreages

*Vegetation Type	Acres
Non-native Grassland/Ruderal	33.44
Ornamental	3.72
Developed	2.89
Disturbed	1.75
TOTALS	**41.80**

**Source: Cadre Environmental 2023, 2024*

VEGETATION COMMUNITIES

Non-native Grassland/Ruderal

The majority of the Project Site is characterized as non-native grassland/ruderal characterized as having a generally even distribution of grasses and invasive species. Grass species documented within this vegetation community include wild oat (*Avena fatua*), slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and goldentop (*Lamarckia aurea*). Other species documented throughout this vegetation community include stinknet (*Oncosiphon piluliferum*), black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*Erodium moschatum*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), California poppy (*Eschscholzia californica*), and common fiddleneck (*Amsinckia menziesii*).

Ornamental

Several recreational common areas adjacent to the Gilman Historic Museum including the Marshall French Gilman Native Plant Garden are characterized as ornamental plantings. Species documented within this vegetation community include but are not limited to chinaberry (*Melia azedarach*), olive (*Olea europaea*), Incense cedar (*Calocedrus decurrens*), Mexican palo verde (*Parkinsonia aculeata*), tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), Arizona ash (*Fraxinus velutina*), and citrus trees.

Disturbed

Disturbed regions of the Project Site include dirt roads generally devoid of vegetation.

Developed

Developed region of the Project Site included paved roads, museum and support structures.

RESULTS

Burrowing Owl

No burrowing owl or characteristic sign such as white-wash, feathers, tracks, or pellets were detected within or immediately adjacent to the Project Site during the 2023 or 2024 survey efforts. At a minimum, an MSHCP 30-day preconstruction survey will be required immediately prior to the initiation of construction to ensure protection for this species and compliance with the conservation goals as outlined in the MSHCP.

General Faunal Species Observations

General wildlife species documented on site include but are not limited to red-tailed hawk (*Buteo jamaicensis*), rock dove (*Columba livia*), American kestrel (*Falco sparverius*), Anna's hummingbird (*Calypte anna*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*), northern flicker (*Colaptes auratus*), mourning dove (*Zenaida macroura*), Cassin's kingbird (*Tyrannus vociferans*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), cliff swallow (*Petrochelidon pyrrhonota*), northern rough-winged swallow (*Stelgidopteryx serripennis*), American crow (*Corvus brachyrhynchos*), California towhee (*Pipilo crissalis*), western scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), house sparrow (*Passer domesticus*), desert cottontail rabbit (*Sylvilagus audubonii*), and California ground squirrel.

LITERATURE CITED AND SELECTED REFERENCES

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County of Riverside. 2006. Burrowing Owl Survey Instructions – Western Riverside Multiple Species Habitat Conservation Plan Area.

Riverside County Integrated Project (RCIP) Multiple Species Habitat Conservation Plan (MSHCP), March 2004.

United States Fish and Wildlife Service. 2024. Threatened and Endangered Species. Pacific Southwest Region. Carlsbad Office. Available online at http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List%20.htm Accessed June 2024.

ATTACHMENTS

Attachment A – Regional Location Map
Attachment B – Project Site Map
Attachment C –MSHCP Relationship Map
Attachment D – Vegetation Communities Map
Attachment E - Current Project Site Photographs
Attachment F - Current Project Site Photographs
Attachment G - Current Project Site Photographs
Attachment H - Current Project Site Photographs
Attachment I - Current Project Site Photographs
Attachment J - Current Project Site Photographs
Attachment K - Current Project Site Photographs
Attachment L – Burrowing Owl Survey Area Map

Certification

"*I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief*."

Author: _____ Date: June 19th, 2024

Fieldwork Performed By: _____ Date: June 19th, 2024



APNs Portion of 535-070-018, -023, and -038

Attachment A - Regional Location Map

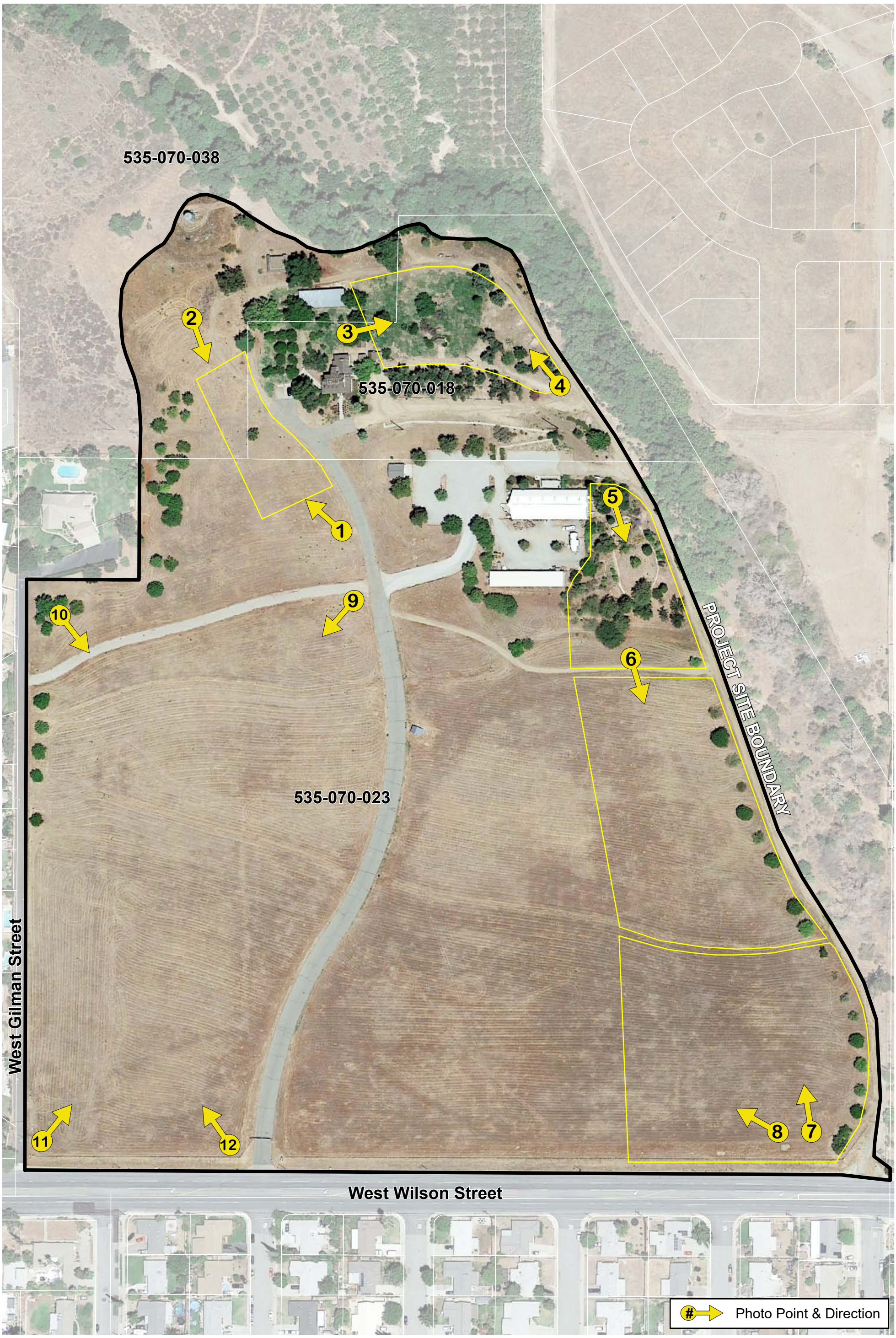
MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

not to scale



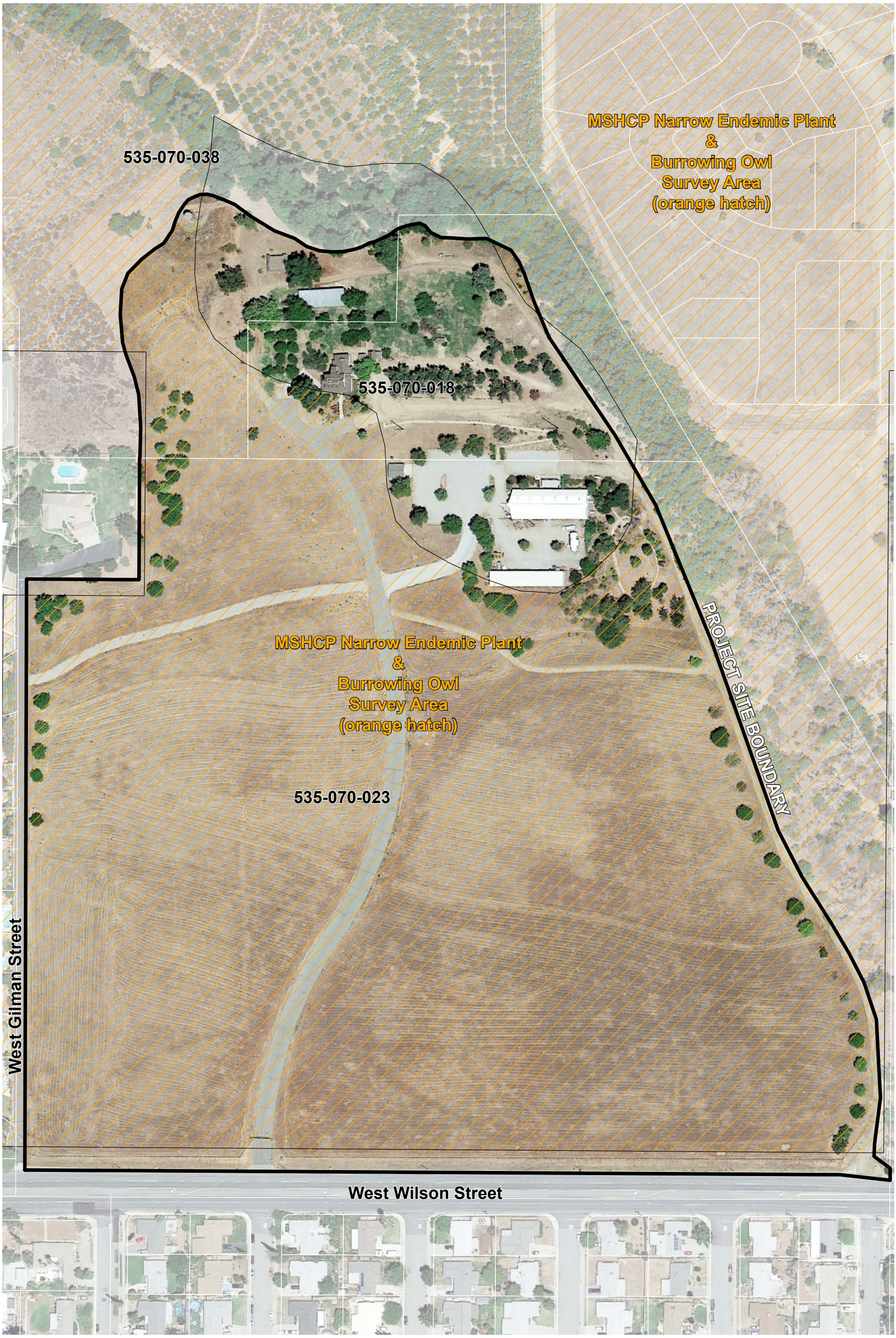
Attachment B - Vicinity Map

MSHCP Focused Burrowing Owl Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



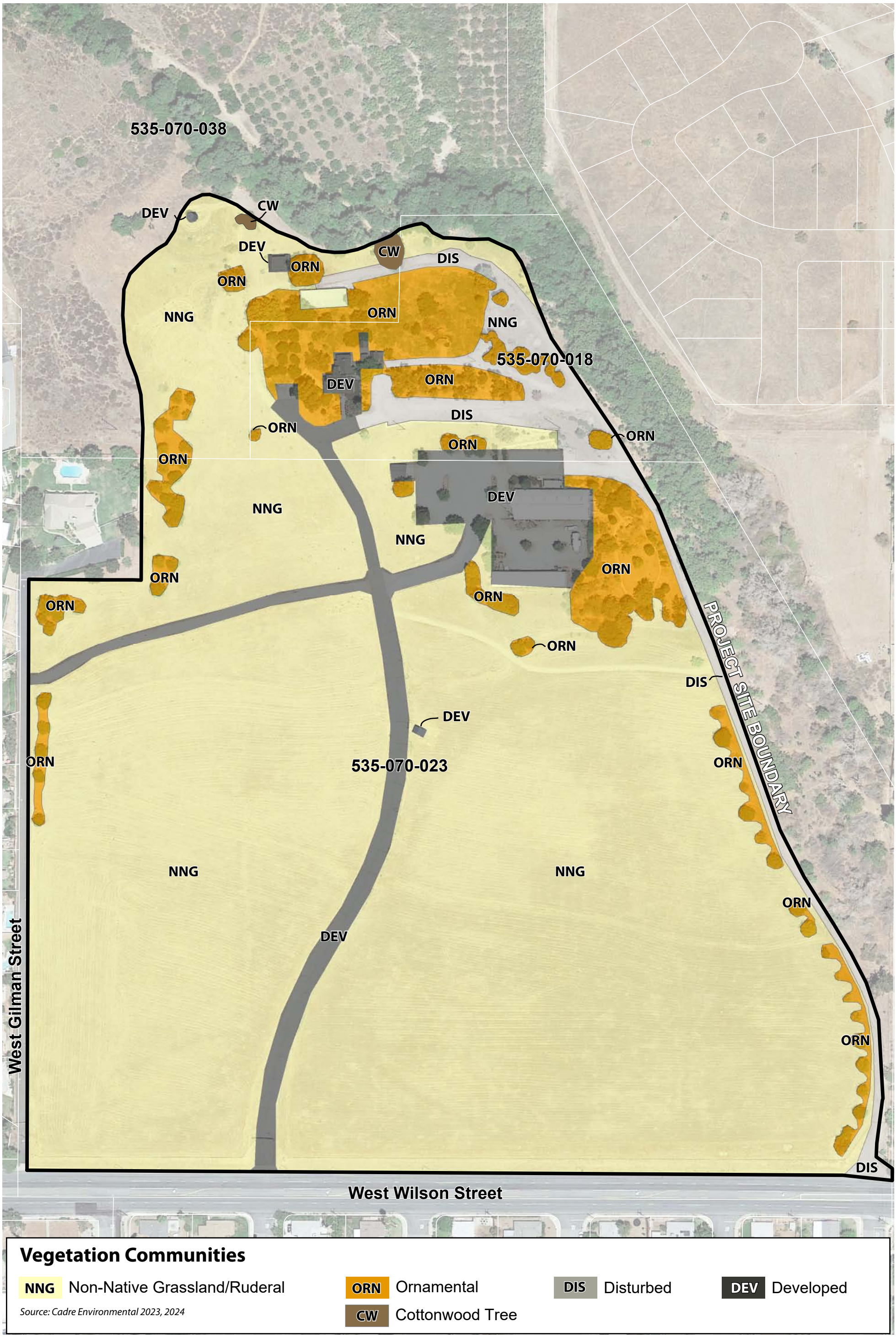
Attachment C - MSHCP Relationship Map

MSHCP Focused Burrowing Owl Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



Vegetation Communities

NNG Non-Native Grassland/Ruderal

ORN Ornamental

DIS Disturbed

DEV Developed

CW Cottonwood Tree

Source: Cadre Environmental 2023, 2024

Attachment C - Vegetation Communities Map

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



PHOTOGRAPH 1



PHOTOGRAPH 2

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment E - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 3



PHOTOGRAPH 4

Refer to Attachment B - Vicinity Map for Photograph Key

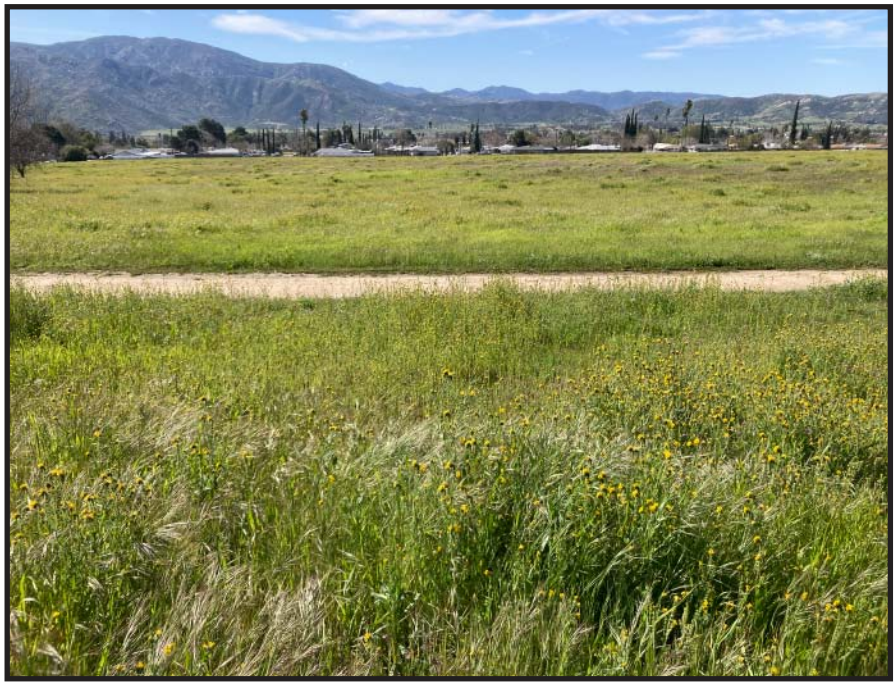
CADRE Environmental

Attachment F - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 5



PHOTOGRAPH 6

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment G - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 7



PHOTOGRAPH 8

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment H - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 9



PHOTOGRAPH 10

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment I - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 11



PHOTOGRAPH 12

Refer to Attachment B - Vicinity Map for Photograph Key

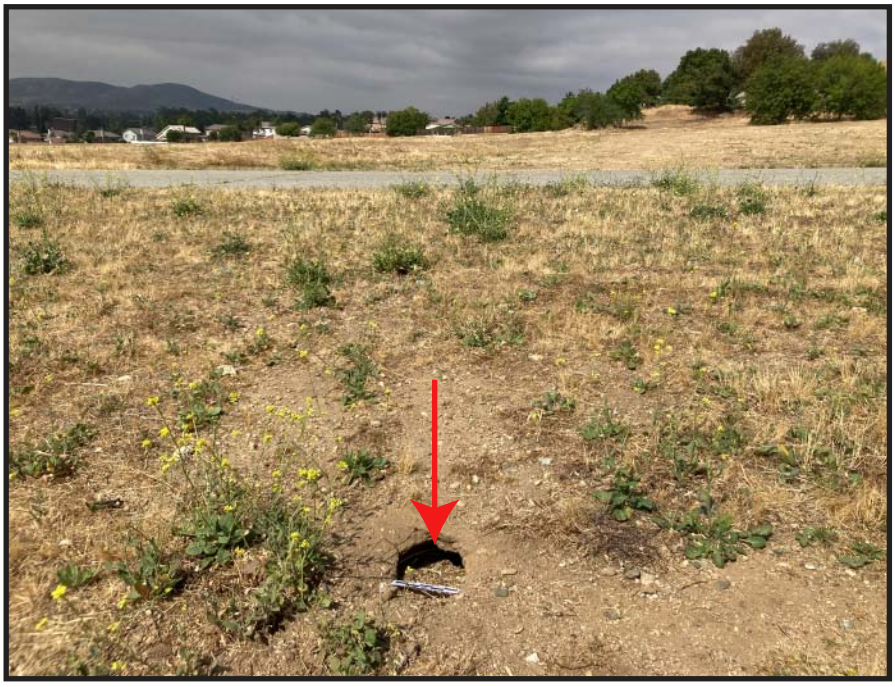
CADRE Environmental

Attachment J - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



Potential Burrowing Owl Burrows



Potential Burrowing Owl Burrows

CADRE Environmental

Attachment K - Current Project Site Photographs

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

500ft (150m) Buffer

500ft (150m) Buffer

West Gilman Street

PROJECT SITE BOUNDARY

West Wilson Street

2023 Study Area Boundary

2023 Survey Transects

2024 Survey Transects

Suitable Burrowing Owl Burrows > 4 inches in Diameter

Attachment L - Burrowing Owl Survey Area Map

MSHCP Focused Burrowing Owl Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 225 feet

APPENDIX C3

NARROW ENDEMIC SENSITIVE PLANT SURVEYS

INFORMATION SUMMARY

A. Report Date: June 7th, 2023 (Updated June 19th, 2024)

B. Report Title: Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Narrow Endemic Sensitive Plant Surveys for the 41.80-Acre County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site, City of Banning, Western Riverside County, California.

C. APN#s: Portions of 535-070-018, 535-070-023, and 535-070-038.

D. Project Location: USGS 7.5' Series Beaumont Quadrangle, Township 3 South, Range 1 East, Section 5, Extending North of West Wilson Street within the Gilman Historic Ranch Property, as shown in Attachment A, *Regional Location Map* and Attachment B, *Vicinity Map*.

E. Applicant: UltraSystems Environmental
13431 Scientific Way
Irvine, CA 92618
Contact: Michael Milroy (949) 788-4900

F. MOU Principal: Cadre Environmental
701 Palomar Airport Road, Suite 300
Carlsbad, CA 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212

G. Date of Surveys: March 17th, May 2nd, 16th, June 5th, 2023, March 28th, May 18th, and June 7th, 2024.

H. Summary: The 41.80-acre project site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as illustrated in Attachment C, *MSHCP Relationship Map*.

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for narrow endemic plants, criteria area species, and specific wildlife species if suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004).

The project site occurs partially within a predetermined Survey Area for two (2) MSHCP narrow endemic plant species as shown in Attachment C, *MSHCP Relationship Map:* Yucaipa (Marvin's) onion (*Allium marvinii)* [California Rare Plant Ranks (CRPR) 1B.2], and many-stemmed dudleya (*Dudleya multicaulis)* [CRPR 1B.2] (RCA GIS Data Downloads 2024). Although the Yucaipa (Marvin's) onion and many-stemmed dudleya are not expected onsite based on a lack of clay substrates, focused spring surveys for both MSHCP Narrow Endemic Plant Species (NEPS) were conducted during the spring of 2023 and 2024 to determine presence/absence.

No MSHCP narrow endemic plants were documented within the project site. No other California Native Plant Society (CNPS), special-status plants, or species of local concern were observed. No state or federally listed threatened or endangered plant species were observed.

SUBJECT

Western Riverside County Multiple Species Habitat Conservation Plan Narrow Endemic Sensitive Plant Surveys for the 41.80-Acre County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project Site, City of Banning, Western Riverside County, California

This report presents the findings of a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) focused narrow endemic sensitive plant surveys conducted for the County of Riverside Regional Park and Open-Space District Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design project site ("Project Site").

The Project Site is located partially within Assessor Parcel Numbers (APNs) 535-070-018, 535-070-023, and 535-070-038 and United States Geological Survey (USGS) 7.5' Series Beaumont Quadrangle, Riverside County, Township 3 South, Range 1 East, Section 5, extending north of West Wilson Street within the Gilman Historic Ranch property, as shown in Attachment B, *Vicinity Map*.

The Project Site is located within the Western Riverside County MSHCP The Pass Plan Area and is not located within an MSHCP Criteria Area, Cell Group, or Linkage Area, as shown in Attachment C, *MSHCP Relationship Map*.

METHODS OF STUDY

APPROACH

The Project Site lies partially within a predetermined Survey Area for two (2) MSHCP narrow endemic sensitive plant species as shown in Attachment C, *MSHCP Relationship Map* (RCA GIS Data Downloads 2024), which includes:

- Yucaipa (Marvin's) onion (*Allium marvinii)* [California Rare Plant Ranks (CRPR) 1B.2]; and
- many-stemmed dudleya (*Dudleya multicaulis)* [CRPR 1B.2];

According to the MSHCP guidelines, focused surveys are required during the appropriate flowering season to identify and document the presence/absence of target sensitive plant species if suitable habitat is present and if the property is located within a predetermined Survey Area (MSHCP 2004). Although the Yucaipa (Marvin's) onion and many-stemmed dudleya are not expected to occur onsite based on a lack of clay substrates, focused spring surveys for both MSHCP Narrow Endemic Plant Species (NEPS) were conducted during the spring of 2023 within a 9.0-acre Survey Area and 2024 throughout the 41.80-aces Project Site to determine presence/absence.

A site-specific survey program was developed to achieve the following goals: (1) characterize the vegetation; (2) prepare a detailed floristic compendium; (3) conduct

focused surveys to document the distribution and abundance, or absence, of MSHCP narrow endemic plant species at the site; and 4) prepare botanical resource maps showing the distribution of vegetation communities and the location of the MSHCP target species observed onsite. The project surveys also proposed to document other California Native Plant Society (CNPS) sensitive plants or species of local concern onsite, if present.

The methodology and focus of the survey program are consistent with the MSHCP guidelines, but also conforms to scientific and technical standards listed by USFWS (1996), CNPS (2001), and CDFW (2009) for sensitive plant species surveys.

Literature Review

Existing biological resources within and adjacent to the Project Site were initially investigated through a review of pertinent literature and online data. The California Natural Diversity Database (CNDDB 2024a), and CNPS (2024). In addition, soil, local floras, and consultation with local experts were utilized in the identification of species, soils, or habitats that could support the target MSHCP sensitive plants within or adjacent to the Project Site.

Prior to conducting fieldwork, a thorough archival review was conducted using the following baseline resources:

- California Native Plant Society 8th Inventory Online (2024);
- California Natural Diversity Data Base for the USGS 7.5' Cabazon Quadrangle (CNDDB 2024a);
- Soil Survey of Western Riverside Area (Knecht 1971; USDA-NRCS 2024);
- Vegetation Alliances of Western Riverside County, California (Klein and Evens 2005);
- Vascular Flora of Western Riverside County (Roberts et al. 2004); and
- Reports prepared by the Regional Conservation Authority, Western Riverside County (http://www.wrc-rca.org/about-rca/monitoring/monitoring-surveys/);

Focused Survey Program Developed for MSHCP Target Plants

Floristic and focused plant surveys were conducted in order to identify all species observed on the Project Site. Additionally, program goals would also locate, census, and map the target MSHCP plants, and other CNPS or species of local concern, if present, occurring onsite.

Field notes and site photographs were taken during each field survey. These notes recorded the date, location, plant species observed, and general habitat characteristics of each area of the project and habitats examined that day. All plant species encountered during the field surveys were identified and recorded in the field notes, including any special-status plants occurring on the Project Site. Surveys were performed in a manner consistent with the MSHCP and other applicable survey protocol requirements as outlined by USFWS (1996), CNPS (2001), and CDFW (2009).

Fieldwork was coordinated throughout the spring and blooming periods, site-specific habitat conditions, and vegetation-soil associations of the target species. Accordingly, seven (7) surveys were conducted onsite, including March 17th, May 2nd, 16th, June 5th, 2023, and , March 28th, May 18th, and June 7th, 2024.

All portions of the Project Site were surveyed on-foot by walking slowly and methodically across each habitat type. Scientific nomenclature and common names used in this report generally follow Roberts et al. (2004) and Baldwin et al. (2012), or Jepson Project eFlora (2024) for updated taxonomy.

EXISTING CONDITIONS

As previously stated, plant communities were mapped using the MSHCP uncollapsed vegetation communities classification system when appropriate. When a vegetation community could not be accurately characterized using this information, an updated community classification code was developed to more accurately represent onsite habitat types. A total of three (3) vegetation communities and developed regions were mapped onsite as shown in Attachment D, *Vegetation Communities Map*, Attachments E to J, *Current Project Site Photographs* outlined in Table 1, *Vegetation Communities Acreages*.

Table 1.
Vegetation Communities Acreages

*Vegetation Type	Acres
Non-native Grassland/Ruderal	33.44
Ornamental	3.72
Developed	2.89
Disturbed	1.75
TOTALS	**41.80**

**Source: Cadre Environmental 2023, 2024*

The Soil Survey of Western Riverside Area has the following soils mapped within the boundary of the property as shown on Attachment K, *Soils Association Map*:

GyC2 Greenfield sandy loam, 2 to 8 percent slopes, eroded
HcD2 Hanford course sandy loam, 8 to 15 percent slopes. eroded
HcC Hanford course sandy loam, 2 to 8 precent slopes
SsD Soboba stony loamy sand, 2 to 15 percent slopes
TeG Terrace escarpments

VEGETATION COMMUNITIES

Natural community names and hierarchical structure follows the CDFW “List of California Terrestrial Natural Communities” or Holland (1986) classification systems, which have

been refined and augmented where appropriate to better characterize the habitat types observed onsite when not addressed by the MSHCP classification system.

Non-native Grassland/Ruderal

The majority of the Project Site is characterized as non-native grassland/ruderal characterized as having a generally even distribution of grasses and invasive species. Grass species documented within this vegetation community include wild oat (*Avena fatua*), slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and goldentop (*Lamarckia aurea*). Other species documented throughout this vegetation community include stinknet (*Oncosiphon piluliferum*), black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*Erodium moschatum*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), California poppy (*Eschscholzia californica*), and common fiddleneck (*Amsinckia menziesii*).

Ornamental

Several recreational common areas adjacent to the Gilman Historic Museum including the Marshall French Gilman Native Plant Garden are characterized as ornamental plantings. Species documented within this vegetation community include but are not limited to chinaberry (*Melia azedarach*), olive (*Olea europaea*), Incense cedar (*Calocedrus decurrens*), Mexican palo verde (*Parkinsonia aculeata*), tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), Arizona ash (*Fraxinus velutina*), and citrus trees.

Disturbed

Disturbed regions of the Project Site include dirt roads generally devoid of vegetation.

Developed

Developed region of the Project Site included paved roads, museum and support structures.

RAINFALL TOTALS

The average rainfall total for the City of Beaumont (adjacent to City of Banning) is 12 inches per season (Riverside County Flood Control and Water Conservation District). Rainfall totals for the 2023 season where 22.20 inches, and to date for the 2024 season are 18.81 inches. Accordingly, the project survey results for spring of 2023 and 2024 were not constrained by low seasonal rainfall.

RESULTS

Narrow Endemic Plants: Neither of the two (2) MSHCP narrow endemic sensitive plant species were detected during the project surveys and are therefore not expected to occur due to lack of observation as noted in Table 2, *MSHCP Narrow Endemic Plant Assessment.*

No other CNPS, special-status plants, or species of local concern were observed. No state or federally listed threatened or endangered plant species were observed.

A complete list of all plant species detected is included in Appendix A – Floral Compendium.

Table 2.
MSHCP Narrow Endemic Plant Assessment

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
MSHCP Narrow Endemic Species		
Yucaipa (Marvin's) onion (*Allium marvinii)* CRPR 1B.2 MSHCP Covered	Perennial bulbiferous herb generally blooming from April to May within chaparral habitats. Often occurring in clay soils.	No Potential. Not expected to occur on site due to a lack of suitable habitat and clay substrates. Not detected during spring 2023 or 2024 focused surveys.
Many-stemmed dudleya (*Dudleya multicaulis*) CRPR 1B.2 MSHCP Covered	Chaparral, coastal sage scrub, valley and foothill grassland. Often occurring in clay soils.	No Potential. Not expected to occur on site due to a lack of suitable habitat and clay substrates. Not detected during spring 2023 or 2024 focused surveys.

LITERATURE CITED AND SELECTED REFERENCES

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ATTACHMENTS

Attachment A – Regional Location Map
Attachment B – Project Site Map
Attachment C –MSHCP Relationship Map
Attachment D – Vegetation Communities Map
Attachment E - Current Project Site Photographs
Attachment F - Current Project Site Photographs
Attachment G - Current Project Site Photographs
Attachment H - Current Project Site Photographs
Attachment I - Current Project Site Photographs
Attachment J - Current Project Site Photographs
Attachment K– Soils Association Map

Certification

"*I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief*."

Author: _____ Date: June 19th, 2024

Fieldwork Performed By: _____ Date: June 19th, 2024

APPENDIX A
FLORAL COMPENDIUM

GYMNOSPERMS

CUPRESSACEAE - CYPRESS FAMILY

Calocedrus decurrens ▪ incense cedar

DICOTYLEDONES - DICOTS

AMARANTHACEAE - AMARANTH FAMILY

Amaranthus albus ▪ tumbling pigweed

ANACARDIACEAE - SUMAC FAMILY

Rhus ovata ▪ sugar bush

ASTERACEAE - SUNFLOWER FAMILY

Ambrosia psilostachya ▪ western ragweed
Artemisia californica ▪ coastal sage brush
Baccharis salicifolia ▪ mule fat
Brickellia californica ▪ California brickellbush
Centaurea melitensis ▪ tocalote
Corethrogyne filaginifolia var. *filaginifolia* ▪ common sandaster
Encelia farinosa ▪ brittlebush
Ericameria pinifolia ▪ pinebush
Erigeron canadensis ▪ horseweed
Heterotheca grandiflora ▪ telegraph weed
Hypochaeris glabra ▪ smooth cat's ear
Lactuca serriola ▪ prickly lettuce
Logfia filaginoides ▪ California cottonrose
Oncosiphon pilulifer ▪ stinknet
Pluchea sericea ▪ arrow-weed
Senecio vulgare ▪ common groundsel
Sonchus asper subs. *asper* ▪ prickly sow thistle
Sonchus oleraceus ▪ common sow thistle
Taraxacum officinale ▪ common dandelion

BERBERIDACEAE - BARBERRY FAMILY

Berberis aquifolium var. *dictyota* ▪ Jepson's Oregon grape

BORAGINACEAE - BORAGE FAMILY

Amsinckia menziesii ▪ common fiddleneck
Pectocarya linearis ▪ slender comb seed
Pectocarya penicillata ▪ winged comb seed

BRASSICACEAE - MUSTARD FAMILY

Brassica nigra ▪ black mustard
Capsella bursa-pastoris ▪ shepherd's purse
Hirschfeldia incana short pod mustard
Sisymbrium irio ▪ London rocket

CACTACEAE - CACTUS FAMILY

Cylindropuntia sp. ▪ cholla
Opuntia macrocentra ▪ purple prickly pear
Opuntia phaecantha ▪ dense-spine prickly pear

CARYOPHYLLACEAE - PINK FAMILY

Cerastium glomeratum ▪ mouse-ear chickweed
Spergularia bocconi ▪ Boccone's sand spurrey

CHENOPODIACEAE - GOOSEFOOT FAMILY

Atriplex canescens ▪ four-wing saltbush
Salsola tragus ▪ Russian thistle

ERICACEAE - HEATH FAMILY

Arctostaphylos pungens ▪ Mexican manzanita

FABACEAE - PEA FAMILY

Acacia melanoxylon ▪ blackwood
Cercis occidentalis ▪ western redbud
Lupinus bicolor ▪ miniature lupine
Medicago polymorpha ▪ California burclover
Parkinsonia aculeata ▪ Mexican palo verde
Prosopis glandulosa ▪ honey mesquite

FAGACEAE - OAK FAMILY

Quercus agrifolia ▪ coast live oak

Quercus lobata ▪ valley oak

GERANIACEAE - GERANIUM FAMILY

Erodium cicutarium ▪ red-stemmed filaree
Erodium botrys ▪ long-beaked filaree
Erodium moschatum ▪ white-stemmed filaree

LAMIACEAE - MINT FAMILY

Lamium amplexicaule ▪ henbit
Lepechinia sp. ▪ pitcher sage
Salvia apiana ▪ white sage
Salvia dorrii ▪ desert sage

MALVACEAE - MALLOW FAMILY

Malva parviflora ▪ cheeseweed
Sphaeralcea ambiqua ▪ apricot mallow

MELICACEAE - MAHOGANY FAMILY

Melia azedarach ▪ chinaberry tree

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* ▪ wishbone bush

OLEACEA - OLIVE FAMILY

Fraxinus velutina ▪ Arizona ash
Olea europaea ▪ common olive

PAPAVERACEAE - POPPY FAMILY

Eschscholzia californica ▪ California poppy

PLANTAGINACEAE - PLANTAIN FAMILY

Veronica persica ▪ bird's eye speedwell

PLATANACEAE - SYCAMORE FAMILY

Platanus racemosa ▪ western sycamore

POLEMONIACEA - PHLOX FAMILY

Gilia angelensis ▪ chaparral gilia

POLYGONACEAE - BUCKWHEAT FAMILY

Eriogonum fasciculatum ▪ California buckwheat

RHAMNACEAE - BUCKTHORN FAMILY

Ceanothus tomentosus ▪ woolly leaf ceanothus

ROSACEAE - ROSE FAMILY

Heteromeles arbutifolia ▪ toyon

SALICACEAE - WILLOW FAMILY

Populus fremontii subs. fremontii ▪ Fremont cottonwood

SAPINDACEAE – SOAPBERRY FAMILY

Acer macrophyllum ▪ bigleaf maple

SIMAROUBACEAE – SIMAROUBA FAMILY

Ailanthus altissima ▪ tree of heaven

VIBRUNACEAE - MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea* ▪ blue elderberry

ZYGOPHYLLACEAE - CALTROP FAMILY

Tribulus terrestris ▪ puncture vine

MONOCOTYLEDONES - MONOCOTS

AGAVACEAE - CENTURY PLANT FAMILY

Yucca baccata ▪ Spanish bayonet

ARECACEAE - PALM FAMILY

Washingtonia robusta ▪ Mexican fan palm

ASPHODELACEAE - ASPHODEL FAMILY

Aloe perfoliata ▪ rubble aloe

POACEAE - GRASS FAMILY

Avena barbata ▪ slender wild oat
Avena fatua ▪ wild oat
Bromus diandrus ▪ ripgut grass
Bromus hordeaceus soft chess
Bromus madritensis ▪ foxtail chess
Bromus rubens ▪ red brome
Cynodon dactylon ▪ Bermuda grass
Hordeum murinum ssp. *glaucum* ▪ glaucous barley
Lamarckia aurea ▪ goldentop
Leymus condensatus ▪ giant wildrye
Schismus barbatus ▪ Mediterranean grass



APNs Portion of 535-070-018, -023, and -038

Attachment A - Regional Location Map

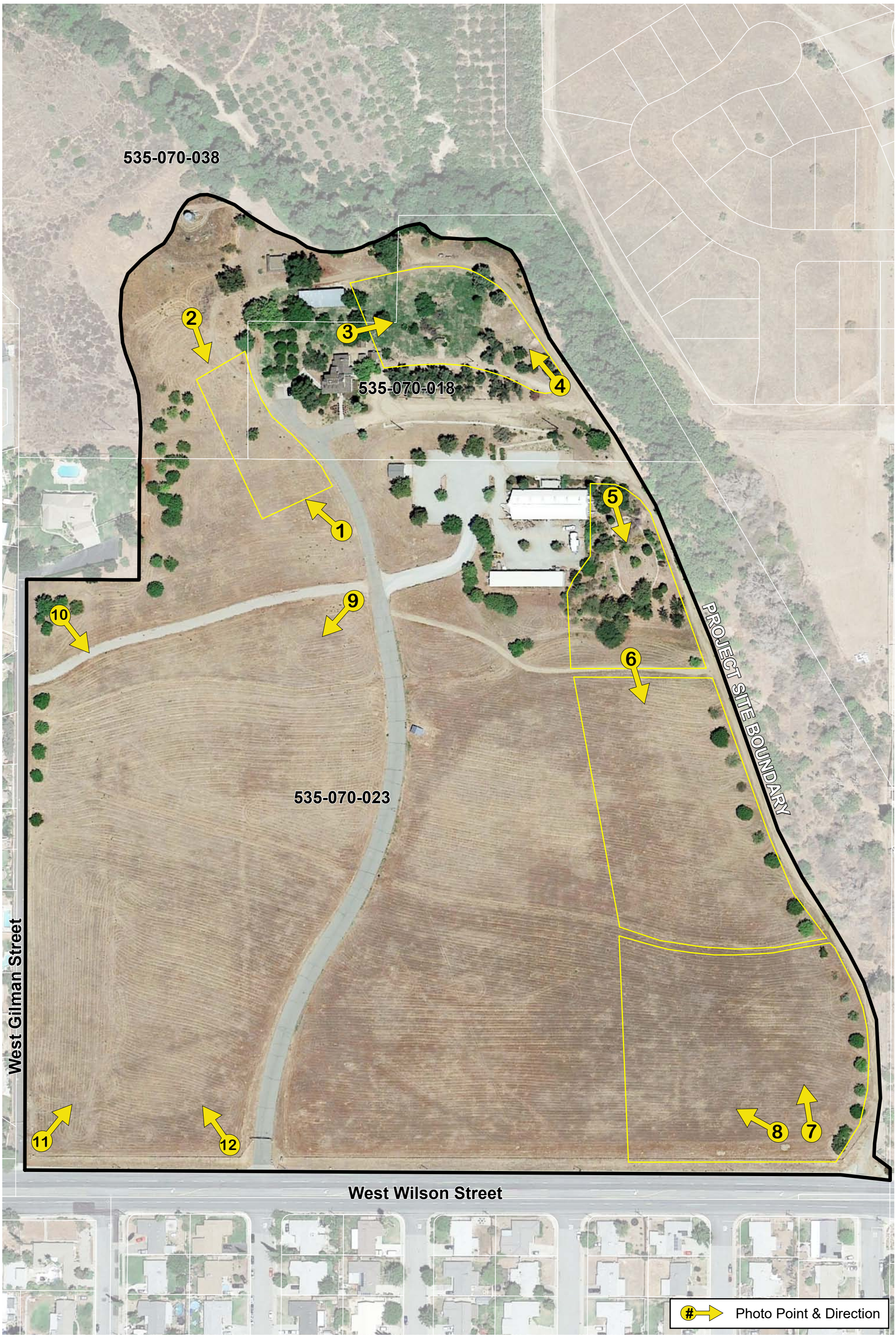
MSHCP Narrow Endemic Sensitive Plant Surveys

Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

not to scale



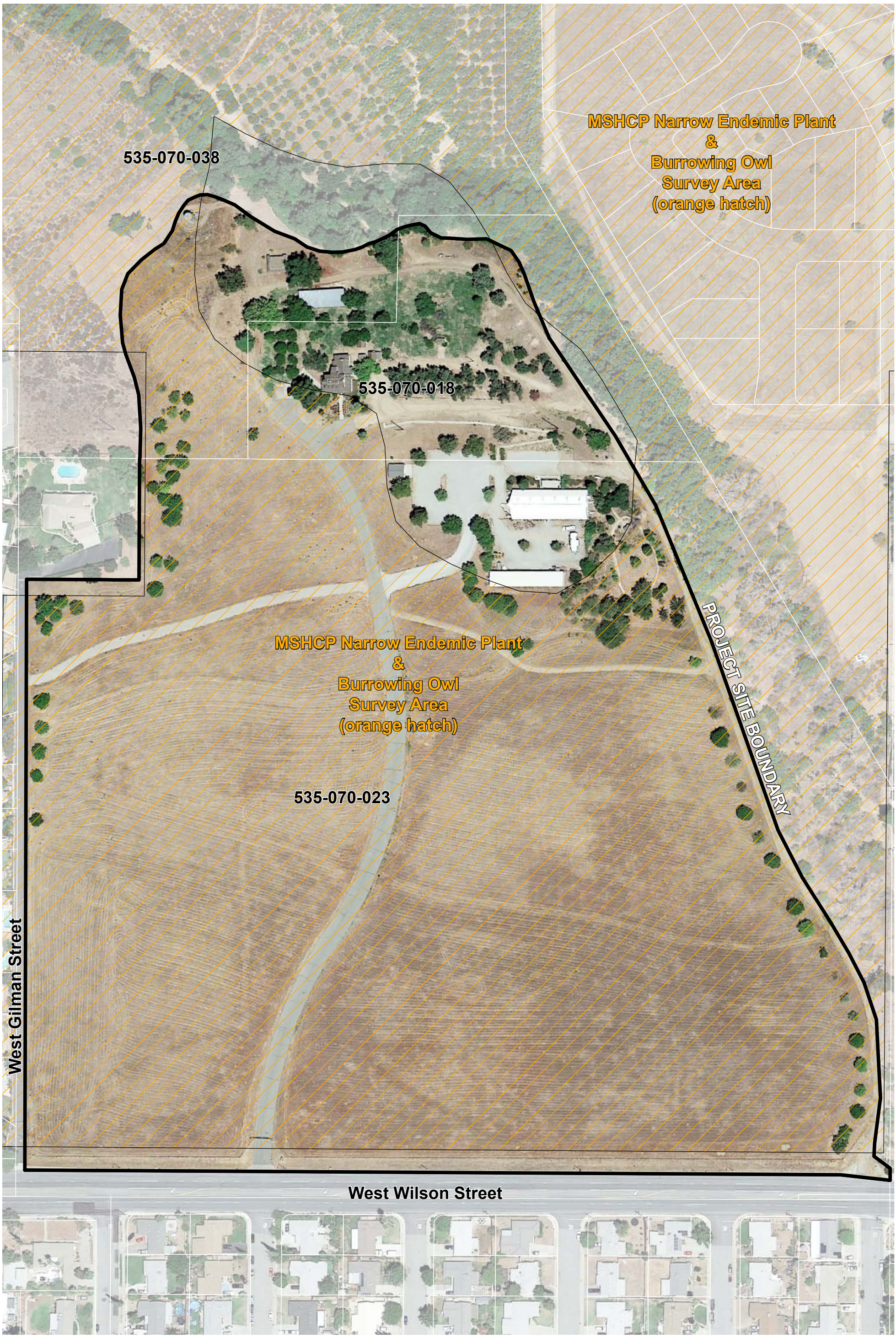
Attachment B - Vicinity Map

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



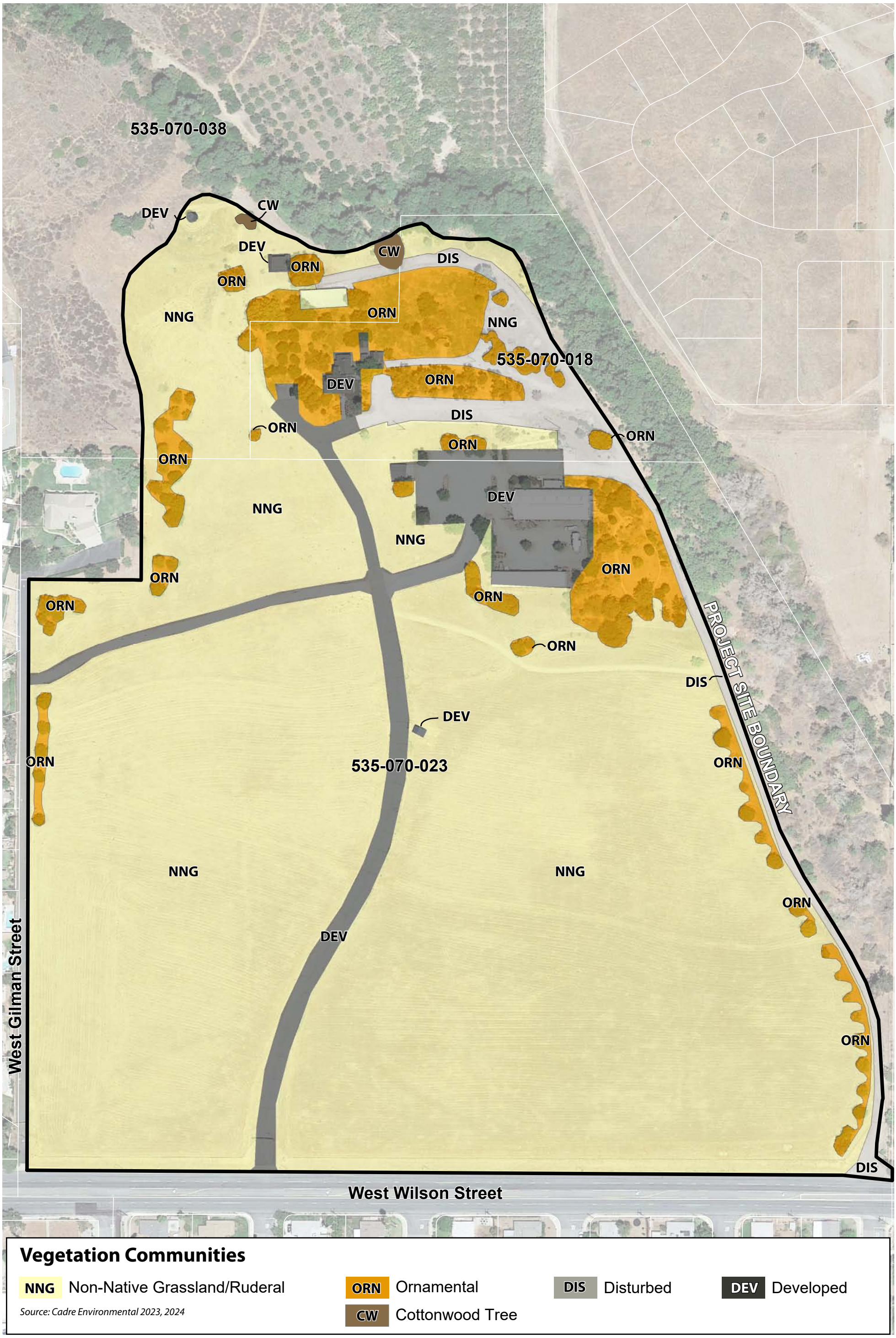
Attachment C - MSHCP Relationship Map

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



Vegetation Communities

NNG Non-Native Grassland/Ruderal

ORN Ornamental

DIS Disturbed

DEV Developed

CW Cottonwood Tree

Source: Cadre Environmental 2023, 2024

Attachment C - Vegetation Communities Map

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet



PHOTOGRAPH 1



PHOTOGRAPH 2

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment E - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 3



PHOTOGRAPH 4

Refer to Attachment B - Vicinity Map for Photograph Key

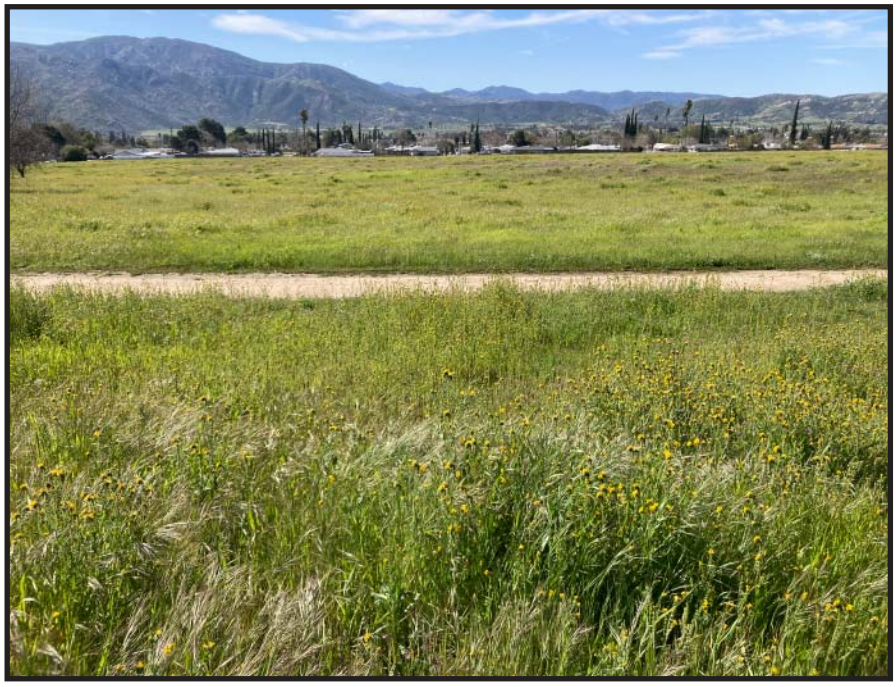
CADRE Environmental

Attachment F - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 5



PHOTOGRAPH 6

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment G - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 7



PHOTOGRAPH 8

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment H - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 9



PHOTOGRAPH 10

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment I - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



PHOTOGRAPH 11



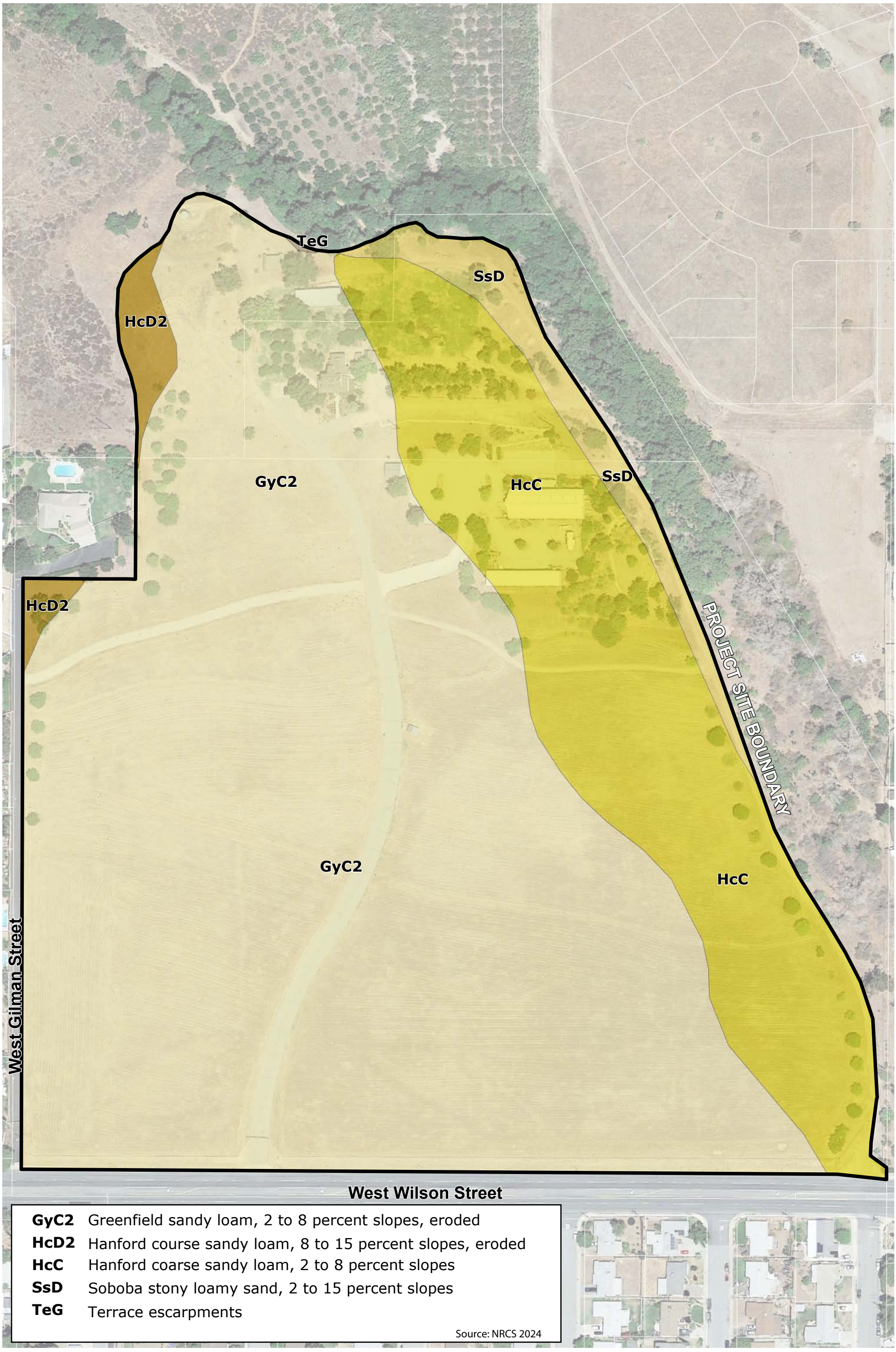
PHOTOGRAPH 12

Refer to Attachment B - Vicinity Map for Photograph Key

CADRE Environmental

Attachment J - Current Project Site Photographs

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project



GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded
HcD2	Hanford course sandy loam, 8 to 15 percent slopes, eroded
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes
SsD	Soboba stony loamy sand, 2 to 15 percent slopes
TeG	Terrace escarpments

Source: NRCS 2024

Attachment K - Soils Association Map

MSHCP Narrow Endemic Sensitive Plant Surveys
Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project

CADRE Environmental

N

1 inch = 150 feet

APPENDIX C4

CROTCH'S BUMBLE BEE SUMMARY REPORT

June 19, 2026

Mr. Ruben Ramirez
Cadre Environmental
701 Palomar Airport Rd, Suite 300
Carlsbad, CA 92011

RE: **2026 Proposed Gilman Ranch Project Crotch's Bumble Bee Summary Report, Riverside County, California**

Dear Mr. Ruben Ramirez:

Huffman Environmental submits this letter report summarizing the results of the focused surveys conducted to determine the presence or absence of the California Department of Fish and Wildlife (CDFW) endangered candidate, Crotch's bumble bee (*Bombus crotchii*, CBB), at the proposed Gilman Ranch Project (herein Project) (Figure 1). Surveys were performed by Huffman Environmental on behalf of Cadre Environmental.

Survey methodology followed the 2023 CDFW guidance document, *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). This letter report elaborates on the survey methodology and reporting protocols recommended in that guidance.

Surveyors were deemed qualified to conduct CBB surveys by meeting the following CDFW requirements:

- ≥ 100 hours of experience conducting protocol-level CBB surveys.
- Completion of two CBB identification workshops (Aecom and San Diego Natural History Museum).
- Successful passage of a CDFW-approved Bombus identification exam, designed by entomologist Kendall Osborne.

Project Description

The approximately 41 acre Project site is located in the City of Banning, Riverside County, California, within the Beaumont U.S. Geological Survey 7.5-minute topographic quadrangle. The property, known as the Gilman Historic Ranch and Wagon Museum, is situated between Paseo del Sol and Harvest Moon Lane, north of West Wilson Street and approximately 0.6 mile north of Interstate 10.

The Project site occurs at the base of a mountain range to the north and is bordered by native coastal sage scrub habitat. The other surrounding land uses consist primarily of scattered residential development with ornamental landscaping and disturbed vegetation communities. Within the Project boundary, the southern portion of the site is composed primarily of non-native grassland, while the northern portion supports a combination of ornamental nectar sources and riparian habitat.

Background Information

Historically, Crotch's bumble bee (CBB) has been known to occupy approximately two-thirds of California (Hatfield et al., 2014), ranging from northern California near the Oregon border southward into Mexico, including Baja California and Baja California Sur. Additional observations have been documented in southwestern Nevada near the California border (Williams et al., 2014). An analysis conducted by Hatfield et al. (2014) reported that, over a 10-year period (2002–2012), the range of CBB had decreased by approximately 25 percent compared to its historical range (pre-2002), and relative abundance had declined by an estimated 98 percent (Xerces et al., 2018). In 2018, the Xerces Society for Invertebrate Conservation (Xerces) filed a petition with the California Fish and Game Commission to list CBB—along with four other native bumble bee species—as endangered under the California Endangered Species Act (CESA).

Despite its now relatively narrow geographic range, CBB is a generalist pollinator known to occupy a wide variety of natural and disturbed habitats. The species has historically been observed foraging on plants from a broad array of plant families, with particular preference for species in the Fabaceae, Apocynaceae, Asteraceae, Boraginaceae, Ericaceae, Hydrophyllaceae, Lamiaceae, Plumbaginaceae, and Polygonaceae families (Thorp et al., 1983; Richardson, 2017; Osborne, 2020). CBB has been recorded in native and nonnative grasslands, disturbed areas, coastal sage scrub, Great Basin sage scrub, pinyon-juniper woodlands, and chaparral habitats. The species nectar on a diverse range of flowering plants, including both perennial shrubs and annual herbaceous species, regardless of habitat type. The likelihood of encountering CBB in a given area is highly dependent on the abundance of preferred nectar sources. Due to their short tongue length, CBB favors flowers with short corollas (Xerces et al., 2018). Nesting typically occurs in abandoned rodent burrows within open scrub or grassland habitats dominated by annual grasses and forbs (Williams et al., 2014).

The CBB life cycle begins annually between February and March when a foundress queen emerges from hibernation. During this period, the queen leaves her overwintering site in search of a suitable nest location (CDFW, 2023). Upon finding an appropriate site, she constructs waxen pots, fills them with pollen and nectar, and lays the first brood of female worker eggs (Xerces, 2023a). Over the next 4 to 5 weeks, the larvae develop into adult workers who then assume the responsibilities of foraging and nest maintenance, allowing the queen to focus solely on reproduction. As the colony grows and a worker caste is established, the queen no longer forages. Each worker typically lives for 1 to 2 months.

Later in the season, the foundress queen begins producing reproductive offspring: gynes (future queens) from fertilized eggs and males from unfertilized eggs (Britannica, 2023). Once mature, gynes leave the colony to mate but may return temporarily to contribute pollen and gain protection (Xerces, 2023a). By late spring, some workers may also begin laying unfertilized eggs, producing additional males. Males do not forage and, after leaving the colony to mate, typically rest on vegetation and die within a few weeks. The newly mated gynes feed on available blooms to build up fat reserves before entering hibernation in rodent burrows or soil crevices, where they remain until the following spring (Xerces, 2023b; CDFW, 2023).

CBB exhibits marked sexual dimorphism in coloration and body size. Queens are 22–25 mm in length, with a black face and yellow vertex. The thorax is typically black between and behind the wings. The abdomen is divided into tergites: T2 features a broad yellow stripe unique to the species; T3–T5 are usually black, though variations include reddish hues on T3 and T4/T5. Workers share the same coloration but are smaller (12–20 mm), while males range from 14–19 mm in length and are distinguished by yellow coloration on the head, face, and anterior/posterior thorax, interrupted by a black band between the wings. T1 and T2 are yellow, sometimes extending to T3; T4–T7 may appear black or red (Xerces et al., 2018).

The 2018 Xerces petition identified multiple contributing factors to the widespread decline of CBB populations. Chief among them is habitat loss, driven by rapid urban development, agricultural expansion, and herbicide use. These activities have resulted in significant habitat fragmentation and destruction, reducing both nesting and foraging resources. Glyphosate herbicide exposure may negatively affect bee fitness (Motta et al., 2018), and the increased application of systemic neonicotinoid insecticides has likely impaired colony development and foraging efficiency (Whitehorn et al., 2012; Muth and Leonard, 2019). Moreover, competition from nonnative European honey bees (Apis mellifera) further strains CBB populations by depleting shared nectar resources and potentially transmitting pathogens (Parveen et al., 2022).

Beyond habitat alteration and competition, pesticide exposure, disease, and climate change act synergistically to threaten CBB survival. Climate change may alter temperature, precipitation, and seasonal cues essential to the species' reproductive cycle and the availability of floral resources. While no single factor has been identified as the definitive cause of decline, the cumulative effects of these stressors have greatly reduced what was once a widely distributed and relatively abundant native pollinator.

Habitat Assessment and Nectar Source Mapping

A habitat assessment and the first survey round were conducted concurrently on April 21, 2026, by CDFW-approved CBB surveyors Tawni Gotbaum and Garrett Huffman. The primary objective of the assessment was to identify optimal nectar resources, thereby determining areas with the highest likelihood of CBB occurrence. Nectar patches were delineated based on the relative abundance of blooming or soon-to-bloom floral species known to be preferred by CBB. These mapped patches defined the CBB Survey Area.

Excluded habitat types were determined based on the absence or scarcity of suitable nectar resources. Habitat types unlikely to support foraging or presenting low detectability for CBB included disturbed or developed areas (e.g., access roads), riparian communities with limited floral resources, and non-native grasslands dominated by invasive species that had already senesced.

Survey areas were delineated using GPS polygons collected in Field Maps (ArcGIS), and dominant nectar species were recorded on digital datasheets via the Fulcrum mobile application. Nectar patches were reevaluated during each subsequent survey

round to guide survey effort. Once a nectar patch senesced, it was revisited briefly to confirm its low suitability and was not surveyed further.

Survey Methodology

Three survey rounds were conducted on April 21, May 07, and June 05, 2026 maintaining a minimum of two weeks between each survey in accordance with protocol guidelines. Survey efforts were scheduled to coincide with the peak blooming periods of potential nectar and pollen sources and the expected active flight periods of CBB. Biologists concentrated their efforts in areas with the highest quality and density of flowering plant species commonly associated with CBB foraging behavior.

Survey speed was generally maintained at a rate of approximately three acres per hour, although this rate was adjusted at the discretion of the biologist based on environmental conditions. Factors influencing survey pace included nectar source availability, floral density, overall vegetation cover, terrain complexity, and observed invertebrate activity.

Surveys were conducted using a combination of meandering transects and passive visual monitoring with the aid of binoculars. If a Bombus individual was encountered, it was observed and identified through a combination of field observation and photography, without physical capture. All surveys were conducted under protocol-defined weather conditions, which included ambient temperatures between 60°F and 90°F, sustained wind speeds less than 10 mph, and the absence of fog or precipitation (CDFW, 2023).

Results

Nectar Survey Area

Following the initial habitat assessment, approximately 1.4 acres of combined, habitat patches was identified and designated as the CBB Survey Area for the first round. As survey rounds progressed, mapped nectar source availability shifted, and survey allocations were adjusted accordingly. Once dominant nectar sources within a patch senesced, the area was no longer surveyed.

The Survey Area was predominantly composed of ornamental vegetation communities. Nectar species among these communities that were focused upon consisted of primarily Mexican palo verde (*Parkinsonia aculeata*), California buckwheat (*Eriogonum fasciculatum*), and scattered ornamental nectar.

Focused CBB Surveys

Approved CBB surveyor Tawni Gotbaum and Garrett Huffman conducted three protocol surveys during the CBB's peak colony activity window (CDFW, 2023). Across all three survey rounds, no CBB were observed within the delineated Survey Area. No *Bombus* species were detected over three rounds.

Observation data for each survey round, including invertebrate activity and floral conditions, are provided in Appendix B.

Table 1. *Bombus* Species Detected During Each Survey

Date	Survey Round	*Bombus crotchii*	*Bombus melanopygus*	*Bombus vosnesenskii*	*Bombus sonorus*	*Bombus californicus*
04/21/26	1	0	0	0	0	0
05/07/26	2	0	0	0	0	0
06/05/26	3	0	0	0	0	0

Certification

All biologists working under Huffman Environmental for the 2026 Gilman Ranch Project CBB Surveys were approved to survey for this species under the California Department of Fish and Wildlife (CDFW).

We certify that the information in this survey report and attached exhibits fully and accurately represents our work.

Please feel free to contact me at garrett@huffmanenvironmental.com if you have any questions regarding the contents of this report.

Cordially,



Garrett Huffman

Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com

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California Department of Fish and Wildlife (CDFW). (2023). *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. June 6, 2023.

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The Xerces Society for Invertebrate Conservation (Xerces). (2023b). *About bumble bees*. Retrieved June 19, 2026, from https://xerces.org/bumblebees/about



Figure 1: Project Location

Gilman Ranch Project
Crotch's Bumblebee Surveys

2026





Figure 2: Survey Results

Gilman Ranch Project
Crotch's Bumblebee Surveys

2026

N

0 0.01 0.03 Mi

0 0.03 0.06 Km

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: A small patch of palo verde was concentrated within a portion of the site and served as one of the primary nectar sources.



Photo 2: California buckwheat (*Eriogonum fasciculatum*) served as one of the late-blooming nectar so urces observed on site.



Photo 3: The southern portion of the site generally lacked suitable nectar resources and was excluded from further survey consideration following the initial habitat assessment.

APPENDIX B
DATA SHEETS

It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	Gilman Ranch
Surveyor	Tawni Gotbaum
Trainee	
Date	April 21, 2026
Survey Round	1
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	10:30
Temperature	64
Wind	4-6
Cloud	20
End Start Time	13:40
Temperature	75
Wind	5-10
Cloud	25

Vegetation Communities Surveyed	Landscaped/ornamental (PARACU, CHILIN, Rosa spp, Punica granatum), buckwheat scrub (ERIFAS), NNG (AVEBAR, BRODIA, HIRINC), riparian scrub (SAMCER)

Nectar

Dominant Flowering Species

Other	

Crotch's Bumble Bee

Crotch's Bumble Bee

Bombus Observed

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B. melanopygus	0
B. vosnesenskii	0
B. sonorus	0
B. californicus	0

Other Wildlife

Other Wildlife Observations (15 Items)

Other Wildlife Observations - 1. Orange sulphur

Species

Other Wildlife Observations - 2. Western tiger swallowtail

Species

Other Wildlife Observations - 3. Checkered white

Species

Other Wildlife Observations - 4. Buckeye

Species

Other Wildlife Observations - 5. Marine blue

Species

Other Wildlife Observations - 6. Acmon blue

Species

Other Wildlife Observations - 7. Funereal duskywing

Species

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Other Wildlife Observations - 8. Queen

Species

Other Wildlife Observations - 9. Valley carpenter bee

Species

Other Wildlife Observations - 10. Urbane digger bee

Species

Other Wildlife Observations - 11. Blue dasher

Species

Other Wildlife Observations - 12. Behr's metalmark

Species

Other Wildlife Observations - 13. Western carpenter bee

Species

Other Wildlife Observations - 14. Valley carpenter bee

Species

Other Wildlife Observations - 15. Western honey bee

Species

Other

Notes

Notes	Majority of site dominated by nonnative grass and non-flowering ornamentals. Most suitable nectar patches are concentrated by existing buildings and landscaped areas in the northern and eastern portions of the site. Wind increased in the afternoon, but pollinator activity remained moderate-high

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Site Photos



North-facing view of Mexican palo verde in the northeastern portion of the site



Southeast-facing view of buckwheat scrub along the western edge of the site



Northwest-facing view of the northern portion of the site



Southwest-facing view of nonnative grassland in the southern portion of the site

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It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	Gilman Ranch
Surveyor	Tawni Gotbaum
Trainee	
Date	May 7, 2026
Survey Round	2
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	12:00
Temperature	80
Wind	5-7
Cloud	5
End Start Time	14:45
Temperature	85
Wind	5-7
Cloud	10

Vegetation Communities Surveyed	Same as survey round 1

Nectar

Dominant Flowering Species (1 Item)

Dominant Flowering Species - 1. NATIVE Eriogonum fasciculatum var. fasciculatum COASTAL CALIFORNIA BUCKWHEAT EUDICOTS, NATIVE Sambucus mexicana BLUE ELDERBERRY EUDICOTS, NATIVE Chilopsis linearis subsp. arcuata NULL EUDICOTS, NATURALIZED Hirschfeldia incana NULL EUDICOTS

Nectar Species	NATIVE Eriogonum fasciculatum var. fasciculatum COASTAL CALIFORNIA BUCKWHEAT EUDICOTS, NATIVE Sambucus mexicana BLUE ELDERBERRY EUDICOTS, NATIVE Chilopsis linearis subsp. arcuata NULL EUDICOTS, NATURALIZED Hirschfeldia incana NULL EUDICOTS
Other	Parkinsonia aculeata, Rosa spp

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Crotch's Bumble Bee

Crotch's Bumble Bee

Bombus Observed

B. melanopygus	0
B. vosnesenskii	0
B. sonorus	0
B. californicus	0

Other Wildlife

Other Wildlife Observations (1 Item)

Other Wildlife Observations - 1.

Species	Checkered White (Pontia protodice), Funereal Duskywing (Erynnis funeralis), Western Tiger Swallowtail (Papilio rutulus), Xylocopa varipuncta, Valley carpenter bee, Anthophora urbana, Urbane digger bee, Painted Lady (Vanessa cardui), Harford's Sulphur (Colias harfordii), Cabbage White (Pieris rapae rapae), Southern Silvery Blue (Glaucopsyche lygdamus australis), Apis mellifera, Honey bee
Other	

Notes

Notes	No Bombus observed. High carpenter bee and honey bee activity on flowering PARACU in the eastern portion of the site

Site Photos

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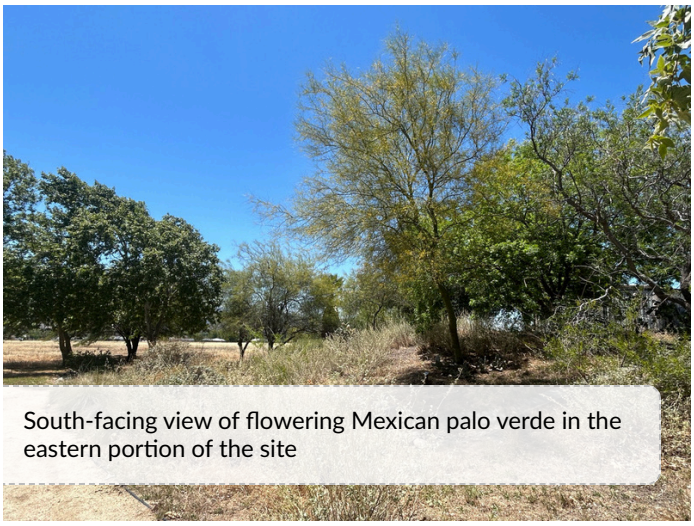
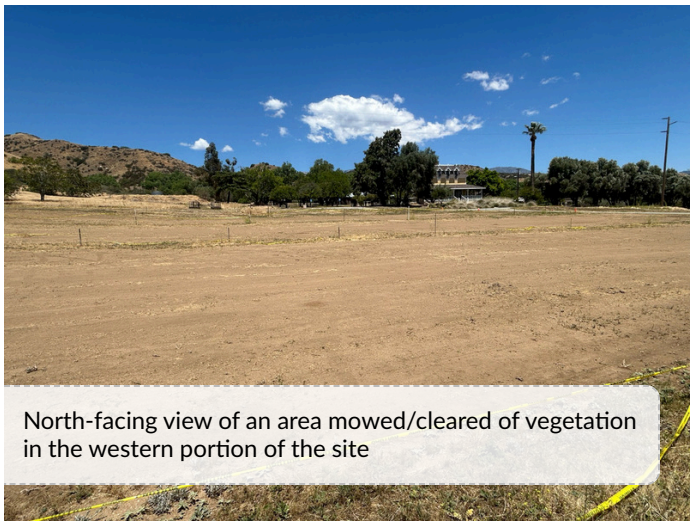


South-facing view of flowering Mexican palo verde in the eastern portion of the site



North-facing view of an area mowed/cleared of vegetation in the western portion of the site

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It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	Gilman Ranch
Surveyor	Garrett Huffman
Trainee	
Date	June 5, 2026
Survey Round	3
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	10:51
Temperature	74
Wind	2-6
Cloud	0
End Start Time	13:37
Temperature	86
Wind	2-6
Cloud	0

Vegetation Communities Surveyed	Ornamental, CSS

Nectar

Dominant Flowering Species (1 Item)

Dominant Flowering Species - 1. NATURALIZED Parkinsonia aculeata MEXICAN PALO VERDE EUDICOTS

Nectar Species	NATURALIZED Parkinsonia aculeata MEXICAN PALO VERDE EUDICOTS
Other	Salvia ornamental spp

Crotch's Bumble Bee

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Crotch's Bumble Bee

Bombus Observed

B. melanopygus	0
B. vosnesenskii	0
B. sonorus	0
B. californicus	0

Other Wildlife

Other Wildlife Observations (7 Items)

Other Wildlife Observations - 1.

Species	Funereal Duskywing (Erynnis funeralis)

Other Wildlife Observations - 2.

Species	Western Tiger Swallowtail (Papilio rutulus)

Other Wildlife Observations - 3.

Species	Xylocopa californica, California carpenter bee

Other Wildlife Observations - 4.

Species	Apis mellifera, Honey bee

Other Wildlife Observations - 5.

Species	Acmon Blue (Plebejus acmon)

Other Wildlife Observations - 6.

Species	Marine Blue (Leptotes marina)

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Other Wildlife Observations - 7.

Species	Checkered White (Pontia protodice)
Other	Red-legged oil digger (Centris rhodopus)

Notes

Notes	

Site Photos

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APPENDIX D

HISTORICAL/ARCHAEOLOGICAL RESOURCES REPORT

HISTORICAL/ARCHAEOLOGICAL RESOURCES REPORT

GILMAN RANCH HISTORIC PARK IMPROVEMENT PROJECT

City of Banning
Riverside County, California

For Submittal to:

Riverside County Regional Park and Open-Space District
4600 Crestmore Road
Jurupa Valley, CA 92509

Prepared for:

UltraSystems Environmental, Inc.
16431 Scientific Way
Irvine, CA 92618

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Daniel Ballester, Principal Investigator

March 15, 2026
CRM TECH Project No. 4363

Title: Historical/Archaeological Resources Report: Gilman Ranch Historic Park Improvement Project, City of Banning, Riverside County, California

Authors: Bai "Tom" Tang, Principal Investigator/Historian
Deirdre Encarnación, Project Archaeologist/Report Writer
Hunter O'Donnell, Project Archaeologist/Field Director

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: March 15, 2026

For Submittal to: Riverside County Regional Park and Open-Space District
4600 Crestmore Road
Jurupa Valley, CA 92509
(800) 234-7275

Prepared for: Michael Milroy, Project Manager
UltraSystems Environmental, Inc.
16431 Scientific Way
Irvine, CA 92618
(949) 788-4900

USGS Quadrangle: Beaumont, Calif., 7.5' quadrangle (Section 5, T3S R1E, San Bernardino Baseline and Meridian)

Project Size: Approximately 42 acres

Keywords: San Gorgonio Pass region; Phase I cultural resources survey; portions of Assessor's Parcel Numbers 535-070-018, -023, and -038; Site 33-001701 (CA-RIV-1701/H): Gilman Ranch Historic Park; Site 33-015905 (CA-RIV-8263; adjacent): habitation area associated with Cahuilla and Serrano place names *Chickisva*, *Hekieved Apie*, and *Gilbercostaño*; archaeological and Native American monitoring recommended due to sensitivity for subsurface cultural deposits

EXECUTIVE SUMMARY

Between March 2023 and March 2026, at the request of UltraSystems Environmental, Inc., CRM TECH performed a cultural resource study for proposed improvements to the Gilman Ranch Historic Park in the City of Banning, Riverside County, California. The project area encompasses approximately 42 acres of developed and undeveloped parkland in portions of Assessor's Parcel Numbers 535-070-018, -023, and -038, including the Gilman Historic Ranch and Wagon Museum. It is located at 1901 West Wilson Street, on the north side of Wilson Street and along both sides of 19th Street, in the southeast quarter of Section 5, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey Beaumont, California, 7.5' quadrangle.

The study is a part of the environmental review process for the proposed addition of new facilities to the park, including an events center, a 100-seat outdoor classroom, and a stagecoach campground with 9 units, as well as associated interpretive and infrastructure enhancements. The Riverside County Regional Park and Open-Space District (RCRPOSD), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide RCRPOSD with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any significant cultural resources that may exist in the project area, as mandated by CEQA.

Research procedures carried out by CRM TECH during the study include an update to a cultural resources records search conducted previously on the project location, historical background research, consultation with local historical organizations, and an intensive-level field survey. Native American consultations for the project, including a Sacred Lands File search and outreach with local tribes, are being completed by RCRPOSD and UEI. The results of the research procedures listed above indicate that the Gilman Ranch Historic Park, which has been documented in the California Historical Resources Inventory as Site 33-001701 (CA-RIV-1701/H), is the only cultural resource known to be present within the project boundaries during this study.

Site 33-001701 consists of both original and recreated historical elements of Gilman Ranch as well as a number of prehistoric artifacts, although the prehistoric artifacts are no longer *in situ* and are therefore limited in their contribution to the significance of the property. The historic integrity of Gilman Ranch has also been compromised considerably, most notably through the loss of the original 1879 ranch house and the introduction of modern buildings into the complex. However, it has been formally designated a California Point of Historical Interest. Meanwhile, it is currently listed in the National Register of Historic Places and thus automatically listed in the California Register of Historical Resources. As such, the Gilman Ranch Historic Park as a whole clearly meets CEQA definition of a "historical resource."

As currently proposed, the Gilman Ranch Historic Park Improvement Project would not result in the demolition, destruction, relocation, or alteration of any of the surviving historic-period buildings or structures of Gilman Ranch. The new constructions proposed for the project are all concentrated on vacant land in the southern half of the project area, several hundred feet from the original and replicated historic buildings of Gilman Ranch at the northern end of the property, with the wagon museum and its associated facilities between the two locations as a visual barrier. Consequently, the

project would not impose a substantial visual or atmospheric intrusion into the existing viewshed of the historic buildings in the ranch house complex, either. Based on these considerations, and pursuant to PRC §5020.1(q), CRM TECH recommends to RCRPOSD a conclusion that the project would not cause a substantial adverse change in the significance of any known "historical resources."

Nevertheless, dictated by the long history of Gilman Ranch and the even longer history of Native American activities in the vicinity, as demonstrated by both ethnographic and archaeological records, the project area appears to be highly sensitive for buried archaeological deposits of both prehistoric and historic origin. Therefore, CRM TECH further recommends that an archaeological monitoring program be implemented during earth-moving operations associated with the project in order to ensure the timely identification and, if necessary, protection of subsurface cultural remains should any be encountered. Under this condition, the proposed project may be cleared to proceed in accordance with CEQA provisions on cultural resources.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
INTRODUCTION 1
SETTING 4
Natural Setting 4
Cultural Setting 5
Prehistoric Context 5
Ethnohistoric Context 6
Protohistoric Context 7
Historic Context 7
RESEARCH METHODS 9
Records Search 9
Historical Research 9
Local Consultation 9
Field Survey 10
RESULTS AND FINDINGS 10
Records Search 10
Historical Research 11
Field Survey 13
Discussion and Conclusion 14
REFERENCES 16
APPENDIX 1: Personnel Qualifications 19
APPENDIX 2: Previous Cultural Resources Studies near the Project Area 24
APPENDIX 3: Site Record and Update: 33-001701/CA-RIV-1701/H (Confidential) 27

LIST OF FIGURES

Figure 1. Project vicinity 1
Figure 2. Project location 2
Figure 3. Recent satellite image of the project area 3
Figure 4. Typical landscapes in the project area 4
Figure 5. The project area and vicinity in 1885 12
Figure 6. The project area and vicinity in 1897-1898 12
Figure 7. The project area and vicinity in 1939-1941 13
Figure 8. The project area and vicinity in 1949-1951 13

INTRODUCTION

Between March 2023 and March 2026, at the request of UltraSystems Environmental, Inc., CRM TECH performed a cultural resource study for proposed improvements to the Gilman Ranch Historic Park in the City of Banning, Riverside County, California (Fig. 1). The project area encompasses approximately 42 acres of developed and undeveloped parkland in portions of Assessor's Parcel Numbers 535-070-018, -023, and -038, including the Gilman Historic Ranch and Wagon Museum. It is located at 1901 West Wilson Street, on the north side of Wilson Street and along both sides of 19th Street, in the southeast quarter of Section 5, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Beaumont, California, 7.5' quadrangle (Figs. 2, 3).

The study is a part of the environmental review process for the proposed addition of new facilities to the park, including an events center, a 100-seat outdoor classroom , and a stagecoach campground with 9 units, as well as associated interpretive and infrastructure enhancements. The Riverside County Regional Park and Open-Space District (RCRPOSD), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000 et seq.). The purpose of the study is to provide RCRPOSD with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any significant cultural resources that may exist in the project area, as mandated by CEQA.

The following report is a complete account of the methods, results, and conclusion of the research procedures carried out by CRM TECH during this study, which include an update to a cultural

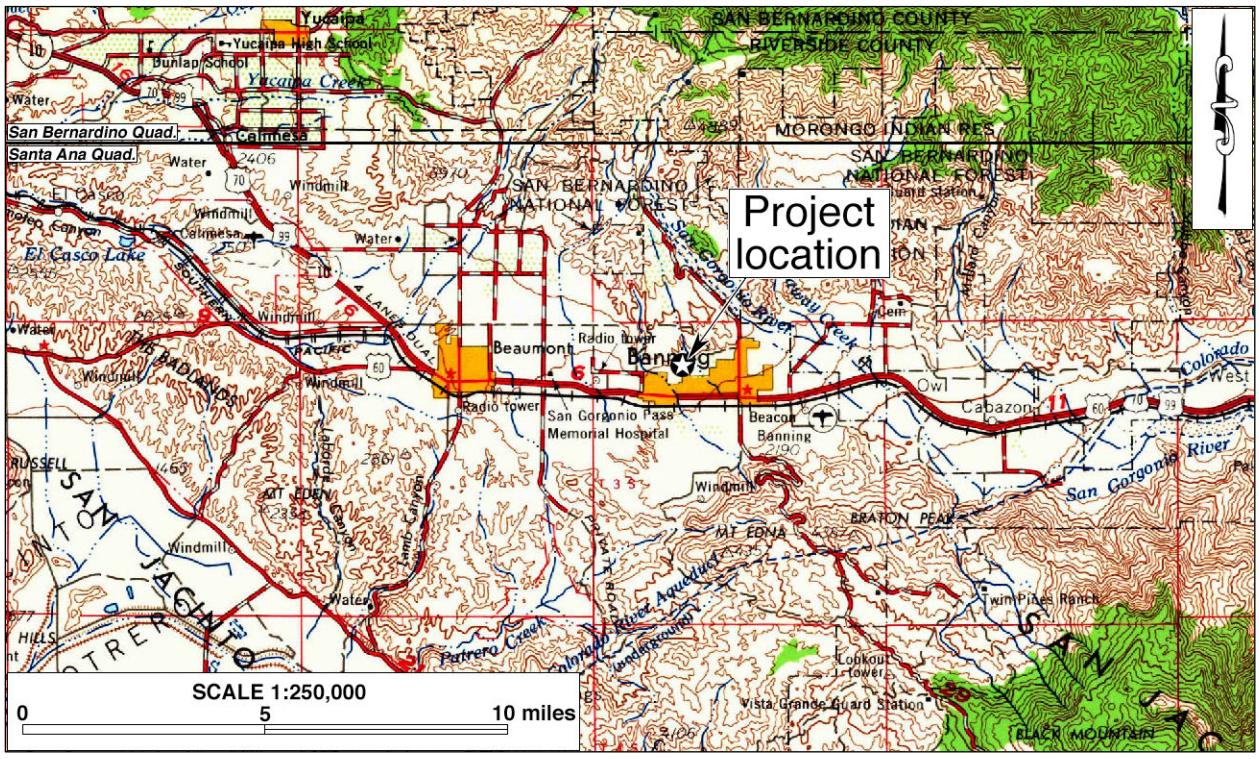

Figure 1. Project vicinity, based on USGS San Bernardino and Santa Ana, Calif., 120'x60' quadrangles (USGS 1969; 1979).

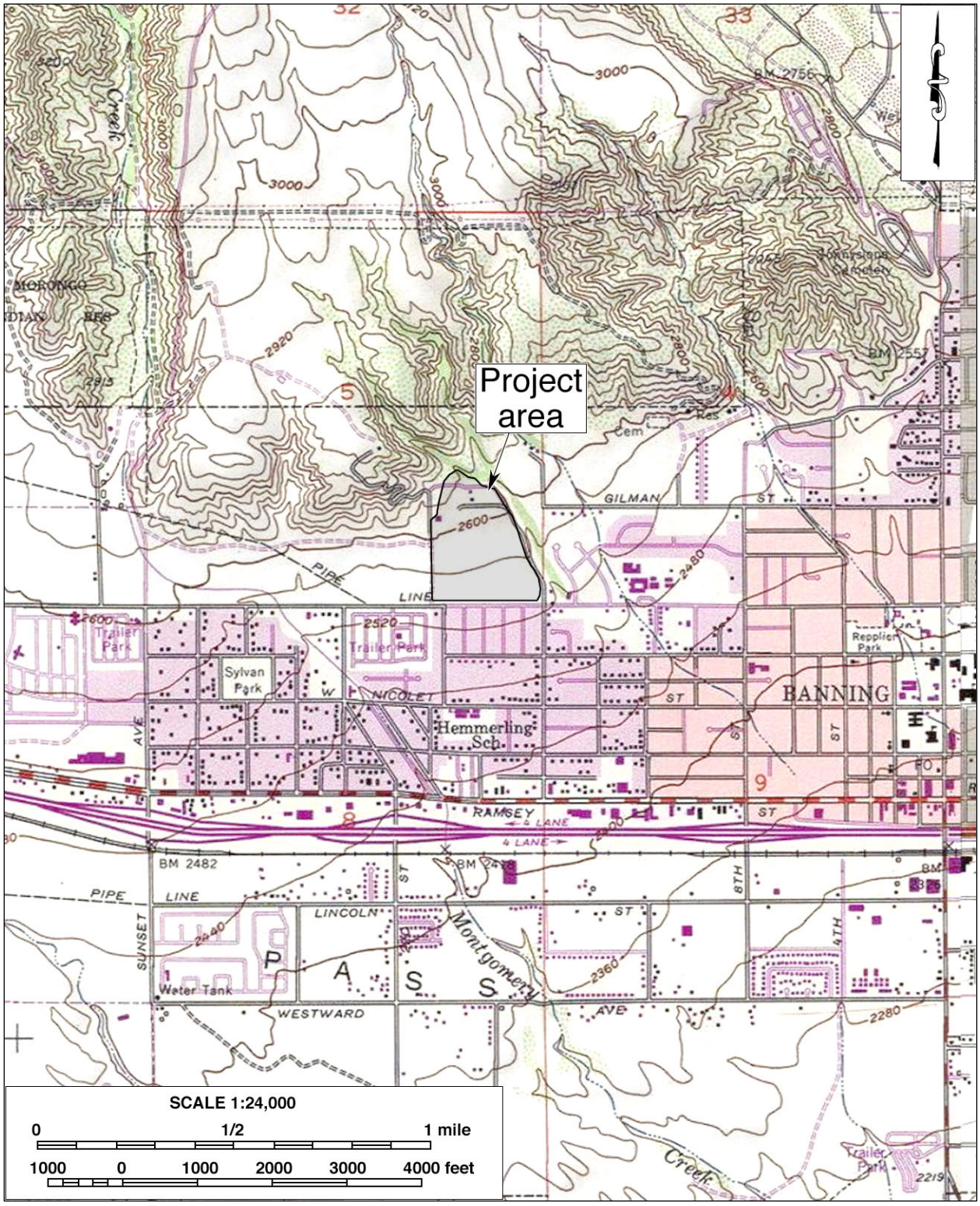

Figure 2. Project location, based on USGS Beaumont, Calif., 7.5' quadrangle (USGS 1996).



Figure 3. Recent satellite image of the project area, based on Google Earth imagery.

resources records search conducted previously on the project location, historical background research, consultation with local historical organizations, and an intensive-level field survey. Native American consultations for the project, including a Sacred Lands File search and outreach with local tribes, are being completed by RCRPOSD and UEI. CRM TECH personnel who participated in the research work are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

SETTING

NATURAL SETTING

The City of Banning is situated near the western end of the San Gorgonio Pass, an east-west-trending corridor between the San Bernardino Mountains on the north and the San Jacinto Mountains on the south. The mountain pass is an important connection between coastal southern California and the Colorado Desert, with Interstate Highway 10 and the Union Pacific (formerly Southern Pacific) Railroad serving as the main transportation arteries through the pass today. The natural environment of the Banning area is typical of the southern California inland region, featuring a Mediterranean climate with hot, dry summers and mild, rainy winters. The monthly average temperature reaches nearly 80 degrees (Fahrenheit) in August and drops below 50 degrees in December (Climate Data n.d.). The average annual precipitation is approximately 14.5 inches (*ibid.*).

The project area lies on the northwestern outskirts of the historic downtown area of the City of Banning, near the southern base of the San Bernardino Mountains (Figs. 2, 3). It is bounded by 20th Street on the west, Wilson Street on the south, the extension of 16th Street on the east, and an intermittent creek on the north, which runs further to the south along a generally northwest-southeast course a few dozen feet from the eastern project boundary (Fig. 3). The northern portion of the project area is occupied by the existing buildings and other facilities of the Gilman Ranch Historic Park, while the southern portion comprises former agricultural land that remains vacant today (Fig. 4). The property is surrounded by relatively recent residential development to the east and the west, an older residential neighborhood to the south, and vacant land in the foothills to the north (Fig. 3).



Figure 4. Typical landscapes in the project area. *Left*: overview of vacant land in the southern portion, view to the north; *right*: Gilman Historic Ranch in the northern portion, view to the north. Photographs taken on January 30, 2026.

Elevations in the project area range approximately from 2,655 feet to 2,540 feet above mean sea level, and the terrain features a gentle slope declining to the south and the east. The ground surface on the property has been disturbed in the past, resulting from agricultural operations in historic times as well as more recent maintenance and landscaping activities for the park. The area is a part of the California Creosote Bush Scrub plant community, and representative plants on the property today include California sagebrush, California poppy, prickly pear cactus, sycamore, and coast live oak. Introduced species noted within the project area include fountain grass, organ pipe cactus and eucalyptus, pomelo, and olive trees.

CULTURAL SETTING

Prehistoric Context

The oldest prehistoric sites currently known in Riverside County date to at least 10,000 years ago. The term "prehistoric period" refers to the time prior to the arrival of non-Indians, when Native lifeways and traditions in the region remained relatively intact and viable. In the Winchester area, foreign influences profoundly changed Native lifeways during the late 1700s signifying the beginning of the "historic period." Straddled between prehistoric and historic periods is the Protohistoric, marking a time when the presence of Europeans in nearby areas began impacting Native cultures.

The earliest evidence of human occupation in western Riverside County was discovered below the surface of an alluvial fan in the northern portion of the Lakeview Mountains, overlooking the San Jacinto Valley, with radiocarbon dates clustering around 9,500 B.P. (Horne and McDougall 2008). Another site found near the shoreline of Lake Elsinore, close to the confluence of Temescal Wash and the San Jacinto River, yielded radiocarbon dates between 8,000 and 9,000 B.P. (Grenda 1997). Additional sites with isolated Archaic dart points, bifaces, and other associated lithic artifacts from the same age range have been found in the nearby Cajon Pass area of San Bernardino County, typically atop knolls with good viewsheds (Basgall and True 1985; Goodman and McDonald 2001; Goodman 2002; Milburn et al. 2008).

The cultural history of southern California has been summarized into numerous chronologies, including those developed by Chartkoff and Chartkoff (1984), Warren (1984), and others. Specifically, the prehistory of western Riverside County has been addressed by O'Connell et al. (1974), McDonald et al. (1987), Keller and McCarthy (1989), Grenda (1993), Goldberg (2001), and Horne and McDougall (2008). Although the beginning and ending dates of different cultural horizons vary regionally, the general framework of the prehistory of western Riverside County can be divided into three primary periods:

- Paleoindian Period (ca. 18,000-9,000 B.P.): Native peoples of this period created spearhead bases designed to be hafted to wooden shafts. The distinctive method of thinning bifaces and spearhead preforms by removing long, linear flakes leave diagnostic Paleoindian markers at tool-making sites. Other artifacts associated with the Paleoindian toolkit include choppers, cutting tools, retouched flakes, and perforators. Sites from this period are very sparse across the landscape and most are deeply buried.
- Archaic Period (ca. 9,000-1,500 B.P.): Archaic sites are characterized by abundant lithic scatters of considerable size with many biface thinning flakes, bifacial preforms broken during

manufacture, and well-made groundstone bowls and basin metates. As a consequence of making dart points, many biface thinning waste flakes were generated at individual production stations, which is a diagnostic feature of Archaic sites.

- Late Prehistoric Period (ca. 1,500 B.P.-contact): Sites from this period typically contain small lithic scatters from the manufacture of small arrow points, expedient groundstone tools such as tabular metates and unshaped manos, wooden mortars with stone pestles, acorn or mesquite bean granaries, ceramic vessels, shell beads suggestive of extensive trading networks, and steatite implements such as pipes and arrow shaft straighteners.

Ethnohistoric Context

The City of Banning lies near the San Gorgonio Pass, an area that is generally considered to be the traditional territory of the Pass Cahuilla Indians but would also have served as a major crossing and intersecting point with the Serrano as well. The classic anthropological scholarship on Cahuilla and Serrano culture includes Kroeber (1925), Strong (1929), Bean (1978), and Bean and Smith (1978). The following ethnohistoric discussion is based primarily on these sources. Ethnoecological information is generally from Bean and Silva (1972) and Anderson (2013). Both tribal groups are Takic-speaking from the Uto-Aztecan language family, and shared similarities in their social organization and resource procurement strategies prior to European arrival. As with most southern California Indians, autonomous lineages or kin groups represented the basic political unit. Traditional societies were then structured around villages based on these clan or lineage groups.

Subsistence was defined by the surrounding landscape, exploiting nearly all of the resources available in a highly developed seasonal mobility system, including cultivating and gathering wild plants, fishing, and hunting. The Native diet in the region would have included acorns, piñon nuts, seeds, roots, wild fruits and berries, and wild onions, among a myriad of other cultivated plants. Medicinal and ceremonial plants such as California sagebrush, yerba buena, white sage, and elderberry were typically cultivated near villages. Each group hunted with throwing sticks, clubs, nets, traps, and snares, as well as bows and arrow. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow-straighteners, and stone knives and scrapers. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink.

As the landscape defined their subsistence practices, the tending and cultivation practices of these tribes helped shape the landscape. Each group utilized controlled burns to create an open countryside with more accessible foraging material for animals, which in turn led to more successful hunting. It also increased the ease with which plant foods could be gathered and prevented out-of-control wildfires by eliminating dead undergrowth before it accumulated to dangerous levels. Coppicing, or trimming plants to the ground, resulted in straighter growth for basketry and arrow-making materials. Granitic outcroppings were used for pounding and grinding nuts and seeds, which left their mark in the resulting bedrock milling features, one of the most common archaeological remains found in the region.

The Spanish colonization of Alta California began in 1769, and the Serrano were brought into the mission system during the 1810s, when an *asistencia* of Mission San Gabriel was established in

present-day Loma Linda. In general, the Cahuilla received less of a direct impact from early Spanish colonization because of their more remote location. However, both the Cahuilla and the Serrano populations declined rapidly during the 19th century because of harsh living conditions, punitive expeditions resulting in the death or displacement, and European-introduced diseases such as smallpox.

After the American annexation of Alta California, most of the Cahuilla were removed to the various reservations established in or near their traditional territory, including Morongo, Agua Caliente, Cabazon, Torres Martinez, and Augustine. The Serrano, meanwhile, were mostly settled with the Yuhaaviatam of San Manuel Nation (also recognized as the San Manuel Band of Mission Indians) and the Morongo Indian Reservations. There has been a resurgence of traditional ceremonies in recent years, and the language, songs, and stories are now being taught to the youngest generations of both groups.

Protohistoric Context

The presence of Europeans in the region undoubtedly began to change Native American lifeways. Even before 1542, when Juan Rodríguez Cabrillo, said to be searching for a northwest passage to Spain, visited Alta California, the presence of Spaniards in Mexico had some impact on Native people in California. After Cabrillo's visit, a few Spanish galleons made periodic stops along the coast while Russian fur traders began moving down the coast of northern California and, by 1765, were as far south as the Farallon Islands off the coast of San Francisco. The periodic visits and long-distance presence would have reinforced rumors and certainly initiated ideological changes. Any material goods, especially introduced technologies, whether rumored or actually traded, would have also induced some changes.

Partially because of the presence of the Russians, in 1769 Spain established Mission San Diego de Alcala and thus began the physical presence of Europeans in southern California. During this protohistoric period, several developments in Native American cultures, including changes in material culture and settlement strategies, took place (True and Waugh 1982). This transition coincided with the establishment of Jesuit missions in Baja California and Spanish explorations into western Arizona near the confluence of the Salt and Gila Rivers. The changes in native lifeways may have been the result of population pressures, increased movement of people away from areas occupied by Europeans, new material goods being traded through the area, new technologies and consumer goods being spread, introduced diseases, and/or other such factors.

Historic Context

Dating back to ancient times, the San Gorgonio Pass area has always been known as a nexus for cross-desert travels. Most notable among early roads through the pass was the Cocomaricopa Trail, a Native American trading route connecting the coastal region of California to areas along the Colorado River. In 1862, the Cocomaricopa Trail was "discovered" by William David Bradshaw, and became known as the Bradshaw Trail (Ross 1992:25). For the next decade and a half, it served as the main thoroughfare between the Los Angeles area and gold mines near present-day Ehrenberg, Arizona, until the completion of the Southern Pacific Railroad in 1876-1877 brought an end to its heyday (Johnston 1987:185).

During much of the Spanish and Mexican periods in California history, the San Gorgonio Pass area was generally considered a part of Rancho San Gorgonio, the most remote of the 24 principal cattle ranches under the control of Mission San Gabriel (Gunther 1984:458). In 1843, during secularization of the mission system, the Mexican authorities awarded the area to James "Santiago" Johnson, a naturalized Briton, as a part of the 4,400-acre San Jacinto y San Gorgonio land grant, also known as the Tract between San Jacinto and San Gorgonio (*ibid.*:471). The Banning area was not included in this or any other land grants, however, and thus remained public land when Alta California was annexed by the United States in 1848.

In what is now the City of Banning, the earliest non-Native settlements were the adobe houses built by Isaac W. Smith and Joseph "José" Pope in 1854, after both had secured partial interests in Rancho San Gorgonio (Eyer 1984:5; Jennings et al. 1993:46-47). Pope's adobe house, at what is now Gilman Ranch, served as a stage station on the Bradshaw Trail under the later owners of the property, Newton Noble and James M. Gilman (Jennings et al. 1993:46). Smith's ranch, also known to have been a stage stop, later became the site of the Highland Springs Resort (*ibid.*:47).

The Southern Pacific Railroad was built through the San Gorgonio Pass in 1876, spurring population growth and the need for services and amenities. At the time, Banning was called Moore City, after the town's principal landowner, Ransom B. Moore (*Press-Enterprise* 1968; Gunther 1984:40). The area was renamed around 1877 after Phineas Banning, a Los Angeles-based freight wagon operator and San Gorgonio Pass area sheep rancher, and a townsite was officially established in 1884 (Gunther 1984:41).

During the mid- and late 19th century, the Banning area developed as a transportation hub, playing host to a convergence of stagecoach lines and, later, travelers on the Southern Pacific Railroad. In the meantime, the town became particularly noted for sheep grazing and as a relay point for their distribution (Eyer 1984:14). Agriculture took root with deciduous fruits such as almonds, peaches, apricots, plums, cherries, and prunes leading the way. Alfalfa and grains were significant crops as well (Banning Chamber of Commerce 1948; *Press-Enterprise* 1968). Agriculture thrived in Banning through the 1920s and into the 1940s but declined rapidly after that (*Press-Enterprise* 1977).

In 1911, two years before the city's incorporation, the Banning Sanitarium opened, marking the beginning of the city's efforts to market the health benefits of the region's dry climate. The campaign extended well into the 1940s with claims that "the nation's best physicians annually send scores of people here to get relief from asthma, bronchial and lung trouble [while] others have learned of the health advantages and charm of Banning through letters from people who have moved here" (Banning Chamber of Commerce 1948; Eyer 1984:13).

The Metropolitan Water District provided a considerable economic and population boost when, in 1930, it chose Banning to set up headquarters for the tunneling operations through the San Jacinto Mountains, a part of the massive Colorado River Aqueduct project. Growth in the city slowed considerably during World War II but rebounded afterward as more and more resort and tourist traffic found its way to the Palm Springs area farther to the east. Coupled with the completion of the State Highway 60 bypass in 1962, Banning underwent significant changes in its economic base and population makeup, with a large increase in "unskilled labor, mostly minorities," residents who could find work in hotels and resorts of the Palm Springs area but could not afford to live there (*Press-Enterprise* 1977). The city also supported a large retirement community (*ibid.*).

Banning's economy today is largely geared to travelers on Interstate Highway 10, with many residents finding employment in retail and other consumer services. Although considerably expanded, the city's commercial center remains the same as in the 1920s, along the blocks running east-west on Ramsey Street, which was historically a part of U.S. Highway 60/70/99, the forerunner of Interstate Highway 10 (City of Banning 1978:4). To a large extent, it is a reflection of the community's strong desire to preserve its traditional town center and prevent the fate that befell numerous other downtown commercial districts throughout the U.S. during the era of rapid urban expansion and suburbanization in the decades following World War II.

RESEARCH METHODS

RECORDS SEARCH

The original records search on the project area, extending to a half-mile radius, was provided in March 2023 by the Eastern Information Center at the University of California, Riverside, which was the designated cultural resource records repository for Riverside County at that time. On April 9, 2025, CRM TECH archaeologist Deirdre Encarnación updated the results of the records search at the South Coastal Information Center, San Diego State University, the current repository for Riverside County. The purpose of the records searches is to compile a complete inventory of previously identified cultural resources and existing studies in the vicinity of the project area. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

HISTORICAL RESEARCH

Historical background research for this study was conducted by Deirdre Encarnación and CRM TECH historian/architectural historian Terri Jacquemain. Sources consulted during the research included published literature in local and regional history, contemporary news accounts, historical maps of the Banning area, and aerial/satellite photographs of the project vicinity. Among the maps consulted were the U.S. General Land Office's (GLO) land survey plat map dated 1886 and USGS topographic maps dated 1901-1996, which are accessible at the websites of the U.S. Bureau of Land Management and the USGS. The aerial and satellite photographs, taken between 1961 and 2025, are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

LOCAL CONSULTATION

On March 9 and May 27, 2023, Terri Jacquemain conducted site visits to the Gilman Ranch Historic Park with the cooperation of the Gilman Ranch Hands, a volunteer organization tasked with preserving and enhancing the Gilman Historic Ranch and Wagon Museum. Information obtained through discussion with representatives of the organization has been incorporated into the appropriate sections of this memorandum. In addition to the Gilman Ranch Hands, Jacquemain contacted the San Gorgonio Historical Society and Museum via email through their website in

March 2023 to seek additional information and/or comments regarding the history of Gilman Ranch and significance of the property to the local community. To date, no response has been received from the San Gorgonio Historical Society and Museum.

FIELD SURVEY

On January 30, 2026, CRM TECH field director Hunter O'Donnell and project archaeologist Victor Lopez carried out the field survey of the project area with the assistance of Native American monitors Ryan Groves from the Morongo Band of Mission Indians and William Beyal from the Soboba Band of Luiseño Indians. The survey was completed on foot at an intensive level by walking a series of parallel east-west transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in the project area was systematically and closely inspected for any evidence of human activities dating to prehistoric or historic period (i.e., 50 years or older). Ground visibility at the time of the survey varied from poor (0-5%) in the southern half of the project area and in the northeast corner, along the creek, to good (85-90%) over the northern half. As mentioned above, prior to the systematic archaeological survey, CRM TECH historian/architectural historian Terri Jacquemain also visited the project area to inspect and photo-document the buildings and other built-environment features at the Gilman Historic Ranch and Wagon Museum.

RESULTS AND FINDINGS

RECORDS SEARCH

The records search results indicate that the project area was entirely or partially covered by at least six previous studies carried out between 1986 and 1998, including two studies on the Pope Adobe ruins at Gilman Ranch, two surveys associated with a Southern California Edison transmission line project, a cultural resources overview for the City of Banning General Plan, and a records review for a proposed telecommunications facility (see App. 2). The records search results further demonstrate that a historical/archaeological site was previously recorded as lying partially within the current project boundaries.

Designated 33-001701 (CA-RIV-1701/H) in the California Historical Resources Inventory, the site encompasses the entire 126 acres of the former Gilman Ranch (see App. 3), of which the project area constitutes the southern portion. While occupying one third of the total acreage, the project area contains the core elements of the ranch and the historic park. Features of the site currently extant within the project boundaries include outbuildings such as a bunk house, olive-curing shed, granary, and a reconstructed Victorian-style ranch house as well as olive, fig, and citrus trees, a wagon museum, and interpretative displays and activities.

Gilman Ranch was formally designated a California Point of Historical Interest in June 1967. Upon subsequent nomination by the Riverside County Parks Department, it was listed in the National Register of Historic Places in 1976 but was threatened with removal from the register in 1977 when fire destroyed the original Victorian ranch house (Herrington 1977). In addition to the historic-period feature, numerous prehistoric artifacts were also noted within the boundaries of Site 33-001701, such as groundstone and lithic artifacts. However, they were part of the interpretative displays of the park and were not *in situ*.

Outside the project boundaries but within the half-mile scope of the records search, at least 14 additional cultural resources surveys were completed between 1979 and 2017 on various tracts of land and linear features (see App. 2). As a result, 10 additional cultural resources have been recorded within the scope of the records search, as listed below in Table 1. Among these, three were prehistoric in origin, including a site and an isolate (i.e., a locality with fewer than three artifacts) located adjacent to the project area and another site in the immediate vicinity, just east of the creek that borders the property.

Located adjacent to the northeastern portion of the project area, Site 33-015905 (CA-RIV-8263) was a habitation area recorded in 2007 as containing lithic and groundstone tools, lithic debitage, scattered ceramics, and burnt fragments of small to large mammal bone (McDougall and Formica 2007). According to ethnographic sources, Native American place names exist for the site in both Cahuilla and Serrano traditions, including *Chickisva* from Wanakik Cahuilla, *Hekieved Apie* from Serrano, and *Gilbercostaño*, also Serrano and likely a variation of the Gilman name (McDougall and Formica 2007). Adjacent to the east-central portion of the project area, Isolate 33-015244 consisted of a single bifacial mano. Across the creek to the east, Site 33-000099 was a habitation area with worked stone as well as broken metates and manos.

The other seven known cultural resources within the records search scope were all sites from the historic period. Among them were the East Gilman Home Channel, lined with local cobblestones and mortar; the St. Boniface Indian School/Boys Town of the Desert, established in 1890 and now a California Point of Historical Interest; and five buildings or groups of buildings constructed between 1915 and 1963, including three single-family residences, a commercial building, and a motel. None of these seven sites were found in the immediate vicinity of the project area.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search

Primary Number	Date Recorded	Description
33-000099	1959	Prehistoric habitation area
33-001701	1967-1977	Gilman Ranch
33-004213	1975	St. Boniface Indian School; Boys Town of the Desert
33-006017	2005	East Gilman Home Channel, ca. 1938
33-009100	1982	Log house, ca. 1933
33-009147	1983	Vernacular wood-frame residence, ca. 1915
33-014719	2005	Fisher House and associated outbuildings, ca. 1940s-1970s
33-015244	2005	Isolate: bifacial mano
33-015905	2009	Prehistoric habitation site with lithics, groundstone, and ceramics
33-017729	2009	Commercial building, ca. 1962
33-017747	2009	Motel, ca. 1963

HISTORICAL RESEARCH

Historical sources demonstrate that Gilman Ranch dates originally to the mid-19th century and was one of the first ranches developed in the region, as mentioned above (see “Historic Context”). The adobe house on the property, now in ruins, was constructed in 1854 by Joseph Pope as a bunkhouse for his cattlemen on the ranch and is believed to have been the first building to be constructed in the San Gorgonio Pass area (Brumgardt n.d.; RCRPOSD n.d.). The ranch property originally encompassed 160 acres and changed hands several times before being purchased by James Marshall Gilman in 1869, along with 100 heads of cattle and the adobe house (Brumgardt n.d.). During the

heyday of the Bradshaw Trail (1860s-1870s), Gilman Ranch was a well-known stagecoach stop on the route, which traversed a few hundred feet to the west of the project area (Fig. 5; Johnston 1987:115). The adobe house eventually became a general store to serve the needs of the travelers (Brumgardt n.d.).

Gilman Ranch grew to 500 acres at its peak, with cattle, hogs, sheep, and horses being raised (Swope 1987). As drought brought about reduced grazing and a crash in beef prices in the early 1870s, Gilman pivoted to dry farming but eventually developed of a gravity-flow irrigation system on his land, adding to the crops oranges, figs, raisin grapes, almonds, prunes, apricots, apples, and ultimately olives, which were cured on the property and sold throughout the state (Swope 1987; Brumgardt n.d.). A Victorian-style residence was constructed on the property in 1879, south of the original adobe building, which was then converted for use as a tool shed and blacksmith shop (Brumgardt n.d.).

Historical maps and aerial photographs confirm the presence of Gilman Ranch buildings in the northernmost portion of the project area at least by the mid-20th century, accompanied by various roads across the ranch property (Figs. 6-8; NETR Online 1961-1972). By the 1960s, farming activities had evidently ceased on most of Gilman Ranch, and the 1879 ranch house was reportedly no longer occupied after the mid-1950s (NETR Online 1961; Rand 2005). As a local newspaper report later recounts:

> When a developer announced plans in the 1970s to turn the ranch into a subdivision, he ran into local opposition (some things never change); the county moved in and purchased the

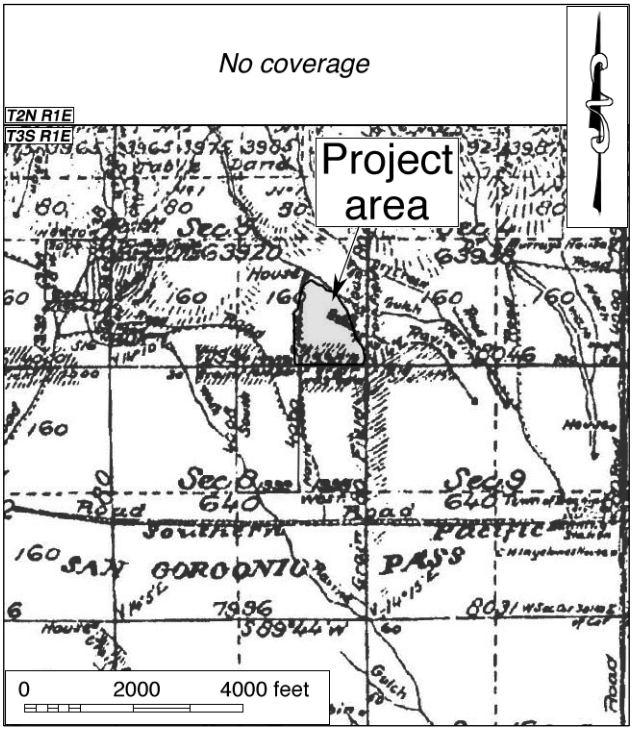

Figure 5. The project area and vicinity in 1885. (Source: GLO 1886)

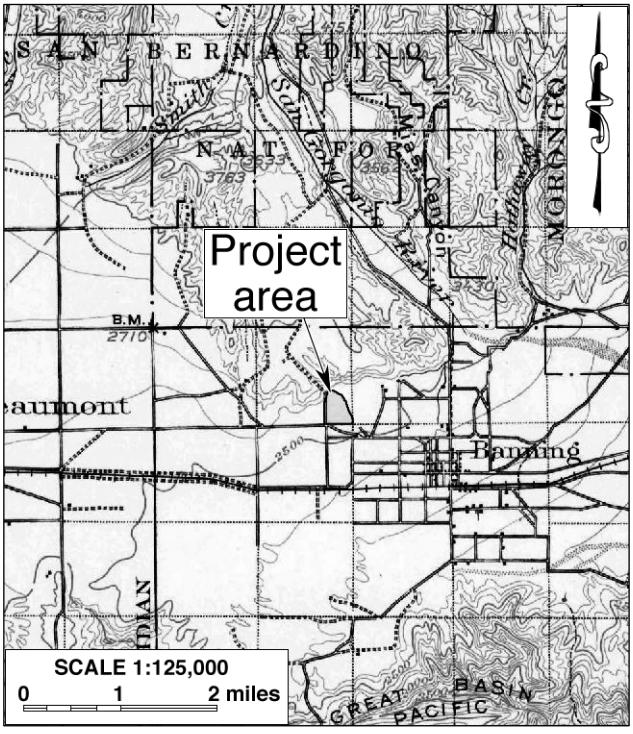

Figure 6. The project area and vicinity in 1897-1898. (Source: USGS 1901)

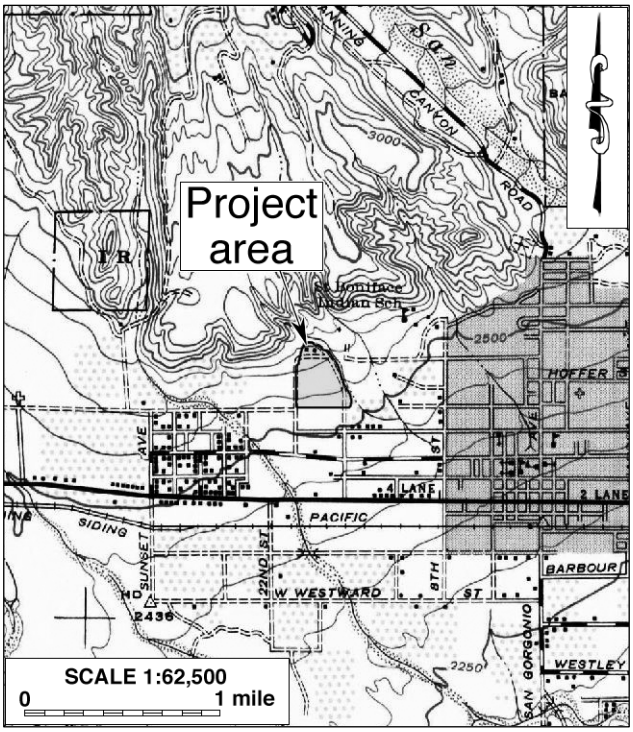

Figure 7. The project area and vicinity in 1939-1941. (Source: USGS 1942; 1943)

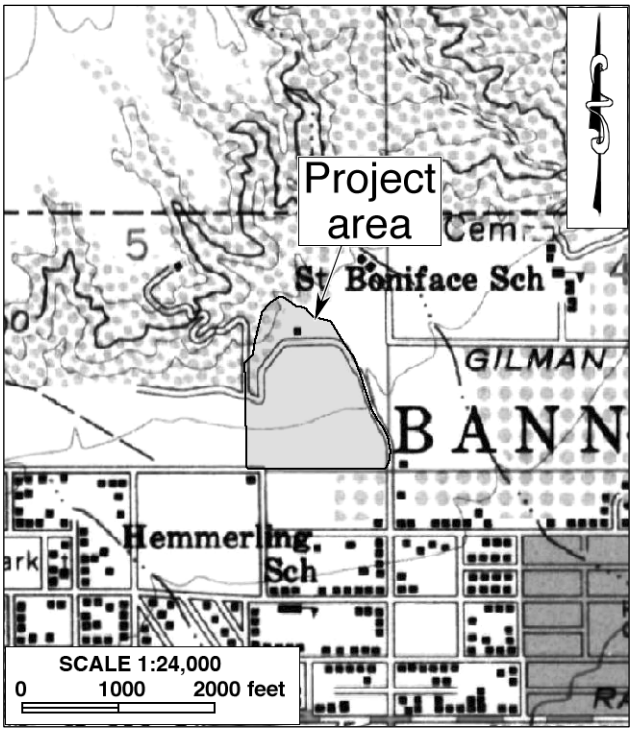

Figure 8. The project area and vicinity in 1949-1951. (Source: USGS 1956)

> property for a regional park and historical center. Only months later in 1977, the Gilman Ranch house burned to the ground. …[It] took almost 30 years for Riverside County to rebuild the house, which will become a main attraction of the educational tours given at the park. (Rand 2005)

The replicated ranch house was completed and dedicated in 2005 (NETR Online 1972-2005; Rand 2005). Prior to that, the wagon museum was constructed to the south of the site of the ranch house in 1991 to house a collection of wagons that had been collected by Banning residents Guy Wood, Frank Raney, and Harry Boyer over the years and donated to the County in the 1980s (NETR Online 1985; 1996; Lech 2016). These two modern buildings are now the most prominent features—and attractions—at the Gilman Ranch Historic Park.

FIELD SURVEY

Field observations during the inspection of the built-environment features in the project area confirm that the Gilman Ranch Historic Park (Site 33-001701) comprises today a mixture of original historic-period elements (such as the olive-curing shed and the preserved ruins of the Pope Adobe), recreated historical elements (such as the ranch house), and introduced modern elements (such as the wagon museum; see App. 3 for photographs). As such, it represents much more a functional historical and interpretive park, true to its name, than a meticulously preserved historical ranch complex.

At least 73 prehistoric artifacts were noted during the archaeological field survey, including 37 on display throughout the park, including in the wagon museum, within the enclosure for the ruins of the José Pope adobe, in a clearing to the east of the adobe, and in the native plant garden. The other

36 artifacts were either in storage or utilized as erosional control rip-rap. Nineteen manos were stored in a barn at the northern end of the property, while nine metates, five portable mortar fragments, two pestles, and a mano were observed in a rip-rap-lined drainage along a parking area. The prehistoric artifacts are not *in situ* and no provenience information is available. Furthermore, it is unclear which items might have been moved to the park from other localities outside the project boundaries. Further information on these artifacts, including an itemized list and representative photographs, is included in the site record update for 33-001701 in Appendix 3.

DISCUSSION AND CONCLUSION

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired." As defined by PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any properties listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). In other words, buildings, structures, sites, or districts that belong to one or more of the following three categories are to be considered "historical resources" for the purposes of CEQA compliance (160 Cal. App. 4th 1051):

- Mandatory historical resources: properties that are listed in or formally determined to be eligible for listing in the California Register of Historical Resources;
- Presumptive historical resources: properties that are designated in an officially established local register, recognized by local ordinance, resolution, or general plan, or identified in a local survey prepared in accordance with PRC §5024.1(g), unless determined not to be historically or culturally significant by the lead agency upon a preponderance of the evidence;
- Discretionary historical resources: properties that are determined to be historically significant in the lead agency's discretion, independent of any decision to list or designate them in a national, state, or local register of historical resources.

In summary of the research results outlined above, Site 33-001701, namely the Gilman Ranch Historic Park that encompasses the entire project area, is the only cultural resource identified within the project boundaries during this study. The site consists of both original and recreated historical elements of Gilman Ranch as well as a number of prehistoric artifacts, although the prehistoric artifacts are no longer *in situ* and are therefore limited in their contribution to the significance of the property. The historic integrity of Gilman Ranch has also been compromised considerably, most notably through the loss of the original 1879 ranch house and the introduction of modern buildings into the complex. However, it has been formally designated a California Point of Historical Interest. Meanwhile, it is currently listed in the National Register of Historic Places and thus automatically listed in the California Register of Historical Resources. As such, the Gilman Ranch Historic Park as

a whole clearly meets CEQA definition of a "historical resource" in both the "mandatory" and the "presumptive" category.

As currently proposed, the Gilman Ranch Historic Park Improvement Project would not result in the demolition, destruction, relocation, or alteration of any of the surviving historic-period buildings or structures of Gilman Ranch. The new constructions proposed for the project are all concentrated on vacant land in the southern half of the project area, several hundred feet from the original and replicated historic buildings of Gilman Ranch at the northern end of the property, with the Wagon Museum and its associated facilities between the two locations as a visual barrier. Consequently, the project would not impose a substantial visual or atmospheric intrusion into the existing viewshed of the historic buildings in the ranch house complex, either. Based on these considerations, and pursuant to PRC §5020.1(q), CRM TECH recommends to RCRPOSD a conclusion that the project would not cause a substantial adverse change in the significance of any known "historical resources."

Nevertheless, dictated by the long history of Gilman Ranch and the even longer history of Native American activities in the vicinity, as demonstrated by both ethnographic and archaeological records, the project area appears to be highly sensitive for buried archaeological deposits of both prehistoric and historic origin. Therefore, CRM TECH further recommends that an archaeological monitoring program be implemented during earth-moving operations associated with the project in order to ensure the timely identification and, if necessary, protection of subsurface cultural remains should any be encountered. The monitoring program should consist of, at a minimum, the following:

- All disturbances of native soils within the project area should be monitored by a qualified archaeologist. Whenever cultural materials more than 50 years old are discovered, they need to be field-recorded and evaluated. The monitor should be prepared to quickly recover any artifacts as they are unearthed to avoid construction delays. If a substantial cultural deposit is encountered, however, the monitor must have the power to temporarily halt or divert construction activities in that area to allow for controlled removal.
- On-site monitoring should be coordinated with the nearest Native American groups, such as the Morongo Band of Mission Indians and the Soboba Band of Luiseño Indians, who may wish to participate.
- If human remains or possible human remains are encountered, construction activities in the immediate vicinity should be halted temporarily, and the Riverside County Coroner's Office should be notified immediately pursuant to state law.
- Collected artifacts should be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage that would allow for additional research in the future.
- Site record update for 33-001701, incorporating the artifacts encountered during the monitoring program, should be prepared and submitted to the South Coastal Information Center as a permanent record of the discovery.
- A report that documents the methods and results of the monitoring program, including an itemized inventory of recovered artifacts and a detailed artifact analysis, should be prepared upon completion of the fieldwork. The report should include an interpretation of the cultural activities represented by the archaeological remains and a discussion of the significance of all recovered cultural material.

- Submittal of the report to RCRPOSD and curation of the artifacts will signify completion of the monitoring program and mitigation of impacts to cultural resources.

Under this condition, the proposed project may be cleared to proceed in accordance with CEQA provisions on cultural resources.

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1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR, HISTORY/ARCHITECTURAL HISTORY
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, University of California, Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, University of California, Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, University of California, Riverside.
1988-1993	Research Assistant, American Social History, University of California, Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR, ARCHAEOLOGY
Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2021	An Introduction to Geoarchaeology: How Understanding Basic Soils, Sediments, and Landforms Can Make You a Better Archaeologist; Society for American Archaeology online seminar.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	Historic Archaeology Workshop; presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base, at CRM TECH, Riverside, California.

Professional Experience

2025-	Principal Investigator, CRM TECH, Riverside/Colton, California.
2002-2024	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

Cultural Resources Management Reports

Field Director, co-author, and contributor to numerous cultural management reports since 2002.

Memberships

Society for American Archaeology; Society for California Archaeology.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors, San Diego State University, California.
2021	Certificate of Specialization, Kumeyaay Studies, Cuyamaca College, California.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2016-	Archaeological Consultant, Friends of Maha'ulepu, Koloa, Hawai'i.
2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, San Diego State University Foundation.

Presentations

2023	"The Kumeyaay-Critical Awareness, Critical Activation," Salaam, San Diego College of Continuing Education.
2023	"A Look at the Three Wise Men and Their Global Celebrations," The Epiphany Project.
2022	"Voices: A Latina Advocate Shares about Life, Stereotypes, & Rising Above," Salaam online event.
2022	"The Original Beach Town: San Diego's Coastal Heritage," San Diego Archaeological Center Living Room Lecture.

Memberships

Society for California Archaeology; Society for Hawaiian Archaeology; California Native Plant Society.

PROJECT HISTORIAN/ARCHITECTURAL HISTORIAN
Terri Jacquemain, M.A.

Education

2004	M.A., Public History and Historic Resource Management, University of California, Riverside.
2002	B.S., Anthropology, University of California, Riverside.
2001	Archaeological Field School, University of California, Riverside.
1991	A.A., Riverside Community College, Norco Campus.

Professional Experience

2003- Historian/Architectural Historian/Report Writer, CRM TECH, Riverside/Colton, California.

- Author/co-author of legally defensible cultural resources reports for CEQA and NHPA Section 106;
- Historic context development, historical/archival research, oral historical interviews, consultation with local communities and historical organizations;
- Historic building surveys and recordation, research in architectural history; architectural description.

2002-2003	Teaching Assistant, Religious Studies Department, University of California, Riverside.
2002	Interim Public Information Officer, Cabazon Band of Mission Indians.
2000	Administrative Assistant, Native American Student Programs, University of California, Riverside.
1997-2000	Reporter, *Inland Valley Daily Bulletin*, Ontario, California.
1991-1997	Reporter, *The Press-Enterprise*, Riverside, California.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Hunter C. O'Donnell, B.A.

Education

2016-	M.A. Program, Applied Archaeology, California State University, San Bernardino.
2015	B.A. (*cum laude*), Anthropology, California State University, San Bernardino.
2012	A.A., Social and Behavioral Sciences, Mt. San Antonio College, Walnut, California.
2011	A.A., Natural Sciences and Mathematics, Mt. San Antonio College, Walnut, California.
2014	Archaeological Field School, Santa Rosa Mountains; supervised by Bill Sapp of the United States Forest Service and Daniel McCarthy of the San Manuel Band of Mission Indians.

Professional Experience

2025-	Field Director, CRM TECH, Colton, California.
2022-2025	Field Crew Chief, CRM TECH, Colton, California.
2017-	Project Archaeologist/Historian, CRM TECH, Colton, California.
2016-2018	Graduate Research Assistant, Applied Archaeology, California State University, San Bernardino.
2016-2017	Cultural Intern, Cultural Department, Pechanga Band of Luiseño Indians, Temecula, California.
2015	Archaeological Intern, U.S. Bureau of Land Management, Barstow, California.
2015	Peer Research Consultant: African Archaeology, California State University, San Bernardino.

PROJECT ARCHAEOLOGIST
Victor Isaiah Lopez, B.A.

Education

2024	B.A., Anthropology, California State University, San Bernardino, California.
2020	A.A., Liberal Arts in Math and Sciences, Mt. San Antonio College, Walnut, California.
2024	Caherconnell Stone Fort Archaeological Field School, County Clare, Ireland.
2024	Archaeological Survey and Excavation Course, San Bernardino County Museum at Agua Mansa Pioneer Cemetery, California.

Professional Experience

2025-	Project Archaeologist, CRM TECH, Colton, California.
2023-2024	Museum Student Assistant, CSUSB Anthropology Museum.

APPENDIX 2

PREVIOUS CULTURAL RESOURCES STUDIES WITHIN THE SCOPE OF THE RECORDS SEARCH

Number	Author(s)	Year	Title
RI-00598	Alan Davis	1979	Environmental Impact Evaluation: An Archaeological Assessment of an Unnumbered Parcel North of Banning Riverside, Riverside County, California
RI-00816	Paul G. Chace and Don Laylander	1980	An Archaeological and Historical Assessment of Areas 1 and 4 of Amendment Number 1 to the Banning Downtown Redevelopment Project
RI-00817	Philip de Barros and Paul Farnsworth	1990	Archaeological Investigations of the St. Boniface Indian School and Cemetery Site, Banning, California
RI-02065	Swope, Karen K.	1986	Preliminary Report on Archaeological Test Excavations and Data Recovery at the Pope Adobe, Gilman Ranch County Historic Park (CA-RIV-1701), Banning, Riverside County, California
RI-02066	Swope, Karen K.	1987	Archaeological Investigations at the Pope Adobe, Banning, Riverside County, California
RI-02199	Cramer, Kevin	1986	St. Boniface Indian Industrial School
RI-02210	Underwood, J., J. Cleland, C.M. Wood, and R. Apple	1986	Preliminary Cultural Resources Survey Report for the Us Telecom Fiber Optic Cable Project, from San Timoteo Canyon to Socorro, Texas: the California Segment
RI-03879	White, Robert S.	1994	An Archaeological Assessment of the Gilman Home Channel Lateral A, Stage 2, Located In Banning, Riverside County
RI-04968	Hoover, Anna M., Kristie R. Blevins, and Stephen Van Wormer	2005	A Phase I Archaeological Survey and Historic Research Report on Tract 33450, the St. Boniface Indian Industrial School , P-33-004213, City of Banning, Riverside County, California.
RI-07970	Roderic McLean, Shannon Carmack, Jay Michalsky, and Judith Marvin	2006	A Study of the Past in San Timoteo Canyon and San Gorgonio Pass: Cultural Resource Assessment Oak Valley Substation Project, Riverside County
RI-08011	Robert McLean, Shannon Carmack, Jay Michalsky, and Judith Marvin	2008	Final Cultural Resources Assessment, Study of the Past in San Timoteo Canyon and San Gorgonio Pass: Oak Valley Substation Project Riverside County.
RI-08449	Bai “Tom” Tang, Michael Hogan, Josh Smallwood, and Terri Jacquemain	2004	Cultural Resources Technical Report City of Banning General Plan.
RI-09167	Roderic McLean, Natalie Brodie, Jacqueline Hall, Shannon Carmack, Phil Fulton, Ingri Quon, Erin Martinelli, Richard Erickson, and Jay Michalski	2013	Cultural Resources Assessment and Class III Inventory Volume I: West of Devers Project, San Bernardino and Riverside Counties, California.
RI-09372	Riordan Goodwin	2015	Culture Resources Assessment, Banning Tract 32429, City of Banning, Riverside County, California
RI-09385	Mathew M. DeCarlo and Diane L. Winslow	2015	Engineering Refinement Survey and Recommendation of Eligibility for Cultural Resources with Southern California Edison Company’s West of Devers Upgrade Project, Riverside and San Bernardino Counties, California
RI-09570	Matthew M. DeCarlo, Diane L. Winslow, Audry Williams, and Andrew Belcourt	2015	Cultural Resource Impact Assessment and Evaluation Status Report for Southern California Edison Company’s West of Devers Upgrade Project, Riverside and San Bernardino Counties, California
RI-09712	Leslie Nay Irish	2017	Status of Cultural Resources Investigations for the St. Boniface Indian Industrial School Project, City of Banning, County of Riverside, California

Number	Author(s)	Year	Title
RI-09998	Roger D Mason and Wayne H Bonner	1998	Cultural Resources Record Search and Literature Review for a Pacific Bell Mobile Services Telecommunications Facility: CM 453-11
RI-10627	Anna M. Hoover, Kristie R. Blevins, and Leslie Nay Irish	2005	An Archaeological Data Recovery Plan for the St. Boniface Indian Industrial School (P-33-004213), Banning, County of Riverside, California
RI-10628	Leslie Nay Irish	2017	Status of Cultural Resources Investigations for the St. Boniface Indian Industrial School Project, City of Banning, County of Riverside, California

APPENDIX 3

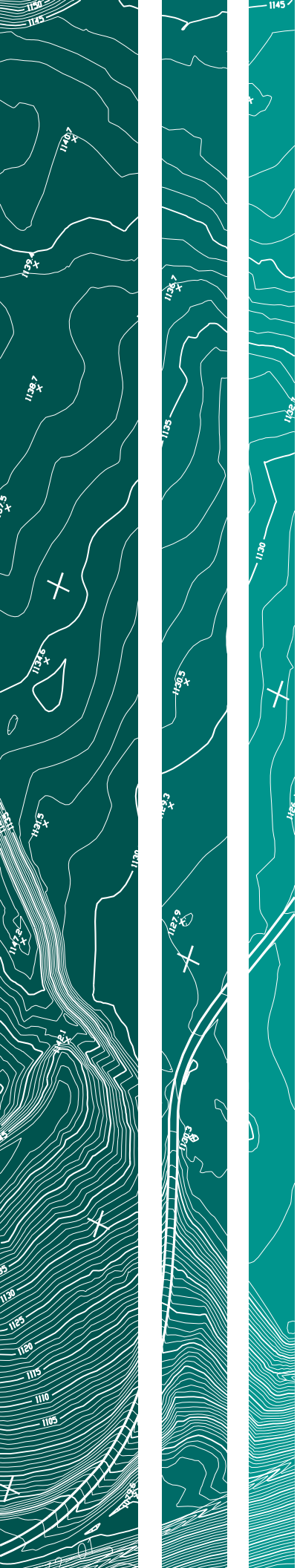
CALIFORNIA HISTORICAL RESOURCES INVENTORY RECORD AND UPDATE

Site 33-001701/CA-RIV-1701/H

(Confidential; Not for Public Distribution)

APPENDIX E1

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION



GEOCON

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 4, 2025
REVISED OCTOBER 27, 2026
PROJECT NO. T3070-22-01B

PREPARED FOR:
RHA LANDSCAPE ARCHITECTS-PLANNERS, INC.
RIVERSIDE, CALIFORNIA

Project No. T3070-22-01B
September 4, 2025
REVISED October 27, 2026

RHA Landscape Architects-Planners, Inc.
6840 Indiana Avenue, Suite 100
Riverside, California 92506

Attention: Mr. Doug Grove, RLA, ASLA

Subject: SUPPLEMENTAL GEOTECHNICAL INVESTIGATION
GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

Dear Mr. Grove:

In accordance with the authorization of our Work Order Authorization dated June 25, 2024, Geocon West, Inc. (Geocon) hereby submits the results of our supplemental geotechnical investigation for the proposed Gilman Ranch Event Center, located at 1901 Wilson Street in Banning, California. The accompanying report presents our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the proposed improvements. Based on the results of this study, it is our opinion that the site is considered suitable for the proposed improvements, provided the recommendations of this report are followed.

Geocon prepared a preliminary geotechnical investigation report for the project dated June 13, 2024. At that time, the event center was proposed in the northwestern area of the site within a fault hazard setback zone. The proposed event center has since been relocated south to avoid the hazard zone, and this supplemental geotechnical investigation was performed.

This report has been revised to replace the base map used for Figure 2 with the latest version dated July 2026. The most recent version eliminates the amphitheater in the south central area of the site. The remainder of the report is unchanged.

Should you have any questions regarding this report or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,
GEOCON WEST, INC.

Karina Dorawala
Staff Geologist

Lisa A. Battiato
CEG 2316

PROFESSIONAL GEOLOGIST
LISA A. BATTIATO
No. 2316
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Neal D. Berliner
GE 2576

REGISTERED PROFESSIONAL ENGINEER
NEAL D. BERLINER
2576
GEOTECHNICAL
STATE OF CALIFORNIA

KD:RNP:LAB:DSM:NB

TABLE OF CONTENTS

1. PURPOSE AND SCOPE 1

2. SITE AND PROJECT DESCRIPTION 2

3. GEOLOGIC SETTING 3

4. GEOLOGIC MATERIALS 4
   4.1 Alluvial Fan Deposits (Qf) 4
   4.2 Older Alluvial Fan Deposits (Qof – not a mapped unit) 4

5. GROUNDWATER 5

6. GEOLOGIC HAZARDS 5
   6.1 Surface Fault Rupture 5
   6.2 Seismicity 7
   6.3 Liquefaction & Dry Sand Settlement 7
   6.4 Hydrocompression 9
   6.5 Slope Stability 9
   6.6 Percolation Testing 9

7. CONCLUSIONS AND RECOMMENDATIONS 12
   7.1 General 12
   7.2 Excavation and Soil Characteristics 13
   7.3 Grading 15
   7.4 Earthwork Grading Factors 17
   7.5 Utility Trench Backfill 18
   7.6 Seismic Design Criteria 18
   7.7 Reinforced Concrete Mat Foundation 20
   7.8 Exterior Concrete Flatwork 22
   7.9 Conventional Retaining Walls 23
   7.10 Lateral Design 25
   7.11 Preliminary Pavement Recommendations 25
   7.12 Temporary Excavations 30
   7.13 Site Drainage and Moisture Protection 31
   7.14 Plan Review 32

TABLE OF CONTENTS (CONTINUED)

LIMITATIONS AND UNIFORMITY OF CONDITIONS

LIST OF REFERENCES

MAPS AND ILLUSTRATIONS
- Figure 1, Vicinity Map
- Figure 2, Geologic Map & Site Plan
- Figure 3, Liquefaction Evaluation - MCE
- Figure 4, Evaluation of Earthquake-Induced Settlements in Dry Sandy Soils - MCE

APPENDIX A
- FIELD INVESTIGATION
- Figures A-1 and A-2, Logs of Geotechnical Borings
- A-3 through A-5, Logs of Percolation Borings
- A-6 through A-8, Percolation Test Data Sheets

APPENDIX B
- LABORATORY TESTING
- Figure B-1, Compaction Characteristics Using Modified Effort Test Results
- Figure B-2 through B-4, Grain Size Distribution
- Figures B-5 through B-8, Consolidation Test Results
- Figures B-9 through B-11, Direct Shear Test Results

APPENDIX C
- RECOMMENDED GRADING SPECIFICATIONS

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our supplemental geotechnical investigation for the proposed Gilman Ranch Event Center, located at 1901 Wilson Street in Banning, California, as depicted on the *Vicinity Map*, Figure 1.

Geocon prepared a preliminary geotechnical investigation report for the project dated June 13, 2024. At that time, the event center was proposed in the northwestern area of the site within a fault hazard setback zone. The proposed event center has since been relocated south to avoid the hazard zone. This supplemental geotechnical investigation was performed to provide geotechnical information at the new site.

The purpose of the investigation was to evaluate the subsurface soil and geologic conditions at the site and, based on the conditions encountered and geotechnical analyses performed, provide remedial grading recommendations and geotechnical parameters for the completion of project design and entitlement.

The scope of our investigation included a review of published geologic information and aerial photographs, public subsurface utility location, subsurface exploration and sample collection, percolation testing, laboratory testing, engineering analyses, and preparation of this report. The site was explored on July 21, 2025, by excavating two 8-inch-diameter geotechnical borings to depths of approximately 31½ feet and 47½ feet beneath the ground surface, and three percolation borings to depths of approximately 15 feet beneath the ground surface, at the direction of the project Architect, using a truck-mounted hollow-stem auger drilling machine. Additionally, percolation testing was performed on July 22, 2025, to determine the infiltration rate of the site soils. The approximate locations of the exploratory borings are depicted on the *Geologic Map & Site Plan* (see Figure 2). A detailed discussion of the field investigation, including boring logs and percolation test results, is presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site presented in our previous Geotechnical Report dated June 13, 2024, is located within the State and County Fault Hazard Zone. The owner has since relocated the proposed events center outside this zone. The new area of improvement will be located southeast of the existing Gilman Historic Ranch and Wagon Museum. The site is bounded by undeveloped land to the east, ranch improvements to the north, North 19th Street to the west, and West Wilson Street to the south. Site elevations range from 2,636 feet above mean sea level (MSL) on the northwest to 2,536 feet MSL on the southeast. Drainage is to the south at an approximately 4 percent grade.

Based on the Concept Plan prepared by RHA, the improvements will include an 8,000 square-foot event center with rooftop solar panels, 240 seating capacity ceremony/gathering space, 100 seating capacity event courtyard, 1,500 seating capacity amphitheater, staircase and ADA ramp, a new parking lots, new ADA parking lot, new restroom buildings, small and large play areas, entry pay booths, community park, drinking fountains, storm water mitigation structures, and landscape improvements. We utilized the Concept Plan (2025) as a base for our *Geologic Map & Site Plan*, Figure 2.

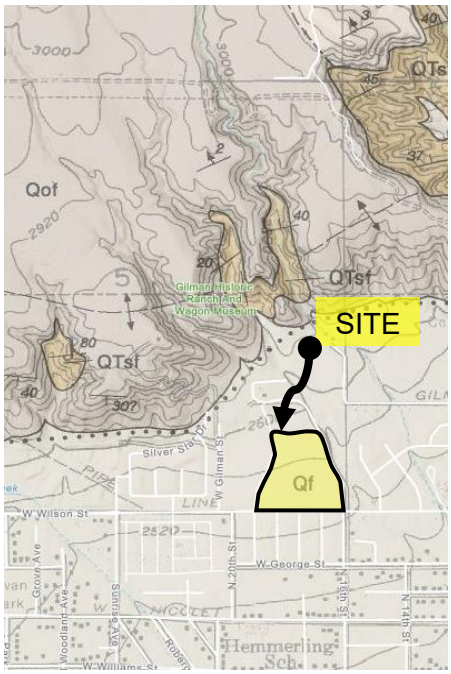
Based on the preliminary nature of the design at this time, wall and column loads were not available. We assume that column loads for the proposed structure will be up to 400 kips, and wall loads will be up to 3 kips per linear foot.

Once the design phase and foundation loading configuration proceed to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location, or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

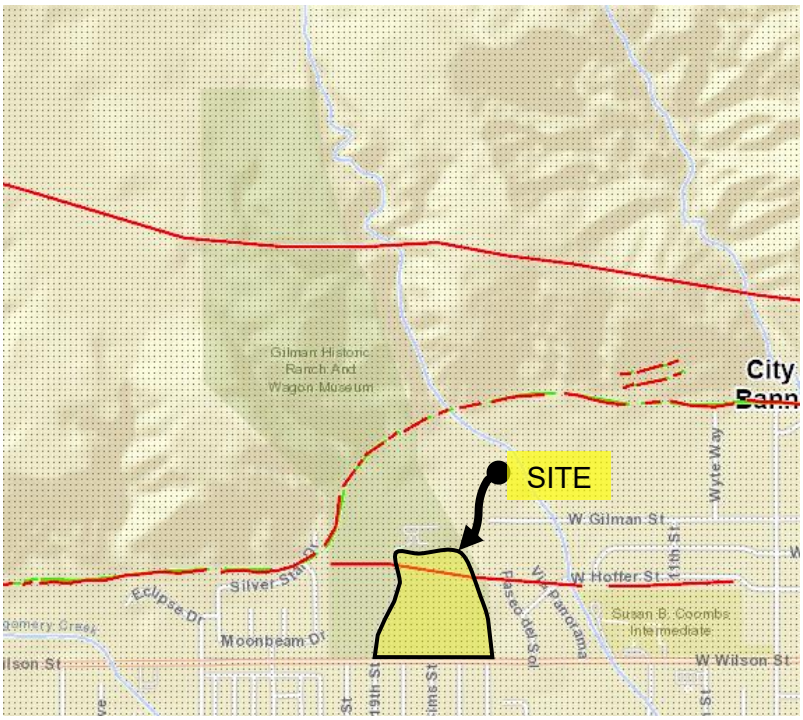
The site is located near the northern margin of the Peninsular Ranges Geomorphic Province (the Province). The Peninsular Ranges are bound by the Transverse Ranges (San Gabrielle and San Bernardino Mountains) to the north and the Colorado Desert Geomorphic Province to the east. The Province extends westward into the Pacific Ocean and southward to the tip of Baja California. Overall, the Province is characterized by Cretaceous-age granitic rock and a lesser amount of Mesozoic-age metamorphic rock overlain by terrestrial and marine sediments. Faulting within the Province is typically northwest trending and includes the San Andreas, San Jacinto, Elsinore, and Newport-Inglewood faults. Locally, the site is located on an alluvial fan, south of the San Bernardino Mountain foothills in the Banning Pass. The Banning Pass is the result of a westward bend in the San Andreas fault. This directional change has resulted in a region of compression where thrust faulting is dominant. The Banning fault is mapped at the break in slope between the foothills and the alluvial fan surface. A separate splay of the Banning fault is mapped north of the proposed improvement area in an east-west direction, generally parallel to Hoffer Street. The geologic conditions are depicted on a portion of the Beaumont Quadrangle Geologic Map, below. The mapped faulting is depicted on a portion of the Riverside County Map My County website below.

SITE GEOLOGY



Source: Dibblee & Minch, 2003

MAPPED FAULTS



Green lines = Alquist-Priolo mapped faults.

Red lines = Riverside County mapped faults.

Source: Riverside County Map My County website.

4. GEOLOGIC MATERIALS

4.1 Alluvial Fan Deposits (Qf)

Alluvial fan deposits were encountered to depths of approximately 25 feet in our geotechnical borings. The alluvial fan soil consists predominantly of silty sand, which varies in shades of brown to strong brown and contains silty sand with lesser amounts of poorly graded sand and silty sand with gravel. The soil is loose to dense and slightly moist.

4.2 Older Alluvial Fan Deposits (Qof – not a mapped unit)

Pleistocene-age old alluvial fan deposits were encountered beneath the younger fan deposits to depths of 47 ½ feet. The older alluvial fan deposits consist of silty sand and poorly graded sand, which vary in shades of brown to strong brown to light gray to white, are very dense, and slightly moist. The soil includes angular gravels and cobbles of sedimentary, igneous, and metamorphic origin.

5. GROUNDWATER

Review of the California Water Resources Groundwater Level Data indicates that the historically highest groundwater level within approximately 1 mile of the site is more than 400 feet below ground surface from the late 1990s through 2010.

Groundwater was not encountered in our borings, drilled to a maximum depth of approximately 47½ feet below the existing ground surface. Based on the lack of groundwater in our borings, the reported historic high groundwater levels in the immediate area, and the depth of proposed construction, static groundwater is neither expected to be encountered during construction nor have a detrimental effect on the project. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed (especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall). Groundwater seepage levels encountered during construction may be higher than those encountered during our investigation. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the region. Proper surface drainage of irrigation and precipitation will be critical for the future performance of the project. Recommendations for drainage are provided in the *Site Drainage and Moisture Protection* section of this report.

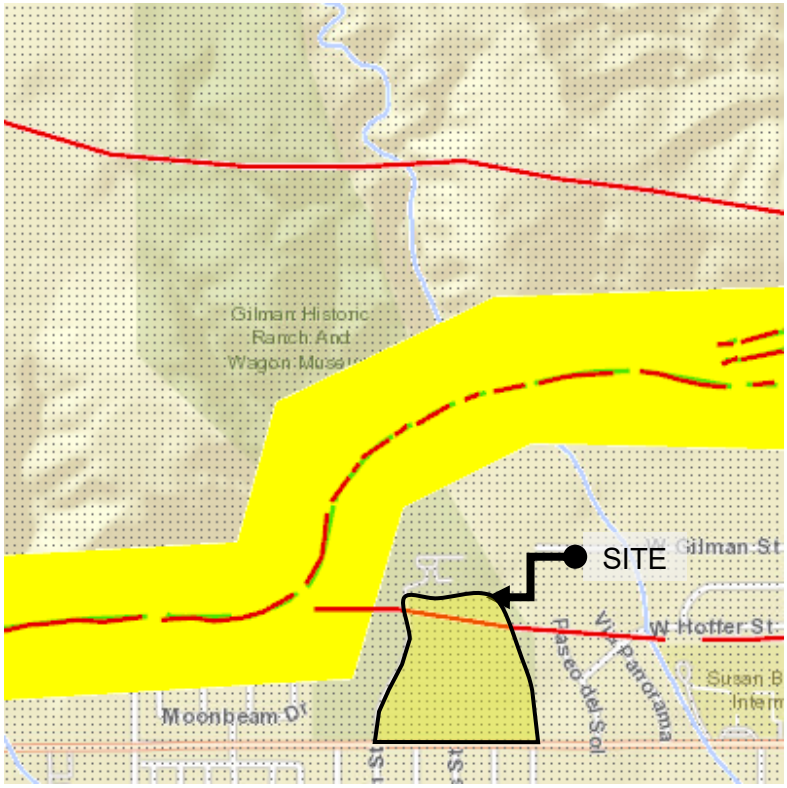
6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2025). By definition, a Holocene-active fault is one that has evidence of surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The northern portion of the Gilman Ranch is within a state-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2025a; 2025b; 2017) for surface fault rupture hazards. The event center will now be located south of the State and County Fault Hazard Zones, as approximately depicted in the figure below.

ALQUIST-PRIOLO FAULT HAZARD ZONES REQUIRING FAULT HAZARD EVALUATIONS FOR HUMAN OCCUPANCY STRUCTURES



Green lines = Alquist-Priolo mapped faults.
Red lines = Riverside County mapped faults.
Yellow highlight = Alquist-Priolo Fault Hazard Zone/State Fault Hazard Zone
Source: Riverside County Map My County website, 2025.

The site is located in the seismically active Southern California region and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults.

The closest surface trace of an active fault to the site is the Banning fault, located approximately 250 feet north of the proposed event center. Other nearby active faults are the Claremont Branch of the San Jacinto fault 8.5 miles to the southwest, South Branch of the San Andreas fault 12 miles to the east, and the Pinto Mountain fault 13 miles to the northeast (Jennings & Bryant, 2010).

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the following table.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	65	WSW
Tehachapi	July 21, 1952	7.5	141	WNW
San Fernando	February 9, 1971	6.6	92	WNW
Whittier Narrows	October 1, 1987	5.9	68	W
Sierra Madre	June 28, 1991	5.8	67	WNW
Landers	June 28, 1992	7.3	32	NE
Big Bear	June 28, 1992	6.4	19	NNE
Northridge	January 17, 1994	6.7	96	W
Hector Mine	October 16, 1999	7.1	58	NE
Ridgecrest China Lake Fault	July 5, 2019	7.1	133	NNW
Long Beach	March 10, 1933	6.4	65	WSW

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California, and the effects of ground shaking can be minimized if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Liquefaction & Dry Sand Settlement

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations. Seismically induced settlement may occur whether the potential for liquefaction exists or not.

The current standard of practice, as outlined in the *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California* (SCEC, 1999), requires a liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

According to the Riverside County Information Technology (RCIT) *Map My County* public web data, the site is located within an area mapped as having a "moderate" potential for liquefaction.

We performed liquefaction analysis of the soils underlying the site using the 1996 NCEER method of analysis with the updates by Youd et al. (2001) for this relocated site. Due to the distance of the site away from blue-line streams, we estimate groundwater is more than 100 feet below ground surface at the site. The liquefaction potential evaluation was performed by utilizing a groundwater depth of 100 feet, a magnitude 8.09 earthquake, and the modified MCE_G peak ground acceleration (PGA_M) of 1.026g. This semi-empirical method is based on a correlation between values of Standard Penetration Test (SPT) resistance. An average conversion factor of 0.55 was used to derive SPT blow-count values from California Modified Sampler blow-count values.
The site is underlain by Pleistocene-age old alluvial fan deposits that are dense and not prone to liquefaction, and groundwater is anticipated to be greater than 100 feet below the ground surface. Based on these considerations, liquefaction is not a design consideration. Our *Empirical Estimation of Liquefaction Potential* is included as Figure 3.

An evaluation of seismically induced "dry-sand" settlement was performed, with the resulting seismic "dry-sand" settlement estimated to be approximately 0.4 inches, with a differential settlement of 0.2 inch across 40 feet. An analysis of seismically induced "dry-sand" settlement is included as Figure 4.

6.4 Hydrocompression

Hydrocompression is the tendency of unsaturated soil structure to collapse upon wetting resulting in the overall settlement of the affected soil and overlying foundations or improvements supported thereon. Potentially compressible soils underlying the site are typically removed and compacted during remedial site grading. However, if compressible soil is left in place, a potential for settlement due to hydrocompression of the soil exists.

Soil samples tested for hydrocompression exhibit a collapse potential of up to approximately 3.3 percent, with the highest potential for collapse exhibited in the samples tests at depths between 7 and 10 feet. Based on these results, the potential settlement due to hydrocompression is estimated to be up to approximately 1.0 inch with a differential settlement of ½ inch over a distance of 40 feet.

6.5 Slope Stability

The topography at the site slopes approximately 4 percent to the south. A grading plan was not available at the time of this report. We do not expect grading will result in slopes, if any, taller than 10 feet or steeper than 3:1 (h:v) to develop the site as intended.

The event center and amphitheater site is located approximately 1,500 feet southeast of the foothills. No landslides are mapped on or adjacent to the site. However, regional geologic mapping (Dibblee & Minch, 2003) does depict bedding dipping to the south, toward the valley. Although future landslides cannot be ruled out in a significant seismic event, we opine that the relative risk to the site due to landsliding is low.

6.6 Percolation Testing

Percolation testing was conducted in accordance with the procedures in the *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A* (Handbook), at the proposed location of the proposed site BMPs as indicated on the *Concept Plan*. The percolation test locations are depicted on the *Geologic Map & Site Plan* (Figure 2).

The three (3) percolation test holes were drilled to depths of 15 feet with a diameter of approximately 8 inches. The geologic conditions at the percolation test locations consist of silty sand. The geotechnical borings (P-1, P-2, and P-3) did not encounter groundwater or impenetrable bedrock within 10 feet of the bottom of the percolation test depths. Approximately two inches of gravel was placed at the bottom of each test hole, and a

perforated pipe was placed atop the gravel to keep the test hole open. Gravel was placed around the bottom of the test hole to support the test pipe. The test locations were pre-saturated prior to testing. Percolation test results are included as Figures A-6 and A-8. Results of the converted percolation test rates to infiltration test rates are presented in the Table below.

The in-situ field percolation tests performed provide short-term infiltration rates, which apply mainly to the initiation of the infiltration process due to the short time of the test (hours instead of days) and the amount of water used. Where appropriate, the short-term infiltration rates shall be converted to long-term infiltration rates using reduction factors depending upon the degree of infiltrate quality, maintenance access and frequency, site variability, subsurface stratigraphy variation, and other factors. The small-scale percolation testing cannot model the complexity of the effect of interbedded layers of different soil compositions, and our test results should be considered only as index values of infiltration rates.

INFILTRATION TEST RATES

Parameter	P-1	P-2	P-3
Depth (inches)	180	180	180
Test Type	Normal	Normal	Normal
Change in head over time: ΔH (inches)	9.0	1.7	4.4
Average head: Havg (in)	92.2	109.3	82.3
Time Interval (minutes): Δt (minutes)	10	10	10
Radius of test hole: r (inches)	4	4	4
Tested Infiltration Rate: It (inches/hour)	1.15	0.18	0.63

The results of the percolation testing indicate that the calculated infiltration rates at the locations tested are 1.15, 0.18, and 0.63 inches per hour. The Handbook requires a factor of safety of 3 to be applied to the values above based on the test method used.

If the BMP design considers infiltration, the BMP bottom should not be compacted during excavation, and no fill should be placed within the basin. The contractor should not track on or compact the BMP bottom. If it is necessary for equipment to track in the BMP bottom, the bottom should be scarified as the equipment moves out of the infiltration area, leaving loose, uncompacted soil in the BMP bottom.

The BMP will require maintenance consisting of periodic removal of fine soils and scarification of the bottom after equipment traffic.

Due to the potential of hydrocompression to occur in soils that are in proximity to storm water infiltration systems, the proposed infiltration system should be located such that the closest distance between structural foundations is at least 25 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration system at a gradient of 1:1. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the infiltration system's design as necessary.

Where the 25-foot horizontal setback cannot be maintained between the proposed infiltration system and structural foundations, and the infiltration system experiences structural loading, the infiltration system should be designed to resist the surcharge of the structural loads so that the infiltration system is not adversely affected. Structural loads may be assumed to project downward and away from the outside bottom of the foundation at a 1:1 gradient. The infiltration system should still be sufficiently deep to maintain a 15-foot vertical offset between the bottom of the footing and the zone of saturation.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 Loose, or soft alluvial deposits within the upper 5 feet at the site are not considered suitable for the support of settlement-sensitive improvements. Remedial grading of at least the upper 5 feet of soil will be required as discussed herein. Site soils are suitable for use as engineered fill provided the recommendations in the *Grading* section of this report are followed, and import material is screened for acceptance.

7.1.2 An evaluation of seismically induced "dry-sand" settlement was performed, with the resulting seismic "dry-sand" settlement estimated to be approximately 0.4 inches. Seismically induced differential settlement is expected to be on the order of 0.2 inches over a distance of 40 feet.

7.1.3 Soil samples tested for hydrocompression exhibit a collapse potential of up to approximately 3.3 percent for the site. Remedial grading will reduce some of the settlement potential of the near-surface soils; however, the soil with the highest tested collapse potential is between depths of 7 and 10 feet. The potential static settlement due to foundation loading and hydrocompression is estimated to be up to approximately 1.0 inch with a differential settlement of ½ inch over a distance of 40 feet.

7.1.4 Based on the potential for hydrocompression, maintaining proper surface drainage is critical to the future performance of foundations and paving. Recommendations for drainage are provided in the *Site Drainage and Moisture Protection* section of this report.

7.1.5 Due to site soils exhibiting a potential for hydrocompression and seismically induced "dry-sand" settlement, resulting settlements are expected to exceed the design tolerances of conventional shallow foundation systems. Therefore, the proposed structure may be supported on a reinforced concrete mat foundation.

7.1.6 Due to the presence of potentially hydrocompressive soils, the proposed infiltration system should be located a minimum distance of 25 feet from proposed structures and a minimum distance of 15 feet from site improvements to reduce the potential for induced settlements to adversely impact the proposed structures and improvements.

7.1.7 Where new paving is to be placed, it is recommended that the loose or soft alluvial soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all loose or soft alluvium in the area of new paving is not required; however, paving constructed over unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of soil should be scarified and properly compacted for paving support. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report.

7.1.8 Once the design and foundation loading configuration for the proposed structure proceed to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be re-evaluated by this office.

7.1.9 Any changes in the design, location, or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.2 Excavation and Soil Characteristics

7.2.1 Excavation of the upper alluvial deposits is expected to be possible with moderate effort using conventional heavy-duty equipment in proper functioning order.

7.2.2 The soil encountered in this field investigation is considered to be similar to the soils encountered in our previous investigation. It is therefore considered to be “non-expansive” (expansion index [EI] 20 or less) as defined by 2022 California Building Code (CBC) Section 1803.5.3. We expect a majority of the soil encountered to possess a “very low” expansion potential (EI of 0 to 20) in accordance with ASTM D4829. The following table presents soil classifications based on the expansion index. Although unlikely, any medium to highly expansive soils encountered at the site should not be placed within 4 feet of the proposed foundations, flatwork, or paving improvements.

SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM D 4829 Expansion Classification	2022 CBC Expansion Classification
0 – 20	**Very Low**	**Non-Expansive**
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

7.2.3 Testing for expansion potential should be performed during grading, along with plasticity index testing on soils with expansion indices of more than 20.

7.2.4 The soil encountered in this field investigation is considered to be similar to the soils encountered in our previous investigation. The soils indicate that the on-site materials possess a **"S0"** sulfate exposure to concrete structures as defined by 2022 CBC Section 1904 and ACI 318-19 Chapter 19. The following table presents a summary of concrete requirements set forth by 2022 CBC Section 1904.3 and ACI 318. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time, landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Exposure Class		Water-Soluble Sulfate (SO_4) Percent by Weight	Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
S0		**SO_4<0.10**	**No Type Restriction**	**n/a**	**2,500**
S1		$0.10 \leq SO_4 < 0.20$	II	0.50	4,000
S2		$0.20 \leq SO_4 \leq 2.00$	V	0.45	4,500
S3	Option 1	SO_4>2.00	V+Pozzolan or Slag	0.45	4,500
	Option 2		V	0.40	5,000

[1] Maximum water-to-cement ratio limits do not apply to lightweight concrete.

7.2.5 As shown in the table below, the site would not be classified as "corrosive" to buried improvements in accordance with the Caltrans Corrosion Guidelines (Caltrans, 2021).

CALTRANS CORROSION GUIDELINES

Corrosion Exposure	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH
Corrosive	<1,500	500 or greater	1,500 or greater	5.5 or less

7.2.6 Geocon does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements that could be susceptible to corrosion are planned.

7.3 Grading

7.3.1 Grading should be performed in accordance with the *Recommended Grading Specifications* contained in Appendix C and the Grading Ordinances of the City of Banning.

7.3.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and soil engineer in attendance. Special soil handling requirements can be discussed at that time.

7.3.3 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing alluvial soils encountered during exploration are suitable for reuse as engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris is removed.

7.3.4 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by a Geocon representative.

7.3.5 As a minimum, it is recommended that the upper 5 feet of existing earth materials within the proposed building footprint areas be excavated and properly compacted for foundation and slab support. Deeper excavations should be conducted as necessary to remove deeper soft alluvial soil at the direction of the Geocon representative. At a minimum, 3 feet of newly placed engineered fill should be placed below the proposed building foundations. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater.

7.3.6 All excavations must be observed and approved in writing by the Geocon representative. Prior to placing any fill, the upper 12 inches of the excavation bottom must be scarified, moistened, and proof-rolled with heavy equipment in the presence of the Geocon representative.

7.3.7 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to approximately 2 percent above optimum moisture content, and properly compacted to a minimum of 90 percent of the maximum dry density per ASTM D1557 (latest edition).

7.3.8 Stable excavations for the recommended grading can be achieved with sloping measures where property line setbacks allow. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report.

7.3.9 Where new paving is to be placed, it is recommended that all loose or soft alluvium be excavated and properly compacted for paving support. As a minimum, the upper 12 inches of soil should be scarified, moisture conditioned to approximately 2 percent above optimum moisture content, and compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D1557 (latest edition). Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report.

7.3.10 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by the Geocon representative.

7.3.11 All imported fill shall be observed, tested, and approved by Geocon prior to bringing soil to the site. Rocks larger than 6 inches in diameter shall not be used in the fill. Import soils used as structural fill should have an expansion index of less than 20 and corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B-2). Import soils placed in the building area should be placed uniformly across the building pad or in a manner that is approved by the Geocon representative.

7.3.12 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

7.4 Earthwork Grading Factors

7.4.1 Estimates of shrinkage factors are based on empirical judgments comparing the material in its existing or natural state, as encountered in the exploratory excavations, to a compacted state. Variations in natural soil density and in compacted fill density render shrinkage value estimates as rough approximations. As an example, the contractor can compact the fill to a dry density of 90 percent or higher of the laboratory maximum dry density. Thus, the contractor has an approximately 10 percent range of control over the fill volume. Due to the variations in the actual shrinkage/bulking factors, a balance area should be provided to accommodate variations.

7.5 Utility Trench Backfill

7.5.1 Utility trenches should be properly backfilled in accordance with the requirements of the City of Banning and the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). The pipes should be bedded with well-graded crushed rock or clean sands (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe. The bedding material must be inspected and approved in writing by a representative of Geocon. The use of crushed rock is only acceptable if used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil. Backfill of utility trenches should not contain rocks greater than 3 inches in diameter. The use of 2-sack slurry and controlled low-strength material (CLSM) is also acceptable as backfill. However, consideration should be given to the possibility of differential settlement where the slurry ends and earthen backfill begins. These transitions should be minimized, and additional stabilization should be considered at these transitions.

7.5.2 Trench excavation bottoms must be observed and approved in writing by a Geocon representative prior to placing bedding materials, fill, gravel, or concrete.

7.5.3 Utility trench backfill should be placed in layers no thicker than will allow for adequate bonding and compaction. Utility backfill should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density and moisture conditioned to approximately 2 percent above optimum moisture content as determined by ASTM D1557. Backfill at the finish subgrade elevation of new pavements should be compacted to at least 95 percent of the maximum dry density. Backfill materials placed below the recommended moisture content may require additional moisture conditioning prior to placing additional fill.

7.6 Seismic Design Criteria

7.6.1 The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2021 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application U.S. Seismic Design Maps, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 seconds. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	2.28g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.787g	Figure 1613.2.1(3)
Site Coefficient, F_A	1	Table 1613.2.3(1)
Site Coefficient, F_V	1.7	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	2.28g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.338g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.52g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.892*	Section 1613.2.4 (Eqn 16-23)

*Per Supplement 3 of ASCE 7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S_1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter S_{M1} is increased by 50% for all applications of S_{M1}. The values for parameters S_{M1} and S_{D1} presented above have not been increased in accordance with Supplement 3 of ASCE 7-16.

7.6.2 The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.933g	Figure 22-9
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	1.026g	Section 11.8.3 (Eqn 11.8-1)

7.6.3 Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the mean earthquake contributing to the MCE peak ground acceleration is characterized as an 8.09 magnitude event occurring at a hypocentral distance of 9.94 kilometers from the site.

7.6.4 Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such a design may be economically prohibitive.

7.7 Reinforced Concrete Mat Foundation

7.7.1 The proposed building may be supported on a mat foundation, founded in newly placed engineered fill, following the completion of grading per the recommendations provided in the *Grading* section of this report. At a minimum, 3 feet of newly placed engineered fill should be placed below the proposed building foundations. A mat foundation consists of a thick, rigid concrete mat that allows the entire footprint of the structure to carry building loads. In addition, the mat can tolerate significantly greater differential movements, such as those associated with expansive soils or differential settlement. The following table provides a summary of the foundation design recommendations.

SUMMARY OF MAT FOUNDATION RECOMMENDATIONS

Parameter	Value
Design Perimeter Foundation Width	12 inches
Minimum Foundation Depth	Extend Below Slab Underlayment
Minimum Steel Reinforcement	Per Structural Engineer
Allowable Bearing Pressure	2,000 psf
Estimated Static Settlement	1.0 Inch
Estimated “Dry-Sand” Seismic Settlement	0.4 Inch
Total Combined Static and Seismic Settlement	1.4 Inches
Total Combined Differential Settlement	0.7 Inches over 40 Feet
Modulus of Subgrade Reaction	100 pci
Design Expansion Index	20 or less

7.7.2 The modulus of subgrade reaction values should be modified as necessary using standard equations for mat size as required by the structural engineer. This value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

7.7.3 A mat foundation system will allow the structure to settle with the ground and should have sufficient rigidity to allow the structure to move as a single unit. Re-leveling of the mat foundation could be necessary through the use of mud jacking, compaction grouting, or other similar techniques if differential settlement occurs.

7.7.4 For seismic design purposes, a coefficient of friction of 0.40 may be utilized between concrete slab and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.7.5 Slabs that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder. The vapor retarder design should be consistent with the guidelines presented in the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06). In addition, the membrane should be installed in accordance with the manufacturer's recommendations and ASTM requirements and installed in a manner that prevents puncture. The vapor retarder used should be specified by the project architect or developer based on the type of floor covering that will be installed and if the structure will possess a humidity-controlled environment.

7.7.6 The bedding sand thickness should be determined by the project foundation engineer, architect, and/or developer. However, we should be contacted to provide recommendations if the bedding sand is thicker than 6 inches. The foundation design engineer should provide appropriate concrete mix design criteria and curing measures to assure proper curing of the slab by reducing the potential for rapid moisture loss and subsequent cracking and/or slab curl. We suggest that the

foundation design engineer present the concrete mix design and proper curing methods on the foundation plans. It is critical that the foundation contractor understands and follows the recommendations presented on the foundation plans.

7.7.7 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete, to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.7.8 This office should be provided a copy of the final construction plans so that the recommendations presented herein can be properly reviewed and revised if necessary.

7.8 Exterior Concrete Flatwork

7.8.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations presented in the table below. The recommended steel reinforcement would help reduce the potential for cracking.

MINIMUM CONCRETE FLATWORK RECOMMENDATIONS

Expansion Index, EI	Minimum Reinforcing Steel* Options	Minimum Thickness
EI ≤ 50	6x6-W2.9/W2.9 (6x6-6/6) welded wire mesh	4 Inches
	No. 3 Bars 18 inches on center, Both Directions	

*In excess of 8 feet square.

7.8.2 The subgrade soil should be properly moisturized and compacted prior to the placement of steel and concrete. The subgrade soil should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content in accordance with ASTM D1557.

7.8.3 Even with the incorporation of the recommendations of this report, the exterior concrete flatwork has the potential to experience some uplift due to potentially expansive soil beneath grade. The reinforcing steel should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork.

7.8.4 Concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with the criteria presented in the *Grading* section of this report prior to concrete placement. Subgrade soil should be properly compacted, and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

7.8.5 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stemwall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Steel dowelling details should be designed by the project's structural engineer.

7.8.6 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

7.9 Conventional Retaining Walls

7.9.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 6 feet. In the event that walls significantly higher than 6 feet are planned, Geocon should be contacted for additional recommendations.

7.9.2 Retaining wall foundations may consist of either continuous strip footings and/or isolated spread footings deriving support on at least 3 feet of newly placed engineered fill. Conventionally reinforced continuous footings should be at least 12 inches wide and extend at least 18 inches below the lowest adjacent grade. Isolated spread footings should have a minimum width of 24 inches and should extend at least 18 inches below the lowest adjacent grade. Retaining wall foundations may be designed for an allowable soil bearing pressure of 2,500 psf (dead plus live load). The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

7.9.3 Retaining walls with a level backfill surface that are not restrained at the top should be designed utilizing a triangular distribution of pressure (active pressure) of 40 pcf.

7.9.4 Restrained walls are those that are not allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls may be designed utilizing a triangular distribution of pressure (at-rest pressure) of 60 pcf.

7.9.5 The wall pressures provided above assume that the proposed retaining walls will support relatively undisturbed alluvial soils or engineered fill derived from onsite soils. If import soil will be used to backfill proposed retaining walls, revised earth pressures may be required to account for the geotechnical properties of the import soil used as engineered fill. This should be evaluated once the use of import soil is established. All imported fill shall be observed, tested, and approved by Geocon prior to bringing soil to the site.

7.9.6 The wall pressures provided above assume that the retaining wall will be properly drained, preventing the buildup of hydrostatic pressure. If retaining wall drainage is not implemented, an at-rest equivalent fluid pressure of 90 pcf should be used in the design of undrained, restrained walls for the full height of the wall. The value includes hydrostatic pressures plus buoyant lateral earth pressures. If a partially drained wall is proposed, Geocon should be contacted to provide additional recommendations.

7.9.7 Additional pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent structures, and should be designed for each condition as the project progresses.

7.10 Lateral Design

7.10.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.40 may be used with the dead load forces in the newly placed engineered fill or undisturbed alluvial soils.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against newly placed engineered fill or undisturbed alluvial soils may be computed as an equivalent fluid having a density of 300 pounds per cubic foot (pcf) with a maximum earth pressure of 3,000 psf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third. A one-third increase in the passive value may be used for wind or seismic loads.

7.11 Preliminary Pavement Recommendations

7.11.1 The final pavement design should be based on R-value testing of the subgrade soils. Streets should be designed in accordance with the City of Banning standards and specifications when final Traffic Indices and R-Value test results of subgrade soil are completed. Based on the R-value results of a near-surface soil sample tested from our previous geotechnical report (dated June 13, 2024), we used an R-value of 50 to develop preliminary flexible pavement sections presented in the following table. Geocon should be contacted if other roadway classifications and traffic indices are appropriate for the project.

PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Road Classification	Traffic Index	Asphalt Concrete (inches)	Aggregate Base (inches)
Alley / Parking Lots	4.0	3	4
Cul-De-Sac	4.5	3	4
Local Road	5.0	3	4

7.11.2 Prior to the construction of new pavement sections, remedial grading should be performed in accordance with the *Grading* section of this report.

7.11.3 The upper 12 inches of the subgrade soil should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content beneath pavement sections.

7.11.4 Aggregate base materials should conform to the requirements for Crushed Aggregate Base (CAB) or Crushed Miscellaneous Base (CMB) in Sections 200-2.2 and 200-2.4, respectively, of the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). Class 2 aggregate base materials should conform to Section 26-1.02A of the latest edition of the Caltrans *Standard Specifications*. Base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content in accordance with ASTM D1557. Asphalt concrete should be compacted to a density of 95 percent of the laboratory Hveem density in accordance with ASTM D1561.

7.11.5 Where prefabricated concrete pavers (80 mm thick) will be used in site roadways and parking areas, it is acceptable from a geotechnical standpoint to construct the pavers over 2 inches of sand underlain by a properly prepared subgrade and aggregate base per the following table. The aggregate base should be compacted to at least 95 percent relative compaction in accordance with ASTM D1557. Pavers should be constructed in accordance with the manufacturer's guidelines. Preliminary paver design sections are presented in the following table.

PAVER DESIGN SECTIONS

Road Classification/Use	Estimated Traffic Index (TI)	Prefabricated Concrete Paver (inches)	Aggregate Base (inches)
Alley / Parking Lots	4.0	3⅛	6

7.11.6 Where concrete pavers will be placed in pedestrian walkway areas and will not be subject to vehicle loading, the inclusion of a 4-inch layer of base over properly compacted subgrade underlying the pavers is acceptable from a geotechnical standpoint.

7.11.7 Where different pavement sections are to be constructed adjacent to each other, we recommend that consideration be given to the use of deepened base sections to maintain a uniform base thickness and avoid stepped cuts for placement of base material. This condition is expected to occur across the transition between the areas of asphalt paving and prefabricated pavers.

7.11.8 A rigid Portland cement concrete (PCC) pavement section should be placed in roadway aprons and cross gutters. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330-21 *Commercial Concrete Parking Lots and Site Paving Design and Construction – Guide*. The table below provides the traffic categories and design parameters used for the calculations for a 20-year design life.

TRAFFIC CATEGORIES

Traffic Category	Description	Reliability (%)	Slabs Cracked at End of Design Life (%)
A	Car Parking Areas and Access Lanes	60	15
B	Entrance and Truck Service Lanes	60	15
C	School or City Buses (Excluding Large Articulated Buses)	75	15
D	Heavy Duty Trucks (Gross Weight of 80 Kips)	75	15
E	Garbage or Fire Truck Lane	75	15

7.11.9 We used the parameters presented in the following table to calculate the pavement design sections. We should be contacted to provide updated design sections, if necessary.

RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	100 pci
Modulus of Rupture for Concrete, M_R	500 psi
Concrete Compressive Strength	3,000 psi
Concrete Modulus of Elasticity, E	3,150,000 psi

7.11.10 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in the following table.

RIGID VEHICULAR PAVEMENT RECOMMENDATIONS

Traffic Category	Trucks Per Day	Portland Cement Concrete, T (Inches)
A = Car Parking Areas and Access Lanes	10	5½
B = Entrance and Truck Service Lanes	10	6
	50	6½
	100	6½
C = School or City Buses	50	9½
	100	9½
D = Heavy Duty Trucks	50	6½
	100	7
E = Garbage or Fire Truck Lanes	5	6½
	10	7

7.11.11 The PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. The garbage truck pad should be large enough such that all wheels are on the concrete pad during the loading operations.

7.11.12 Adequate joint spacing should be incorporated into the design and construction of the rigid pavement in accordance with the following table.

MAXIMUM JOINT SPACING

Pavement Thickness, T (Inches)	Maximum Joint Spacing (Feet)
4<T<5	10
5≤T<6	12½
6≤T	15

7.11.13 The rigid pavement should also be designed and constructed incorporating the parameters presented in the following table.

ADDITIONAL RIGID PAVEMENT RECOMMENDATIONS

Subject	Value
Thickened Edge	1.2 Times Slab Thickness Adjacent to Structures
	1.5 Times Slab Thickness Adjacent to Soil
	Minimum Increase of 2 Inches
	4 Feet Wide
Crack Control Joint Depth	Early Entry Sawn = T/6 to T/5, 1.25 Inch Minimum
	Conventional (Tooled or Conventional Sawing) = T/4 to T/3
Crack Control Joint Width	¼-Inch for Sealed Joints and Per Sealer Manufacturer's Recommendations
	$^{1}/_{16}$- to $^{1}/_{4}$-Inch is Common for Unsealed Joints

7.11.14 Reinforcing steel will not be necessary within the concrete for geotechnical purposes, with the possible exception of dowels at construction joints as discussed herein.

7.11.15 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with the referenced ACI guide.

7.11.16 To provide load transfer between adjacent pavement slab sections, a butt-type construction joint should be constructed. The butt-type joint should be thickened by at least 20 percent at the edge and taper back at least 4 feet from the face of the slab.

7.11.17 Concrete curb/gutter should be placed on soil subgrade compacted to a dry density of at least 90 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. Cross-gutters that receive vehicular traffic should be placed on subgrade soil compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. Base materials should not be placed below the curb/gutter, or cross-gutters so water is not able to migrate from the adjacent parkways to the pavement sections. Where flatwork is located directly adjacent to the curb/gutter, the concrete flatwork should be structurally connected to the curbs to help reduce the potential for offsets between the curbs and the flatwork.

7.12 Temporary Excavations

7.12.1 Excavations of up to 10 feet in height may be required during earthwork operations. The excavations are expected to expose alluvial deposits, which may contain material that is subject to caving. The contractor should be prepared for caving soils in open excavations, and formwork may be required in foundation excavations. Vertical excavations up to 5 feet in height may be attempted where not surcharged by adjacent foundations or traffic, and where caving soils are not present.

7.12.2 Excavations of up to 10 feet in height are expected for the construction of the proposed utility improvements, and we expect that the proposed utilities will be installed with conventional cut-and-cover methods.

7.12.3 Vertical excavations greater than 5 feet or where surcharged by existing structures will require sloping and/or shoring measures in order to provide a stable excavation. The contractor's competent person should evaluate the appropriate slope and/or shoring based on soil type and prevailing site conditions per Cal-OSHA regulations.

7.12.4 Where there is insufficient space for sloped excavations, shoring or trench shields should be used to support excavations. Shoring may also be necessary where a sloped excavation could remove vertical or lateral support of existing improvements, including existing utilities and adjacent structures. The contractor's competent person should evaluate the appropriate shoring system to comply per Cal-OSHA regulations.

7.12.5 Where temporary construction slopes are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction slopes are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The contractor's competent person should inspect the soils exposed in the cut slopes during excavation in accordance with Cal-OSHA regulations so that modifications of the slopes can be made if variations in the soil conditions occur.

7.12.6 It is difficult to accurately predict the amount of deflection of a shored embankment, but some deflection will occur. We recommend that the deflection be minimized to prevent damage to existing structures and adjacent improvements. Where a public right-of-way is present or adjacent offsite structures do not surcharge the shoring excavation, the shoring deflection should be limited to less than 1 inch at the top of the shored embankment. Where offsite structures are within the shoring surcharge area it is recommended that the beam deflection be limited to less than ½ inch at the elevation of the adjacent offsite foundation, and no deflection at all if deflections will damage existing structures. The allowable deflection is dependent on many factors, such as the presence of structures and utilities near the top of the embankment and will be assessed and designed by the project shoring engineer.

7.13 Site Drainage and Moisture Protection

7.13.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion, and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to the footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

7.13.2 Planters that are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils, providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

7.13.3 Underground utilities should be leak-free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water can infiltrate the soil for prolonged periods of time.

7.13.4 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend area drains to collect excess irrigation water and transmit it to drainage structures, or impervious above-grade planter boxes be used. In addition,

where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall or the use of an impermeable geosynthetic along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

7.13.5 Proposed infiltration systems should be offset from the outside edge of planned foundations a minimum lateral distance of 25 feet to reduce the occurrence of water migrating below the load projection of planned structures, and a minimum lateral distance of 15 feet from site improvements. These minimum offsets will reduce the potential for settlements induced by migrating water that could adversely impact the proposed structures and improvements.

7.13.6 If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to infiltration areas. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Downgradient and adjacent structures may be subjected to seeps, movement of foundations and slabs, or other impacts as a result of water infiltration.

7.14 Plan Review

7.14.1 Grading, foundation, and, if applicable, shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.) prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating its intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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0’ 500’ 1,000’

SCALE: 1” = 500’

N

SOURCE: Google Earth 2025

VICINITY MAP

GEOCON WEST, INC.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS
41571 CORNING PLACE #101, MURRIETA, CALIFORNIA 92562
PHONE 951-304-2300 www.geoconinc.com

KD		

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 2025	PROJECT NO. T3070-22-01B	FIG. 1

GEOCON LEGEND

Locations are approximate

B2 ..... GEOTECHNICAL BORING LOCATION (T3070-22-01, JUNE 2024)

P2 ..... PERCOLATION TEST LOCATION (T3070-22-01, JUNE 2024)

P4 ..... PERCOLATION TEST LOCATION (T3070-22-01A, AUGUST 2024)

B-2 ..... GEOTECHNICAL BORING LOCATION (THIS INVESTIGATION)

P-3 ..... PERCOLATION TEST LOCATION (THIS INVESTIGATION)

Qf ..... YOUNG ALLUVIUM

..... ALQUIST PRIOLO LINE
(PLOTTED BY RHA BASED ON GIS DATA)

..... FAULT LINE

..... FAULT SETBACK LINE (100')



Base map provided by RHA.
Fault & Building Setback locations plotted by RHA based on GIS locations.

N

0' 50' 100' 150'

GEOCON WEST, INC.
GEOTECHNICAL ENVIRONMENTAL MATERIALS
41571 CORNING PLACE, SUITE 101, MURRIETA, CA 92562
PHONE 951-304-2300 www.geoconinc.com

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GEOLOGIC MAP & SITE PLAN

GILMAN RANCH EVENTS CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

OCTOBER 2026	PROJECT NO. T3070-22-01B	FIG. 2

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD W 2001 UPDATES

EARTHQUAKE INFORMATION:

Earthquake Magnitude:	8.09
Peak Horiz. Acceleration PGA_M (g):	1.026
Magnitude Scaling Factor:	0.823
Historic High Groundwater:	100.0
Groundwater Depth During Exploration:	100.0

ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
Rod Len.Corr.(CR) (0-no or 1-yes):	1
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0-no or 1-yes):	1

Boring ID: B1

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	Field SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60cs	Eff. Unit Wt. (psf)	Resist. CRR 7.5	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	1.000	0.667	--
2.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.998	0.666	--
3.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.996	0.664	--
4.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.994	0.663	--
5.0	116.5	0	9	5.0	1	36	66	1.700	25.7	116.5	0.305	0.991	0.661	--
6.0	116.5	0	9	5.0	1	36	66	1.700	25.7	116.5	0.305	0.989	0.660	--
7.0	116.5	0	9	5.0	1	36	66	1.661	25.2	116.5	0.295	0.987	0.658	--
8.0	122.5	0	20	7.5	1	36	93	1.543	47.5	122.5	Infin.	0.985	0.657	--
9.0	122.5	0	20	7.5	1	36	93	1.446	44.8	122.5	Infin.	0.982	0.655	--
10.0	122.5	0	14	10.0	1	36	74	1.364	30.8	122.5	Infin.	0.980	0.654	--
11.0	122.5	0	14	10.0	1	36	74	1.295	29.5	122.5	0.435	0.978	0.652	--
12.0	122.5	0	14	10.0	1	36	74	1.236	28.4	122.5	0.383	0.976	0.651	--
13.0	122.5	0	14	12.5	1	36	70	1.184	27.4	122.5	0.349	0.974	0.649	--
14.0	122.5	0	14	12.5	1	36	70	1.138	26.5	122.5	0.325	0.972	0.648	--
15.0	139.2	0	31	15.0	1	36	100	1.095	53.9	139.2	Infin.	0.970	0.647	--
16.0	139.2	0	31	15.0	1	36	100	1.053	52.1	139.2	Infin.	0.967	0.645	--
17.0	139.2	0	31	15.0	1	36	100	1.016	50.4	139.2	Infin.	0.965	0.644	--
18.0	139.2	0	31	15.0	1	36	100	0.983	49.0	139.2	Infin.	0.963	0.642	--
19.0	139.2	0	31	15.0	1	36	100	0.953	47.6	139.2	Infin.	0.961	0.641	--
20.0	139.2	0	40	20.0	1	36	104	0.925	64.6	139.2	Infin.	0.958	0.639	--
21.0	139.2	0	40	20.0	1	36	104	0.900	63.0	139.2	Infin.	0.956	0.637	--
22.0	139.2	0	40	20.0	1	36	104	0.877	61.5	139.2	Infin.	0.953	0.635	--
23.0	139.2	0	40	20.0	1	36	104	0.855	60.1	139.2	Infin.	0.950	0.633	--
24.0	139.2	0	40	20.0	1	36	104	0.835	58.8	139.2	Infin.	0.947	0.631	--
25.0	136.4	0	40	25.0	1	4	97	0.816	46.3	136.4	Infin.	0.944	0.629	--
26.0	136.4	0	40	25.0	1	4	97	0.799	45.3	136.4	Infin.	0.940	0.627	--
27.0	136.4	0	40	25.0	1	4	97	0.783	44.4	136.4	Infin.	0.936	0.624	--
28.0	136.4	0	40	25.0	1	4	97	0.768	43.6	136.4	Infin.	0.932	0.622	--
29.0	136.4	0	40	25.0	1	4	97	0.753	42.8	136.4	Infin.	0.928	0.619	--
30.0	136.4	0	70	30.0	1	4	121	0.740	77.7	136.4	Infin.	0.923	0.616	--
31.0	136.4	0	70	30.0	1	4	121	0.727	76.3	136.4	Infin.	0.918	0.612	--
32.0	136.4	0	70	30.0	1	4	121	0.715	75.0	136.4	Infin.	0.912	0.609	--
33.0	136.4	0	70	30.0	1	4	121	0.703	73.8	136.4	Infin.	0.907	0.605	--
34.0	136.4	0	70	30.0	1	4	121	0.692	72.7	136.4	Infin.	0.900	0.601	--
35.0	120.9	0	55	35.0	1	4	101	0.682	56.3	120.9	Infin.	0.894	0.596	--
36.0	120.9	0	55	35.0	1	4	101	0.673	55.5	120.9	Infin.	0.887	0.591	--
37.0	120.9	0	55	35.0	1	4	101	0.664	54.8	120.9	Infin.	0.880	0.587	--
38.0	120.9	0	55	35.0	1	4	101	0.656	54.1	120.9	Infin.	0.872	0.581	--
39.0	120.9	0	55	35.0	1	4	101	0.648	53.5	120.9	Infin.	0.864	0.576	--
40.0	120.9	0	55	40.0	1	4	97	0.640	52.8	120.9	Infin.	0.855	0.570	--
41.0	120.9	0	55	40.0	1	4	97	0.633	52.2	120.9	Infin.	0.846	0.564	--
42.0	120.9	0	55	40.0	1	4	97	0.626	51.6	120.9	Infin.	0.837	0.558	--
43.0	120.9	0	55	40.0	1	4	97	0.619	51.0	120.9	Infin.	0.828	0.552	--
44.0	120.9	0	55	40.0	1	4	97	0.612	50.5	120.9	Infin.	0.818	0.546	--
45.0	123.4	0	55	45.0	1	4	93	0.605	49.9	123.4	Infin.	0.808	0.539	--
46.0	123.4	0	55	45.0	1	4	93	0.599	49.4	123.4	Infin.	0.798	0.532	--
47.0	123.4	0	55	45.0	1	4	93	0.593	48.9	123.4	Infin.	0.788	0.526	--
48.0	123.4	0	55	45.0	1	4	93	0.587	48.4	123.4	Infin.	0.778	0.519	--

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 909-894-2175

LIQUEFACTION POTENTIAL - MAXIMUM CONSIDERED EARTHQUAKE

GILMAN RANCH EVENTS CENTER
1901 WEST WILSON STREET
BANNING, CALIFORNIA

DRAFTED BY: DSM	CHECKED BY: NDB	SEPT 2025	PROJECT NO. T3070-22-01B	FIGURE 3

MCE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	8.09
Peak Horiz. Acceleration (g):	1.026

Boring ID: B1

Depth of Base of Strate (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	116.5	0.03	0.02	0.019	18	1.25	98.0	1.7	46.8	1.0	225.0	8.55E-05	1.60E-04	0.016	5.77E-03	21.3	6.75E-03	Grading
2.0	1.0	1.5	116.5	0.09	0.06	0.058	18	1.25	98.0	1.7	46.8	1.0	389.7	1.45E-04	2.30E-04	0.023	8.30E-03	21.3	9.71E-03	Grading
3.0	1.0	2.5	116.5	0.15	0.10	0.097	18	1.25	98.0	1.7	46.8	1.0	503.1	1.84E-04	2.30E-04	0.023	8.30E-03	21.3	9.71E-03	Grading
4.0	1.0	3.5	116.5	0.20	0.14	0.136	18	1.25	98.0	1.7	46.8	1.0	595.2	2.13E-04	8.10E-04	0.081	2.92E-02	21.3	3.42E-02	Grading
5.0	1.0	4.5	116.5	0.26	0.18	0.174	9	1.25	65.6	1.7	25.7	1.0	552.5	2.90E-04	8.10E-04	0.081	6.01E-02	21.3	7.03E-02	Grading
6.0	1.0	5.5	116.5	0.32	0.21	0.213	9	1.25	65.6	1.7	25.7	1.0	610.8	3.14E-04	1.00E-03	0.100	7.42E-02	21.3	8.68E-02	Grading
7.0	1.0	6.5	116.5	0.38	0.25	0.251	9	1.25	65.6	1.7	25.2	1.0	659.8	3.37E-04	1.00E-03	0.100	7.59E-02	21.3	8.88E-02	0.02
8.0	1.0	7.5	122.5	0.44	0.29	0.291	20	1.25	92.6	1.5	47.5	1.0	877.3	2.88E-04	4.50E-04	0.045	1.59E-02	21.3	1.86E-02	0.00
9.0	1.0	8.5	122.5	0.50	0.33	0.331	20	1.25	92.6	1.4	44.8	1.0	918.6	3.08E-04	1.00E-03	0.100	3.80E-02	21.3	4.44E-02	0.01
10.0	1.0	9.5	122.5	0.56	0.38	0.371	14	1.25	73.6	1.4	30.8	1.0	858.8	3.63E-04	1.00E-03	0.100	5.96E-02	21.3	6.97E-02	0.02
11.0	1.0	10.5	122.5	0.62	0.42	0.410	14	1.25	73.6	1.3	29.5	1.0	891.5	3.81E-04	1.00E-03	0.100	6.28E-02	21.3	7.34E-02	0.02
12.0	1.0	11.5	122.5	0.68	0.46	0.450	14	1.25	73.6	1.2	28.4	1.0	922.4	3.97E-04	1.00E-03	0.100	6.58E-02	21.3	7.69E-02	0.02
13.0	1.0	12.5	122.5	0.74	0.50	0.489	14	1.25	69.6	1.2	27.4	1.0	951.6	4.12E-04	2.70E-03	0.270	1.85E-01	21.3	2.17E-01	0.05
14.0	1.0	13.5	122.5	0.81	0.54	0.528	14	1.25	69.6	1.1	26.5	1.0	979.4	4.26E-04	1.20E-03	0.120	8.56E-02	21.3	1.00E-01	0.02
15.0	1.0	14.5	139.2	0.87	0.58	0.569	31	1.25	99.7	1.1	53.9	1.0	1290.5	3.43E-04	7.10E-04	0.071	2.16E-02	21.3	2.52E-02	0.01
16.0	1.0	15.5	139.2	0.94	0.63	0.613	31	1.25	99.7	1.1	52.1	1.0	1325.6	3.55E-04	7.10E-04	0.071	2.25E-02	21.3	2.63E-02	0.01
17.0	1.0	16.5	139.2	1.01	0.68	0.656	31	1.25	99.7	1.0	50.4	1.0	1359.0	3.65E-04	7.10E-04	0.071	2.34E-02	21.3	2.74E-02	0.01
18.0	1.0	17.5	139.2	1.08	0.72	0.699	31	1.25	99.7	1.0	49.0	1.0	1391.1	3.75E-04	7.10E-04	0.071	2.42E-02	21.3	2.84E-02	0.01
19.0	1.0	18.5	139.2	1.15	0.77	0.741	31	1.25	99.7	1.0	47.6	1.0	1421.9	3.84E-04	7.10E-04	0.071	2.51E-02	21.3	2.93E-02	0.01
20.0	1.0	19.5	139.2	1.22	0.82	0.783	40	1.25	104.3	0.9	64.6	1.0	1621.3	3.51E-04	7.10E-04	0.071	1.74E-02	21.3	2.03E-02	0.00
21.0	1.0	20.5	139.2	1.29	0.86	0.825	40	1.25	104.3	0.9	63.0	1.0	1652.8	3.58E-04	7.10E-04	0.071	1.79E-02	21.3	2.10E-02	0.01
22.0	1.0	21.5	139.2	1.36	0.91	0.866	40	1.25	104.3	0.9	61.5	1.0	1683.2	3.65E-04	7.10E-04	0.071	1.84E-02	21.3	2.16E-02	0.01
23.0	1.0	22.5	139.2	1.43	0.96	0.907	40	1.25	104.3	0.9	60.1	0.9	1712.7	3.71E-04	7.10E-04	0.071	1.90E-02	21.3	2.22E-02	0.01
24.0	1.0	23.5	139.2	1.50	1.00	0.947	40	1.25	104.3	0.8	58.8	0.9	1741.2	3.76E-04	5.20E-04	0.052	1.43E-02	21.3	1.67E-02	0.00
25.0	1.0	24.5	136.4	1.57	1.05	0.986	40	1.25	96.5	0.8	46.3	0.9	1644.7	4.10E-04	8.10E-04	0.081	2.96E-02	21.3	3.46E-02	0.01
26.0	1.0	25.5	136.4	1.63	1.10	1.024	40	1.25	96.5	0.8	45.3	0.9	1668.2	4.15E-04	8.10E-04	0.081	3.03E-02	21.3	3.55E-02	0.01
27.0	1.0	26.5	136.4	1.70	1.14	1.061	40	1.25	96.5	0.8	44.4	0.9	1691.1	4.20E-04	8.10E-04	0.081	3.11E-02	21.3	3.64E-02	0.01
28.0	1.0	27.5	136.4	1.77	1.19	1.098	39.6	1.25	96.5	0.8	43.6	0.9	1713.4	4.24E-04	8.10E-04	0.081	3.18E-02	21.3	3.72E-02	0.01
29.0	1.0	28.5	136.4	1.84	1.23	1.135	39.6	1.25	96.5	0.8	42.8	0.9	1735.1	4.28E-04	8.10E-04	0.081	3.26E-02	21.3	3.81E-02	0.01
30.0	1.0	29.5	136.4	1.91	1.28	1.170	70	1.25	120.6	0.7	77.7	0.9	2156.2	3.52E-04	5.20E-04	0.052	1.02E-02	21.3	1.19E-02	0.00
31.0	1.0	30.5	136.4	1.98	1.32	1.206	70	1.25	120.6	0.7	76.3	0.9	2181.6	3.55E-04	5.20E-04	0.052	1.04E-02	21.3	1.22E-02	0.00
32.0	1.0	31.5	136.4	2.04	1.37	1.240	70	1.25	120.6	0.7	75.0	0.9	2206.4	3.57E-04	5.20E-04	0.052	1.06E-02	21.3	1.24E-02	0.00
33.0	1.0	32.5	136.4	2.11	1.42	1.274	70	1.25	120.6	0.7	73.8	0.9	2230.7	3.60E-04	5.20E-04	0.052	1.09E-02	21.3	1.27E-02	0.00
34.0	1.0	33.5	136.4	2.18	1.46	1.307	70	1.25	120.6	0.7	72.7	0.9	2254.4	3.62E-04	5.20E-04	0.052	1.11E-02	21.3	1.29E-02	0.00
35.0	1.0	34.5	120.9	2.24	1.50	1.338	55	1.25	101.2	0.7	56.3	0.9	2100.6	3.94E-04	5.20E-04	0.052	1.50E-02	21.3	1.76E-02	0.00
36.0	1.0	35.5	120.9	2.31	1.54	1.365	55	1.25	101.2	0.7	55.5	0.9	2119.2	3.95E-04	5.20E-04	0.052	1.53E-02	21.3	1.79E-02	0.00
37.0	1.0	36.5	120.9	2.37	1.58	1.392	55	1.25	101.2	0.7	54.8	0.9	2137.6	3.96E-04	5.20E-04	0.052	1.55E-02	21.3	1.81E-02	0.00
38.0	1.0	37.5	120.9	2.43	1.63	1.418	55	1.25	101.2	0.7	54.1	0.9	2155.7	3.97E-04	5.20E-04	0.052	1.57E-02	21.3	1.84E-02	0.00
39.0	1.0	38.5	120.9	2.49	1.67	1.444	55	1.25	101.2	0.6	53.5	0.9	2173.4	3.98E-04	5.20E-04	0.052	1.60E-02	21.3	1.87E-02	0.00
40.0	1.0	39.5	120.9	2.55	1.71	1.469	55	1.25	96.8	0.6	52.8	0.9	2190.9	3.98E-04	5.20E-04	0.052	1.62E-02	21.3	1.90E-02	0.00
41.0	1.0	40.5	120.9	2.61	1.75	1.494	55	1.25	96.8	0.6	52.2	0.8	2208.1	3.99E-04	5.20E-04	0.052	1.64E-02	21.3	1.92E-02	0.00
42.0	1.0	41.5	120.9	2.67	1.79	1.518	55	1.25	96.8	0.6	51.6	0.8	2225.0	3.99E-04	5.20E-04	0.052	1.67E-02	21.3	1.95E-02	0.00
43.0	1.0	42.5	120.9	2.73	1.83	1.541	55	1.25	96.8	0.6	51.0	0.8	2241.7	4.00E-04	5.20E-04	0.052	1.69E-02	21.3	1.98E-02	0.00
44.0	1.0	43.5	120.9	2.79	1.87	1.564	55	1.25	96.8	0.6	50.5	0.8	2258.1	4.00E-04	5.20E-04	0.052	1.71E-02	21.3	2.00E-02	0.00
45.0	1.0	44.5	123.4	2.85	1.91	1.586	55	1.25	92.9	0.6	49.9	0.8	2274.5	4.00E-04	1.90E-03	0.190	6.34E-02	21.3	7.41E-02	0.02
46.0	1.0	45.5	123.4	2.91	1.95	1.609	55	1.25	92.9	0.6	49.4	0.8	2290.8	4.00E-04	1.90E-03	0.190	6.42E-02	21.3	7.51E-02	0.02
47.0	1.0	46.5	123.4	2.97	1.99	1.630	55	1.25	92.9	0.6	48.9	0.8	2306.9	4.00E-04	1.90E-03	0.190	6.50E-02	21.3	7.60E-02	0.02
48.0	1.0	47.5	123.4	3.03	2.03	1.651	55	1.25	92.9	0.6	48.4	0.8	2322.7	4.01E-04	1.90E-03	0.190	6.58E-02	21.3	7.70E-02	0.02

TOTAL SETTLEMENT (inches) = 0.4

REFERENCE: TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 909-894-2175

DRAFTED BY: DSM | CHECKED BY: NDB

EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS

MAXIMUM CONSIDERED EARTHQUAKE

GILMAN RANCH EVENTS CENTER
1901 WEST WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 2025 | PROJECT NO. T3070-22-01B | FIG. 4

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored on July 21, 2025, by excavating two (2) 8-inch-diameter geotechnical borings using a truck-mounted hollow-stem auger drilling machine to depths of approximately 31½ and 47½ feet beneath the ground surface. Representative and relatively undisturbed samples were obtained by driving a 3-inch, O. D., California Modified Sampler or Standard Penetration Test Sampler (SPT) into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch by 2$^{3}/_{8}$-inch diameter brass sampler rings to facilitate soil removal and testing. Bulk samples were also obtained.

Three (3) 15-foot-deep percolation borings were also excavated using the hollow-stem auger drilling machine. The percolation tests were set up after drilling and the testing was performed on July 22, 2025, in accordance with the Handbook.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A-1 through A-5. Percolation Test Reports are presented on Figures A-6 through A-8. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The approximate locations of the geotechnical and percolation borings are shown on Figure 2.

GEOCON

Soil Boring Number: B-1

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934170, -116.896157
BORING DATE 07/21/2025
FIGURE NUMBER A-1
DEPTH 47.5'
SURFACE ELEVATION ~2567'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/21/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
0	2567			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND w/ Gravel**, medium dense, slightly moist, light brown, fine to medium with few coarse, rootlets						
2	2565						■	B-1@2.5'	9 15 18	110.0	5.9
4					loose, some quartz rich materials		■	B-1@5'	6 5 4		4.9
6	2560										
8					medium dense, rootlets, pinhole porosity		■	B-1@7.5'	8 14 23	104.9	16.8
10					cobbles encountered		■	B-1@10'	11 7 7		5.4
12	2555										
14					dense		■	B-1@15'	13 24 32	125.9	10.6
16	2550										
18											
20							■	B-1@20'	11 17 23		3.9
22	2545										
24											

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

SOIL BORING: B-1

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
26				SP	**OLDER ALLUVIAL FAN DEPOSITS** (**Qof**) **Poorly Graded SAND**, very dense, slightly moist, strong brown with white mottles, fine to coarse, quartz rich, highly weathered rock, micaceous			B-1@25'	33 41 31	124.0	10.0
	2540										
28					rig chatter, struggle to drill						
30					light brown with brown and black mottles, increase in quartz and mica in matrix			B-1@30'	26 38 32		4.5
	2535										
32											
34					medium to coarse, moderately weathered rock, increase in mica and quartz in matrix			B-1@35'	50/3"	113.6	6.4
36											
	2530										
38											
40					increase in coarse grains			B-1@40'	40 50/3"		8.6
	2525										
42					rig chatter, slowed drilling						
44											
46					black with strong brown mottles, medium to coarse, some fine			B-1@45'	50/5"	119.5	3.3
	2520										
48					light gray to white, very hard drilling, possible granitic bedrock			B-1@47'	50/6"		

Boring Terminated: 47 1/2'
No groundwater encountered
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: B-2

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.933709, -116.896180
BORING DATE 07/21/2025
FIGURE NUMBER A-2
DEPTH 31.4'
SURFACE ELEVATION ~2559'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/21/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
0	2559			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, medium dense, slightly moist, light brown, fine to medium with few coarse, some gravel, trace quartz						
2					brown			B-2@2.5'	8 7 8	114.6	2.7
4	2555							B-2@5'	7 7 10	111.0	2.9
6				SP	**Poorly Graded SAND w/ Gravel**, medium dense, slightly moist, light brown to strong brown, fine to coarse, micaceous, quartz rich			B-2@7.5'	6 11 9	111.7	4.9
8	2550							B-2@10'	8 11 13	118.2	11.3
10				SM	**Silty SAND**, medium dense, slightly moist, strong brown, fine to medium, weakly cemented, pinhole porosity						
12											
14	2545							B-2@15'	7 13 24	122.3	9.6
16											
18	2540				brown with black mottling, pea gravel with some larger gravels, thin sand lenses, pinhole porosity, laminated						
20					dense, increase in gravels			B-2@20'	14 23 32	122.4	13.6
22											
24	2535							B-2@25'	19 26 28	125.3	8.3
26											
28	2530			SM	**OLDER ALLUVIAL FAN DEPOSITS (Qof)** **Silty SAND w/ Gravel and Cobble**, very dense, slightly moist, brown with black mottling, medium to coarse, cobbles encountered						
30					partial cobble in shoe			B-2@30'	15 35 50/5"	134.1	8.3

Boring Terminated: 31.4'
No groundwater encountered
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-1

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934822, -116.895744
BORING DATE 07/21/2025
FIGURE NUMBER A-3
DEPTH 15.0'
SURFACE ELEVATION ~2574'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
0	2574			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, loose, slightly moist, light brown, fine to coarse, gravel, rootlets					
4	2570									
8	2565				dark brown					
14	2560						■	P-1@13.5'	3 3 6	9.3

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-2

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934060, -116.896535
BORING DATE 07/21/2025
FIGURE NUMBER A-4
DEPTH 15.0'
SURFACE ELEVATION ~2566'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
0	2566									
	2565			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, medium dense, slightly moist, dark brown, fine to medum with few coarse, gravel, rootlets					
2										
4										
	2560									
6										
8										
10										
	2555									
12										
14							■	P-2@13.5'	8 9 13	10.1

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-3

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.933972, -116.895487
BORING DATE 07/21/2025
FIGURE NUMBER A-5
DEPTH 15.0'
SURFACE ELEVATION ~2561'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
	2561									
	2560			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, loose, slightly moist, light brown, fine to coarse, gravel, rootlets					
2										
4										
	2555									
6										
8										
10										
	2550									
12										
14							■	P-3@13.5'	3 3 4	10.5

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-1	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:09 AM	7:34 AM	25	**101.4**	**126.12**	**24.72**	**yes**
2	7:36 AM	8:01 AM	25	**101.5**	**130.68**	**29.16**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	10:53 AM	11:03 AM	10.00	98.9	113.5	14.6	0.68
2	11:04 AM	11:14 AM	10.00	85.2	112.9	27.7	0.36
3	11:15 AM	11:25 AM	10.00	84.8	102.1	17.3	0.58
4	11:26 AM	11:36 AM	10.00	84.4	98.9	14.5	0.69
5	11:37 AM	11:47 AM	10.00	83.6	95.5	11.9	0.84
6	11:48 AM	11:58 AM	10.00	83.3	92.3	9.0	1.11
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	92.3	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	83.3	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	96.7	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	87.7	inches	Adj. Volume of Water =	452	$inches^3$
ΔH =	9.0	inches			
H_{avg} =	92.2	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 1.15 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

DRAFTED BY: KD	CHECKED BY: RNP	September 2025	PROJECT NO. T3070-22-01b	FIG. A-6

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-2	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:16 AM	7:41 AM	25	**76.3**	**100.56**	**24.24**	**yes**
2	7:43 AM	8:08 AM	25	**72.1**	**83.64**	**11.52**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	9:35 AM	9:45 AM	10.00	69.6	72.1	2.5	3.97
2	9:46 AM	9:56 AM	10.00	70.0	72.1	2.2	4.63
3	9:57 AM	10:07 AM	10.00	68.0	70.7	2.6	3.79
4	10:08 AM	10:18 AM	10.00	70.0	72.2	2.3	4.39
5	10:19 AM	10:29 AM	10.00	70.1	72.1	2.0	4.90
6	10:30 AM	10:40 AM	10.00	69.8	71.5	1.7	5.95
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	71.5	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	69.8	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	110.2	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	108.5	inches	Adj. Volume of Water =	84	$inches^3$
ΔH =	1.7	inches			
H_{avg} =	109.3	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 0.18 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

DRAFTED BY: KD	CHECKED BY: RNP	September 2025	PROJECT NO. T3070-22-01b	FIG. A-7

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-3	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:22 AM	7:47 AM	25	**103.0**	**123.12**	**20.16**	**yes**
2	7:49 AM	8:14 AM	25	**98.4**	**116.76**	**18.36**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	8:15 AM	8:25 AM	10.00	99.0	103.8	4.8	2.08
2	8:26 AM	8:36 AM	10.00	99.6	103.7	4.1	2.45
3	8:38 AM	8:48 AM	10.00	93.7	100.7	7.0	1.44
4	8:50 AM	9:00 AM	10.00	90.5	97.7	7.2	1.39
5	9:01 AM	9:11 AM	10.00	94.3	100.0	5.6	1.77
6	9:12 AM	9:22 AM	10.00	95.5	100.0	4.4	2.25
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	100.0	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	95.5	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	84.5	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	80.0	inches	Adj. Volume of Water =	223	$inches^3$
ΔH =	4.4	inches			
H_{avg} =	82.3	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 0.63 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

DRAFTED BY: KD | CHECKED BY: RNP

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

September 2025 | PROJECT NO. T3070-22-01b | FIG. A-8

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected soil samples for in-place dry density/moisture content, maximum density, sieve analyses, consolidation, and direct shear strength. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.

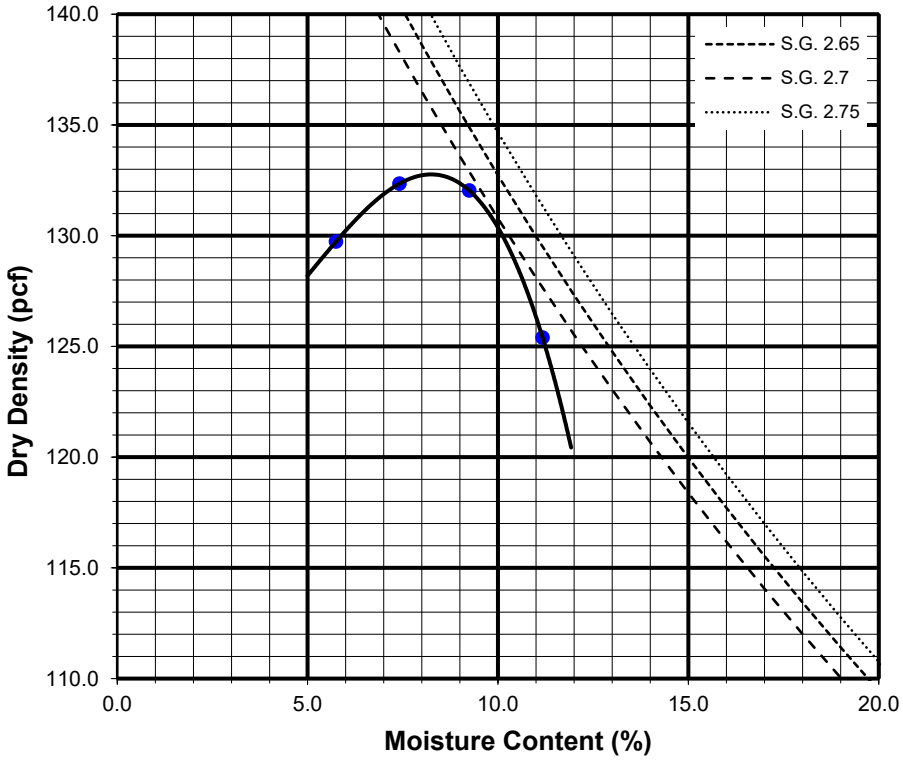
Sample No:

B1/B2 @ 0-5'	Silty SAND (SM) with gravel, light brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6317	6392	6423	6350		
Weight of Mold	(g)	4244	4244	4244	4244		
Net Weight of Soil	(g)	2072	2147	2179	2106		
Wet Weight of Soil + Cont.	(g)	840.8	838.5	758.5	755.7		
Dry Weight of Soil + Cont.	(g)	809.2	798.2	715.9	705.5		
Weight of Container	(g)	259.2	254.5	255.2	256.1		
Moisture Content	(%)	5.7	7.4	9.2	11.2		
Wet Density	(pcf)	137.2	142.2	144.2	139.4		
Dry Density	(pcf)	129.7	132.3	132.0	125.4		

Maximum Dry Density (pcf)	**133.0**
Bulk Specific Gravity (dry)	**2.57**
Corrected Maximum Dry Density (pcf)	**136.5**

Optimum Moisture Content (%)	**8.5**
Oversized Fraction (%)	**16.0**
Corrected Moisture Content (%)	**7.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

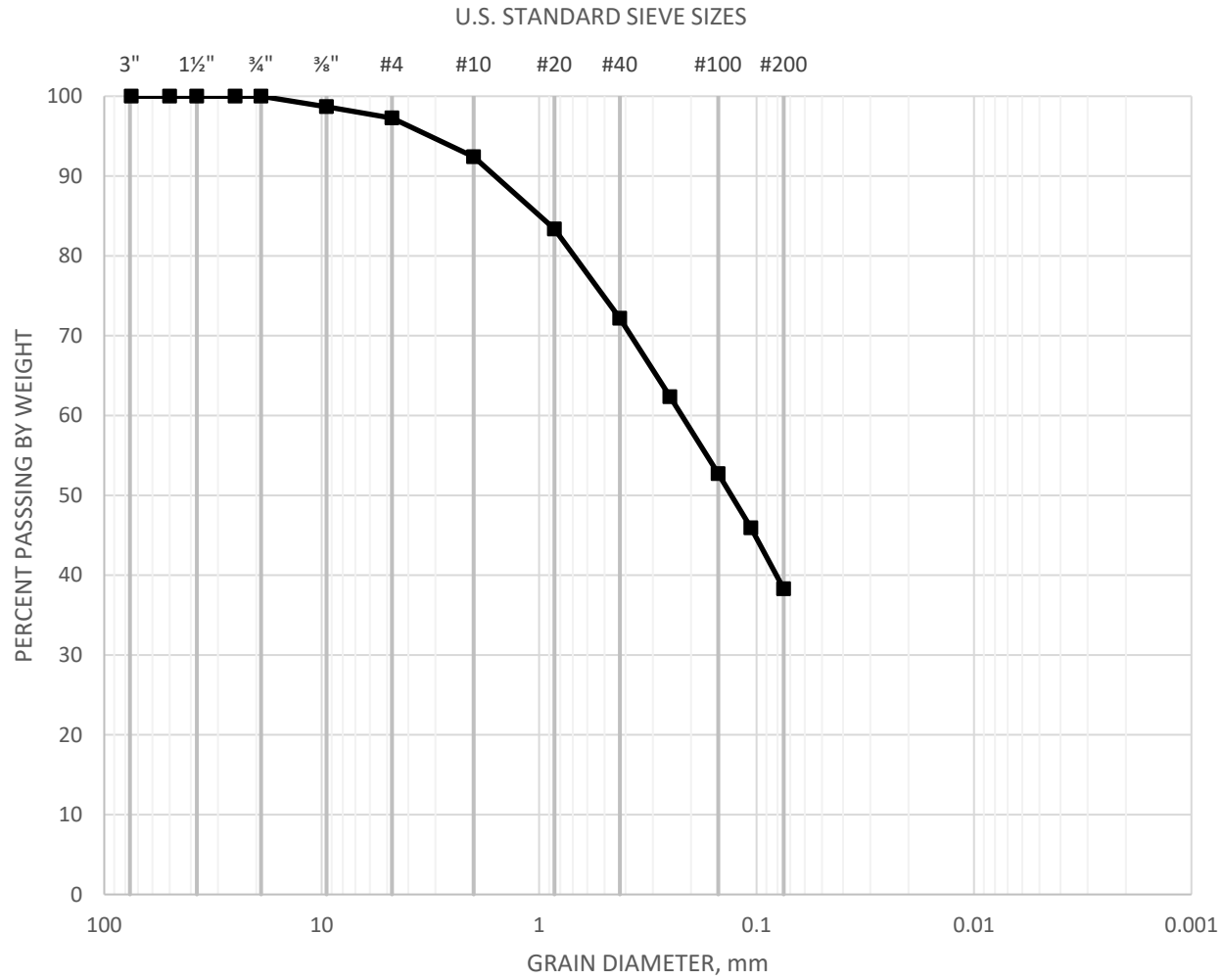
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-1

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-1@13.5'	Silty SAND (SM), light brown	0.23	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

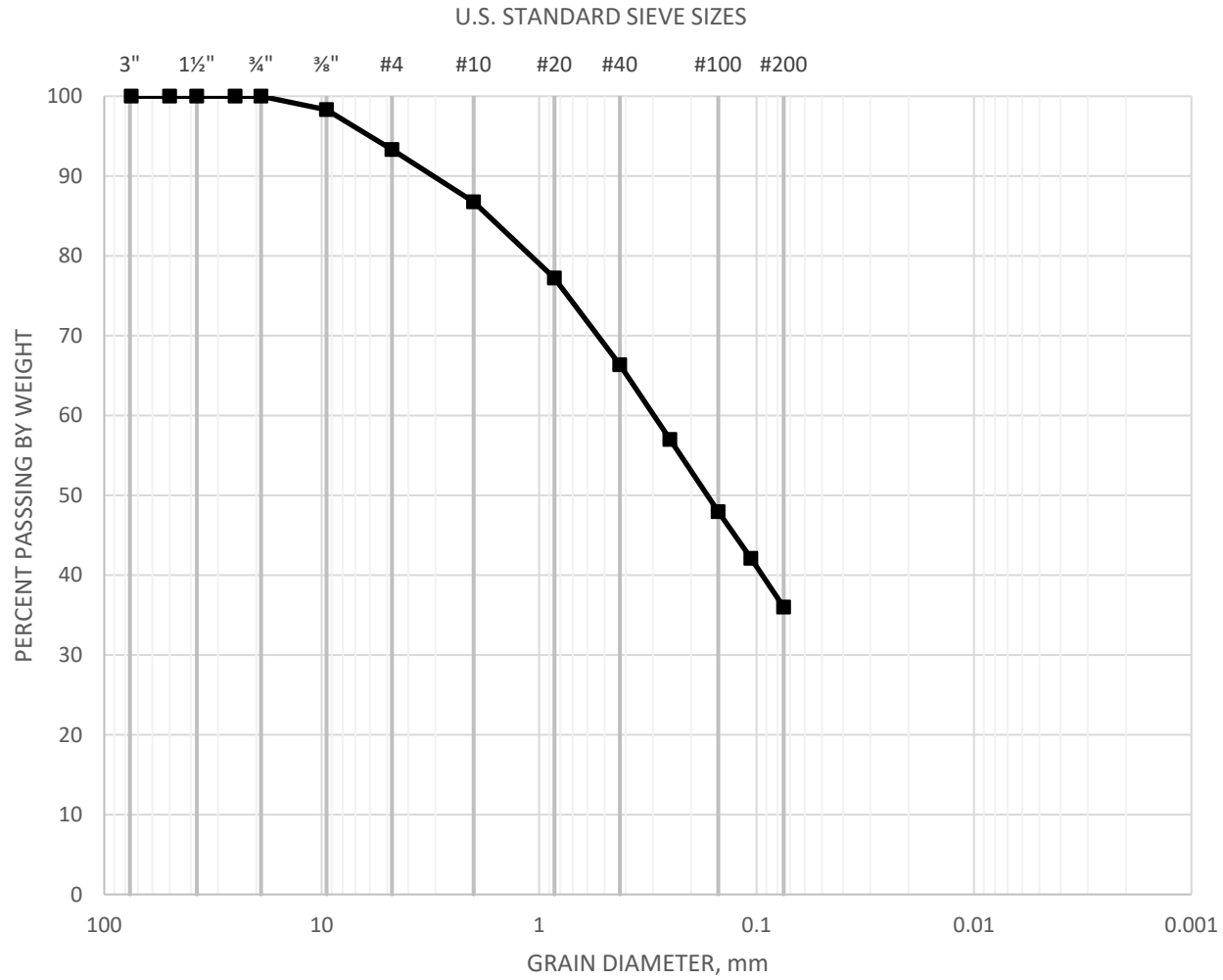
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-2

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-2@13.5'	Silty SAND (SM), dark brown	0.29	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

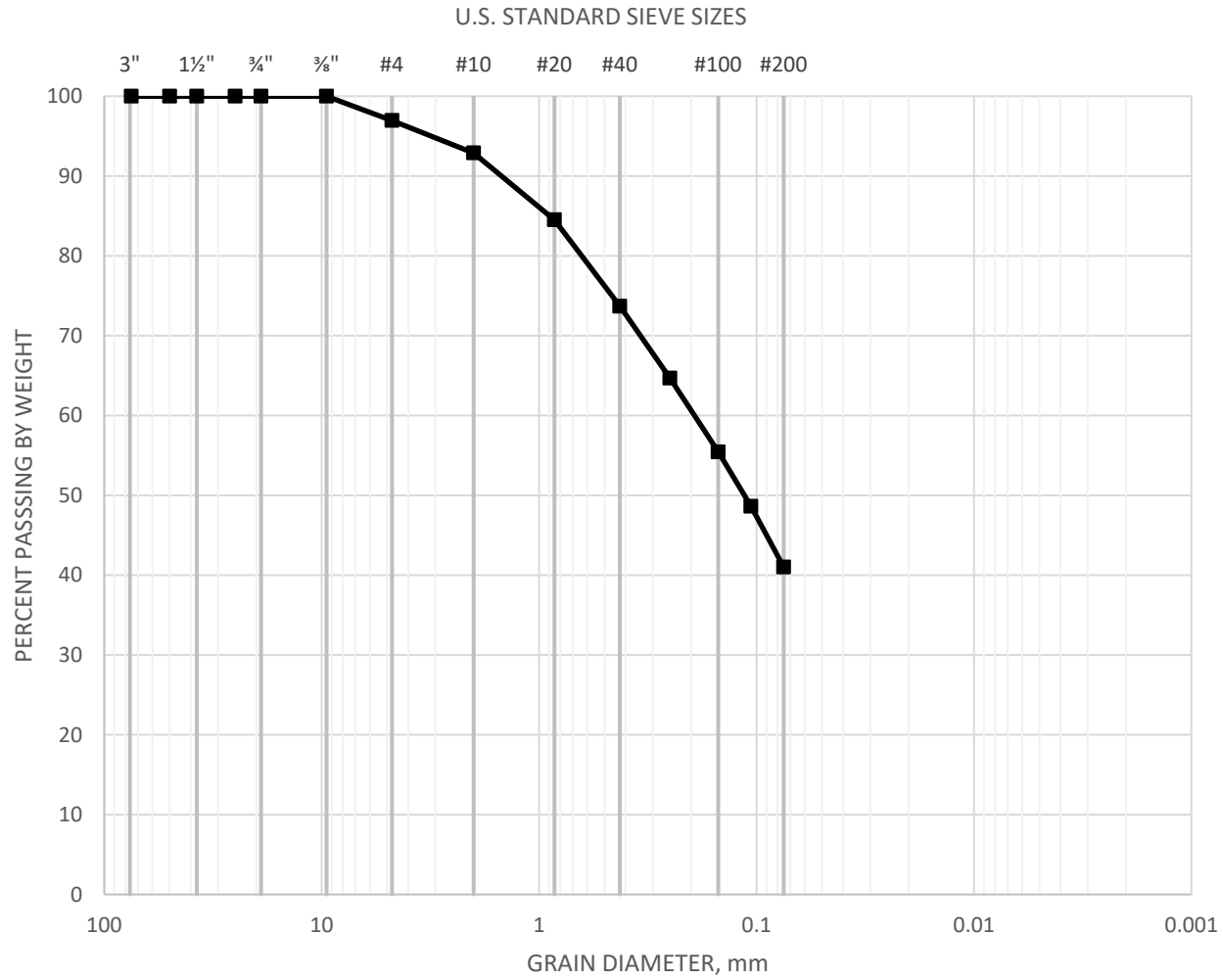
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-3

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-3@13.5'	Silty SAND (SM), light brown	0.28	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

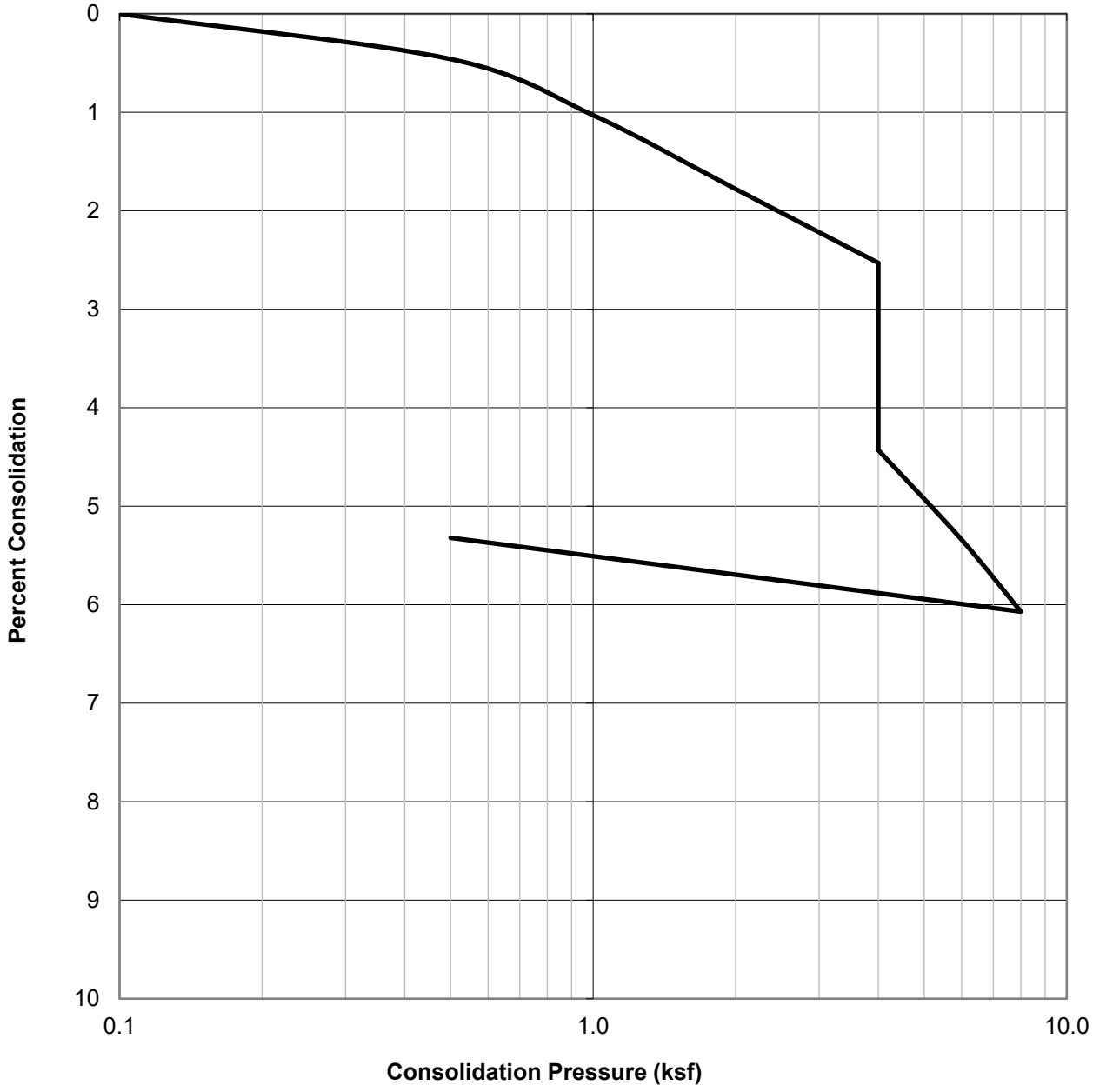
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-4

WATER ADDED AT 4.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@15'	Silty SAND (SM), brown	117.5	10.7	13.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

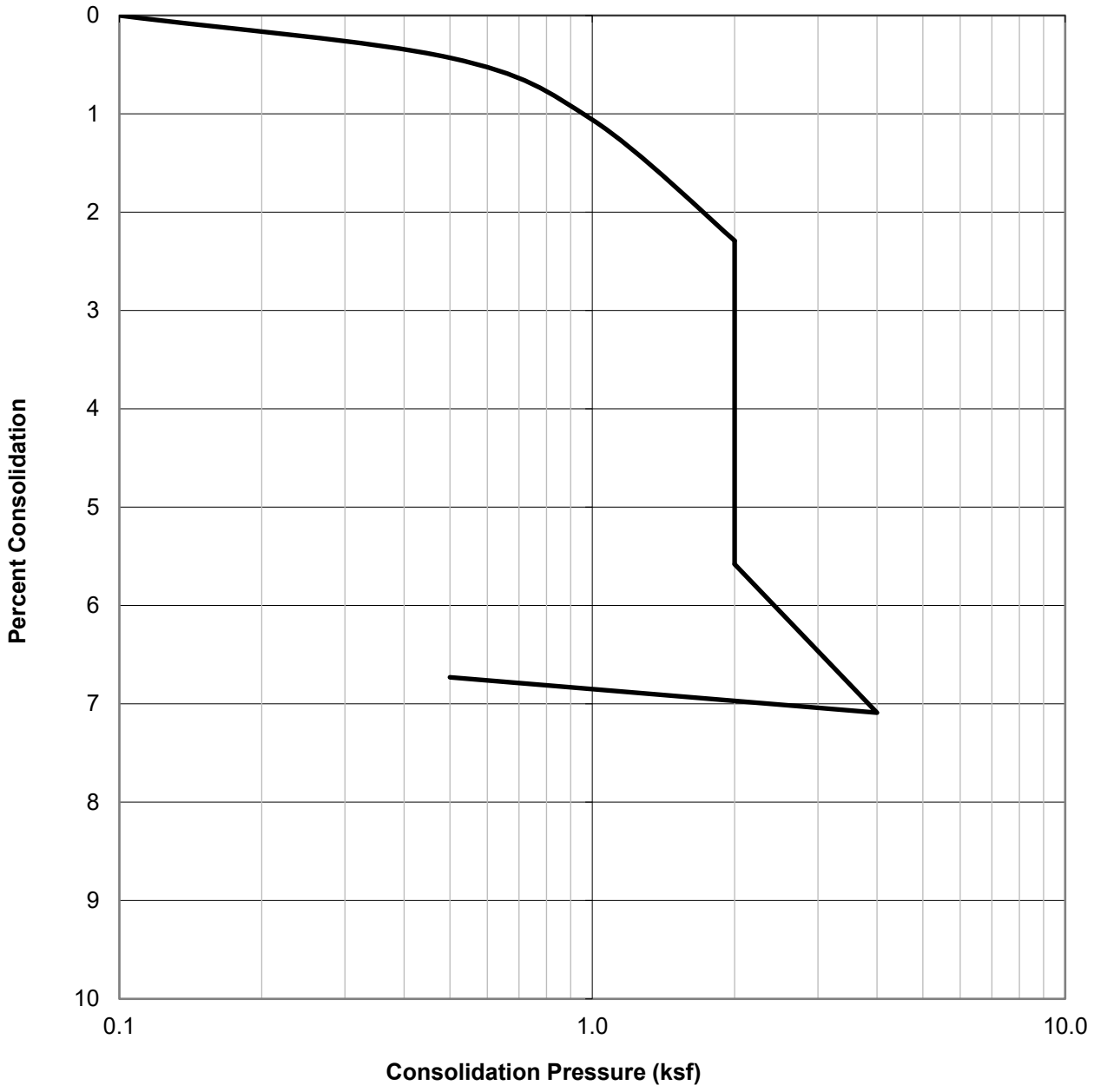
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@7.5'	Poorly Graded SAND (SP), light brown	104.3	4.9	16.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

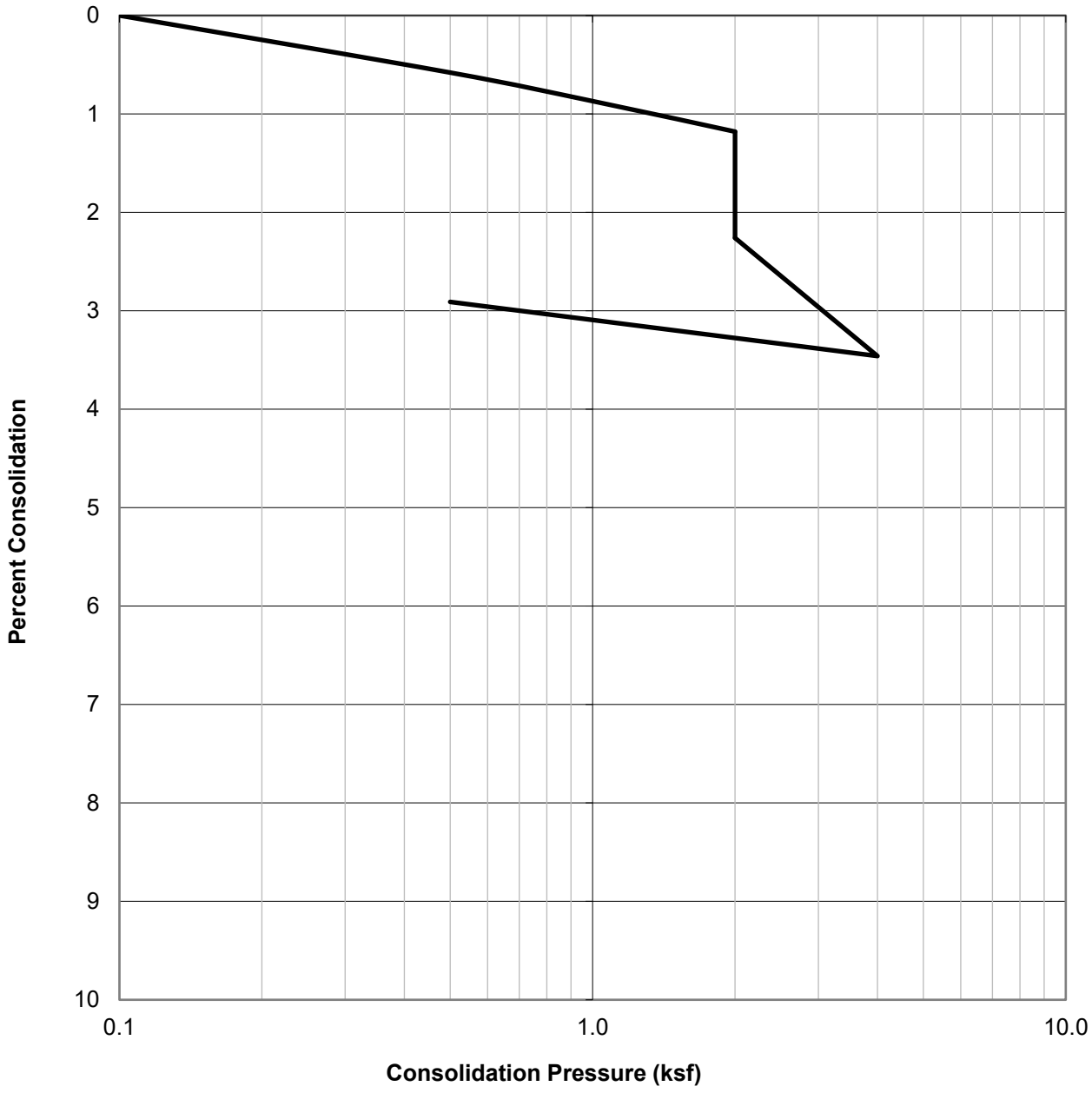
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@10'	Silty SAND (SM), brown	112.4	11.3	15.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

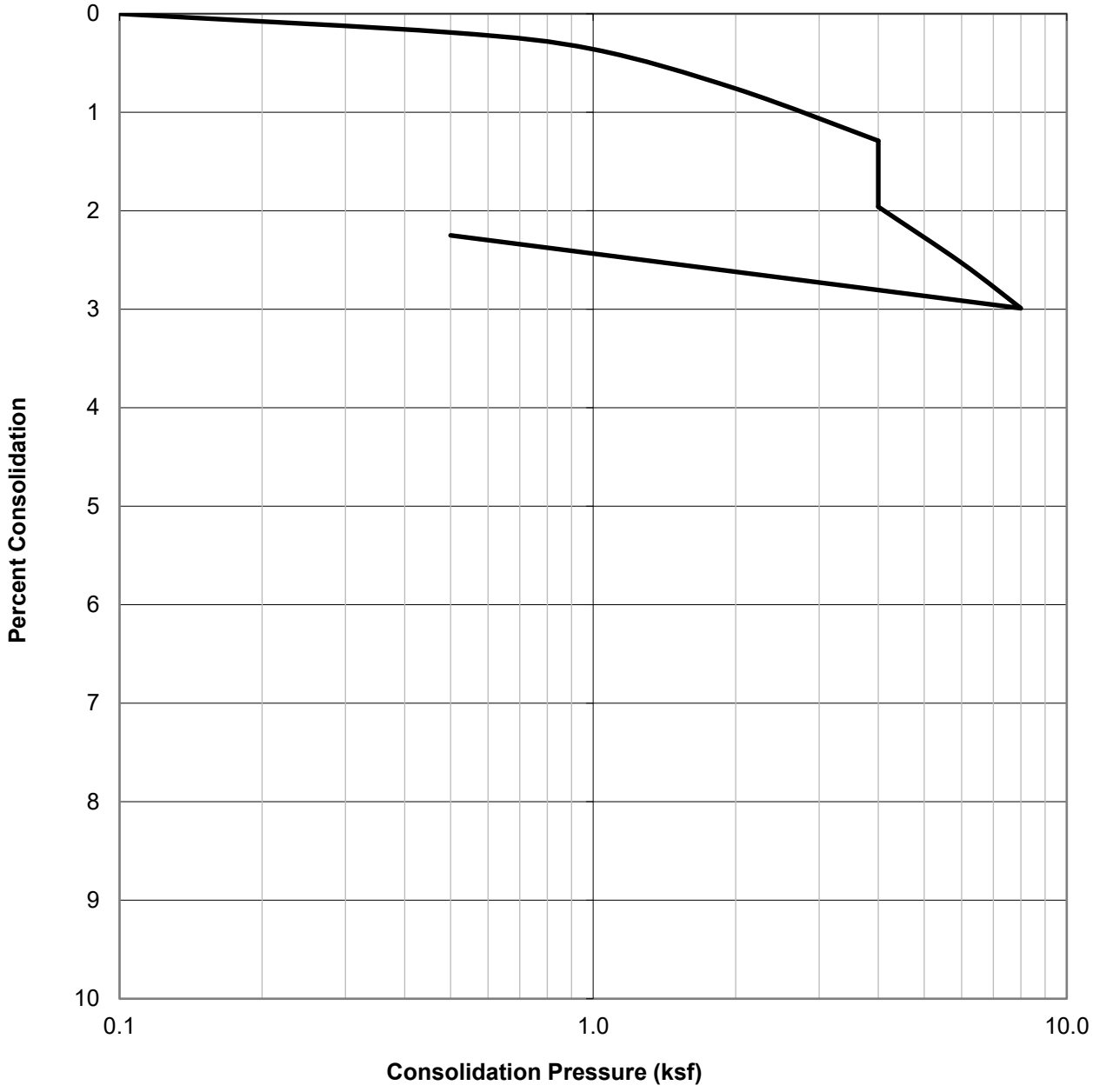
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-7

WATER ADDED AT 4.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@15'	Silty SAND (SM), brown	119.8	9.7	10.7

GEOCON

CONSOLIDATION TEST RESULTS

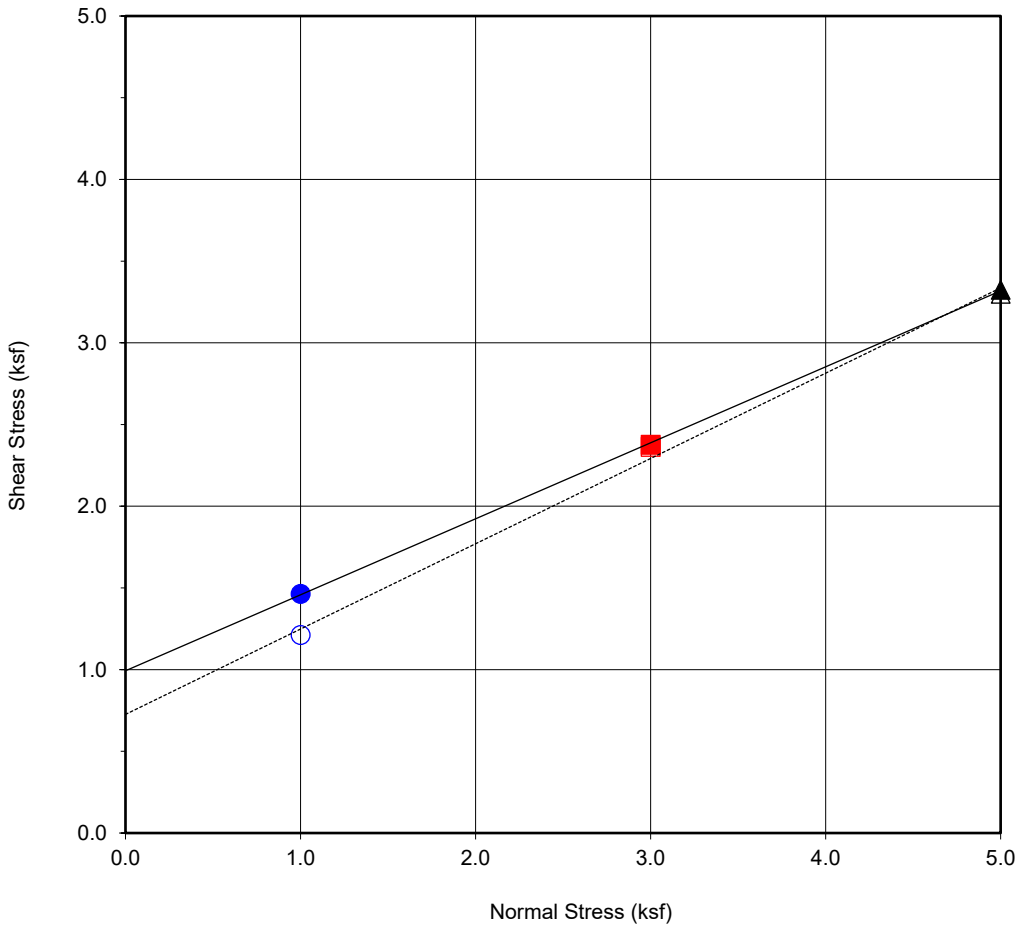
ASTM D-2435

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-8



Boring No.	**B-1**
Sample No.	**B-1@2.5'**
Depth (ft)	**2.5'**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	993	25
Ultimate	726	28

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.46	■ 2.38	▲ 3.32
Shear Stress @ End of Test (ksf)	○ 1.21	□ 2.36	△ 3.30
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	5.9	5.1	8.7
Initial Dry Density (pcf)	111.9	105.6	103.3
Initial Degree of Saturation (%)	31.5	23.0	37.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	14.4	14.8	15.1

GEOCON

DIRECT SHEAR TEST RESULTS

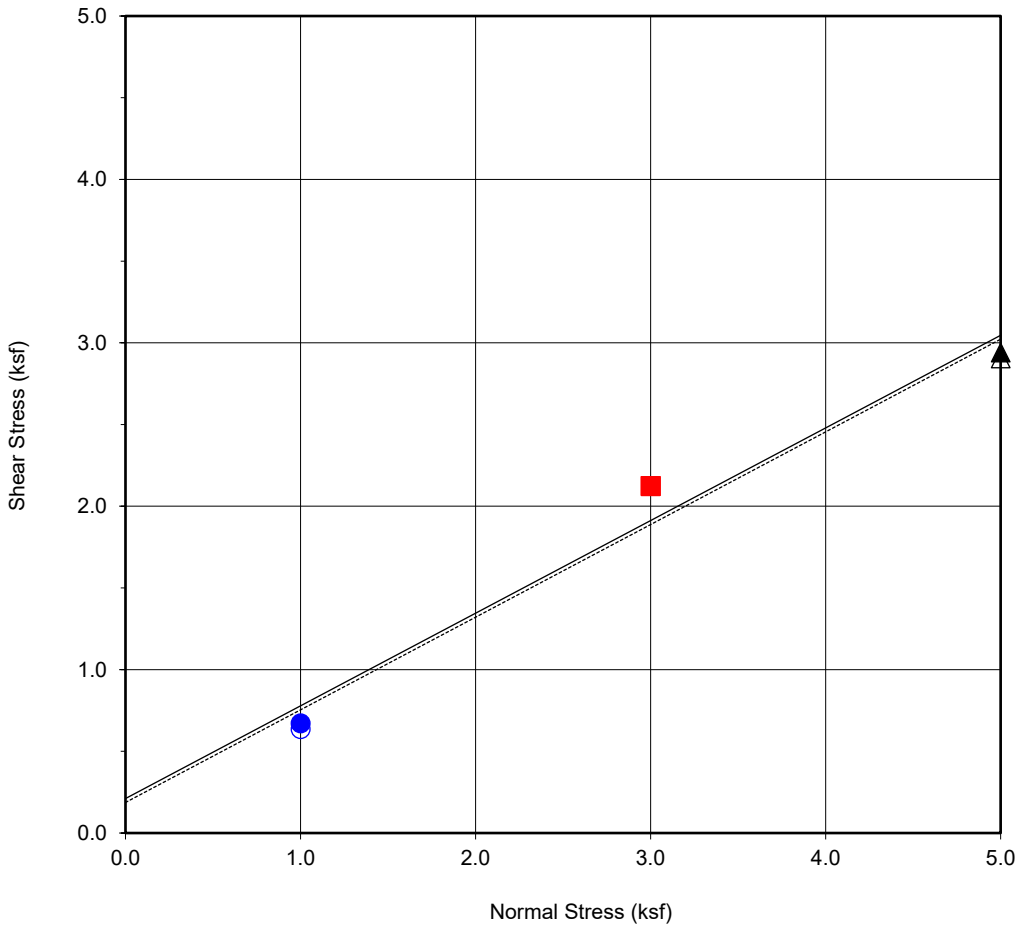
Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-9



Boring No.	**B-1**
Sample No.	**B-1@7.5'**
Depth (ft)	**7.5'**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	211	30
Ultimate	187	30

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.67	■ 2.12	▲ 2.94
Shear Stress @ End of Test (ksf)	○ 0.64	□ 2.12	△ 2.90
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	16.9	12.6	15.9
Initial Dry Density (pcf)	93.0	102.4	104.7
Initial Degree of Saturation (%)	56.2	52.7	70.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.0	19.5	20.4

GEOCON

DIRECT SHEAR TEST RESULTS

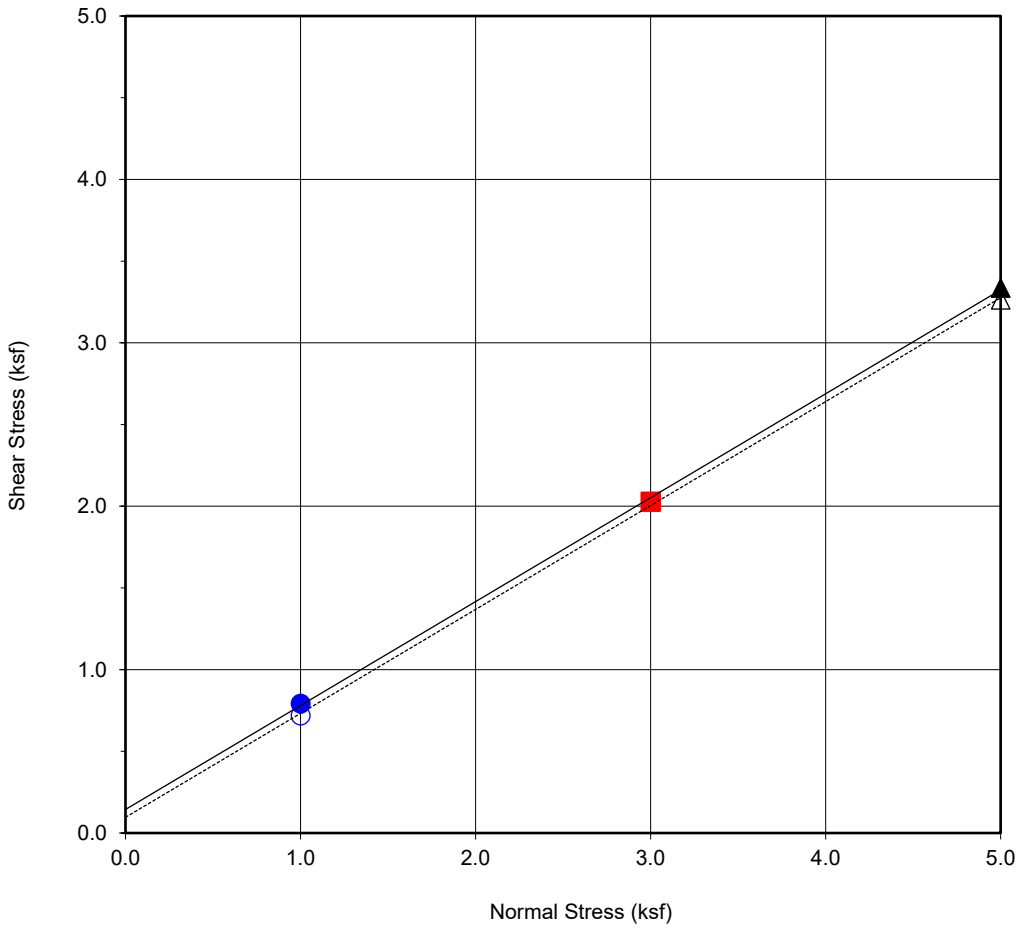
Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-10



Boring No.	**B1/B2**
Sample No.	**B1/B2@0-5'**
Depth (ft)	**0-5'**
Sample Type:	Bulk

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	144	32
Ultimate	96	32

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.79	■ 2.03	▲ 3.34
Shear Stress @ End of Test (ksf)	○ 0.72	□ 2.03	△ 3.26
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	8.4	8.4	8.5
Initial Dry Density (pcf)	120.0	120.1	120.0
Initial Degree of Saturation (%)	56.2	56.1	56.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	12.5	16.4	17.4

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-11

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

GILMAN RANCH EVENTS CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

PROJECT NO. T3070-22-01B

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

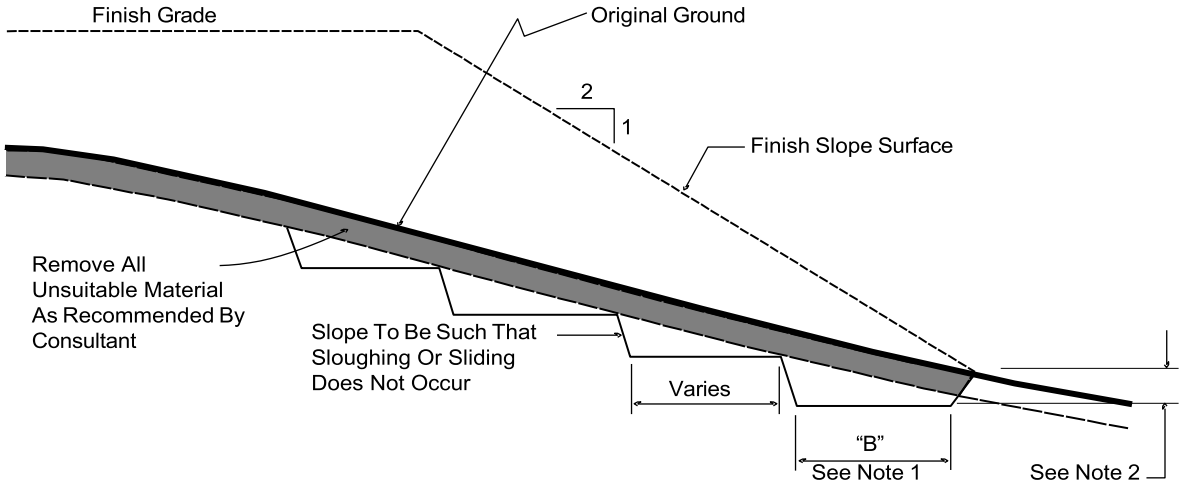
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

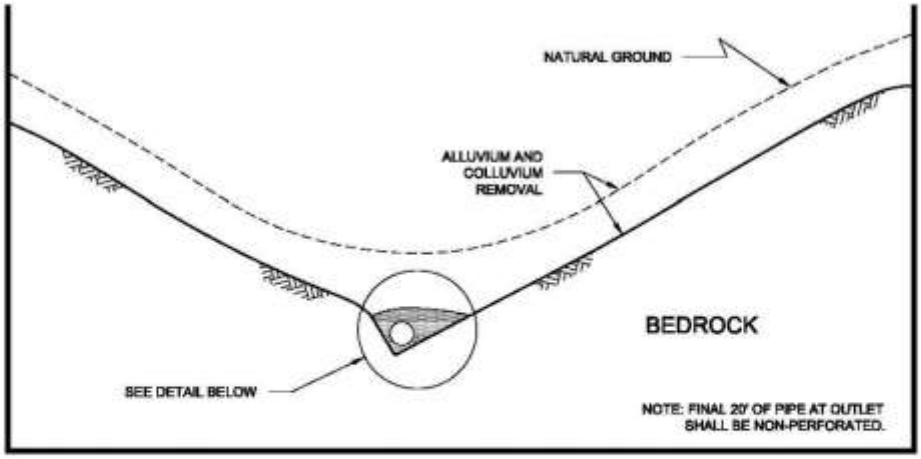
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

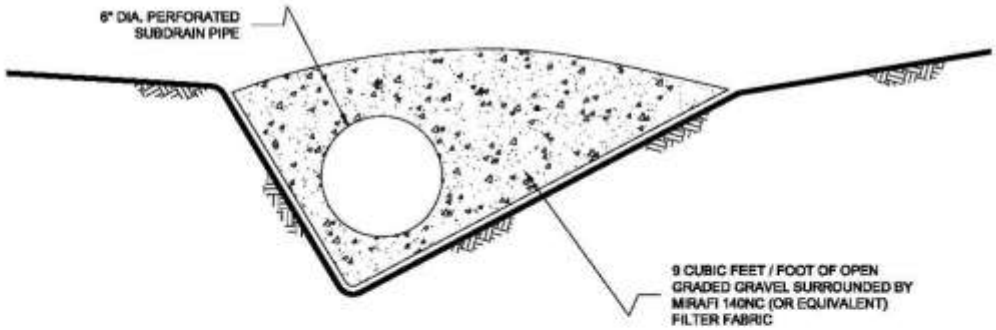
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

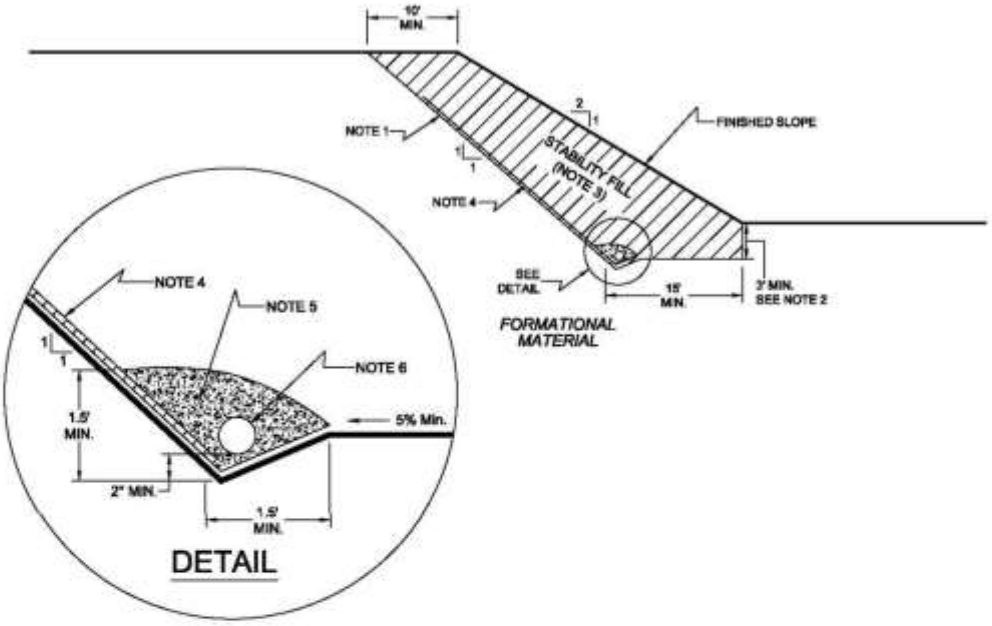
1.....8-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

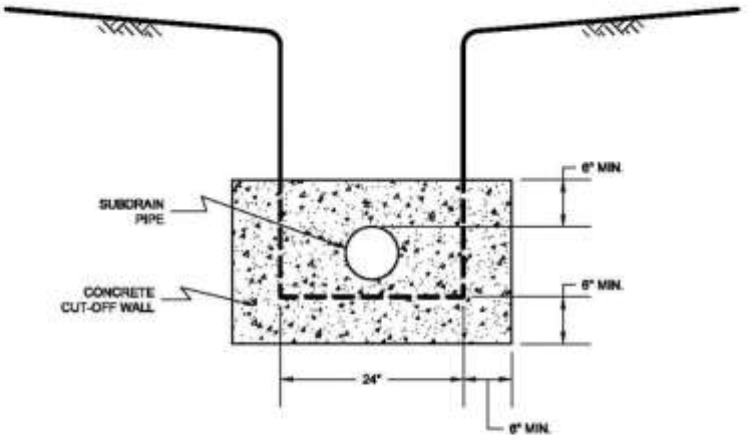
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

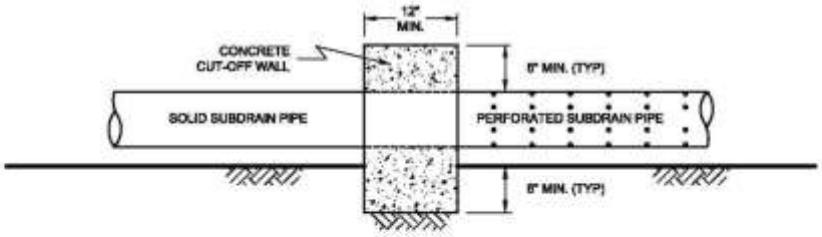
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

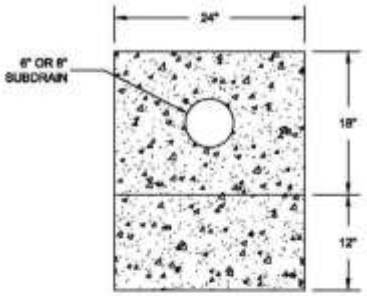


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

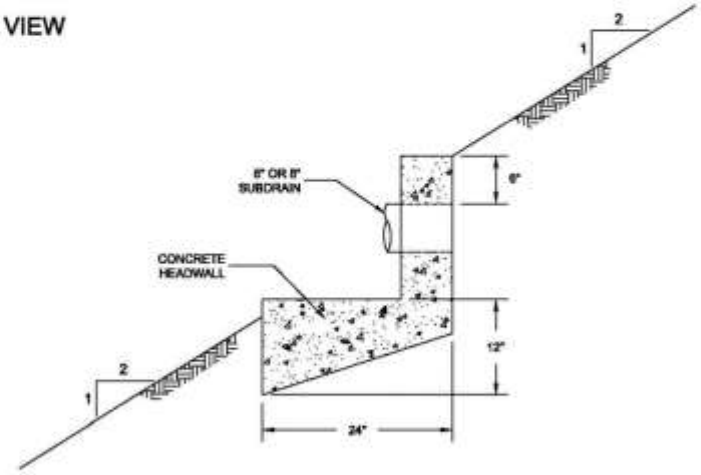
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 **Soil and Soil-Rock Fills:**

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4 Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

APPENDIX E2

PALEONTOLOGICAL RECORDS SEARCH

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

January 22, 2023

UltraSystems Environmental
Attn: Stephen O'Neil

re: Paleontological resources for the Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project (7196)

Dear Stephen:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design project area as outlined on the portion of the Beaumont USGS topographic quadrangle map that you sent to me via e-mail on December 15, 2022. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM IP 437	West side of Castile Canyon, north of the Soboba Indian Reservation	Unknown formation (Pleistocene)	Invertebrates – insect (*Sobobapteron kirkbaye*), brachiopod (*Terebratalia hemphili*)	Surface
LACM VP 1653	Soboba Indian Reservation; Approx. five miles east of San Jacinto	Unknown formation (Pleistocene)	Osteichthyes	Surface
LACM VP 4540	Junction of Jackrabbit Trail & Gilman Springs Road	Unnamed Formation (Pleistocene, gravel pit)	Horse Family (Equidae)	Unknown
LACM VP 4135	Near Beaumont, CA; north of Banning, CA	Unknown formation (Pleistocene; possibly Imperial or San Timoteo)	Camel family (Camelidae)	Unknown
LACM VP 1269	Near intersection of Varner Road and Edom Hill Road; west end of Indio	Unknown formation (Pleistocene)	Horse (*Equus*)	Unknown

	Hills			
LACM VP 1231 - 1234	Indio Hills, Riverside Co.	Palm Spring Formation	Horse (*Plesippus*) and other uncatalogued vertebrates	Surface

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,



Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

APPENDIX F

WATER QUALITY MANAGEMENT PLAN

Project Specific
Water Quality Management Plan

For: **Gilman Historic Ranch**

1901 W. Wilson Street Riverside County, CA 92220

DEVELOPMENT NO. **APN: 009-707-268, 535-070-023**
DESIGN REVIEW NO. **1**

Prepared for:

Name of Owner/Developer: Riverside County
Street Address: 4080 Lemon St.
City, State Zip: Riverside, CA 92501
Telephone: (951)955-1395

Prepared by:
Andy V Nguyen – Senior Civil Engineer
IMEG
901 Via Piemonte, Suite 400
Ontario, CA 91764
Telephone: 714-507-1607

Original Date Prepared: 1/29/2026

Revision Date(s):2/19/2026
8/13/2026

OWNER'S CERTIFICATION

This project-specific Water Quality Management Plan (WQMP) has been prepared for:

Name of Owner/Developer: County of Riverside
for the project known as Gilman Ranch at 1901 W. Wilson St. Banning, CA.

This WQMP is intended to comply with the requirements of **The City of Banning** for **APN: 009-707-268, 535-070-023**, which includes the requirement for the preparation and implementation of a project-specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity.

The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under **The City of Banning** Water Quality Ordinance (Municipal Code Section 1415).

If the undersigned transfers its interest in the subject property/project, the undersigned shall notify the successor in interest of its responsibility to implement this WQMP.

"I, the undersigned, certify under penalty of law that I am the owner of the property that is the subject of this WQMP, and that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

_____
Owner's Signature

_____
Owner's Printed Name

_____
Owner's Title/Position

_____
Date

Street Address
City, State Zip
Error! Reference source not found.

ATTEST

_____
Notary Signature

_____
Printed Name

_____
Title/Position

_____
Date

THIS FORM SHALL BE NOTARIZED BEFORE ACCEPTANCE OF THE FINAL PROJECT SPECIFIC WQMP

Contents

SECTION **PAGE**

I. Project Description 1
II. Site Characterization 5
III. Pollutants of Concern 6
IV. Hydrologic Conditions of Concern 7
V. Best Management Practices 9
V.1 Site Design BMP Concepts, LID/Site Design and Treatment Control BMPs 9
V.1.A Site Design BMP Concepts and LID/Site Design BMPs 11
V.1.B Treatment Control BMPs 17
V.1.C Measurable Goal Summary 19
V.2 Source Control BMPs 20
V.3 Equivalent Treatment Control BMP Alternatives 23
V.4 Regionally-Based BMPs 23
VI. Operation and Maintenance Responsibility for BMPs 24
VII. Funding 25

TABLES

Table 1. Pollutant of Concern Summary 6
Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency 10
Table 3. Implementation of Site Design BMP Concepts 12
Table 4. LID/Site Design BMPs Meeting the LID/Site Design Measurable Goal 16
Table 5: Treatment Control BMP Summary 18
Table 6: Measurable Goal Summary 19
Table 7. Source Control BMPs 20

APPENDICES

A. Conditions of Approval
B. Vicinity Map, WQMP Site Plan, and Receiving Waters Map
C. Supporting Detail Related to Hydrologic Conditions of Concern (If Applicable)
D. Educational Materials
E. Soils Report (if applicable)
F. Structural BMP and/or Retention Facility Sizing Calculations and Design Details
G. Agreements – CC&Rs, Covenant and Agreements, BMP Maintenance Agreements and/or Other Mechanisms for ensuring ongoing Operation, Maintenance, Funding and Transfer of Requirements for this project-specific WQMP
H. Phase 1 Environmental Site Assessment – Summary of Site Remediation Conducted and Use Restrictions
I. Project-Specific WQMP Summary Data Form

I. Project Description

Project Owner: Name of Owner/Developer
Street Address
City, State Zip
Error! Reference source not found.

WQMP Preparer: Andy V. Nguyen
901 Via Piemonte, Suite 400
Ontario, CA 91764
714-507-1607

Project Site Address: **1901 W. Wilson Street**
Banning, CA 92220

Planning Area/
Community Name/
Development Name: **Gilman Ranch**

APN Number(s): **Insert APN Number(s) - 009-707-268, 535-070-023**

Latitude & Longitude: **LAT:33.9357 LONG: -116.8963**

Receiving Water: **San Gorgonio River**

Project Site Size: **5.78 acres of disturbed area**

Standard Industrial Classification (SIC) Code: **6552**

Formation of Home Owners' Association (HOA)
or Property Owners Association (POA): Y ☐ N ☒

Additional Permits/Approvals required for the Project:

AGENCY	Permit required
State Department of Fish and Wildlife, Fish and Game Code §1602 Streambed Alteration Agreement	Y ☐ N☒
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Certification	Y ☐ N☒
US Army Corps of Engineers, CWA Section 404 permit	Y ☐ N☒
US Fish and Wildlife, Endangered Species Act Section 7 biological opinion	Y ☐ N☒
Statewide Construction General Permit Coverage	Y ☒ N☐
Statewide Industrial General Permit Coverage	Y ☐ N☒
Other *(please list in the space below as required)*	

The proposed site is located at 1901 W. Wilson St Banning, California. The proposed disturbed area for the site is 5.78 acres and is bounded by N. 19th st to the west and W. Wilson St to the south.

To capture the runoff produced onsite due to the additional impervious area, a proposed infiltration basin BMP was proposed at the south end of the site for both DMA 1 and DMA 2. See the exact location on the proposed WQMP exhibit in Appendix B. In additional permeable pavement is proposed in the parking lot to mitigate the storm water volume in DMA 1 and then overflow to the basin. See appendix F for Advanced Engineering Systems (AES) calculations that solved for the 100-year, 3-hour storm event per the City of Banning ordinance 1415. The BMP was sized to provide 100% retention of the 100-year, 3-hour storm.

Appendix A of this project-specific WQMP includes a complete copy of the final Conditions of Approval. Appendix B of this project-specific WQMP includes:

a. A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail; and

b. A Site Plan for the project. The Site Plan included as part of Appendix B depicts the following project features:

- Location and identification of all structural BMPs, including Source Control, LID/Site Design and Treatment Control BMPs.
- Landscaped areas.
- Paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.).
- Number and type of structures and intended uses (i.e., buildings, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.).
- Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation.
- Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlets/outlet structures. Existing and proposed drainage facilities should be clearly differentiated.
- Location(s) of Receiving Waters to which the project directly or indirectly discharges.
- Location of points where onsite (or tributary offsite) flows exit the property/project site.
- Delineation of proposed drainage area boundaries, including tributary offsite areas, for each location where flows exit the project site and existing site (where existing site flows are required to be addressed). Each tributary area should be clearly denoted.
- Pre- and post-project topography.

Appendix I is a one page form that summarizes pertinent information relative to this project-specific WQMP.

II. Site Characterization

Land Use Designation or Zoning: **Planned Development**

Current Property Use: **Public Ranch**

Proposed Property Use: **Public Ranch**

Availability of Soils Report: Y ☒ N ☐ *Note: A soils report is required if infiltration BMPs are utilized. Attach report in Appendix E.*

Phase 1 Site Assessment: Y ☐ N ☒ *Note: If prepared, attached remediation summary and use restrictions in Appendix H.*

Receiving Waters for Urban Runoff from Site

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use Designated Receiving Waters
San Gorgonio River	N/A	MUN, AGR, GWR, REC I, REC II, WARM, COLD, WILD, POW	-
Whitewater River	N/A	MUN, AGR, GWR, REC I, REC II, WARM, COLD, WILD, POW	-

III. Pollutants of Concern

Table 1. Pollutant of Concern Summary

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus	Yes	Wild animal, Pet waste
Heavy Metals	Yes	Motor Vehicles
Nutrients	Yes	Fertilizers, Food waste
Toxic Organic Compounds	Yes	Fertilizers
Sediment/Turbidity	Yes	Parking Lot
Trash & Debris	Yes	Trash areas, Parking Areas
Oil & Grease	Yes	Vehicles, Parking areas
Other (specify pollutant):		
Other (specify pollutant):		

Hydrologic Conditions of Concern

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater"). This section does not need to be completed; however, retention facility design details and sizing calculations must be included in Appendix F.

No ☐ This section must be completed.

This Project meets the following condition:

☐ **Condition A**: 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, **and** 4) the discharge is authorized by the local land use authority.

☐ **Condition B**: The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

☐ **Condition C**: The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

☒ **None:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	100 year – 3 hour		100 year – 3 hour	
	Precondition	**Post-condition**	**Precondition**	**Post-condition**
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)	39,770	42858.68	*	*
Duration (minutes)				

IV. Best Management Practices

This project implements Best Management Practices (BMPs) to address the Pollutants of Concern that may potentially be generated from the use of the Project site. These BMPs have been selected and implemented to comply with Section 3.5 of the WQMP Guidance document, and consist of Site Design BMP concepts, Source Control, LID/Site Design and, if/where necessary, Treatment Control BMPs as described herein.

V.1 Site Design BMP Concepts, LID/Site Design and Treatment Control BMPs

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain Urban Runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater). **The LID/Site Design measurable goal has thus been met (100%), and Sections V.1.A and V.1.B do not need to be completed**; however, retention facility design details and sizing calculations must be included in Appendix F, and '100%' should be entered into Column 3 of Table 6 below.

No ☐ Section V.1 must be completed.

This section of the Project-Specific WQMP documents the LID/Site Design BMPs and, if/where necessary, the Treatment Control BMPs that will be implemented on the project to meet the requirements detailed within Section 3.5.1 of the WQMP Guidance document. Section 3.5.1 includes requirements to implement Site Design Concepts and BMPs, and includes requirements to address Pollutants of Concern with BMPs. Further, sub-section 3.5.1.1 specifically requires that Pollutants of Concern be addressed with LID/Site Design BMPs to the extent feasible.

LID/Site Design BMPs are those BMPs listed within Table 2 below which promote retention and/or feature a natural treatment mechanism; off-site and regionally-based BMPs are also LID/Site Design BMPs, and therefore count towards the measurable goal, if they fit these criteria. This project incorporates LID/Site Design BMPs to fully address the Treatment Control BMP requirement where and to the extent feasible. If and where it has been acceptably demonstrated to the local land use authority that it is infeasible to fully meet this requirement with LID/Site Design BMPs, Section V.1.B (below) includes a description of the conventional Treatment Control BMPs that will be substituted to meet the same requirements.

In addressing Pollutants of Concern, BMPs are selected using Table 2 below.

Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency (1)

(Sources: Riverside County Flood Control & Water Conservation District Design Handbook for Low Impact Development Best Management Practices, dated September 2011, the Orange County Technical Guidance Document for Water Quality Management Plans, dated May 19, 2011, and the Caltrans Treatment BMP Technology Report, dated April 2010 and April 2008)

Pollutant of Concern	Landscape Swale[2, 3]	Landscape Strip[2, 3]	Biofiltration (with underdrain)[2, 3]	Extended Detention Basin[2]	Sand Filter Basin[2]	Infiltration Basin[2]	Infiltration Trench[2]	Permeable Pavement[2]	Bioretention (w/o underdrain)[2, 3]	Other BMPs Including Proprietary BMPs[4, 6]
Sediment & Turbidity	M	M	H	M	H	H	H	H	H	Varies by Product[5]
Nutrients	L/M	L/M	M	L/M	L/M	H	H	H	H	
Toxic Organic Compounds	M/H	M/H	M/H	L	L/M	H	H	H	H	
Trash & Debris	L	L	H	H	H	H	H	L	H	
Bacteria & Viruses (also: Pathogens)	L	M	H	L	M	H	H	H	H	
Oil & Grease	M	M	H	M	H	H	H	H	H	
Heavy Metals	M	M/H	M/H	L/M	M	H	H	H	H	

Abbreviations:

L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency

Notes:

(1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.

(2) Expected performance when designed in accordance with the most current edition of the document, "Riverside County, Whitewater River Region Stormwater Quality Best Management Practice Design Handbook".

(3) Performance dependent upon design which includes implementation of thick vegetative cover. Local water conservation and/or landscaping requirements should be considered; approval is based on the discretion of the local land use authority.

(4) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP (including proprietary filters, hydrodynamic separators, inserts, etc.), or newly developed/emerging stormwater treatment technologies.

(5) Expected performance should be based on evaluation of unit processes provided by BMP and available testing data. Approval is based on the discretion of the local land use authority.

(6) When used for primary treatment as opposed to pre-treatment, requires site-specific approval by the local land use authority.

V.1.A SITE DESIGN BMP CONCEPTS AND LID/SITE DESIGN BMPS

This section documents the Site Design BMP concepts and LID/Site Design BMPs that will be implemented on this project to comply with the requirements detailed in Section 3.5.1 of the WQMP Guidance document.

- Table 3 herein documents the implementation of the Site Design BMP Concepts described in sub-sections 3.5.1.3 and 3.5.1.4.
- Table 4 herein documents the extent to which this project has implemented the LID/Site Design goals described in sub-section 3.5.1.1.

Table 3. Implementation of Site Design BMP Concepts

Design Concept	Technique	Specific BMP	Included			Brief Reason for BMPs Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 1	**Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas (See WQMP Section 3.5.1.3)**	Conserve natural areas by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.	☒	☐	☐	
		Conserve natural areas by incorporating the goals of the Multi-Species Habitat Conservation Plan or other natural resource plans.	☒	☐	☐	
		Preserve natural drainage features and natural depressional storage areas on the site.	☒	☐	☐	
		Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	☒	☐	☐	
		Use natural drainage systems.	☒	☐	☐	
		Where applicable, incorporate Self-Treating Areas	☒	☐	☐	
		Where applicable, incorporate Self-Retaining Areas	☒	☐	☐	
		Increase the building floor to area ratio (i.e., number of stories above or below ground).	☐	☐	☒	Protecting existing buildings
		Construct streets, sidewalks and parking lot aisles to minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.	☒	☐	☐	
		Reduce widths of streets where off-street parking is available.	☒	☐	☐	
		Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.	☒	☐	☐	
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☐	☐	☒	BMPs provided are sufficent

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included			Brief Reason for Each BMP Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 2	**Minimize Directly Connected Impervious Area (See WQMP Section 3.5.1.4)**	Design residential and commercial sites to contain and infiltrate roof runoff, or direct roof runoff to landscaped swales or buffer areas.	☒	☐	☐	
		Drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.	☒	☐	☐	
		Incorporate landscaped buffer areas between sidewalks and streets.	☒	☐	☐	
		Use natural or landscaped drainage swales in lieu of underground piping or imperviously lined swales.	☒	☐	☐	
		Where soil conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.	☒	☐	☐	
		Maximize the permeable area by constructing walkways, trails, patios, overflow parking, alleys, driveways, low-traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces such as pervious concrete, porous asphalt, unit pavers, and granular materials.	☒	☐	☐	
		Use one or more of the following:				
		Rural swale system: street sheet flows to landscaped swale or gravel shoulder, curbs used at street corners, and culverts used under driveways and street crossings.	☒	☐	☐	
		Urban curb/swale system: street slopes to curb; periodic swale inlets drain to landscaped swale or biofilter.	☐	☐	☒	
		Dual drainage system: first flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder; high flows connect directly to MS4s.	☒	☐	☐	
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☒	☐	☐	
		Use one or more of the following for design of driveways and private residential parking areas:				
		Design driveways with shared access, flared (single lane at street), or wheel strips (paving only under the tires).	☒	☐	☐	
		Uncovered temporary or guest parking on residential lots paved with a permeable surface, or designed to drain into landscaping.	☒	☐	☐	

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included			Brief Reason for Each BMP Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 2 (cont'd)	**Minimize Directly Connected Impervious Area** **(See WQMP Section 3.5.1.4)**	Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☒	☐	☐	
		Use one or more of the following for design of parking areas:				
		Where landscaping is proposed in parking areas, incorporate parking area landscaping into the drainage design.	☒	☐	☐	
		Overflow parking (parking stalls provided in excess of the Permittee's minimum parking requirements) may be constructed with permeable pavement.	☒	☐	☐	
		Other comparable and equally effective Site Design BMP (or BMPs) as approved by the local land use authority (Note: Additional narrative required describing BMP and how it addresses site design concept).	☐	☐	☒	The BMP being utilized are infiltration basin.

Project Site Design BMP Concepts:

Project Site Design BMP Concept: Minimize Urban Runoff, Minimize impervious footprint, and conserve natural areas

Alternative Project Site Design BMP Concepts:

N/A

Table 4. LID/Site Design BMPs Meeting the LID/Site Design Measurable Goal

(1) DRAINAGE SUB-AREA ID OR NO.	(2) LID/SITE DESIGN BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF LID/SITE DESIGN BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
DMA 1	INFILTRATION BASIN AND PERMABLE PAVEMENT	SEDIMENT, NUTRIENTS, ORGANIC COMPOUNDS, TRASH, BACTERIA, HEAVY METALS, OIL	WILD ANIMALS, PET WASTE, FERTILIZERS, FOOD WASTE, TRASH AREAS	H	V_{BMP}	4.97
DMA 2	INFILTRATION BASIN	SEDIMENT, NUTRIENTS, ORGANIC COMPOUNDS, TRASH, BACTERIA, HEAVY METALS, OIL	WILD ANIMALS, PET WASTE, FERTILIZERS, FOOD WASTE, TRASH AREAS	H	V_{BMP}	0.81
TOTAL PROJECT AREA TREATED WITH LID/SITE DESIGN BMPs (NEAREST 0.1 ACRE)						**5.78**

*** LID/Site Design BMPs listed in this table are those that completely address the 'Treatment Control BMP requirement' for their drainage sub-area.**

Justification of infeasibility for sub-areas not addressed with LID/Site Design BMPs

N/A

V.1.B TREATMENT CONTROL BMPS

Conventional Treatment Control BMPs shall be implemented to address the project's Pollutants of Concern as required in WQMP Section 3.5.1 where, and to the extent that, Section V.1.A has demonstrated that it is infeasible to meet these requirements through implementation of LID/Site Design BMPs.

☒ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP completely address the 'Treatment Control BMP requirement' for the entire project site (and where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP Guidance document. Supporting documentation for the sizing of these LID/Site Design BMPs is included in Appendix F. ***Section V.1.B does not need to be completed**.

☐ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP do **NOT** completely address the 'Treatment Control BMP requirement' for the entire project site (or where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP. ***Section V.1.B must be completed.**

The Treatment Control BMPs identified in this section are selected, sized and implemented to treat the design criteria of V_{BMP} and/or Q_{BMP} for all project (and if required, existing site) drainage sub-areas which were not fully addressed using LID/Site Design BMPs. Supporting documentation for the sizing of these Treatment Control BMPs is included in Appendix F.

Table 5: Treatment Control BMP Summary

(1) DRAINAGE SUB-AREA ID OR NO.	(2) TREATMENT CONTROL BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF TREATMENT CONTROL BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
	TOTAL PROJECT AREA TREATED WITH TREATMENT CONTROL BMPs (NEAREST 0.1 ACRE)					

V.1.C MEASURABLE GOAL SUMMARY

This section documents the extent to which this project has met the measurable goal described in WQMP Section 3.5.1.1 of addressing 100% of the project's 'Treatment Control BMP requirement' with LID/Site Design BMPs. Projects required to retain Urban Runoff onsite in conformance with local ordinance are considered to have met the measurable goal; for these instances, '100%' is entered into Column 3 of the Table.

Table 6: Measurable Goal Summary

(1) Total Area Treated with LID/Site Design BMPs (Last row of Table 4)	(2) Total Area Treated with Treatment Control BMPs (Last row of Table 5)	(3) % of Treatment Control BMP Requirement addressed with LID/Site Design BMPs
5.78	0	100%

V.2 SOURCE CONTROL BMPS

This section identifies and describes the Source Control BMPs applicable and implemented on this project.

Table 7. Source Control BMPs

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Non-Structural Source Control BMPs			
Education for Property Owners, Operators, Tenants, Occupants, or Employees	☒	☐	
Activity Restrictions	☒	☐	
Irrigation System and Landscape Maintenance	☒	☐	
Common Area Litter Control	☒	☐	
Street Sweeping Private Streets and Parking Lots	☒	☐	
Drainage Facility Inspection and Maintenance	☒	☐	
Structural Source Control BMPs			
Storm Drain Inlet Stenciling and Signage	☒	☐	
Landscape and Irrigation System Design	☒	☐	
Protect Slopes and Channels	☒	☐	
Provide Community Car Wash Racks	☐	☒	No car washes proposed
Properly Design*:			
Fueling Areas	☐	☒	No fueling areas proposed
Air/Water Supply Area Drainage	☐	☒	No air/water supply area proposed
Trash Storage Areas	☒	☐	
Loading Docks	☐	☒	No loading docks proposed
Maintenance Bays	☐	☒	No maintenance bays proposed.
Vehicle and Equipment Wash Areas	☒	☐	
Outdoor Material Storage Areas	☒	☐	
Outdoor Work Areas or Processing Areas	☒	☐	
Provide Wash Water Controls for Food Preparation Areas	☐	☒	

*Details demonstrating proper design must be included in Appendix F.

Source Control BMPs	Action	Start up Date	Frequency
Education for Property Owners/Staff	Provide Education Materials provided in Appendix D	Upon site opening	Initial Hire
Activity Restrictions	Activity restrictions are provided by the building operator. Generally, prohibits hosing debris in drainage system and to make sure to keep contaminants covered.	Upon installation	Weekly
Irrigation System and Landscape Maintenance	Ensure there is no over watering or system failures.	Upon Installation	Monthly
Common Area Litter Control	Emptying garbage cans on site, patrolling the boundary of the development to pick up litter, and reporting any violations.	Upon Installation	Weekly
Street Sweeping Private Streets And Parking Lots	Standard maintenance including sweeping and discarding debris properly.	Upon installation of pavement	Weekly
Drainage Facility Inspection and Maintenance	Drainage system must be cleaned if accumulated sediment/debris fills 25% or more of the storage capacity.	Upon installation	Monthly
Storm Drain Inlet Stenciling And Signage	Storm drain inlets must be labeled with prohibitive language to discourage illegal dumping and state which party is liable for maintaining the labels.	Upon Installation	Annually

Landscape and Irrigation System Design	Standard landscaping maintenance activities. These usually include trash removal, proper replacement of landscaping as needed, and regular trimming.	Upon installation	Monthly
Protect Slopes and Channels	Standard maintenance to ensure runoff safely is conveyed and treated.	Upon installation	Monthly

Appendix D includes copies of the educational materials (described in Section 3.5.2.1 of the WQMP Guidance document) that will be used in implementing this project-specific WQMP.

V.3 EQUIVALENT TREATMENT CONTROL BMP ALTERNATIVES

Not applicable

V.4 REGIONALLY-BASED BMPS

Not applicable

V. Operation and Maintenance Responsibility for BMPs

Appendix G of this project-specific WQMP includes copies of CC&Rs, Covenant and Agreements, BMP Maintenance Agreement and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

Once the site is open, the owner will be responsible for Maintenance and Operation.

VI. Funding

The project will be funded by the owner.

Appendix A

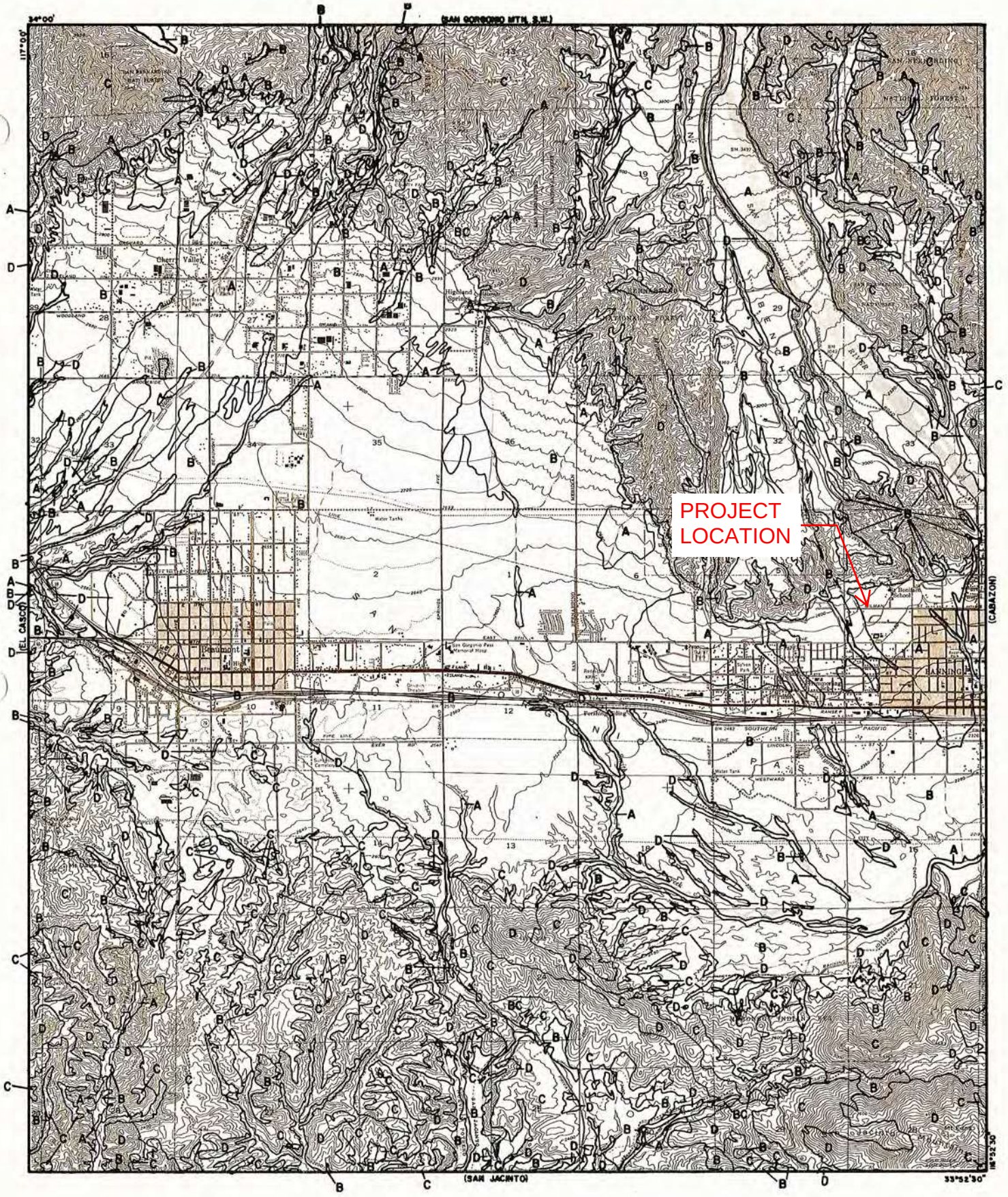
Conditions of Approval

Planning Commission Resolution _____

Dated _____

Appendix B

Vicinity Map, WQMP Site Plan, and Receiving Waters Map



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC & WCD

HYDROLOGY MANUAL

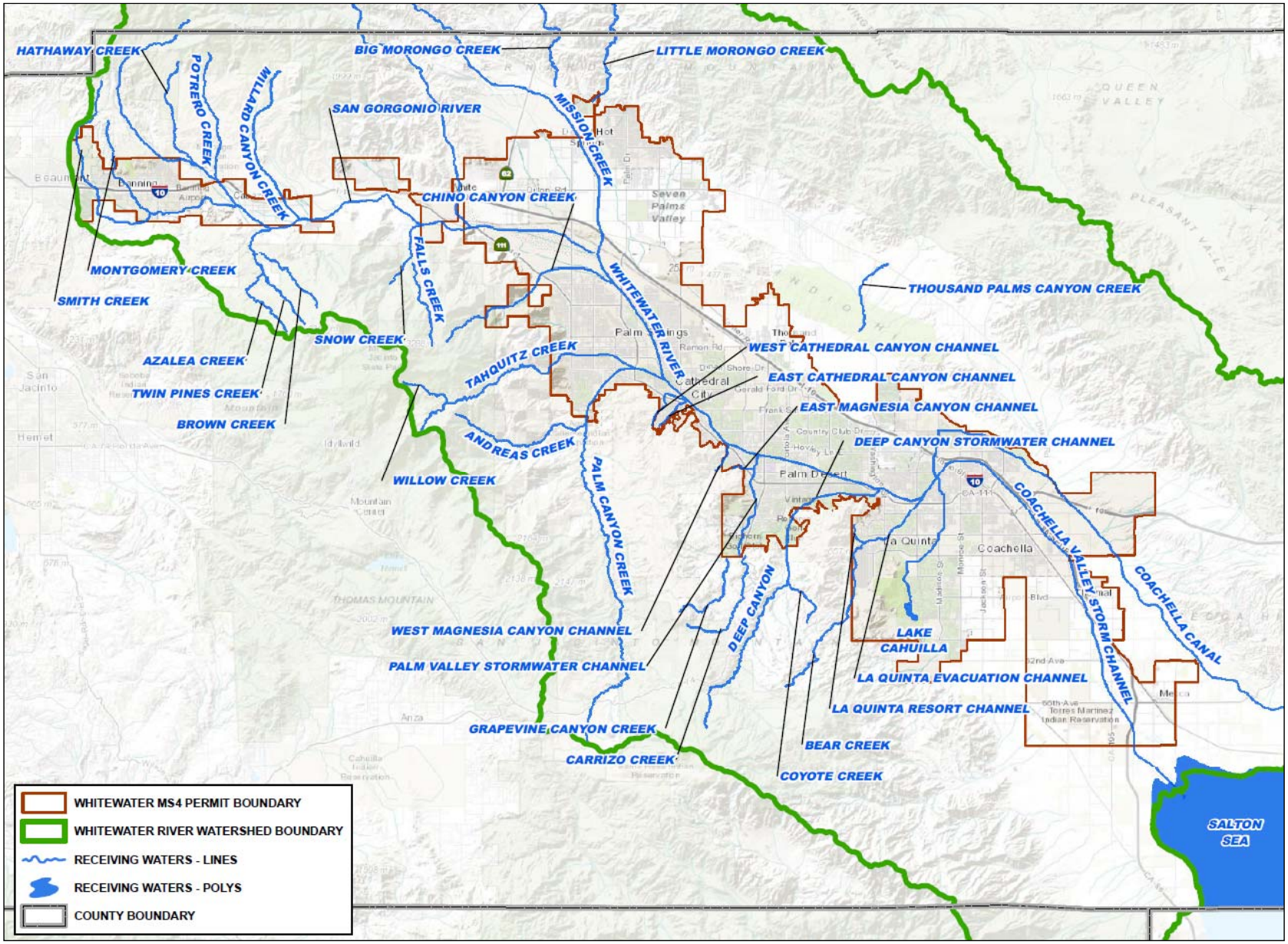
N

0 FEET 5000

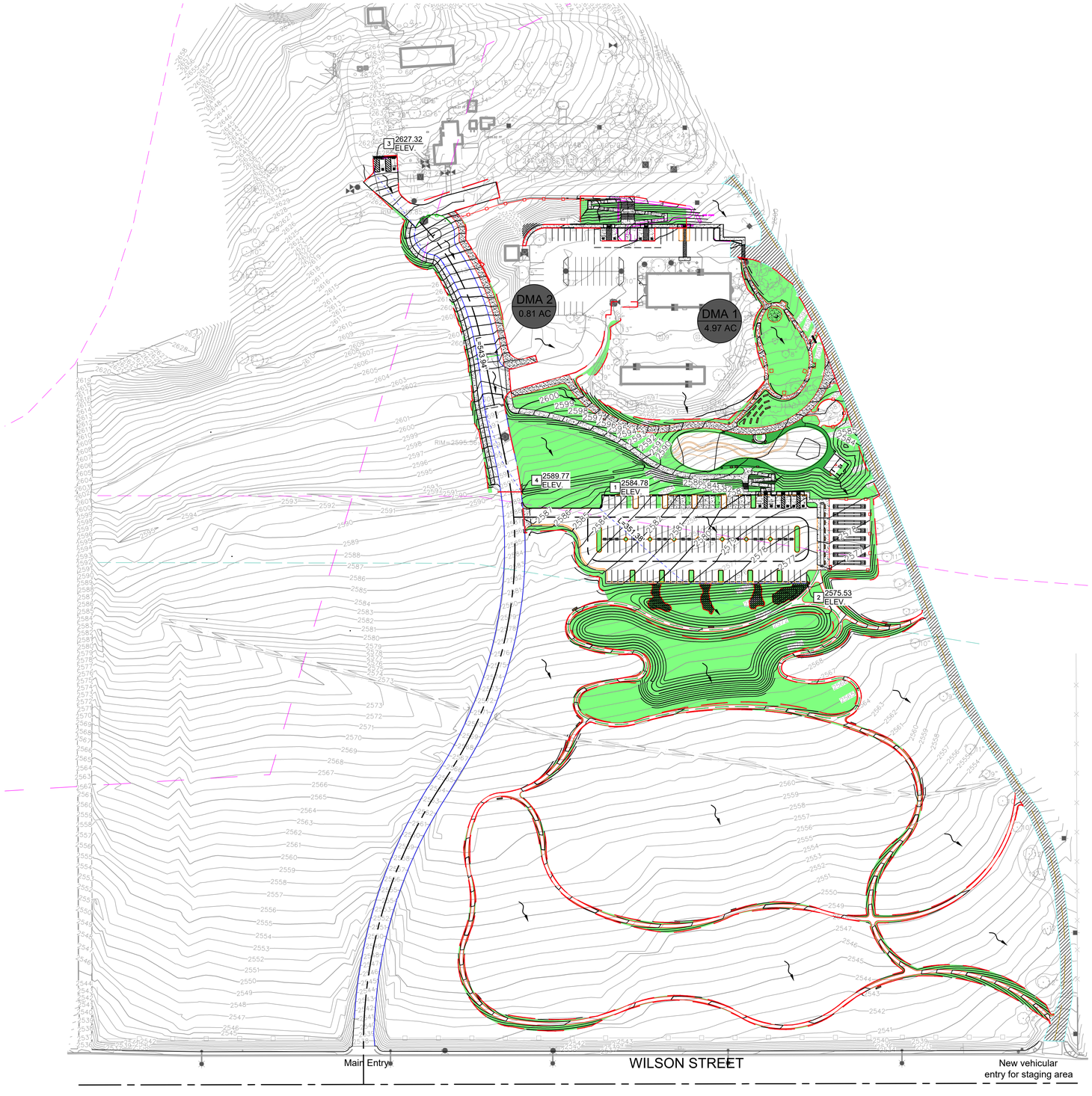
HYDROLOGIC SOILS GROUP MAP FOR BEAUMONT

PLATE C-1.19

Figure 2. Whitewater River Region Receiving Waters Map



Drawing Scale:



80 40 0 80 160

SCALE: 1" = 80'

LEGEND

- DRAINAGE AREA
- FLOW PATH
- LONGEST FLOW PATH
- DMA 1 / 1.00 AC — DMA NUMBER / AREA (ACRES)

STORM WATER QUALITY SUMMARY

TOTAL CATCHMENT AREA (SF)	TOTAL CATCHMENT AREA (AC)	% PERVIOUS	REQUIRED STORM WATER QUALITY VOLUME (CF)	PROVIDED BASIN VOLUME (CF)
216561.7	4.97	50.69%	42,858.68	44,984
35238.94	0.81	7.02%		

REVISIONS		
No.	DESCRIPTION	DATE
#####	#####	#####
#####	#####	#####
#####	#####	#####
#####	#####	#####
#####	#####	#####
#####	#####	#####
#####	#####	#####

IMEG
901 VIA PIEMONTE
SUITE 400
ONTARIO, CA 91764
PH: 909.477.6915
www.imegcorp.com

GILMAN RANCH
1901 W WILSON ST, BANNING CA

WQMP EXHIBIT

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IMEG Project No: 22010313.03

File Name: Proposed WQMP Exhibit.dwg

Drawing Number:

Field Book No:

Drawn By: AF

Check'd By: AN

Approved By: RG

Date: 8/13/2026

Sheet 2 of 2

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Appendix C

Supporting Detail Related to Hydrologic Conditions of Concern

APPENDIX E
BMP POLLUTANT REMOVAL EFFECTIVENESS

BMP Pollutant Removal Effectiveness [1]

Pollutant of Concern	Harvest and Use [8]	Infiltration BMPs [3]	Bioretention	Extended Detention Basins [2]	Sand Filter Basin [7]
Sediment	H	H	H	M	H
Nutrient	H	H	[5]	M [4]	L [6]
Trash	H	H	H	H	H
Metal	H	H	H	M	M
Bacteria	H	H	H	M	M
Oil & Grease	H	H	H	M	H
Organic Compounds	H	H	H	M	H
Pesticides	H	H	H	U	U

Abbreviations:

L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency U: Unknown

Notes:

(1) Periodic performance assessment and updating of this table may be performed based on updated information from studies from the District, CASQA, Caltrans or others. These effectiveness ratings are based on the specific BMP designs incorporated into this manual.

(2) Effectiveness based upon total 72-hour drawdown time.

(3) Includes infiltration basins, infiltration trenches, and permeable pavements.

(4) Medium for soil types A & B only. Low for soil types C & D.

(5) Removal rating is dependent on the soil media depth. L=Min. 18” deep, M= Min. 24” deep, H=Max. 30"-36" deep.

(6) Medium where sand filter layer is increased to 36”.

(7) Considered to be a Treatment Control BMP. See the WQMP to determine if this BMP can be used.

(8) Cisterns, when associated with an adequate and reliable (year-round) demand for non-potable use of captured storm water (see the applicable WQMP for any specific requirements), have a High effectiveness at removing all pollutants from stormwater runoff. If there is inadequate demand to reliably drain the cistern through a non-potable use throughout the year, pollutant removal effectiveness will be Low.

Appendix D

Educational Materials

After the Storm

A Citizen's Guide to Understanding Stormwater

EPA 833-B-03-002

January 2003

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

What is stormwater runoff?



Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.



Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

Why is stormwater runoff a problem?

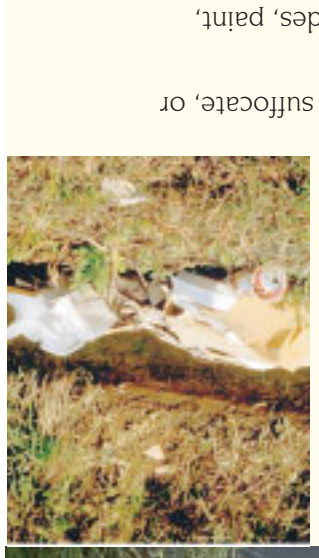


The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.







Stormwater Pollution Solutions



Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care



Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.



Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.



Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.



Commercial

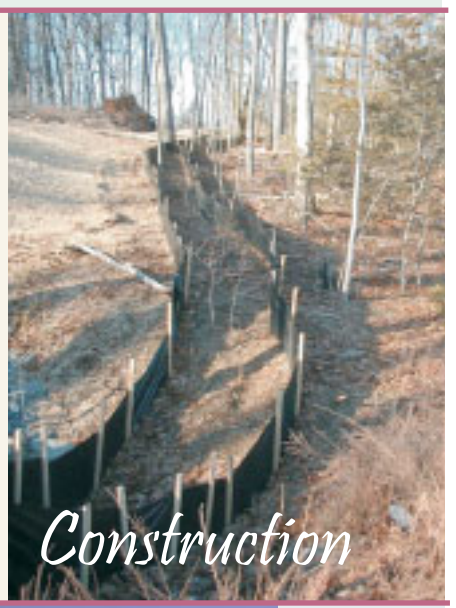
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.





Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



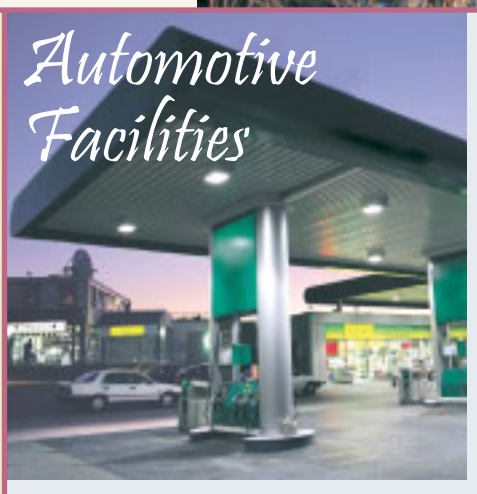
- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.



Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

For Information:

For more information on the General Industrial Storm Water Permit contact:

State Water Resources Control Board (SWRCB)
(916) 657-1146 or www.swrcb.ca.gov/ or, at your Regional Water Quality Control Board (RWQCB).

Santa Ana Region (8)
California Tower
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
(909) 782-4130

San Diego Region (9)
9771 Clairemont Mesa Blvd., Ste. A
San Diego, CA 92124
(619) 467-2952

Colorado River Basin Region (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491

SPILL RESPONSE AGENCY:
HAZ-MAT: (909) 358-5055
HAZARDOUS WASTE DISPOSAL: (909) 358-5055
RECYCLING INFORMATION: 1-800-366-SAVE
TO REPORT ILLEGAL DUMPING OR A CLOGGED STORM DRAIN: 1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, call:
(909) 955-1111.

StormWater
CleanWater
PROTECTION PROGRAM

Riverside County gratefully acknowledges the State Water Quality Control Board and the American Public Works Association, Storm Water Quality Task Force for the information provided in this brochure.

DID YOU KNOW . . .

YOUR FACILITY MAY NEED A STORM WATER PERMIT?



Many industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit

FIND OUT IF YOUR FACILITY MUST OBTAIN A PERMIT

StormWater Pollution . . . What you should know

Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to help prevent flooding by carrying excess rainwater away from streets. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.



In recent years, awareness of the need to protect water quality has increased. As a result, federal, state, and local programs have been established to reduce polluted stormwater discharges to our waterways. The emphasis of these programs is to prevent stormwater pollution since it's much easier, and less costly, than cleaning up "after the fact."

National Pollutant Discharge Elimination System (NPDES)

In 1987, the Federal Clean Water Act was amended to establish a framework for regulating industrial stormwater discharges under the NPDES permit program. In California, NPDES permits are issued by the State Water Resources Control Board (SWRCB) and the nine (9) Regional Water Quality Control Boards (RWQCB). In general, certain industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit if the type of facilities or operations falls into one of the several categories described in this brochure.

How Do I Know If I Need A Permit?

Following are ***general descriptions*** of the industry categories types that are regulated by the Industrial Activities Storm Water General Permit. Contact your local Region Water Quality Control Board to determine if your facility/operation requires coverage under the Permit.

➜ Facilities such as cement manufacturing; feedlots; fertilizer manufacturing; petroleum refining; phosphate manufacturing; steam electric power generation; coal mining; mineral mining and processing; ore mining and dressing; and asphalt emulsion;

➜ Facilities classified as lumber and wood products (except wood kitchen cabinets); pulp, paper, and paperboard mills; chemical producers (except some pharmaceutical and biological products); petroleum and coal products; leather production and products; stone, clay and glass products; primary metal industries; fabricated structural metal; ship and boat building and repairing;

➜ Active or inactive mining operations and oil and gas exploration, production, processing, or treatment operations;

➜ Hazardous waste treatment, storage, or disposal facilities;

➜ Landfills, land application sites and open dumps that receive or have received any industrial waste; unless there is a new overlying land use such as a golf course, park, etc., and there is no discharge associated with the landfill;

➜ Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards;

➜ Steam electric power generating facilities, facilities that generate steam for electric power by combustion;

➜ Transportation facilities that have vehicle maintenance shops, fueling facilities, equipment cleaning operations, or airport deicing operations. This includes school bus maintenance facilities operated by a school district;

➜ Sewage treatment facilities;

➜ Facilities that have areas where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water.

How do I obtain coverage under the Industrial Activities Storm Water General Permit?

Obtain a permit application package from your local Regional Water Quality Control Board listed on the back of this brochure or the State Water Resources Control Board (SWRCB). Submit a completed Notice of Intent (NOI) form, site map and the appropriate fee ($250 or $500) to the SWRCB. Facilities must submit an NOI thirty (30) days prior to beginning operation. Once you submit the NOI, the State Board will send you a letter acknowledging receipt of your NOI and will assign your facility a waste discharge identification number (WDID No.). You will also receive an annual fee billing. These billings should roughly coincide with the date the State Board processed your original NOI submittal.

What are the requirements of the Industrial Activities Storm Water General Permit?

The basic requirements of the Permit are:

1. The facility must eliminate any non-stormwater discharges or obtain a separate permit for such discharges.

2. The facility must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify sources of pollutants that may be exposed to stormwater. Once the sources of pollutants have been identified, the facility operator must develop and implement Best Management Practices (BMPs) to minimize or prevent polluted runoff.

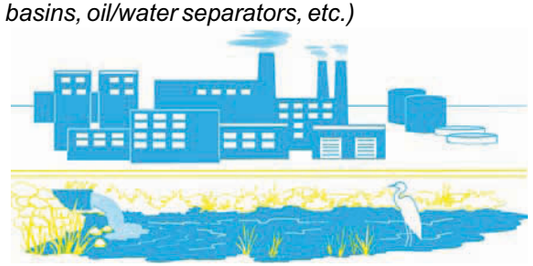
   Guidance in preparing a SWPPP is available from a document prepared by the California Storm Water Quality Task Force called the California Storm Water Best Management Practice Handbook.

3. The facility must develop and implement a Monitoring Program that includes conducting visual observations and collecting samples of the facility's storm water discharges associated with industrial activity. The General Permit requires that the analysis be conducted by a laboratory that is certified by the State of California.

4. The facility must submit to the Regional Board, every July 1, an annual report that includes the results of its monitoring program.

A Non-Storm Water Discharge is... *any discharge to a storm drain system that is not composed entirely of storm water. The following non-storm water discharges are authorized by the General Permit: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; non-contaminated ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.*

A BMP is . . . *a technique, process, activity, or structure used to reduce the pollutant content of a storm water discharge. BMPs may include simple, non-structural methods such as good housekeeping, staff training and preventive maintenance. Additionally, BMPs may include structural modifications such as the installation of berms, canopies or treatment control (e.g. setting basins, oil/water separators, etc.)*



WARNING*: There are significant penalties for non-compliance: a minimum fine of $5,000 for failing to obtain permit coverage, and, up to $10,000 per day, per violation plus $10 per gallon of discharge in excess of 1,000 gallons.*

Resources

State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento CA 95814
(916) 341-5455
www.swrcb.ca.gov/stormwtr/

Colorado River Basin Regional Water
Quality Control Board - Region 7
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(760) 346-7491
www.swrcb.ca.gov/~rwqcb7/

Santa Ana Regional Water
Quality Control Board - Region 8
3737 Main Street, Suite 500
Riverside, CA 92501-3348
(909) 782-4130
www.swrcb.ca.gov/~rwqcb8/

San Diego Regional Water
Quality Control Board - Region 9
9771 Clairemont Mesa Blvd., Suite A
San Diego, CA 92124
(858) 467-2952
www.swrcb.ca.gov/~rwqcb9/

To report a hazardous materials spill, call:

Riverside County Hazardous Materials
Emergency Response Team
(909) 358-5055 8:00 a.m. – 5:00 p.m.
(909) 358-5245 after 5:00 p.m.

In an emergency call: **911**

For recycling and hazardous waste disposal, call:

(909) 358-5055

To report an illegal dumping or a clogged storm drain, call:

1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, please call (909) 955-1200 or visit the StormWater/CleanWater Protection Program website at:
www.co.riverside.ca.us/depts/flood/waterquality npdes.asp

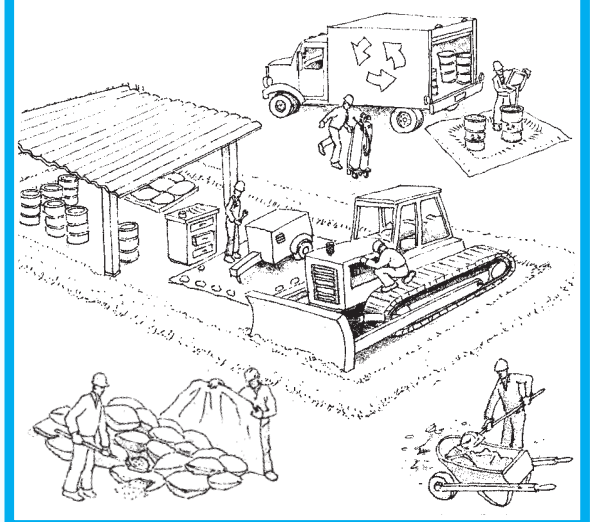
StormWater CleanWater
PROTECTION PROGRAM

The StormWater/CleanWater Protection Program gratefully acknowledges the Santa Clara Valley Nonpoint Pollution Control Program, Alameda Countywide CleanWater Program and the City of Los Angeles Stormwater Management Division for information provided in this brochure.

StormWater Pollution

What you should know for...

GENERAL CONSTRUCTION & SITE SUPERVISION



Best Management Practices (BMPs) for:

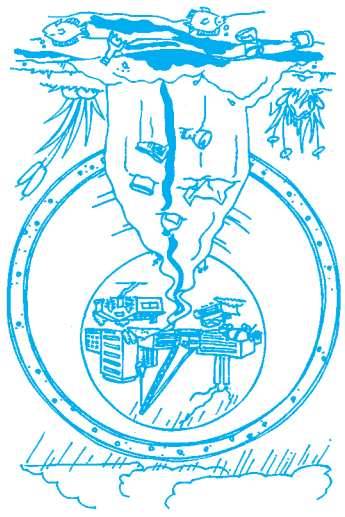
- Developers
- General Contractors
- Home Builders
- Construction Inspectors
- Anyone in the construction business

StormWater Pollution . . . What You Should Know

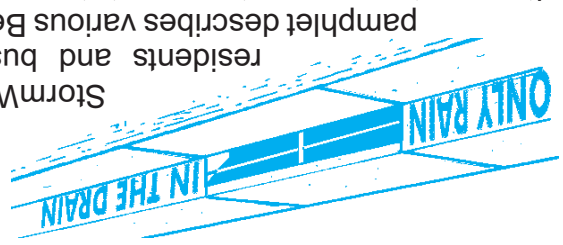
Riverside County has two drainage systems - sewers and storm drains. The storm drain system was designed to reduce flooding by carrying excess rainwater away from streets and developed areas. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our local waterways.

Unlike sanitary sewers, storm drains are not connected to a wastewater treatment plant – they flow directly to our local streams, rivers and lakes.

Stormwater runoff is a part of the natural hydrologic process. However, land development and construction activities can significantly alter natural drainage processes and introduce pollutants into stormwater runoff. Polluted stormwater runoff from construction sites has been identified as a major source of water pollution in California. It jeopardizes the quality of our local waterways and can pose a serious threat to the health of our aquatic ecosystems.



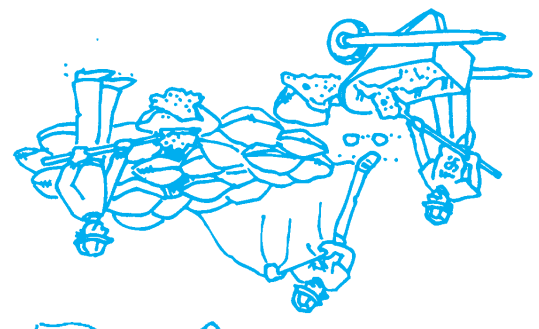
The Cities and County of Riverside StormWater/CleanWater Protection Program

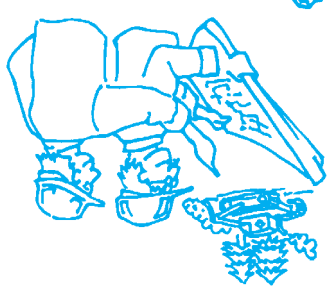


Because preventing pollution is much easier and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses on pollution prevention activities. This pamphlet describes various Best Management Practices (BMPs) that construction site operators can use to prevent stormwater pollution.

In accordance with applicable federal and state law, the Cities and County of Riverside have adopted ordinances for stormwater management and discharge control that **prohibit** the discharge of pollutants into the storm drain system or local surface water. This includes discharges from construction sites containing sediment, concrete, mortar, paint, solvents, lubricants, vehicle fluids, fuel, pesticides, and construction debris.

PLEASE NOTE: The Federal, State and local regulations strictly prohibit the discharge of sediment and pollutants into the streets, the storm drain system or waterways. As an owner, operator or supervisor of a construction site, you may be held financially responsible for any environmental damage caused by your subcontractors or employees.





STORMWATER POLLUTION FROM CONSTRUCTION ACTIVITIES

The two most common sources of stormwater pollution problems associated with construction activities are ***erosion*** and ***sedimentation***. Failure to maintain adequate erosion and sediment controls at construction sites often results in sediment discharges into the storm drain system, creating multiple problems once it enters local waterways.

Construction vehicles and heavy equipment can also track significant amounts of mud and sediment onto adjacent streets. Additionally, wind may transport construction materials and wastes into streets storm drains, or directly into our local waterways.

What Should You Do?

Advance Planning to Prevent Pollution

- ❑ Remove existing vegetation only as needed.
- ❑ Schedule excavation, grading, and paving operations for dry weather periods, if possible.
- ❑ Designate a specific area of the construction site, well away from storm drain inlets or watercourses, for material storage and equipment maintenance.
- ❑ Develop and implement an effective combination of erosion and sediment controls for the construction site.
- ❑ Practice source reduction by ordering only the amount of materials that are needed to finish the project.
- ❑ Educate your employees and subcontractors about stormwater management requirements and their pollution prevention responsibilities.
- ❑ Control the amount of surface runoff at the construction site by impeding internally generated flows and using berms or drainage ditches to direct incoming offsite flows to go around the site. ***Note:*** *Consult local drainage policies for more information.*

Best Management Practices

The following Best Management Practices (BMPs) can significantly reduce pollutant discharges from your construction site. Compliance with stormwater regulations can be as simple as minimizing stormwater contact with potential pollutants by providing covers and secondary containment for construction materials, designating areas away from storm drain systems for storing equipment and materials and implementing good housekeeping practices at the construction site.

- ❑ Protect all storm drain inlets and streams located near the construction site to prevent sediment-laden water from entering the storm drain system.
- ❑ Limit access to and from the site. Stabilize construction entrances/exits to minimize the track out of dirt and mud onto adjacent streets. Conduct frequent street sweeping.
- ❑ Protect stockpiles and construction materials from winds and rain by storing them under a roof, secured impermeable tarp or plastic sheeting.
- ❑ Avoid storing or stockpiling materials near storm drain inlets, gullies or streams.
- ❑ Phase grading operations to limit disturbed areas and duration of exposure.
- ❑ Perform major maintenance and repairs of vehicles and equipment offsite.
- ❑ Wash out concrete mixers only in designated washout areas at the construction site.
- ❑ Set-up and operate small concrete mixers on tarps or heavy plastic drop cloths.
- ❑ Keep construction sites clean by removing trash, debris, wastes, etc. on a regular basis.
- ❑ Clean-up spills immediately using dry clean-up methods (e.g., absorbent materials such as cat litter, sand or rags for liquid spills; sweeping for dry spills such as cement, mortar or fertilizer) and by removing the contaminated soil from spills on dirt areas. .
- ❑ Prevent erosion by implementing any or a combination of soil stabilization practices such as mulching, surface roughening, permanent or temporary seeding.
- ❑ Maintain all vehicles and equipment in good working condition. Inspect frequently for leaks, and repair promptly.
- ❑ Practice proper waste disposal. Many construction materials and wastes, including solvents, water-based paint, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation can be recycled. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste.
- ❑ Cover open dumpsters with secured tarps or plastic sheeting. Never clean out a dumpster by washing it down on the construction site.
- ❑ Arrange for an adequate debris disposal schedule to insure that dumpsters do not overflow.

General Construction Activities Stormwater Permit

(Construction Activities General Permit)

The State Water Resources Control Board (SWRCB) adopted a new Construction Activities General Permit (WQ Order No. 99-08DWQ) on August 19, 1999, superseding the now expired SWRCB statewide General Permit (WQ Order No. 92-08DWQ). This permit is administered and enforced by the SWRCB and the local Regional Water Quality Control Boards (RWQCB). The updated Construction Activities General Permit establishes a number of new stormwater management requirements for construction site operator.

NOTE: *Some construction activies stormwater permits are issued on a regional basis. Consult your local RWQCB to find out if your project requires coverage under any of these permits.*

Frequently Asked Questions:

Does my construction site require coverage under the Construction Activities General Permit?

Yes, if construction activity results in the disturbance of five or more acres of total land area or is part of a common plan of development that results in the disturbance of five or more acres.

How do I obtain coverage under the Construction Activities General Permit?

Obtain the permit package and submit the completed Notice of Intent (NOI) form to the SWRCB prior to grading or disturbing soil at the construction site. For ongoing construction activity involving a change of ownership, the new owner must submit a new NOI within 30 days of the date of change of ownership. The completed NOI along with the required fee should be mailed to the SWRCB.

What must I do to comply with the requirements of the Construction Activities General Permit?

- ● Implement BMPs for non-stormwater discharges year-round.
- ● Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to commencing construction activities.
- ● Keep a copy of the SWPPP at the construction site for the entire duration of the project.
- ● Calculate the anticipated stormwater run-off.
- ● Implement an effective combination of erosion and sediment control on all soil disturbed areas.
- ● Conduct site inspections prior to anticipated storm events, every 24-hours during extended storm events, and after actual storm event.
- ● Perform repair and maintenance of BMPs as soon as possible after storm events depending upon worker safety.
- ● Update the SWPPP as needed, to manage pollutants or reflect changes in site conditions.
- ● Include description of post construction BMPs at the construction site, including parties responsible for long-term maintenance.

NOTE: *Please refer to the Construction Activities General Permit for detailed information. You may contact the SWRCB, your local RWQCB, or visit the SWRCB website at www.swrcb.ca.gov/stormwtr/ to obtain a State Construction Activities Stormwater General Permit packet.*

How long is this Construction Activities General Permit in effect?

The Permit coverage stays in effect untilyou submit a Notice of Termination (NOT) to the SWRCB. For the purpose of submitting a NOT, all soil disturbing activities have to be completed and one of the three following criteria has to be met:

1. Change of ownership;
2. A uniform vegetative cover with 70 percent coverage has been established; or,
3. Equivalent stabilization measures such as the use of reinforced channel liners, soil cement, fiber matrices, geotextiles, etc., have been employed.

For Information:

Local Sewering Agencies in Riverside County:

City of Beaumont	(909) 769-8520
Belair Homeowners Association	(909) 277-1414
City of Banning	(909) 922-3130
City of Blythe	(760) 922-6161
City of Coachella	(760) 391-5008
Coachella Valley Water District	(760) 398-2651
City of Corona	(909) 736-2259
Desert Center, CSA #51	(760) 227-3203
Eastern Municipal Water District	(909) 928-3777
Elsinore Valley MWD	(909) 674-3146
Farm Mutual Water Company	(909) 244-4198
Idyllwild Water District	(909) 659-2143
Jurupa Community Services Dist.	(909) 685-7434
Lake Hemet MWD	(909) 658-3241
Lee Lake Water District	(909) 277-1414
March Air Force Base	(909) 656-7000
Mission Springs Water District	(760) 329-6448
City of Palm Springs	(760) 323-8242
Rancho Caballero	(909) 780-9272
Rancho California Water Dist.	(909) 676-4101
Ripley, CSA #62	(760) 922-4909
Rubidoux Community Services Dist.	(909) 684-7580
City of Riverside	(909) 782-5341
Silent Valley Club, Inc	(909) 849-4501
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(909) 780-4170

Spill Response Agency:
Haz-Mat: (909) 358-5055
Hazardous Waste Disposal: (909) 358-5055
To Report Illegal Dumping or a Clogged Storm Drain: 1-800-506-2555

StormWater CleanWater
PROTECTION PROGRAM

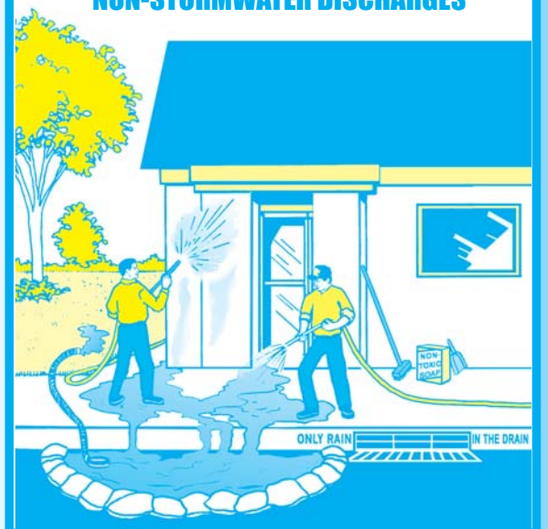
Riverside County gratefully acknowledges the Bay Area Stormwater Management Agencies Association and the Cleaning Equipment Trade Association for information provided in this brochure.

StormWater Pollution

What you should know for...

OUTDOOR CLEANING ACTIVITIES

NON-STORMWATER DISCHARGES



GUIDELINES for disposal of washwater from:

- Sidewalk, plaza or parking lot cleaning
- Vehicle washing or detailing
- Building exterior cleaning
- Waterproofing
- Equipment cleaning or degreasing

Do you know . . . where the water should go?



Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to prevent flooding by carrying excess rainwater away from streets. . . it's not designed to be a waste disposal system. Since the storm drain system does not provide for water treatment, it often serves the unintended function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.

Non-stormwater discharges such as washwater generated from outdoor cleaning projects often transport harmful pollutants into storm drains and our local waterways. Polluted runoff contaminates local waterways and poses a threat to groundwater resources.

Soaps, degreasers, automotive fluids, litter, and a host of other materials washed off buildings, sidewalks, plazas, parking areas, vehicles, and equipment can all pollute our waterways.

The Cities and County of Riverside StormWater/CleanWater Protection Program

Since preventing pollution is much easier, and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses of pollution prevention activities such as those described in this pamphlet.

The Cities and County of Riverside have adopted ordinances for stormwater management and discharge control. In accordance with state and federal law, these local stormwater ordinances **prohibit** the discharge of wastes into the storm drain system or local surface waters. This includes non-stormwater discharges containing oil, grease, detergents, degreasers, trash, or other waste materials.



PLEASE NOTE: The discharge of pollutants into the street, gutters, storm drain system, or waterways - without a Regional Water Quality Control Board permit or waiver - is ***strictly prohibited*** by local ordinances and state and federal law.

Help Protect Our Waterways!

Use These Guidelines For Outdoor Cleaning Activities and Washwater Disposal

DO . . . Dispose of **small amounts** of **washwater from cleaning building exteriors, sidewalks, or plazas** onto landscaped or unpaved surfaces provided you have the owner's permission and the discharge will not cause flooding or nuisance problems, or flow into a storm drain.

DO NOT . . . Discharge **large amounts** of these types of washwater onto landscaped areas or soil where water may run to a street or storm drain. Wastewater from exterior cleaning may be pumped to a sewer line with specific permission from the local sewering agency.

DO . . . Check with your local sewering agency's policies and requirements concerning waste water disposal. **Water from many outdoor cleaning activities** may be acceptable for disposal to the sewer system. See the list on the back of this flyer for phone numbers of the sewering agencies in your area.

DO NOT . . . Pour **hazardous wastes** or toxic materials into the storm drain or sewer system . . . properly dispose of it instead. When in doubt, contact the local sewering agency! The agency will tell you what types of liquid wastes can be accepted.

DO . . . Understand that **water (without soap) used to remove dust from clean vehicles** may be discharged to a street or storm drain. **Washwater from sidewalk, plaza, and building surface cleaning** may go into a street or storm drain if ALL of the following conditions are met:

1) The surface being washed is free of residual oil stains, debris and similar pollutants by using dry cleanup methods (sweeping, and cleaning any oil or chemical spills with rags or other absorbent materials before using water).
2) Washing is done with water only - no soap or other cleaning materials.
3) You have not used the water to remove paint from surfaces during cleaning.

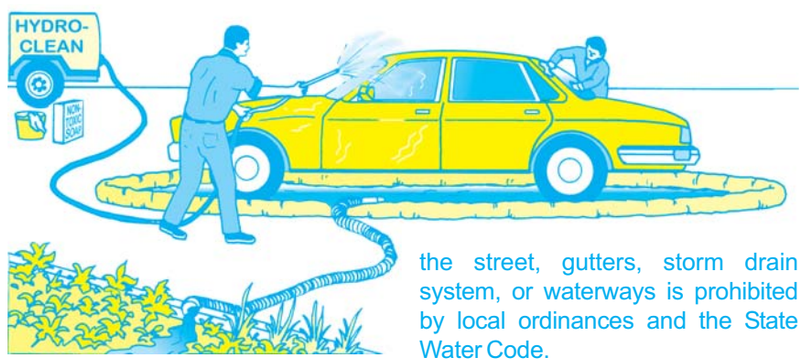
DO NOT . . . Dispose of water containing **soap or any other type of cleaning agent** into a storm drain or water body. This is a direct violation of state and/or local regulations. Because **wastewater from cleaning parking areas or roadways** normally contains metallic brake pad dust, oil and other automotive fluids, it should never be discharged to a street, gutter, or storm drain.

DO . . . Understand that **mobile auto detailers** should divert washwater to landscaped or dirt areas. Note: Be aware that soapy washwater may adversely affect landscaping; consult with the property owner. Residual washwater may remain on paved surfaces to evaporate; sweep up any remaining residue. If there is sufficient water volume to reach the storm drain, collect the runoff and obtain permission to pump it into the sanitary sewer. Follow local sewering agency's requirements for disposal.

DO NOT . . . Dispose of left over cleaning agents into the gutter, storm drain or sanitary sewer.

Regarding Cleaning Agents:

If you must use soap, use biodegradable/phosphate free cleaners. Avoid use of petroleum based cleaning products. Although the use of nontoxic cleaning products is strongly encouraged, ***do*** understand that these products can still degrade water quality and, therefore, the discharge of these products into



the street, gutters, storm drain system, or waterways is prohibited by local ordinances and the State Water Code.

Note: When cleaning surfaces with a high pressure washer or steam cleaning methods, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning, as compared to the use of a low pressure hose, can remove additional materials that can contaminate local waterways.

Other Tips to Help Protect Our Water . . .

Screening Wash Water

A thorough dry cleanup before washing (without soap) surfaces such as building exteriors and decks without loose paint, sidewalks, or plaza areas, *should be sufficient to protect storm drains.* **However**, if any debris (solids) could enter storm drains or remain in the gutter or street after cleaning, washwater should first pass through a "20 mesh" or finer screen to catch the solid material, which should then be disposed of in the trash.

Drain Inlet Protection/ Containing & Collecting Wash Water

- Sand bags can be used to create a barrier around storm drain inlets.
- Plugs or rubber mats can be used to temporarily seal storm drain openings.
- You can also use vacuum booms, containment pads, or temporary berms to keep wash water away from the street, gutter, or storm drain.

Equipment and Supplies

Special materials such as absorbents, storm drain plugs and seals, small sump pumps, and vacuum booms are available from many vendors. For more information check catalogs such as New Pig (800-468-4647), Lab Safety Supply (800-356-0783), C&H (800-558-9966), and W.W. Grainger (800-994-9174); or call the Cleaning Equipment Trade Association (800-441-0111) or the Power Washers of North America (800-393-PWNA).

CONSTRUCTION SITE BEST MANAGEMENT PRACTICES

THE FOLLOWING BMPs MUST BE PROPERLY USED AT ALL CONSTRUCTION SITES IN RIVERSIDE COUNTY TO PROTECT OUR WATERSHEDS FROM POLLUTION

BMPs must be properly installed and maintained on a year round basis.

Construction sites are prohibited from discharging pollutants into storm drains and introducing pollutants to local waterways, rivers, lakes and streams.
To stay in compliance with the law and keep your project on schedule, make sure your BMPs are in place and properly functioning. Your site must be checked and maintained daily.

Erosion Control

Erosion prevention is the most important measure for keeping sediment onsite during construction.

Wherever possible, rely on erosion controls to keep sediment in place. Minimize the disturbed area to protect natural features and soil. Control stormwater flowing onto and through the project. Phase construction activity and stabilize soils promptly. Prevent erosion by implementing soil stabilization practices such as mulching, surface roughening, permanent or temporary seeding. Perform a walk-through of the site to assess stabilization practices.

Concrete Trucks /Pumpers / Finishers

BMPs such as tarps and gravel bags should be implemented to prevent materials and residue from entering into the storm drain system.

Dumpsters

Always cover dumpsters. Areas around dumpsters should be cleaned daily. Perimeter controls around dumpster area should be provided if pollutants are leaking or discharging from the dumpster. The dumpster must be fully contained on the construction site and not in the right-of-way.

Washout Area

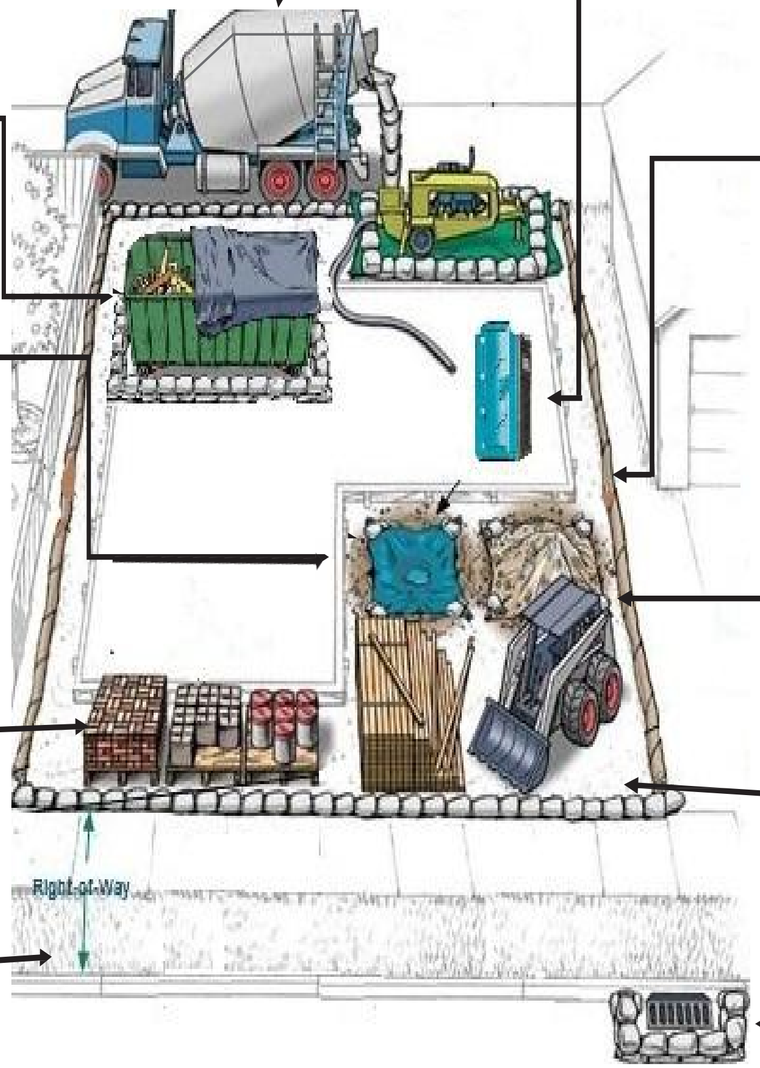
The disposal of "wet" construction materials should be handled in the washout area. This includes paint, stucco, and concrete. Do not wash out paint brushes in the street or dump any residue in the storm drain. Paint brushes and spray guns must be washed out into a hazardous materials drum, or back into the original container and disposed of properly. Washouts should never be in direct contact with the existing ground. Use a berm with an impervious liner to contain wet materials and prevent runoff to nearby areas. The washout area must be checked and maintained daily to ensure compliance. All dried material must be disposed of at a landfill.

Building Materials /Staging Area

Construction material must be stored on site at all times. Building material should always be covered when not in use to prevent dispersal or runoff caused by wind or rain. Flooding must also be prevented by monitoring your site before, during, and after rain events to ensure that BMPs are functioning properly and that there are not any safety issues.

Encroachment Permits

The right-of-way varies from the face of the curb to the private property line. Any construction work within the right-of-way requires an encroachment permit.



Portable Toilets

Portable toilets must be placed on a flat level surface away from any flow line. Portable toilets must have a secondary containment tray. Portable toilets must also be placed behind the curb. Avoid cleaning solutions from coming in contact with the soil.

Perimeter Controls

Perimeter controls are different and separate from erosion controls. Gravel bags, silt fences, and straw wattles are acceptable perimeter controls, and must be used to surround the entire site. Avoid running over perimeter controls with vehicles or heavy equipment to prevent damage to the BMPs. Keep extra absorbent materials and/or wet dry vacuum on site to quickly pick up unintended spills.

Dirt and Grading

Dust control measures shall be implemented during grading operations and throughout all aspects of site development. Mounds of dirt or gravel should be stored on site and sprayed daily with water to prevent excessive dust. The materials should be covered when not in use. For areas that are active and exposed, a wet weather active plan, including additional BMPs, should be in place to protect the site during a rain event. Sites must have a designated entrance/exit with adequate track out controls to prevent the transport of dirt/gravel from the site.

Earthmoving Equipment

Vehicles and earthmoving equipment should be cleaned, fueled and maintained off-site or in a designated contained area. Mud tracks and dirt trails left by equipment leading to and from the site must be cleaned up immediately.

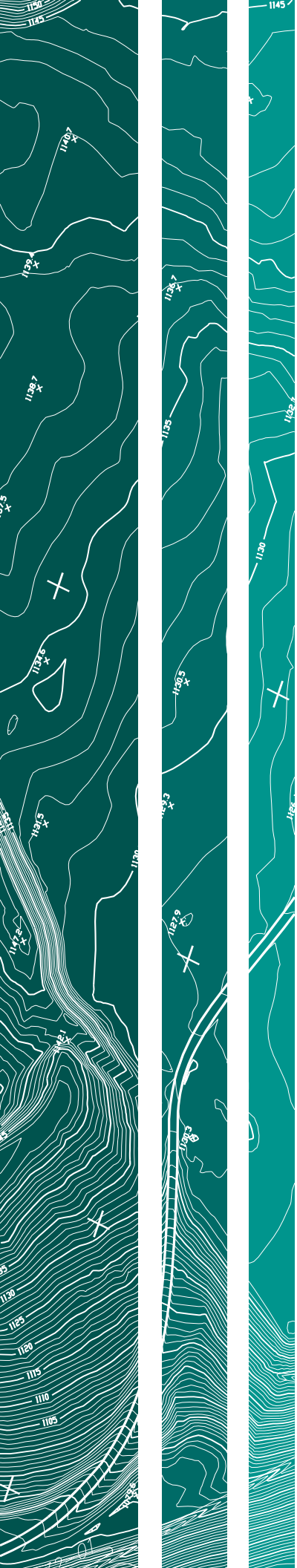
Storm Drains

Storm drains must be protected at all times with perimeter controls, use ¾ inch gravel bags. Sand bags should not be used for inlet protection because they do not permit flow-through. Replace ruptured or damaged gravel bags and remove debris from the right-of-way immediately.

Revised December 2014

Appendix E

Soils Report



GEOCON

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 4, 2025
REVISED OCTOBER 27, 2026
PROJECT NO. T3070-22-01B

PREPARED FOR:
RHA LANDSCAPE ARCHITECTS-PLANNERS, INC.
RIVERSIDE, CALIFORNIA

Project No. T3070-22-01B
September 4, 2025
REVISED October 27, 2026

RHA Landscape Architects-Planners, Inc.
6840 Indiana Avenue, Suite 100
Riverside, California 92506

Attention: Mr. Doug Grove, RLA, ASLA

Subject: SUPPLEMENTAL GEOTECHNICAL INVESTIGATION
GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

Dear Mr. Grove:

In accordance with the authorization of our Work Order Authorization dated June 25, 2024, Geocon West, Inc. (Geocon) hereby submits the results of our supplemental geotechnical investigation for the proposed Gilman Ranch Event Center, located at 1901 Wilson Street in Banning, California. The accompanying report presents our findings, conclusions, and recommendations pertaining to the geotechnical aspects of the proposed improvements. Based on the results of this study, it is our opinion that the site is considered suitable for the proposed improvements, provided the recommendations of this report are followed.

Geocon prepared a preliminary geotechnical investigation report for the project dated June 13, 2024. At that time, the event center was proposed in the northwestern area of the site within a fault hazard setback zone. The proposed event center has since been relocated south to avoid the hazard zone, and this supplemental geotechnical investigation was performed.

This report has been revised to replace the base map used for Figure 2 with the latest version dated July 2026. The most recent version eliminates the amphitheater in the south central area of the site. The remainder of the report is unchanged.

Should you have any questions regarding this report or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,
GEOCON WEST, INC.

Karina Dorawala
Staff Geologist

Lisa A. Battiato
CEG 2316

PROFESSIONAL GEOLOGIST
LISA A. BATTIATO
No. 2316
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Neal D. Berliner
GE 2576

REGISTERED PROFESSIONAL ENGINEER
NEAL D. BERLINER
2576
GEOTECHNICAL
STATE OF CALIFORNIA

KD:RNP:LAB:DSM:NB

TABLE OF CONTENTS

1. PURPOSE AND SCOPE 1

2. SITE AND PROJECT DESCRIPTION 2

3. GEOLOGIC SETTING 3

4. GEOLOGIC MATERIALS 4
   4.1 Alluvial Fan Deposits (Qf) 4
   4.2 Older Alluvial Fan Deposits (Qof – not a mapped unit) 4

5. GROUNDWATER 5

6. GEOLOGIC HAZARDS 5
   6.1 Surface Fault Rupture 5
   6.2 Seismicity 7
   6.3 Liquefaction & Dry Sand Settlement 7
   6.4 Hydrocompression 9
   6.5 Slope Stability 9
   6.6 Percolation Testing 9

7. CONCLUSIONS AND RECOMMENDATIONS 12
   7.1 General 12
   7.2 Excavation and Soil Characteristics 13
   7.3 Grading 15
   7.4 Earthwork Grading Factors 17
   7.5 Utility Trench Backfill 18
   7.6 Seismic Design Criteria 18
   7.7 Reinforced Concrete Mat Foundation 20
   7.8 Exterior Concrete Flatwork 22
   7.9 Conventional Retaining Walls 23
   7.10 Lateral Design 25
   7.11 Preliminary Pavement Recommendations 25
   7.12 Temporary Excavations 30
   7.13 Site Drainage and Moisture Protection 31
   7.14 Plan Review 32

TABLE OF CONTENTS (CONTINUED)

LIMITATIONS AND UNIFORMITY OF CONDITIONS

LIST OF REFERENCES

MAPS AND ILLUSTRATIONS
- Figure 1, Vicinity Map
- Figure 2, Geologic Map & Site Plan
- Figure 3, Liquefaction Evaluation - MCE
- Figure 4, Evaluation of Earthquake-Induced Settlements in Dry Sandy Soils - MCE

APPENDIX A
- FIELD INVESTIGATION
- Figures A-1 and A-2, Logs of Geotechnical Borings
- A-3 through A-5, Logs of Percolation Borings
- A-6 through A-8, Percolation Test Data Sheets

APPENDIX B
- LABORATORY TESTING
- Figure B-1, Compaction Characteristics Using Modified Effort Test Results
- Figure B-2 through B-4, Grain Size Distribution
- Figures B-5 through B-8, Consolidation Test Results
- Figures B-9 through B-11, Direct Shear Test Results

APPENDIX C
- RECOMMENDED GRADING SPECIFICATIONS

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our supplemental geotechnical investigation for the proposed Gilman Ranch Event Center, located at 1901 Wilson Street in Banning, California, as depicted on the *Vicinity Map*, Figure 1.

Geocon prepared a preliminary geotechnical investigation report for the project dated June 13, 2024. At that time, the event center was proposed in the northwestern area of the site within a fault hazard setback zone. The proposed event center has since been relocated south to avoid the hazard zone. This supplemental geotechnical investigation was performed to provide geotechnical information at the new site.

The purpose of the investigation was to evaluate the subsurface soil and geologic conditions at the site and, based on the conditions encountered and geotechnical analyses performed, provide remedial grading recommendations and geotechnical parameters for the completion of project design and entitlement.

The scope of our investigation included a review of published geologic information and aerial photographs, public subsurface utility location, subsurface exploration and sample collection, percolation testing, laboratory testing, engineering analyses, and preparation of this report. The site was explored on July 21, 2025, by excavating two 8-inch-diameter geotechnical borings to depths of approximately 31½ feet and 47½ feet beneath the ground surface, and three percolation borings to depths of approximately 15 feet beneath the ground surface, at the direction of the project Architect, using a truck-mounted hollow-stem auger drilling machine. Additionally, percolation testing was performed on July 22, 2025, to determine the infiltration rate of the site soils. The approximate locations of the exploratory borings are depicted on the *Geologic Map & Site Plan* (see Figure 2). A detailed discussion of the field investigation, including boring logs and percolation test results, is presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site presented in our previous Geotechnical Report dated June 13, 2024, is located within the State and County Fault Hazard Zone. The owner has since relocated the proposed events center outside this zone. The new area of improvement will be located southeast of the existing Gilman Historic Ranch and Wagon Museum. The site is bounded by undeveloped land to the east, ranch improvements to the north, North 19th Street to the west, and West Wilson Street to the south. Site elevations range from 2,636 feet above mean sea level (MSL) on the northwest to 2,536 feet MSL on the southeast. Drainage is to the south at an approximately 4 percent grade.

Based on the Concept Plan prepared by RHA, the improvements will include an 8,000 square-foot event center with rooftop solar panels, 240 seating capacity ceremony/gathering space, 100 seating capacity event courtyard, 1,500 seating capacity amphitheater, staircase and ADA ramp, a new parking lots, new ADA parking lot, new restroom buildings, small and large play areas, entry pay booths, community park, drinking fountains, storm water mitigation structures, and landscape improvements. We utilized the Concept Plan (2025) as a base for our *Geologic Map & Site Plan*, Figure 2.

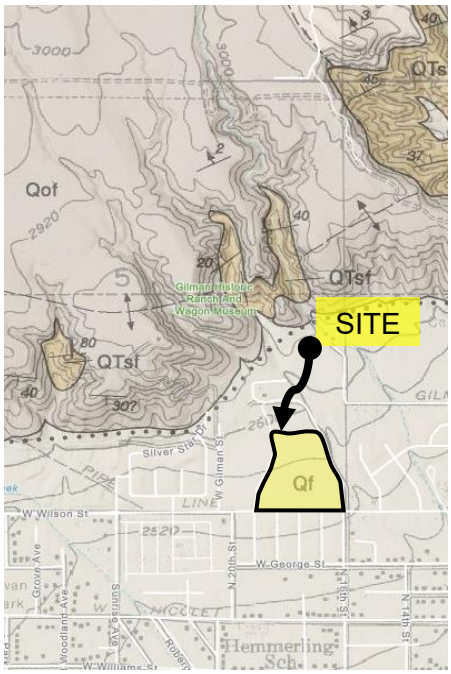
Based on the preliminary nature of the design at this time, wall and column loads were not available. We assume that column loads for the proposed structure will be up to 400 kips, and wall loads will be up to 3 kips per linear foot.

Once the design phase and foundation loading configuration proceed to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location, or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

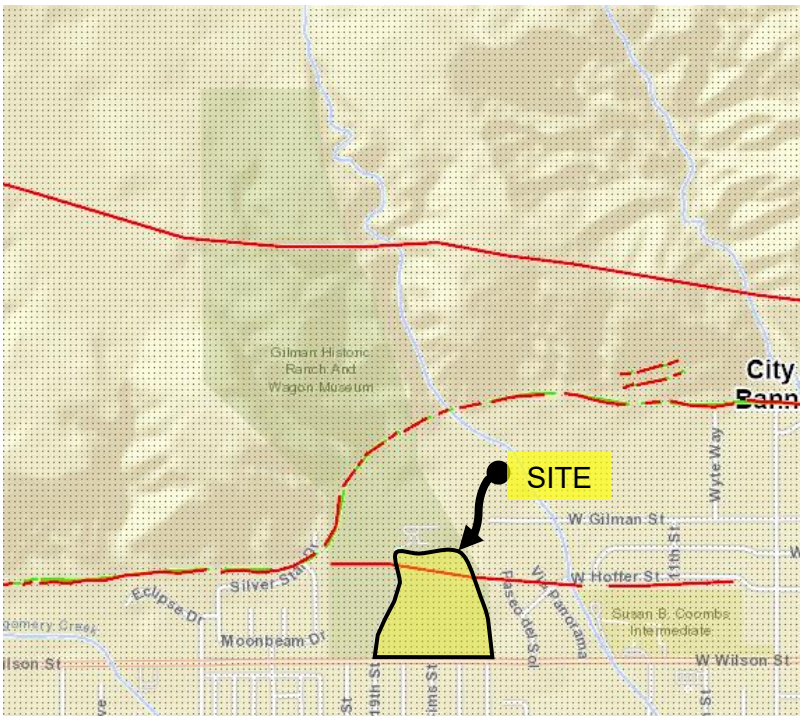
The site is located near the northern margin of the Peninsular Ranges Geomorphic Province (the Province). The Peninsular Ranges are bound by the Transverse Ranges (San Gabrielle and San Bernardino Mountains) to the north and the Colorado Desert Geomorphic Province to the east. The Province extends westward into the Pacific Ocean and southward to the tip of Baja California. Overall, the Province is characterized by Cretaceous-age granitic rock and a lesser amount of Mesozoic-age metamorphic rock overlain by terrestrial and marine sediments. Faulting within the Province is typically northwest trending and includes the San Andreas, San Jacinto, Elsinore, and Newport-Inglewood faults. Locally, the site is located on an alluvial fan, south of the San Bernardino Mountain foothills in the Banning Pass. The Banning Pass is the result of a westward bend in the San Andreas fault. This directional change has resulted in a region of compression where thrust faulting is dominant. The Banning fault is mapped at the break in slope between the foothills and the alluvial fan surface. A separate splay of the Banning fault is mapped north of the proposed improvement area in an east-west direction, generally parallel to Hoffer Street. The geologic conditions are depicted on a portion of the Beaumont Quadrangle Geologic Map, below. The mapped faulting is depicted on a portion of the Riverside County Map My County website below.

SITE GEOLOGY



Source: Dibblee & Minch, 2003

MAPPED FAULTS



Green lines = Alquist-Priolo mapped faults.

Red lines = Riverside County mapped faults.

Source: Riverside County Map My County website.

4. GEOLOGIC MATERIALS

4.1 Alluvial Fan Deposits (Qf)

Alluvial fan deposits were encountered to depths of approximately 25 feet in our geotechnical borings. The alluvial fan soil consists predominantly of silty sand, which varies in shades of brown to strong brown and contains silty sand with lesser amounts of poorly graded sand and silty sand with gravel. The soil is loose to dense and slightly moist.

4.2 Older Alluvial Fan Deposits (Qof – not a mapped unit)

Pleistocene-age old alluvial fan deposits were encountered beneath the younger fan deposits to depths of 47 ½ feet. The older alluvial fan deposits consist of silty sand and poorly graded sand, which vary in shades of brown to strong brown to light gray to white, are very dense, and slightly moist. The soil includes angular gravels and cobbles of sedimentary, igneous, and metamorphic origin.

5. GROUNDWATER

Review of the California Water Resources Groundwater Level Data indicates that the historically highest groundwater level within approximately 1 mile of the site is more than 400 feet below ground surface from the late 1990s through 2010.

Groundwater was not encountered in our borings, drilled to a maximum depth of approximately 47½ feet below the existing ground surface. Based on the lack of groundwater in our borings, the reported historic high groundwater levels in the immediate area, and the depth of proposed construction, static groundwater is neither expected to be encountered during construction nor have a detrimental effect on the project. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed (especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall). Groundwater seepage levels encountered during construction may be higher than those encountered during our investigation. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the region. Proper surface drainage of irrigation and precipitation will be critical for the future performance of the project. Recommendations for drainage are provided in the *Site Drainage and Moisture Protection* section of this report.

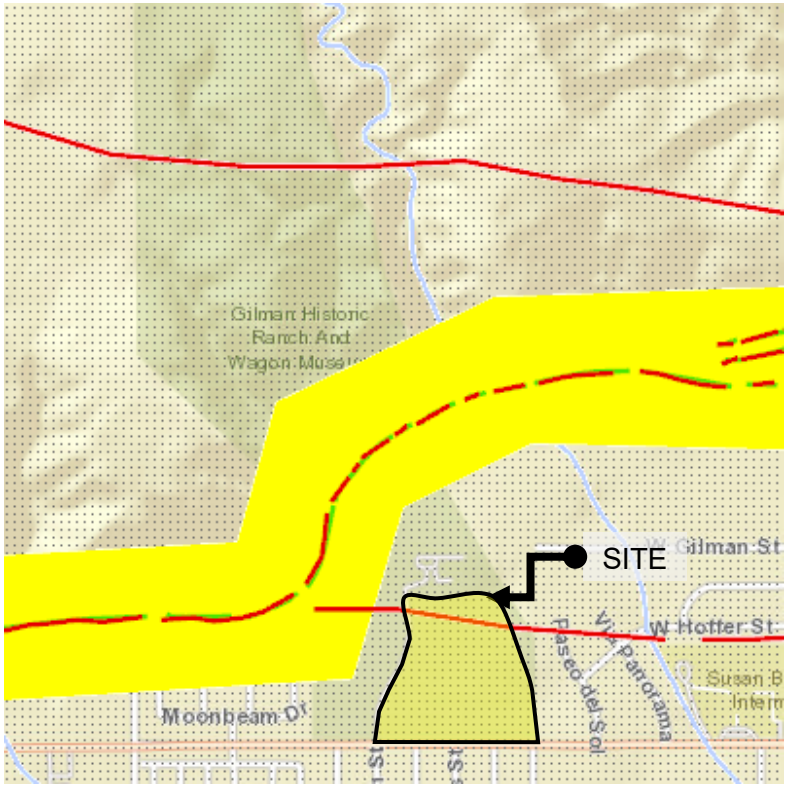
6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2025). By definition, a Holocene-active fault is one that has evidence of surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The northern portion of the Gilman Ranch is within a state-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2025a; 2025b; 2017) for surface fault rupture hazards. The event center will now be located south of the State and County Fault Hazard Zones, as approximately depicted in the figure below.

ALQUIST-PRIOLO FAULT HAZARD ZONES REQUIRING FAULT HAZARD EVALUATIONS FOR HUMAN OCCUPANCY STRUCTURES



Green lines = Alquist-Priolo mapped faults.
Red lines = Riverside County mapped faults.
Yellow highlight = Alquist-Priolo Fault Hazard Zone/State Fault Hazard Zone
Source: Riverside County Map My County website, 2025.

The site is located in the seismically active Southern California region and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults.

The closest surface trace of an active fault to the site is the Banning fault, located approximately 250 feet north of the proposed event center. Other nearby active faults are the Claremont Branch of the San Jacinto fault 8.5 miles to the southwest, South Branch of the San Andreas fault 12 miles to the east, and the Pinto Mountain fault 13 miles to the northeast (Jennings & Bryant, 2010).

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the following table.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	65	WSW
Tehachapi	July 21, 1952	7.5	141	WNW
San Fernando	February 9, 1971	6.6	92	WNW
Whittier Narrows	October 1, 1987	5.9	68	W
Sierra Madre	June 28, 1991	5.8	67	WNW
Landers	June 28, 1992	7.3	32	NE
Big Bear	June 28, 1992	6.4	19	NNE
Northridge	January 17, 1994	6.7	96	W
Hector Mine	October 16, 1999	7.1	58	NE
Ridgecrest China Lake Fault	July 5, 2019	7.1	133	NNW
Long Beach	March 10, 1933	6.4	65	WSW

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California, and the effects of ground shaking can be minimized if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Liquefaction & Dry Sand Settlement

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations. Seismically induced settlement may occur whether the potential for liquefaction exists or not.

The current standard of practice, as outlined in the *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California* (SCEC, 1999), requires a liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

According to the Riverside County Information Technology (RCIT) *Map My County* public web data, the site is located within an area mapped as having a "moderate" potential for liquefaction.

We performed liquefaction analysis of the soils underlying the site using the 1996 NCEER method of analysis with the updates by Youd et al. (2001) for this relocated site. Due to the distance of the site away from blue-line streams, we estimate groundwater is more than 100 feet below ground surface at the site. The liquefaction potential evaluation was performed by utilizing a groundwater depth of 100 feet, a magnitude 8.09 earthquake, and the modified MCE_G peak ground acceleration (PGA_M) of 1.026g. This semi-empirical method is based on a correlation between values of Standard Penetration Test (SPT) resistance. An average conversion factor of 0.55 was used to derive SPT blow-count values from California Modified Sampler blow-count values.
The site is underlain by Pleistocene-age old alluvial fan deposits that are dense and not prone to liquefaction, and groundwater is anticipated to be greater than 100 feet below the ground surface. Based on these considerations, liquefaction is not a design consideration. Our *Empirical Estimation of Liquefaction Potential* is included as Figure 3.

An evaluation of seismically induced "dry-sand" settlement was performed, with the resulting seismic "dry-sand" settlement estimated to be approximately 0.4 inches, with a differential settlement of 0.2 inch across 40 feet. An analysis of seismically induced "dry-sand" settlement is included as Figure 4.

6.4 Hydrocompression

Hydrocompression is the tendency of unsaturated soil structure to collapse upon wetting resulting in the overall settlement of the affected soil and overlying foundations or improvements supported thereon. Potentially compressible soils underlying the site are typically removed and compacted during remedial site grading. However, if compressible soil is left in place, a potential for settlement due to hydrocompression of the soil exists.

Soil samples tested for hydrocompression exhibit a collapse potential of up to approximately 3.3 percent, with the highest potential for collapse exhibited in the samples tests at depths between 7 and 10 feet. Based on these results, the potential settlement due to hydrocompression is estimated to be up to approximately 1.0 inch with a differential settlement of ½ inch over a distance of 40 feet.

6.5 Slope Stability

The topography at the site slopes approximately 4 percent to the south. A grading plan was not available at the time of this report. We do not expect grading will result in slopes, if any, taller than 10 feet or steeper than 3:1 (h:v) to develop the site as intended.

The event center and amphitheater site is located approximately 1,500 feet southeast of the foothills. No landslides are mapped on or adjacent to the site. However, regional geologic mapping (Dibblee & Minch, 2003) does depict bedding dipping to the south, toward the valley. Although future landslides cannot be ruled out in a significant seismic event, we opine that the relative risk to the site due to landsliding is low.

6.6 Percolation Testing

Percolation testing was conducted in accordance with the procedures in the *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A* (Handbook), at the proposed location of the proposed site BMPs as indicated on the *Concept Plan*. The percolation test locations are depicted on the *Geologic Map & Site Plan* (Figure 2).

The three (3) percolation test holes were drilled to depths of 15 feet with a diameter of approximately 8 inches. The geologic conditions at the percolation test locations consist of silty sand. The geotechnical borings (P-1, P-2, and P-3) did not encounter groundwater or impenetrable bedrock within 10 feet of the bottom of the percolation test depths. Approximately two inches of gravel was placed at the bottom of each test hole, and a

perforated pipe was placed atop the gravel to keep the test hole open. Gravel was placed around the bottom of the test hole to support the test pipe. The test locations were pre-saturated prior to testing. Percolation test results are included as Figures A-6 and A-8. Results of the converted percolation test rates to infiltration test rates are presented in the Table below.

The in-situ field percolation tests performed provide short-term infiltration rates, which apply mainly to the initiation of the infiltration process due to the short time of the test (hours instead of days) and the amount of water used. Where appropriate, the short-term infiltration rates shall be converted to long-term infiltration rates using reduction factors depending upon the degree of infiltrate quality, maintenance access and frequency, site variability, subsurface stratigraphy variation, and other factors. The small-scale percolation testing cannot model the complexity of the effect of interbedded layers of different soil compositions, and our test results should be considered only as index values of infiltration rates.

INFILTRATION TEST RATES

Parameter	P-1	P-2	P-3
Depth (inches)	180	180	180
Test Type	Normal	Normal	Normal
Change in head over time: ΔH (inches)	9.0	1.7	4.4
Average head: Havg (in)	92.2	109.3	82.3
Time Interval (minutes): Δt (minutes)	10	10	10
Radius of test hole: r (inches)	4	4	4
Tested Infiltration Rate: It (inches/hour)	1.15	0.18	0.63

The results of the percolation testing indicate that the calculated infiltration rates at the locations tested are 1.15, 0.18, and 0.63 inches per hour. The Handbook requires a factor of safety of 3 to be applied to the values above based on the test method used.

If the BMP design considers infiltration, the BMP bottom should not be compacted during excavation, and no fill should be placed within the basin. The contractor should not track on or compact the BMP bottom. If it is necessary for equipment to track in the BMP bottom, the bottom should be scarified as the equipment moves out of the infiltration area, leaving loose, uncompacted soil in the BMP bottom.

The BMP will require maintenance consisting of periodic removal of fine soils and scarification of the bottom after equipment traffic.

Due to the potential of hydrocompression to occur in soils that are in proximity to storm water infiltration systems, the proposed infiltration system should be located such that the closest distance between structural foundations is at least 25 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration system at a gradient of 1:1. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the infiltration system's design as necessary.

Where the 25-foot horizontal setback cannot be maintained between the proposed infiltration system and structural foundations, and the infiltration system experiences structural loading, the infiltration system should be designed to resist the surcharge of the structural loads so that the infiltration system is not adversely affected. Structural loads may be assumed to project downward and away from the outside bottom of the foundation at a 1:1 gradient. The infiltration system should still be sufficiently deep to maintain a 15-foot vertical offset between the bottom of the footing and the zone of saturation.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 Loose, or soft alluvial deposits within the upper 5 feet at the site are not considered suitable for the support of settlement-sensitive improvements. Remedial grading of at least the upper 5 feet of soil will be required as discussed herein. Site soils are suitable for use as engineered fill provided the recommendations in the *Grading* section of this report are followed, and import material is screened for acceptance.

7.1.2 An evaluation of seismically induced "dry-sand" settlement was performed, with the resulting seismic "dry-sand" settlement estimated to be approximately 0.4 inches. Seismically induced differential settlement is expected to be on the order of 0.2 inches over a distance of 40 feet.

7.1.3 Soil samples tested for hydrocompression exhibit a collapse potential of up to approximately 3.3 percent for the site. Remedial grading will reduce some of the settlement potential of the near-surface soils; however, the soil with the highest tested collapse potential is between depths of 7 and 10 feet. The potential static settlement due to foundation loading and hydrocompression is estimated to be up to approximately 1.0 inch with a differential settlement of ½ inch over a distance of 40 feet.

7.1.4 Based on the potential for hydrocompression, maintaining proper surface drainage is critical to the future performance of foundations and paving. Recommendations for drainage are provided in the *Site Drainage and Moisture Protection* section of this report.

7.1.5 Due to site soils exhibiting a potential for hydrocompression and seismically induced "dry-sand" settlement, resulting settlements are expected to exceed the design tolerances of conventional shallow foundation systems. Therefore, the proposed structure may be supported on a reinforced concrete mat foundation.

7.1.6 Due to the presence of potentially hydrocompressive soils, the proposed infiltration system should be located a minimum distance of 25 feet from proposed structures and a minimum distance of 15 feet from site improvements to reduce the potential for induced settlements to adversely impact the proposed structures and improvements.

7.1.7 Where new paving is to be placed, it is recommended that the loose or soft alluvial soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all loose or soft alluvium in the area of new paving is not required; however, paving constructed over unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of soil should be scarified and properly compacted for paving support. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report.

7.1.8 Once the design and foundation loading configuration for the proposed structure proceed to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be re-evaluated by this office.

7.1.9 Any changes in the design, location, or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.2 Excavation and Soil Characteristics

7.2.1 Excavation of the upper alluvial deposits is expected to be possible with moderate effort using conventional heavy-duty equipment in proper functioning order.

7.2.2 The soil encountered in this field investigation is considered to be similar to the soils encountered in our previous investigation. It is therefore considered to be “non-expansive” (expansion index [EI] 20 or less) as defined by 2022 California Building Code (CBC) Section 1803.5.3. We expect a majority of the soil encountered to possess a “very low” expansion potential (EI of 0 to 20) in accordance with ASTM D4829. The following table presents soil classifications based on the expansion index. Although unlikely, any medium to highly expansive soils encountered at the site should not be placed within 4 feet of the proposed foundations, flatwork, or paving improvements.

SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM D 4829 Expansion Classification	2022 CBC Expansion Classification
0 – 20	**Very Low**	**Non-Expansive**
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

7.2.3 Testing for expansion potential should be performed during grading, along with plasticity index testing on soils with expansion indices of more than 20.

7.2.4 The soil encountered in this field investigation is considered to be similar to the soils encountered in our previous investigation. The soils indicate that the on-site materials possess a **"S0"** sulfate exposure to concrete structures as defined by 2022 CBC Section 1904 and ACI 318-19 Chapter 19. The following table presents a summary of concrete requirements set forth by 2022 CBC Section 1904.3 and ACI 318. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time, landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Exposure Class		Water-Soluble Sulfate (SO_4) Percent by Weight	Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
S0		**SO_4<0.10**	**No Type Restriction**	**n/a**	**2,500**
S1		$0.10 \leq SO_4 < 0.20$	II	0.50	4,000
S2		$0.20 \leq SO_4 \leq 2.00$	V	0.45	4,500
S3	Option 1	SO_4>2.00	V+Pozzolan or Slag	0.45	4,500
	Option 2		V	0.40	5,000

[1] Maximum water-to-cement ratio limits do not apply to lightweight concrete.

7.2.5 As shown in the table below, the site would not be classified as "corrosive" to buried improvements in accordance with the Caltrans Corrosion Guidelines (Caltrans, 2021).

CALTRANS CORROSION GUIDELINES

Corrosion Exposure	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH
Corrosive	<1,500	500 or greater	1,500 or greater	5.5 or less

7.2.6 Geocon does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements that could be susceptible to corrosion are planned.

7.3 Grading

7.3.1 Grading should be performed in accordance with the *Recommended Grading Specifications* contained in Appendix C and the Grading Ordinances of the City of Banning.

7.3.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and soil engineer in attendance. Special soil handling requirements can be discussed at that time.

7.3.3 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing alluvial soils encountered during exploration are suitable for reuse as engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris is removed.

7.3.4 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by a Geocon representative.

7.3.5 As a minimum, it is recommended that the upper 5 feet of existing earth materials within the proposed building footprint areas be excavated and properly compacted for foundation and slab support. Deeper excavations should be conducted as necessary to remove deeper soft alluvial soil at the direction of the Geocon representative. At a minimum, 3 feet of newly placed engineered fill should be placed below the proposed building foundations. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater.

7.3.6 All excavations must be observed and approved in writing by the Geocon representative. Prior to placing any fill, the upper 12 inches of the excavation bottom must be scarified, moistened, and proof-rolled with heavy equipment in the presence of the Geocon representative.

7.3.7 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to approximately 2 percent above optimum moisture content, and properly compacted to a minimum of 90 percent of the maximum dry density per ASTM D1557 (latest edition).

7.3.8 Stable excavations for the recommended grading can be achieved with sloping measures where property line setbacks allow. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report.

7.3.9 Where new paving is to be placed, it is recommended that all loose or soft alluvium be excavated and properly compacted for paving support. As a minimum, the upper 12 inches of soil should be scarified, moisture conditioned to approximately 2 percent above optimum moisture content, and compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D1557 (latest edition). Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report.

7.3.10 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by the Geocon representative.

7.3.11 All imported fill shall be observed, tested, and approved by Geocon prior to bringing soil to the site. Rocks larger than 6 inches in diameter shall not be used in the fill. Import soils used as structural fill should have an expansion index of less than 20 and corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B-2). Import soils placed in the building area should be placed uniformly across the building pad or in a manner that is approved by the Geocon representative.

7.3.12 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

7.4 Earthwork Grading Factors

7.4.1 Estimates of shrinkage factors are based on empirical judgments comparing the material in its existing or natural state, as encountered in the exploratory excavations, to a compacted state. Variations in natural soil density and in compacted fill density render shrinkage value estimates as rough approximations. As an example, the contractor can compact the fill to a dry density of 90 percent or higher of the laboratory maximum dry density. Thus, the contractor has an approximately 10 percent range of control over the fill volume. Due to the variations in the actual shrinkage/bulking factors, a balance area should be provided to accommodate variations.

7.5 Utility Trench Backfill

7.5.1 Utility trenches should be properly backfilled in accordance with the requirements of the City of Banning and the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). The pipes should be bedded with well-graded crushed rock or clean sands (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe. The bedding material must be inspected and approved in writing by a representative of Geocon. The use of crushed rock is only acceptable if used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil. Backfill of utility trenches should not contain rocks greater than 3 inches in diameter. The use of 2-sack slurry and controlled low-strength material (CLSM) is also acceptable as backfill. However, consideration should be given to the possibility of differential settlement where the slurry ends and earthen backfill begins. These transitions should be minimized, and additional stabilization should be considered at these transitions.

7.5.2 Trench excavation bottoms must be observed and approved in writing by a Geocon representative prior to placing bedding materials, fill, gravel, or concrete.

7.5.3 Utility trench backfill should be placed in layers no thicker than will allow for adequate bonding and compaction. Utility backfill should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density and moisture conditioned to approximately 2 percent above optimum moisture content as determined by ASTM D1557. Backfill at the finish subgrade elevation of new pavements should be compacted to at least 95 percent of the maximum dry density. Backfill materials placed below the recommended moisture content may require additional moisture conditioning prior to placing additional fill.

7.6 Seismic Design Criteria

7.6.1 The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2021 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application U.S. Seismic Design Maps, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 seconds. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	2.28g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.787g	Figure 1613.2.1(3)
Site Coefficient, F_A	1	Table 1613.2.3(1)
Site Coefficient, F_V	1.7	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	2.28g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.338g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.52g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.892*	Section 1613.2.4 (Eqn 16-23)

*Per Supplement 3 of ASCE 7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S_1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter S_{M1} is increased by 50% for all applications of S_{M1}. The values for parameters S_{M1} and S_{D1} presented above have not been increased in accordance with Supplement 3 of ASCE 7-16.

7.6.2 The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.933g	Figure 22-9
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	1.026g	Section 11.8.3 (Eqn 11.8-1)

7.6.3 Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the mean earthquake contributing to the MCE peak ground acceleration is characterized as an 8.09 magnitude event occurring at a hypocentral distance of 9.94 kilometers from the site.

7.6.4 Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such a design may be economically prohibitive.

7.7 Reinforced Concrete Mat Foundation

7.7.1 The proposed building may be supported on a mat foundation, founded in newly placed engineered fill, following the completion of grading per the recommendations provided in the *Grading* section of this report. At a minimum, 3 feet of newly placed engineered fill should be placed below the proposed building foundations. A mat foundation consists of a thick, rigid concrete mat that allows the entire footprint of the structure to carry building loads. In addition, the mat can tolerate significantly greater differential movements, such as those associated with expansive soils or differential settlement. The following table provides a summary of the foundation design recommendations.

SUMMARY OF MAT FOUNDATION RECOMMENDATIONS

Parameter	Value
Design Perimeter Foundation Width	12 inches
Minimum Foundation Depth	Extend Below Slab Underlayment
Minimum Steel Reinforcement	Per Structural Engineer
Allowable Bearing Pressure	2,000 psf
Estimated Static Settlement	1.0 Inch
Estimated “Dry-Sand” Seismic Settlement	0.4 Inch
Total Combined Static and Seismic Settlement	1.4 Inches
Total Combined Differential Settlement	0.7 Inches over 40 Feet
Modulus of Subgrade Reaction	100 pci
Design Expansion Index	20 or less

7.7.2 The modulus of subgrade reaction values should be modified as necessary using standard equations for mat size as required by the structural engineer. This value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

7.7.3 A mat foundation system will allow the structure to settle with the ground and should have sufficient rigidity to allow the structure to move as a single unit. Re-leveling of the mat foundation could be necessary through the use of mud jacking, compaction grouting, or other similar techniques if differential settlement occurs.

7.7.4 For seismic design purposes, a coefficient of friction of 0.40 may be utilized between concrete slab and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.7.5 Slabs that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder. The vapor retarder design should be consistent with the guidelines presented in the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06). In addition, the membrane should be installed in accordance with the manufacturer's recommendations and ASTM requirements and installed in a manner that prevents puncture. The vapor retarder used should be specified by the project architect or developer based on the type of floor covering that will be installed and if the structure will possess a humidity-controlled environment.

7.7.6 The bedding sand thickness should be determined by the project foundation engineer, architect, and/or developer. However, we should be contacted to provide recommendations if the bedding sand is thicker than 6 inches. The foundation design engineer should provide appropriate concrete mix design criteria and curing measures to assure proper curing of the slab by reducing the potential for rapid moisture loss and subsequent cracking and/or slab curl. We suggest that the

foundation design engineer present the concrete mix design and proper curing methods on the foundation plans. It is critical that the foundation contractor understands and follows the recommendations presented on the foundation plans.

7.7.7 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete, to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.7.8 This office should be provided a copy of the final construction plans so that the recommendations presented herein can be properly reviewed and revised if necessary.

7.8 Exterior Concrete Flatwork

7.8.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations presented in the table below. The recommended steel reinforcement would help reduce the potential for cracking.

MINIMUM CONCRETE FLATWORK RECOMMENDATIONS

Expansion Index, EI	Minimum Reinforcing Steel* Options	Minimum Thickness
EI ≤ 50	6x6-W2.9/W2.9 (6x6-6/6) welded wire mesh	4 Inches
	No. 3 Bars 18 inches on center, Both Directions	

*In excess of 8 feet square.

7.8.2 The subgrade soil should be properly moisturized and compacted prior to the placement of steel and concrete. The subgrade soil should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content in accordance with ASTM D1557.

7.8.3 Even with the incorporation of the recommendations of this report, the exterior concrete flatwork has the potential to experience some uplift due to potentially expansive soil beneath grade. The reinforcing steel should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork.

7.8.4 Concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with the criteria presented in the *Grading* section of this report prior to concrete placement. Subgrade soil should be properly compacted, and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

7.8.5 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stemwall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Steel dowelling details should be designed by the project's structural engineer.

7.8.6 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

7.9 Conventional Retaining Walls

7.9.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 6 feet. In the event that walls significantly higher than 6 feet are planned, Geocon should be contacted for additional recommendations.

7.9.2 Retaining wall foundations may consist of either continuous strip footings and/or isolated spread footings deriving support on at least 3 feet of newly placed engineered fill. Conventionally reinforced continuous footings should be at least 12 inches wide and extend at least 18 inches below the lowest adjacent grade. Isolated spread footings should have a minimum width of 24 inches and should extend at least 18 inches below the lowest adjacent grade. Retaining wall foundations may be designed for an allowable soil bearing pressure of 2,500 psf (dead plus live load). The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

7.9.3 Retaining walls with a level backfill surface that are not restrained at the top should be designed utilizing a triangular distribution of pressure (active pressure) of 40 pcf.

7.9.4 Restrained walls are those that are not allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls may be designed utilizing a triangular distribution of pressure (at-rest pressure) of 60 pcf.

7.9.5 The wall pressures provided above assume that the proposed retaining walls will support relatively undisturbed alluvial soils or engineered fill derived from onsite soils. If import soil will be used to backfill proposed retaining walls, revised earth pressures may be required to account for the geotechnical properties of the import soil used as engineered fill. This should be evaluated once the use of import soil is established. All imported fill shall be observed, tested, and approved by Geocon prior to bringing soil to the site.

7.9.6 The wall pressures provided above assume that the retaining wall will be properly drained, preventing the buildup of hydrostatic pressure. If retaining wall drainage is not implemented, an at-rest equivalent fluid pressure of 90 pcf should be used in the design of undrained, restrained walls for the full height of the wall. The value includes hydrostatic pressures plus buoyant lateral earth pressures. If a partially drained wall is proposed, Geocon should be contacted to provide additional recommendations.

7.9.7 Additional pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent structures, and should be designed for each condition as the project progresses.

7.10 Lateral Design

7.10.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.40 may be used with the dead load forces in the newly placed engineered fill or undisturbed alluvial soils.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against newly placed engineered fill or undisturbed alluvial soils may be computed as an equivalent fluid having a density of 300 pounds per cubic foot (pcf) with a maximum earth pressure of 3,000 psf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third. A one-third increase in the passive value may be used for wind or seismic loads.

7.11 Preliminary Pavement Recommendations

7.11.1 The final pavement design should be based on R-value testing of the subgrade soils. Streets should be designed in accordance with the City of Banning standards and specifications when final Traffic Indices and R-Value test results of subgrade soil are completed. Based on the R-value results of a near-surface soil sample tested from our previous geotechnical report (dated June 13, 2024), we used an R-value of 50 to develop preliminary flexible pavement sections presented in the following table. Geocon should be contacted if other roadway classifications and traffic indices are appropriate for the project.

PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Road Classification	Traffic Index	Asphalt Concrete (inches)	Aggregate Base (inches)
Alley / Parking Lots	4.0	3	4
Cul-De-Sac	4.5	3	4
Local Road	5.0	3	4

7.11.2 Prior to the construction of new pavement sections, remedial grading should be performed in accordance with the *Grading* section of this report.

7.11.3 The upper 12 inches of the subgrade soil should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content beneath pavement sections.

7.11.4 Aggregate base materials should conform to the requirements for Crushed Aggregate Base (CAB) or Crushed Miscellaneous Base (CMB) in Sections 200-2.2 and 200-2.4, respectively, of the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). Class 2 aggregate base materials should conform to Section 26-1.02A of the latest edition of the Caltrans *Standard Specifications*. Base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content in accordance with ASTM D1557. Asphalt concrete should be compacted to a density of 95 percent of the laboratory Hveem density in accordance with ASTM D1561.

7.11.5 Where prefabricated concrete pavers (80 mm thick) will be used in site roadways and parking areas, it is acceptable from a geotechnical standpoint to construct the pavers over 2 inches of sand underlain by a properly prepared subgrade and aggregate base per the following table. The aggregate base should be compacted to at least 95 percent relative compaction in accordance with ASTM D1557. Pavers should be constructed in accordance with the manufacturer's guidelines. Preliminary paver design sections are presented in the following table.

PAVER DESIGN SECTIONS

Road Classification/Use	Estimated Traffic Index (TI)	Prefabricated Concrete Paver (inches)	Aggregate Base (inches)
Alley / Parking Lots	4.0	3⅛	6

7.11.6 Where concrete pavers will be placed in pedestrian walkway areas and will not be subject to vehicle loading, the inclusion of a 4-inch layer of base over properly compacted subgrade underlying the pavers is acceptable from a geotechnical standpoint.

7.11.7 Where different pavement sections are to be constructed adjacent to each other, we recommend that consideration be given to the use of deepened base sections to maintain a uniform base thickness and avoid stepped cuts for placement of base material. This condition is expected to occur across the transition between the areas of asphalt paving and prefabricated pavers.

7.11.8 A rigid Portland cement concrete (PCC) pavement section should be placed in roadway aprons and cross gutters. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330-21 *Commercial Concrete Parking Lots and Site Paving Design and Construction – Guide*. The table below provides the traffic categories and design parameters used for the calculations for a 20-year design life.

TRAFFIC CATEGORIES

Traffic Category	Description	Reliability (%)	Slabs Cracked at End of Design Life (%)
A	Car Parking Areas and Access Lanes	60	15
B	Entrance and Truck Service Lanes	60	15
C	School or City Buses (Excluding Large Articulated Buses)	75	15
D	Heavy Duty Trucks (Gross Weight of 80 Kips)	75	15
E	Garbage or Fire Truck Lane	75	15

7.11.9 We used the parameters presented in the following table to calculate the pavement design sections. We should be contacted to provide updated design sections, if necessary.

RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	100 pci
Modulus of Rupture for Concrete, M_R	500 psi
Concrete Compressive Strength	3,000 psi
Concrete Modulus of Elasticity, E	3,150,000 psi

7.11.10 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in the following table.

RIGID VEHICULAR PAVEMENT RECOMMENDATIONS

Traffic Category	Trucks Per Day	Portland Cement Concrete, T (Inches)
A = Car Parking Areas and Access Lanes	10	5½
B = Entrance and Truck Service Lanes	10	6
	50	6½
	100	6½
C = School or City Buses	50	9½
	100	9½
D = Heavy Duty Trucks	50	6½
	100	7
E = Garbage or Fire Truck Lanes	5	6½
	10	7

7.11.11 The PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. The garbage truck pad should be large enough such that all wheels are on the concrete pad during the loading operations.

7.11.12 Adequate joint spacing should be incorporated into the design and construction of the rigid pavement in accordance with the following table.

MAXIMUM JOINT SPACING

Pavement Thickness, T (Inches)	Maximum Joint Spacing (Feet)
4<T<5	10
5≤T<6	12½
6≤T	15

7.11.13 The rigid pavement should also be designed and constructed incorporating the parameters presented in the following table.

ADDITIONAL RIGID PAVEMENT RECOMMENDATIONS

Subject	Value
Thickened Edge	1.2 Times Slab Thickness Adjacent to Structures
	1.5 Times Slab Thickness Adjacent to Soil
	Minimum Increase of 2 Inches
	4 Feet Wide
Crack Control Joint Depth	Early Entry Sawn = T/6 to T/5, 1.25 Inch Minimum
	Conventional (Tooled or Conventional Sawing) = T/4 to T/3
Crack Control Joint Width	¼-Inch for Sealed Joints and Per Sealer Manufacturer's Recommendations
	$^{1}/_{16}$- to $^{1}/_{4}$-Inch is Common for Unsealed Joints

7.11.14 Reinforcing steel will not be necessary within the concrete for geotechnical purposes, with the possible exception of dowels at construction joints as discussed herein.

7.11.15 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with the referenced ACI guide.

7.11.16 To provide load transfer between adjacent pavement slab sections, a butt-type construction joint should be constructed. The butt-type joint should be thickened by at least 20 percent at the edge and taper back at least 4 feet from the face of the slab.

7.11.17 Concrete curb/gutter should be placed on soil subgrade compacted to a dry density of at least 90 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. Cross-gutters that receive vehicular traffic should be placed on subgrade soil compacted to a dry density of at least 95 percent of the laboratory maximum dry density at approximately 2 percent above optimum moisture content. Base materials should not be placed below the curb/gutter, or cross-gutters so water is not able to migrate from the adjacent parkways to the pavement sections. Where flatwork is located directly adjacent to the curb/gutter, the concrete flatwork should be structurally connected to the curbs to help reduce the potential for offsets between the curbs and the flatwork.

7.12 Temporary Excavations

7.12.1 Excavations of up to 10 feet in height may be required during earthwork operations. The excavations are expected to expose alluvial deposits, which may contain material that is subject to caving. The contractor should be prepared for caving soils in open excavations, and formwork may be required in foundation excavations. Vertical excavations up to 5 feet in height may be attempted where not surcharged by adjacent foundations or traffic, and where caving soils are not present.

7.12.2 Excavations of up to 10 feet in height are expected for the construction of the proposed utility improvements, and we expect that the proposed utilities will be installed with conventional cut-and-cover methods.

7.12.3 Vertical excavations greater than 5 feet or where surcharged by existing structures will require sloping and/or shoring measures in order to provide a stable excavation. The contractor's competent person should evaluate the appropriate slope and/or shoring based on soil type and prevailing site conditions per Cal-OSHA regulations.

7.12.4 Where there is insufficient space for sloped excavations, shoring or trench shields should be used to support excavations. Shoring may also be necessary where a sloped excavation could remove vertical or lateral support of existing improvements, including existing utilities and adjacent structures. The contractor's competent person should evaluate the appropriate shoring system to comply per Cal-OSHA regulations.

7.12.5 Where temporary construction slopes are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction slopes are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The contractor's competent person should inspect the soils exposed in the cut slopes during excavation in accordance with Cal-OSHA regulations so that modifications of the slopes can be made if variations in the soil conditions occur.

7.12.6 It is difficult to accurately predict the amount of deflection of a shored embankment, but some deflection will occur. We recommend that the deflection be minimized to prevent damage to existing structures and adjacent improvements. Where a public right-of-way is present or adjacent offsite structures do not surcharge the shoring excavation, the shoring deflection should be limited to less than 1 inch at the top of the shored embankment. Where offsite structures are within the shoring surcharge area it is recommended that the beam deflection be limited to less than ½ inch at the elevation of the adjacent offsite foundation, and no deflection at all if deflections will damage existing structures. The allowable deflection is dependent on many factors, such as the presence of structures and utilities near the top of the embankment and will be assessed and designed by the project shoring engineer.

7.13 Site Drainage and Moisture Protection

7.13.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion, and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to the footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

7.13.2 Planters that are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils, providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

7.13.3 Underground utilities should be leak-free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water can infiltrate the soil for prolonged periods of time.

7.13.4 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend area drains to collect excess irrigation water and transmit it to drainage structures, or impervious above-grade planter boxes be used. In addition,

where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall or the use of an impermeable geosynthetic along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

7.13.5 Proposed infiltration systems should be offset from the outside edge of planned foundations a minimum lateral distance of 25 feet to reduce the occurrence of water migrating below the load projection of planned structures, and a minimum lateral distance of 15 feet from site improvements. These minimum offsets will reduce the potential for settlements induced by migrating water that could adversely impact the proposed structures and improvements.

7.13.6 If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to infiltration areas. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Downgradient and adjacent structures may be subjected to seeps, movement of foundations and slabs, or other impacts as a result of water infiltration.

7.14 Plan Review

7.14.1 Grading, foundation, and, if applicable, shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.) prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating its intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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0’ 500’ 1,000’

SCALE: 1” = 500’

N

SOURCE: Google Earth 2025

VICINITY MAP

GEOCON WEST, INC.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS
41571 CORNING PLACE #101, MURRIETA, CALIFORNIA 92562
PHONE 951-304-2300 www.geoconinc.com

KD		

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 2025	PROJECT NO. T3070-22-01B	FIG. 1

GEOCON LEGEND

Locations are approximate

B2 ..... GEOTECHNICAL BORING LOCATION (T3070-22-01, JUNE 2024)

P2 ..... PERCOLATION TEST LOCATION (T3070-22-01, JUNE 2024)

P4 ..... PERCOLATION TEST LOCATION (T3070-22-01A, AUGUST 2024)

B-2 ..... GEOTECHNICAL BORING LOCATION (THIS INVESTIGATION)

P-3 ..... PERCOLATION TEST LOCATION (THIS INVESTIGATION)

Qf ..... YOUNG ALLUVIUM

..... ALQUIST PRIOLO LINE
(PLOTTED BY RHA BASED ON GIS DATA)

..... FAULT LINE

..... FAULT SETBACK LINE (100')



Base map provided by RHA.
Fault & Building Setback locations plotted by RHA based on GIS locations.

N

0' 50' 100' 150'

GEOCON WEST, INC.
GEOTECHNICAL ENVIRONMENTAL MATERIALS
41571 CORNING PLACE, SUITE 101, MURRIETA, CA 92562
PHONE 951-304-2300 www.geoconinc.com

KD		

GEOLOGIC MAP & SITE PLAN

GILMAN RANCH EVENTS CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

OCTOBER 2026	PROJECT NO. T3070-22-01B	FIG. 2

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD W 2001 UPDATES

EARTHQUAKE INFORMATION:

Earthquake Magnitude:	8.09
Peak Horiz. Acceleration PGA_M (g):	1.026
Magnitude Scaling Factor:	0.823
Historic High Groundwater:	100.0
Groundwater Depth During Exploration:	100.0

ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
Rod Len.Corr.(CR) (0-no or 1-yes):	1
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0-no or 1-yes):	1

Boring ID: B1

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	Field SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60cs	Eff. Unit Wt. (psf)	Resist. CRR 7.5	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	1.000	0.667	--
2.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.998	0.666	--
3.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.996	0.664	--
4.0	116.5	0	18	2.5	1	36	98	1.700	46.8	116.5	Infin.	0.994	0.663	--
5.0	116.5	0	9	5.0	1	36	66	1.700	25.7	116.5	0.305	0.991	0.661	--
6.0	116.5	0	9	5.0	1	36	66	1.700	25.7	116.5	0.305	0.989	0.660	--
7.0	116.5	0	9	5.0	1	36	66	1.661	25.2	116.5	0.295	0.987	0.658	--
8.0	122.5	0	20	7.5	1	36	93	1.543	47.5	122.5	Infin.	0.985	0.657	--
9.0	122.5	0	20	7.5	1	36	93	1.446	44.8	122.5	Infin.	0.982	0.655	--
10.0	122.5	0	14	10.0	1	36	74	1.364	30.8	122.5	Infin.	0.980	0.654	--
11.0	122.5	0	14	10.0	1	36	74	1.295	29.5	122.5	0.435	0.978	0.652	--
12.0	122.5	0	14	10.0	1	36	74	1.236	28.4	122.5	0.383	0.976	0.651	--
13.0	122.5	0	14	12.5	1	36	70	1.184	27.4	122.5	0.349	0.974	0.649	--
14.0	122.5	0	14	12.5	1	36	70	1.138	26.5	122.5	0.325	0.972	0.648	--
15.0	139.2	0	31	15.0	1	36	100	1.095	53.9	139.2	Infin.	0.970	0.647	--
16.0	139.2	0	31	15.0	1	36	100	1.053	52.1	139.2	Infin.	0.967	0.645	--
17.0	139.2	0	31	15.0	1	36	100	1.016	50.4	139.2	Infin.	0.965	0.644	--
18.0	139.2	0	31	15.0	1	36	100	0.983	49.0	139.2	Infin.	0.963	0.642	--
19.0	139.2	0	31	15.0	1	36	100	0.953	47.6	139.2	Infin.	0.961	0.641	--
20.0	139.2	0	40	20.0	1	36	104	0.925	64.6	139.2	Infin.	0.958	0.639	--
21.0	139.2	0	40	20.0	1	36	104	0.900	63.0	139.2	Infin.	0.956	0.637	--
22.0	139.2	0	40	20.0	1	36	104	0.877	61.5	139.2	Infin.	0.953	0.635	--
23.0	139.2	0	40	20.0	1	36	104	0.855	60.1	139.2	Infin.	0.950	0.633	--
24.0	139.2	0	40	20.0	1	36	104	0.835	58.8	139.2	Infin.	0.947	0.631	--
25.0	136.4	0	40	25.0	1	4	97	0.816	46.3	136.4	Infin.	0.944	0.629	--
26.0	136.4	0	40	25.0	1	4	97	0.799	45.3	136.4	Infin.	0.940	0.627	--
27.0	136.4	0	40	25.0	1	4	97	0.783	44.4	136.4	Infin.	0.936	0.624	--
28.0	136.4	0	40	25.0	1	4	97	0.768	43.6	136.4	Infin.	0.932	0.622	--
29.0	136.4	0	40	25.0	1	4	97	0.753	42.8	136.4	Infin.	0.928	0.619	--
30.0	136.4	0	70	30.0	1	4	121	0.740	77.7	136.4	Infin.	0.923	0.616	--
31.0	136.4	0	70	30.0	1	4	121	0.727	76.3	136.4	Infin.	0.918	0.612	--
32.0	136.4	0	70	30.0	1	4	121	0.715	75.0	136.4	Infin.	0.912	0.609	--
33.0	136.4	0	70	30.0	1	4	121	0.703	73.8	136.4	Infin.	0.907	0.605	--
34.0	136.4	0	70	30.0	1	4	121	0.692	72.7	136.4	Infin.	0.900	0.601	--
35.0	120.9	0	55	35.0	1	4	101	0.682	56.3	120.9	Infin.	0.894	0.596	--
36.0	120.9	0	55	35.0	1	4	101	0.673	55.5	120.9	Infin.	0.887	0.591	--
37.0	120.9	0	55	35.0	1	4	101	0.664	54.8	120.9	Infin.	0.880	0.587	--
38.0	120.9	0	55	35.0	1	4	101	0.656	54.1	120.9	Infin.	0.872	0.581	--
39.0	120.9	0	55	35.0	1	4	101	0.648	53.5	120.9	Infin.	0.864	0.576	--
40.0	120.9	0	55	40.0	1	4	97	0.640	52.8	120.9	Infin.	0.855	0.570	--
41.0	120.9	0	55	40.0	1	4	97	0.633	52.2	120.9	Infin.	0.846	0.564	--
42.0	120.9	0	55	40.0	1	4	97	0.626	51.6	120.9	Infin.	0.837	0.558	--
43.0	120.9	0	55	40.0	1	4	97	0.619	51.0	120.9	Infin.	0.828	0.552	--
44.0	120.9	0	55	40.0	1	4	97	0.612	50.5	120.9	Infin.	0.818	0.546	--
45.0	123.4	0	55	45.0	1	4	93	0.605	49.9	123.4	Infin.	0.808	0.539	--
46.0	123.4	0	55	45.0	1	4	93	0.599	49.4	123.4	Infin.	0.798	0.532	--
47.0	123.4	0	55	45.0	1	4	93	0.593	48.9	123.4	Infin.	0.788	0.526	--
48.0	123.4	0	55	45.0	1	4	93	0.587	48.4	123.4	Infin.	0.778	0.519	--

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 909-894-2175

LIQUEFACTION POTENTIAL - MAXIMUM CONSIDERED EARTHQUAKE

GILMAN RANCH EVENTS CENTER
1901 WEST WILSON STREET
BANNING, CALIFORNIA

DRAFTED BY: DSM	CHECKED BY: NDB	SEPT 2025	PROJECT NO. T3070-22-01B	FIGURE 3

MCE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	8.09
Peak Horiz. Acceleration (g):	1.026

Boring ID: B1

Depth of Base of Strate (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	116.5	0.03	0.02	0.019	18	1.25	98.0	1.7	46.8	1.0	225.0	8.55E-05	1.60E-04	0.016	5.77E-03	21.3	6.75E-03	Grading
2.0	1.0	1.5	116.5	0.09	0.06	0.058	18	1.25	98.0	1.7	46.8	1.0	389.7	1.45E-04	2.30E-04	0.023	8.30E-03	21.3	9.71E-03	Grading
3.0	1.0	2.5	116.5	0.15	0.10	0.097	18	1.25	98.0	1.7	46.8	1.0	503.1	1.84E-04	2.30E-04	0.023	8.30E-03	21.3	9.71E-03	Grading
4.0	1.0	3.5	116.5	0.20	0.14	0.136	18	1.25	98.0	1.7	46.8	1.0	595.2	2.13E-04	8.10E-04	0.081	2.92E-02	21.3	3.42E-02	Grading
5.0	1.0	4.5	116.5	0.26	0.18	0.174	9	1.25	65.6	1.7	25.7	1.0	552.5	2.90E-04	8.10E-04	0.081	6.01E-02	21.3	7.03E-02	Grading
6.0	1.0	5.5	116.5	0.32	0.21	0.213	9	1.25	65.6	1.7	25.7	1.0	610.8	3.14E-04	1.00E-03	0.100	7.42E-02	21.3	8.68E-02	Grading
7.0	1.0	6.5	116.5	0.38	0.25	0.251	9	1.25	65.6	1.7	25.2	1.0	659.8	3.37E-04	1.00E-03	0.100	7.59E-02	21.3	8.88E-02	0.02
8.0	1.0	7.5	122.5	0.44	0.29	0.291	20	1.25	92.6	1.5	47.5	1.0	877.3	2.88E-04	4.50E-04	0.045	1.59E-02	21.3	1.86E-02	0.00
9.0	1.0	8.5	122.5	0.50	0.33	0.331	20	1.25	92.6	1.4	44.8	1.0	918.6	3.08E-04	1.00E-03	0.100	3.80E-02	21.3	4.44E-02	0.01
10.0	1.0	9.5	122.5	0.56	0.38	0.371	14	1.25	73.6	1.4	30.8	1.0	858.8	3.63E-04	1.00E-03	0.100	5.96E-02	21.3	6.97E-02	0.02
11.0	1.0	10.5	122.5	0.62	0.42	0.410	14	1.25	73.6	1.3	29.5	1.0	891.5	3.81E-04	1.00E-03	0.100	6.28E-02	21.3	7.34E-02	0.02
12.0	1.0	11.5	122.5	0.68	0.46	0.450	14	1.25	73.6	1.2	28.4	1.0	922.4	3.97E-04	1.00E-03	0.100	6.58E-02	21.3	7.69E-02	0.02
13.0	1.0	12.5	122.5	0.74	0.50	0.489	14	1.25	69.6	1.2	27.4	1.0	951.6	4.12E-04	2.70E-03	0.270	1.85E-01	21.3	2.17E-01	0.05
14.0	1.0	13.5	122.5	0.81	0.54	0.528	14	1.25	69.6	1.1	26.5	1.0	979.4	4.26E-04	1.20E-03	0.120	8.56E-02	21.3	1.00E-01	0.02
15.0	1.0	14.5	139.2	0.87	0.58	0.569	31	1.25	99.7	1.1	53.9	1.0	1290.5	3.43E-04	7.10E-04	0.071	2.16E-02	21.3	2.52E-02	0.01
16.0	1.0	15.5	139.2	0.94	0.63	0.613	31	1.25	99.7	1.1	52.1	1.0	1325.6	3.55E-04	7.10E-04	0.071	2.25E-02	21.3	2.63E-02	0.01
17.0	1.0	16.5	139.2	1.01	0.68	0.656	31	1.25	99.7	1.0	50.4	1.0	1359.0	3.65E-04	7.10E-04	0.071	2.34E-02	21.3	2.74E-02	0.01
18.0	1.0	17.5	139.2	1.08	0.72	0.699	31	1.25	99.7	1.0	49.0	1.0	1391.1	3.75E-04	7.10E-04	0.071	2.42E-02	21.3	2.84E-02	0.01
19.0	1.0	18.5	139.2	1.15	0.77	0.741	31	1.25	99.7	1.0	47.6	1.0	1421.9	3.84E-04	7.10E-04	0.071	2.51E-02	21.3	2.93E-02	0.01
20.0	1.0	19.5	139.2	1.22	0.82	0.783	40	1.25	104.3	0.9	64.6	1.0	1621.3	3.51E-04	7.10E-04	0.071	1.74E-02	21.3	2.03E-02	0.00
21.0	1.0	20.5	139.2	1.29	0.86	0.825	40	1.25	104.3	0.9	63.0	1.0	1652.8	3.58E-04	7.10E-04	0.071	1.79E-02	21.3	2.10E-02	0.01
22.0	1.0	21.5	139.2	1.36	0.91	0.866	40	1.25	104.3	0.9	61.5	1.0	1683.2	3.65E-04	7.10E-04	0.071	1.84E-02	21.3	2.16E-02	0.01
23.0	1.0	22.5	139.2	1.43	0.96	0.907	40	1.25	104.3	0.9	60.1	0.9	1712.7	3.71E-04	7.10E-04	0.071	1.90E-02	21.3	2.22E-02	0.01
24.0	1.0	23.5	139.2	1.50	1.00	0.947	40	1.25	104.3	0.8	58.8	0.9	1741.2	3.76E-04	5.20E-04	0.052	1.43E-02	21.3	1.67E-02	0.00
25.0	1.0	24.5	136.4	1.57	1.05	0.986	40	1.25	96.5	0.8	46.3	0.9	1644.7	4.10E-04	8.10E-04	0.081	2.96E-02	21.3	3.46E-02	0.01
26.0	1.0	25.5	136.4	1.63	1.10	1.024	40	1.25	96.5	0.8	45.3	0.9	1668.2	4.15E-04	8.10E-04	0.081	3.03E-02	21.3	3.55E-02	0.01
27.0	1.0	26.5	136.4	1.70	1.14	1.061	40	1.25	96.5	0.8	44.4	0.9	1691.1	4.20E-04	8.10E-04	0.081	3.11E-02	21.3	3.64E-02	0.01
28.0	1.0	27.5	136.4	1.77	1.19	1.098	39.6	1.25	96.5	0.8	43.6	0.9	1713.4	4.24E-04	8.10E-04	0.081	3.18E-02	21.3	3.72E-02	0.01
29.0	1.0	28.5	136.4	1.84	1.23	1.135	39.6	1.25	96.5	0.8	42.8	0.9	1735.1	4.28E-04	8.10E-04	0.081	3.26E-02	21.3	3.81E-02	0.01
30.0	1.0	29.5	136.4	1.91	1.28	1.170	70	1.25	120.6	0.7	77.7	0.9	2156.2	3.52E-04	5.20E-04	0.052	1.02E-02	21.3	1.19E-02	0.00
31.0	1.0	30.5	136.4	1.98	1.32	1.206	70	1.25	120.6	0.7	76.3	0.9	2181.6	3.55E-04	5.20E-04	0.052	1.04E-02	21.3	1.22E-02	0.00
32.0	1.0	31.5	136.4	2.04	1.37	1.240	70	1.25	120.6	0.7	75.0	0.9	2206.4	3.57E-04	5.20E-04	0.052	1.06E-02	21.3	1.24E-02	0.00
33.0	1.0	32.5	136.4	2.11	1.42	1.274	70	1.25	120.6	0.7	73.8	0.9	2230.7	3.60E-04	5.20E-04	0.052	1.09E-02	21.3	1.27E-02	0.00
34.0	1.0	33.5	136.4	2.18	1.46	1.307	70	1.25	120.6	0.7	72.7	0.9	2254.4	3.62E-04	5.20E-04	0.052	1.11E-02	21.3	1.29E-02	0.00
35.0	1.0	34.5	120.9	2.24	1.50	1.338	55	1.25	101.2	0.7	56.3	0.9	2100.6	3.94E-04	5.20E-04	0.052	1.50E-02	21.3	1.76E-02	0.00
36.0	1.0	35.5	120.9	2.31	1.54	1.365	55	1.25	101.2	0.7	55.5	0.9	2119.2	3.95E-04	5.20E-04	0.052	1.53E-02	21.3	1.79E-02	0.00
37.0	1.0	36.5	120.9	2.37	1.58	1.392	55	1.25	101.2	0.7	54.8	0.9	2137.6	3.96E-04	5.20E-04	0.052	1.55E-02	21.3	1.81E-02	0.00
38.0	1.0	37.5	120.9	2.43	1.63	1.418	55	1.25	101.2	0.7	54.1	0.9	2155.7	3.97E-04	5.20E-04	0.052	1.57E-02	21.3	1.84E-02	0.00
39.0	1.0	38.5	120.9	2.49	1.67	1.444	55	1.25	101.2	0.6	53.5	0.9	2173.4	3.98E-04	5.20E-04	0.052	1.60E-02	21.3	1.87E-02	0.00
40.0	1.0	39.5	120.9	2.55	1.71	1.469	55	1.25	96.8	0.6	52.8	0.9	2190.9	3.98E-04	5.20E-04	0.052	1.62E-02	21.3	1.90E-02	0.00
41.0	1.0	40.5	120.9	2.61	1.75	1.494	55	1.25	96.8	0.6	52.2	0.8	2208.1	3.99E-04	5.20E-04	0.052	1.64E-02	21.3	1.92E-02	0.00
42.0	1.0	41.5	120.9	2.67	1.79	1.518	55	1.25	96.8	0.6	51.6	0.8	2225.0	3.99E-04	5.20E-04	0.052	1.67E-02	21.3	1.95E-02	0.00
43.0	1.0	42.5	120.9	2.73	1.83	1.541	55	1.25	96.8	0.6	51.0	0.8	2241.7	4.00E-04	5.20E-04	0.052	1.69E-02	21.3	1.98E-02	0.00
44.0	1.0	43.5	120.9	2.79	1.87	1.564	55	1.25	96.8	0.6	50.5	0.8	2258.1	4.00E-04	5.20E-04	0.052	1.71E-02	21.3	2.00E-02	0.00
45.0	1.0	44.5	123.4	2.85	1.91	1.586	55	1.25	92.9	0.6	49.9	0.8	2274.5	4.00E-04	1.90E-03	0.190	6.34E-02	21.3	7.41E-02	0.02
46.0	1.0	45.5	123.4	2.91	1.95	1.609	55	1.25	92.9	0.6	49.4	0.8	2290.8	4.00E-04	1.90E-03	0.190	6.42E-02	21.3	7.51E-02	0.02
47.0	1.0	46.5	123.4	2.97	1.99	1.630	55	1.25	92.9	0.6	48.9	0.8	2306.9	4.00E-04	1.90E-03	0.190	6.50E-02	21.3	7.60E-02	0.02
48.0	1.0	47.5	123.4	3.03	2.03	1.651	55	1.25	92.9	0.6	48.4	0.8	2322.7	4.01E-04	1.90E-03	0.190	6.58E-02	21.3	7.70E-02	0.02

TOTAL SETTLEMENT (inches) = 0.4

REFERENCE: TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 909-894-2175

DRAFTED BY: DSM | CHECKED BY: NDB

EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS

MAXIMUM CONSIDERED EARTHQUAKE

GILMAN RANCH EVENTS CENTER
1901 WEST WILSON STREET
BANNING, CALIFORNIA

SEPTEMBER 2025 | PROJECT NO. T3070-22-01B | FIG. 4

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored on July 21, 2025, by excavating two (2) 8-inch-diameter geotechnical borings using a truck-mounted hollow-stem auger drilling machine to depths of approximately 31½ and 47½ feet beneath the ground surface. Representative and relatively undisturbed samples were obtained by driving a 3-inch, O. D., California Modified Sampler or Standard Penetration Test Sampler (SPT) into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch by 2$^{3}/_{8}$-inch diameter brass sampler rings to facilitate soil removal and testing. Bulk samples were also obtained.

Three (3) 15-foot-deep percolation borings were also excavated using the hollow-stem auger drilling machine. The percolation tests were set up after drilling and the testing was performed on July 22, 2025, in accordance with the Handbook.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A-1 through A-5. Percolation Test Reports are presented on Figures A-6 through A-8. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The approximate locations of the geotechnical and percolation borings are shown on Figure 2.

GEOCON

Soil Boring Number: B-1

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934170, -116.896157
BORING DATE 07/21/2025
FIGURE NUMBER A-1
DEPTH 47.5'
SURFACE ELEVATION ~2567'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/21/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
0	2567			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND w/ Gravel**, medium dense, slightly moist, light brown, fine to medium with few coarse, rootlets						
2	2565						■	B-1@2.5'	9 15 18	110.0	5.9
4					loose, some quartz rich materials		■	B-1@5'	6 5 4		4.9
6	2560										
8					medium dense, rootlets, pinhole porosity		■	B-1@7.5'	8 14 23	104.9	16.8
10					cobbles encountered		■	B-1@10'	11 7 7		5.4
12	2555										
14					dense		■	B-1@15'	13 24 32	125.9	10.6
16	2550										
18											
20							■	B-1@20'	11 17 23		3.9
22	2545										
24											

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

SOIL BORING: B-1

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
26				SP	**<u>OLDER ALLUVIAL FAN DEPOSITS</u> (Qof)** **Poorly Graded SAND**, very dense, slightly moist, strong brown with white mottles, fine to coarse, quartz rich, highly weathered rock, micaceous		■	B-1@25'	33 41 31	124.0	10.0
	2540										
28					rig chatter, struggle to drill						
30					light brown with brown and black mottles, increase in quartz and mica in matrix		■	B-1@30'	26 38 32		4.5
	2535										
32											
34					medium to coarse, moderately weathered rock, increase in mica and quartz in matrix		■	B-1@35'	50/3"	113.6	6.4
36											
	2530										
38											
40					increase in coarse grains		■	B-1@40'	40 50/3"		8.6
	2525										
42					rig chatter, slowed drilling						
44											
46					black with strong brown mottles, medium to coarse, some fine		■	B-1@45'	50/5"	119.5	3.3
	2520										
48					light gray to white, very hard drilling, possible granitic bedrock		■	B-1@47'	50/6"		

Boring Terminated: 47 1/2'
No groundwater encountered
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: B-2

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.933709, -116.896180
BORING DATE 07/21/2025
FIGURE NUMBER A-2
DEPTH 31.4'
SURFACE ELEVATION ~2559'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/21/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Dry Density (pcf)	Moisture Content (%)
0	2559			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, medium dense, slightly moist, light brown, fine to medium with few coarse, some gravel, trace quartz						
2					brown			B-2@2.5'	8 7 8	114.6	2.7
4	2555							B-2@5'	7 7 10	111.0	2.9
6				SP	**Poorly Graded SAND w/ Gravel**, medium dense, slightly moist, light brown to strong brown, fine to coarse, micaceous, quartz rich			B-2@7.5'	6 11 9	111.7	4.9
8	2550							B-2@10'	8 11 13	118.2	11.3
10				SM	**Silty SAND**, medium dense, slightly moist, strong brown, fine to medium, weakly cemented, pinhole porosity						
12											
14	2545							B-2@15'	7 13 24	122.3	9.6
16											
18	2540				brown with black mottling, pea gravel with some larger gravels, thin sand lenses, pinhole porosity, laminated						
20					dense, increase in gravels			B-2@20'	14 23 32	122.4	13.6
22											
24	2535							B-2@25'	19 26 28	125.3	8.3
26											
28	2530			SM	**OLDER ALLUVIAL FAN DEPOSITS (Qof)** **Silty SAND w/ Gravel and Cobble**, very dense, slightly moist, brown with black mottling, medium to coarse, cobbles encountered						
30					partial cobble in shoe			B-2@30'	15 35 50/5"	134.1	8.3

Boring Terminated: 31.4'
No groundwater encountered
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-1

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934822, -116.895744
BORING DATE 07/21/2025
FIGURE NUMBER A-3
DEPTH 15.0'
SURFACE ELEVATION ~2574'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
0	2574			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, loose, slightly moist, light brown, fine to coarse, gravel, rootlets					
4	2570									
8	2565				dark brown					
14	2560						■	P-1@13.5'	3 3 6	9.3

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-2

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.934060, -116.896535
BORING DATE 07/21/2025
FIGURE NUMBER A-4
DEPTH 15.0'
SURFACE ELEVATION ~2566'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
0	2566									
	2565			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, medium dense, slightly moist, dark brown, fine to medum with few coarse, gravel, rootlets					
2										
4										
	2560									
6										
8										
10										
	2555									
12										
14							■	P-2@13.5'	8 9 13	10.1

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

GEOCON

Soil Boring Number: P-3

PROJECT NAME Gilman Ranch Event Center
LOGGED BY KD
PROJECT NUMBER T3070-22-01B
LATITUDE / LONGITUDE 33.933972, -116.895487
BORING DATE 07/21/2025
FIGURE NUMBER A-5
DEPTH 15.0'
SURFACE ELEVATION ~2561'
LOCATION Gilman Ranch
CLIENT NAME RHA Landscape Architects - Planners Inc.
DRILLING FIRM 2R Drilling
COMPLETED 07/22/2025
EQUIPMENT CME-75 -
METHOD Hollow Stem Auger
BORING DIAMETER 8 in
HAMMER TYPE Auto
NOTES -
HAMMER WEIGHT / DROP 140 lb / 30 in

Depth (ft)	Elevation (ft)	Water Levels	Graphic Log	USCS	Material Description	Bulk	Driven	Sample Number	Blow Counts/6"	Moisture Content (%)
	2561									
	2560			SM	**ALLUVIAL FAN DEPOSITS** (**Qf**) **Silty SAND**, loose, slightly moist, light brown, fine to coarse, gravel, rootlets					
2										
4										
	2555									
6										
8										
10										
	2550									
12										
14							■	P-3@13.5'	3 3 4	10.5

Boring Terminated: 15'
No groundwater encountered
Presaturated with 5 gallons on 7/21/2025
Test run on 7/22/2025
Backfilled with soil clippings

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE STRATIFICATION LINES PRESENTED HEREIN REPRESENT THE APPROXIMATE BOUNDARY BETWEEN EARTH TYPES; THE TRANSITIONS MAY BE GRADUAL.

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-1	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:09 AM	7:34 AM	25	**101.4**	**126.12**	**24.72**	**yes**
2	7:36 AM	8:01 AM	25	**101.5**	**130.68**	**29.16**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	10:53 AM	11:03 AM	10.00	98.9	113.5	14.6	0.68
2	11:04 AM	11:14 AM	10.00	85.2	112.9	27.7	0.36
3	11:15 AM	11:25 AM	10.00	84.8	102.1	17.3	0.58
4	11:26 AM	11:36 AM	10.00	84.4	98.9	14.5	0.69
5	11:37 AM	11:47 AM	10.00	83.6	95.5	11.9	0.84
6	11:48 AM	11:58 AM	10.00	83.3	92.3	9.0	1.11
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	92.3	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	83.3	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	96.7	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	87.7	inches	Adj. Volume of Water =	452	$inches^3$
ΔH =	9.0	inches			
H_{avg} =	92.2	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 1.15 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

DRAFTED BY: KD	CHECKED BY: RNP	September 2025	PROJECT NO. T3070-22-01b	FIG. A-6

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-2	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:16 AM	7:41 AM	25	**76.3**	**100.56**	**24.24**	**yes**
2	7:43 AM	8:08 AM	25	**72.1**	**83.64**	**11.52**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	9:35 AM	9:45 AM	10.00	69.6	72.1	2.5	3.97
2	9:46 AM	9:56 AM	10.00	70.0	72.1	2.2	4.63
3	9:57 AM	10:07 AM	10.00	68.0	70.7	2.6	3.79
4	10:08 AM	10:18 AM	10.00	70.0	72.2	2.3	4.39
5	10:19 AM	10:29 AM	10.00	70.1	72.1	2.0	4.90
6	10:30 AM	10:40 AM	10.00	69.8	71.5	1.7	5.95
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	71.5	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	69.8	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	110.2	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	108.5	inches	Adj. Volume of Water =	84	$inches^3$
ΔH =	1.7	inches			
H_{avg} =	109.3	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 0.18 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

DRAFTED BY: KD	CHECKED BY: RNP	September 2025	PROJECT NO. T3070-22-01b	FIG. A-7

PERCOLATION TEST DATA SHEET

Project:	Gilman Ranch	**Project No.:**	T3070-22-01	**Date:**	Tuesday, July 22, 2025
Test Hole No.:	P-3	**Tested By:**	KD		
Depth of Test Hole, DT:	15	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	--	--	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	7:22 AM	7:47 AM	25	**103.0**	**123.12**	**20.16**	**yes**
2	7:49 AM	8:14 AM	25	**98.4**	**116.76**	**18.36**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	8:15 AM	8:25 AM	10.00	99.0	103.8	4.8	2.08
2	8:26 AM	8:36 AM	10.00	99.6	103.7	4.1	2.45
3	8:38 AM	8:48 AM	10.00	93.7	100.7	7.0	1.44
4	8:50 AM	9:00 AM	10.00	90.5	97.7	7.2	1.39
5	9:01 AM	9:11 AM	10.00	94.3	100.0	5.6	1.77
6	9:12 AM	9:22 AM	10.00	95.5	100.0	4.4	2.25
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	Height of Gravel Pack =	1	feet
Final Depth to Water, D_f =	100.0	inches	Gravel Pack Material =	Gravel	
Test Hole Radius, r =	4	inches	Gravel Pack Porosity =	0.5	
Initial Depth to Water, D_0 =	95.5	inches	Casing Inner Diameter =	2.3	inches
Total Depth of Test Hole, D_t =	180	inches	Casing Outer Diameter =	2.3	inches
H_o =	84.5	inches	Adj. Cross Sectional Area =	27.2	$inches^2$
H_f =	80.0	inches	Adj. Volume of Water =	223	$inches^3$
ΔH =	4.4	inches			
H_{avg} =	82.3	inches			

$$I_t = \frac{Volume\ of\ Water\ Dissipated}{Surface\ Area\ of\ Sidewall} = \frac{\Delta H \pi r^2 (60)}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H (60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, I_t = 0.63 inches/hour

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
41571 CORNING PLACE - SUITE 101 - MURRIETA, CA 92562
PHONE: 951-304-2300

DRAFTED BY: KD | CHECKED BY: RNP

PERCOLATION TEST RESULTS AND CALCULATIONS

Gilman Ranch Events Center
1901 Wilson Street
Banning, CA

September 2025 | PROJECT NO. T3070-22-01b | FIG. A-8

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected soil samples for in-place dry density/moisture content, maximum density, sieve analyses, consolidation, and direct shear strength. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.

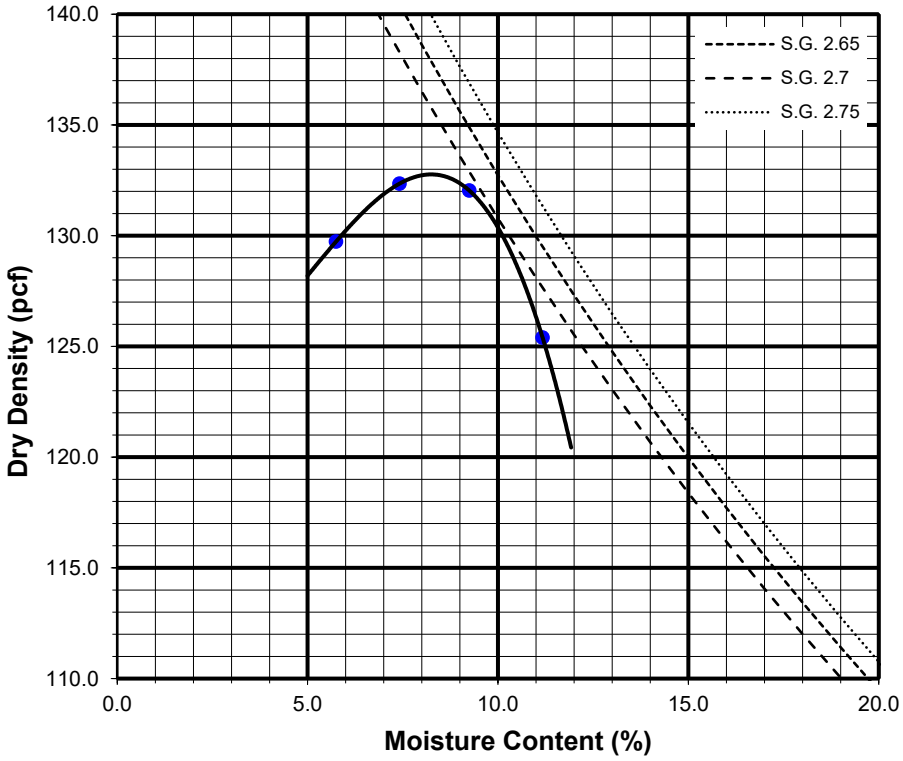
Sample No:

B1/B2 @ 0-5'	Silty SAND (SM) with gravel, light brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6317	6392	6423	6350		
Weight of Mold	(g)	4244	4244	4244	4244		
Net Weight of Soil	(g)	2072	2147	2179	2106		
Wet Weight of Soil + Cont.	(g)	840.8	838.5	758.5	755.7		
Dry Weight of Soil + Cont.	(g)	809.2	798.2	715.9	705.5		
Weight of Container	(g)	259.2	254.5	255.2	256.1		
Moisture Content	(%)	5.7	7.4	9.2	11.2		
Wet Density	(pcf)	137.2	142.2	144.2	139.4		
Dry Density	(pcf)	129.7	132.3	132.0	125.4		

Maximum Dry Density (pcf)	**133.0**
Bulk Specific Gravity (dry)	**2.57**
Corrected Maximum Dry Density (pcf)	**136.5**

Optimum Moisture Content (%)	**8.5**
Oversized Fraction (%)	**16.0**
Corrected Moisture Content (%)	**7.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

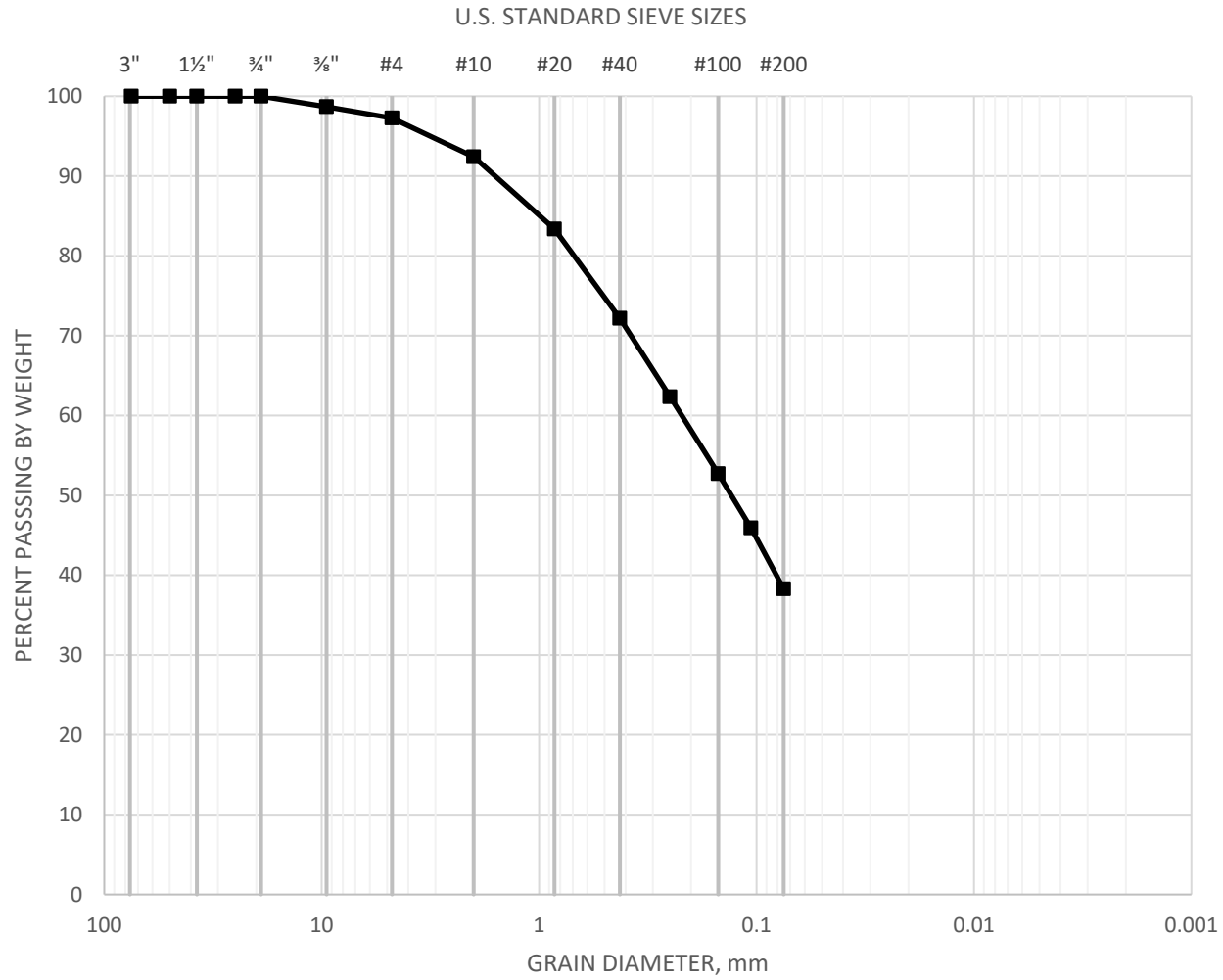
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-1

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-1@13.5'	Silty SAND (SM), light brown	0.23	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

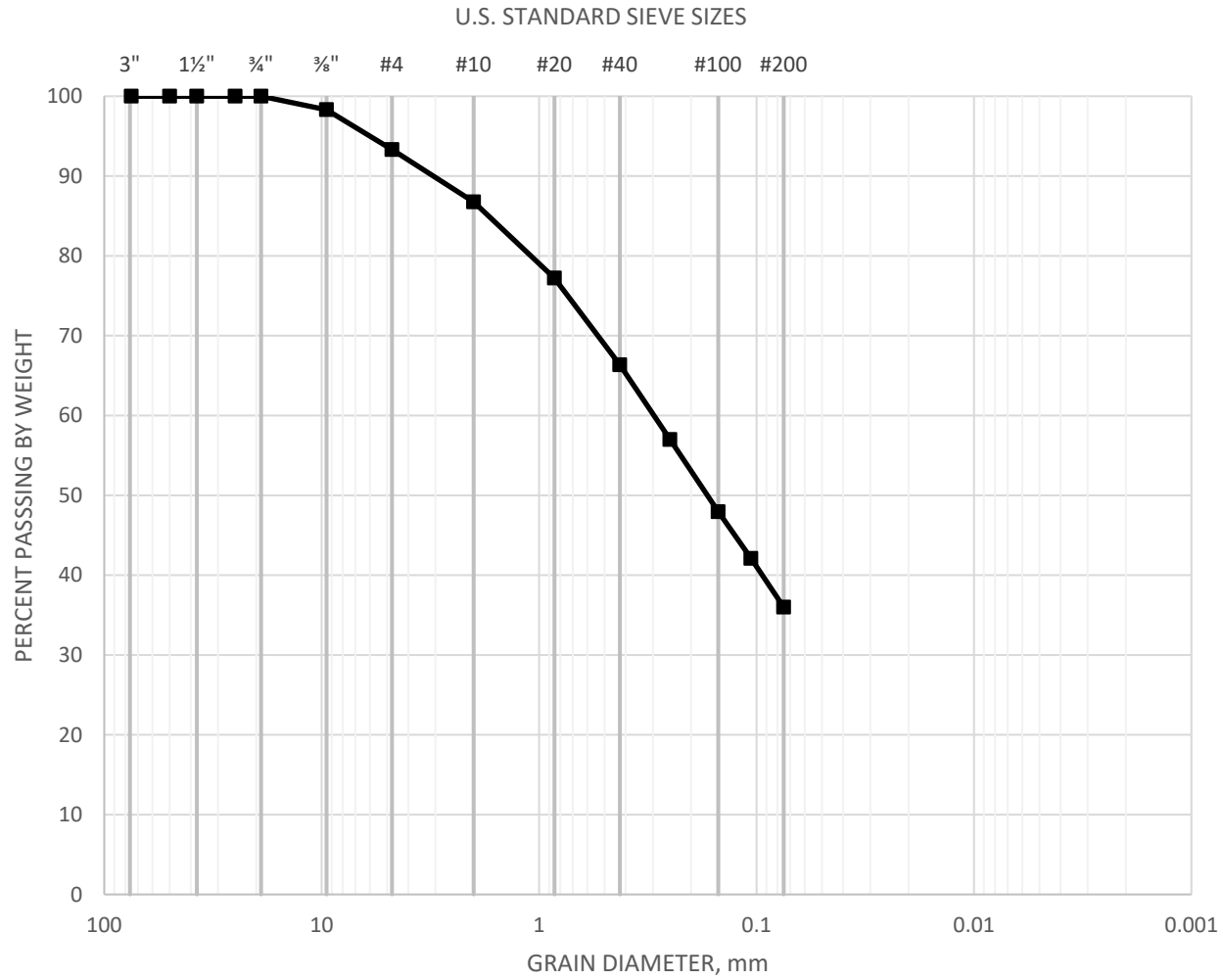
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-2

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-2@13.5'	Silty SAND (SM), dark brown	0.29	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

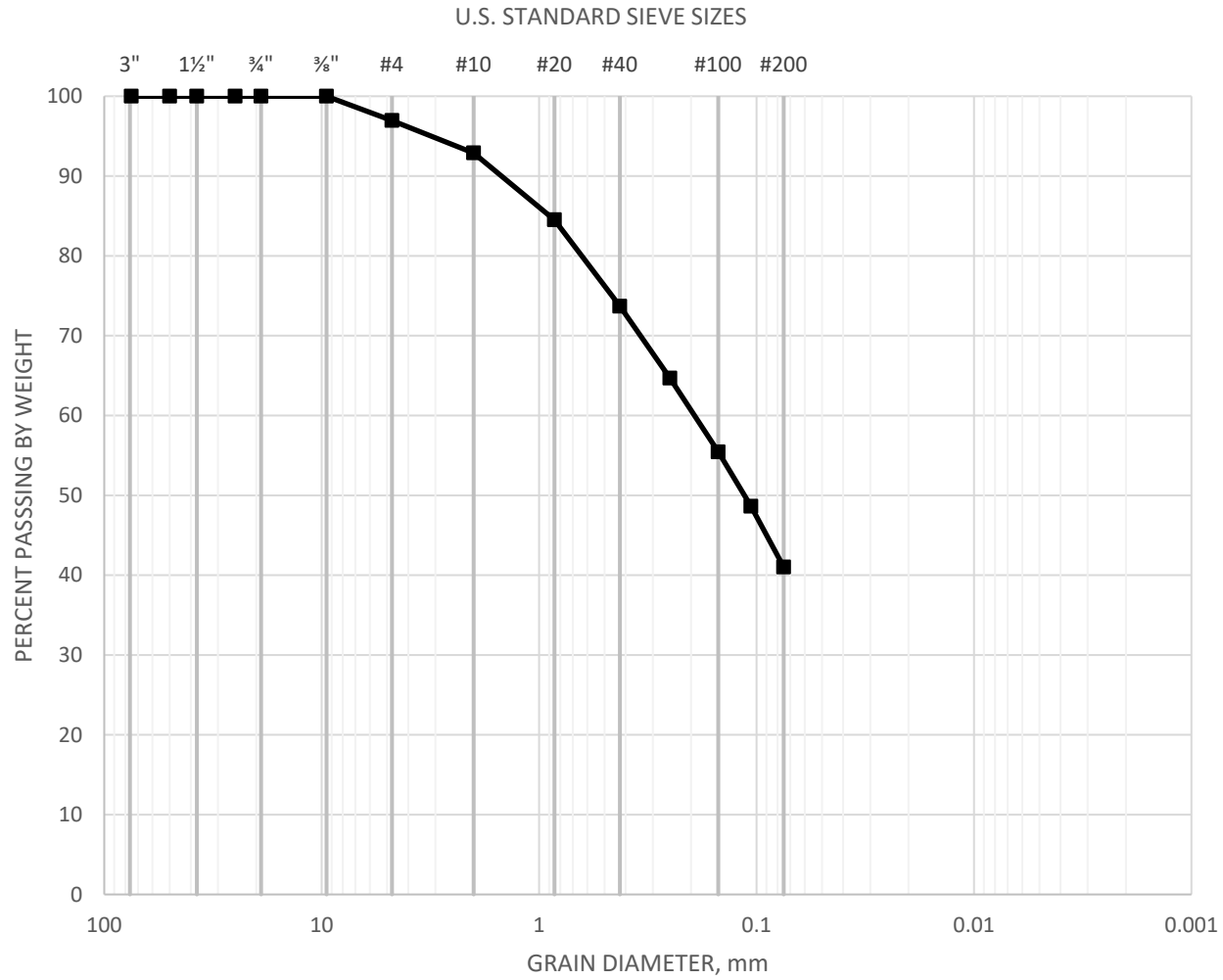
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-3

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P-3@13.5'	Silty SAND (SM), light brown	0.28	-	-

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

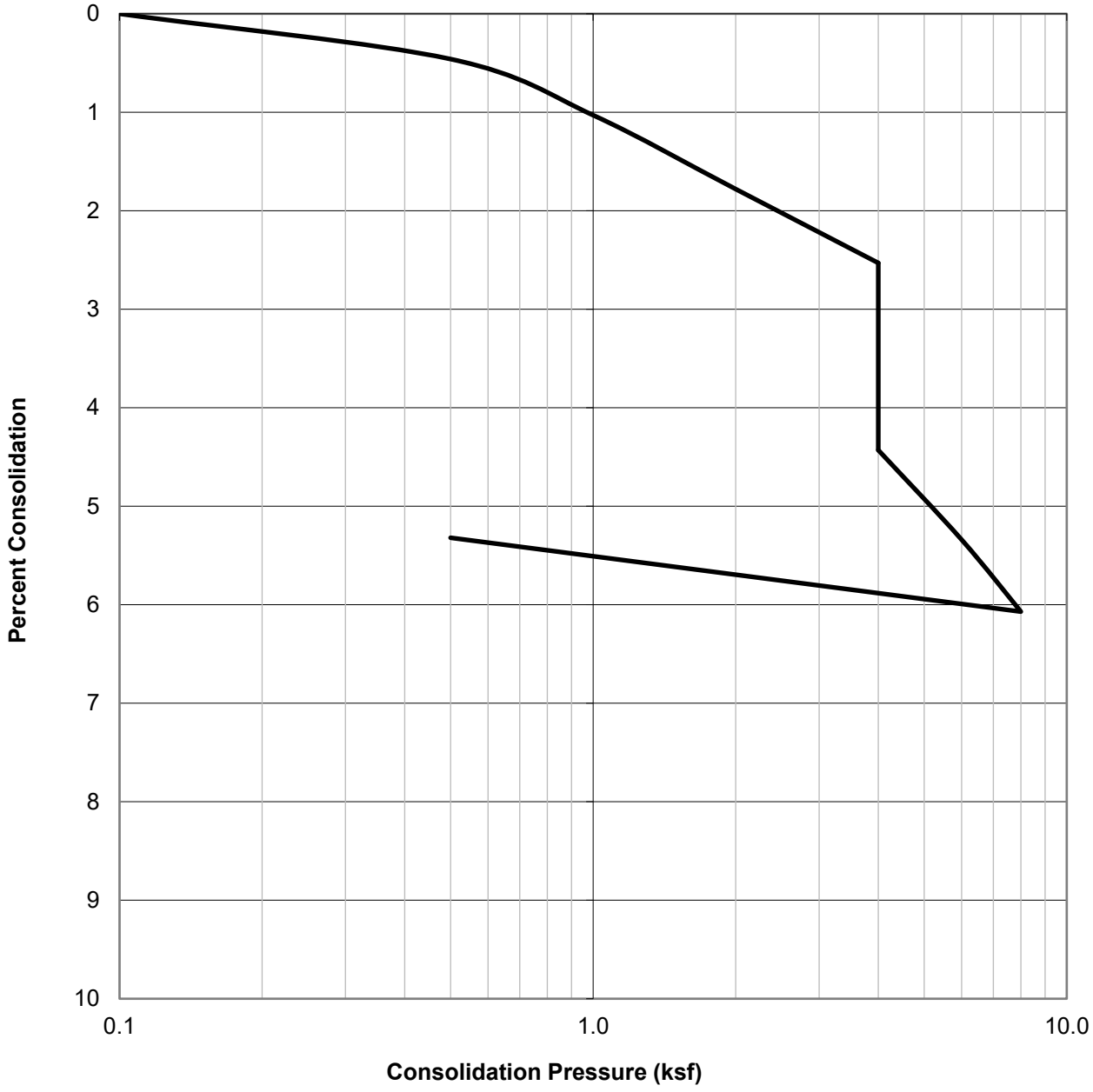
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-4

WATER ADDED AT 4.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@15'	Silty SAND (SM), brown	117.5	10.7	13.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

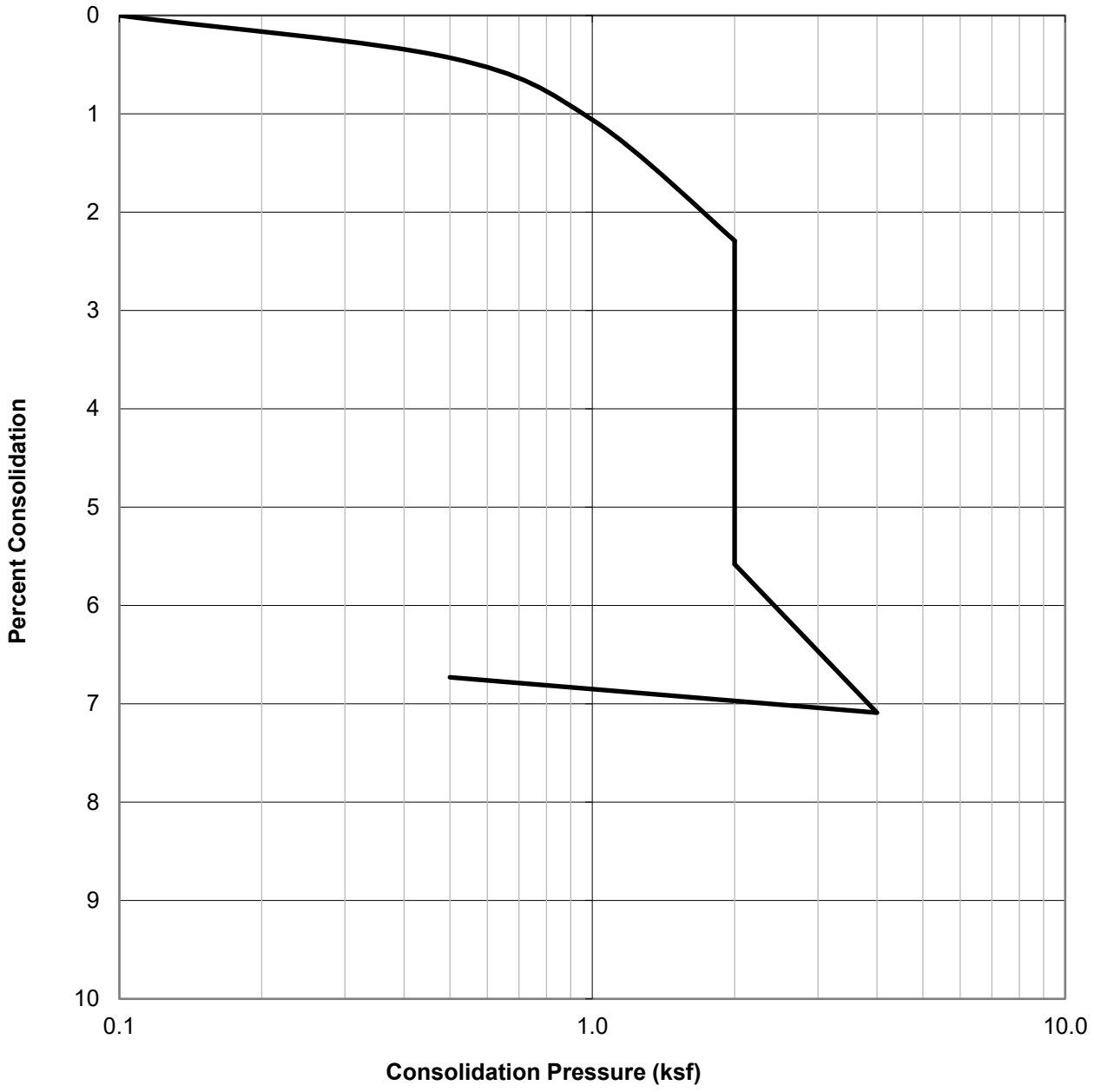
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@7.5'	Poorly Graded SAND (SP), light brown	104.3	4.9	16.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

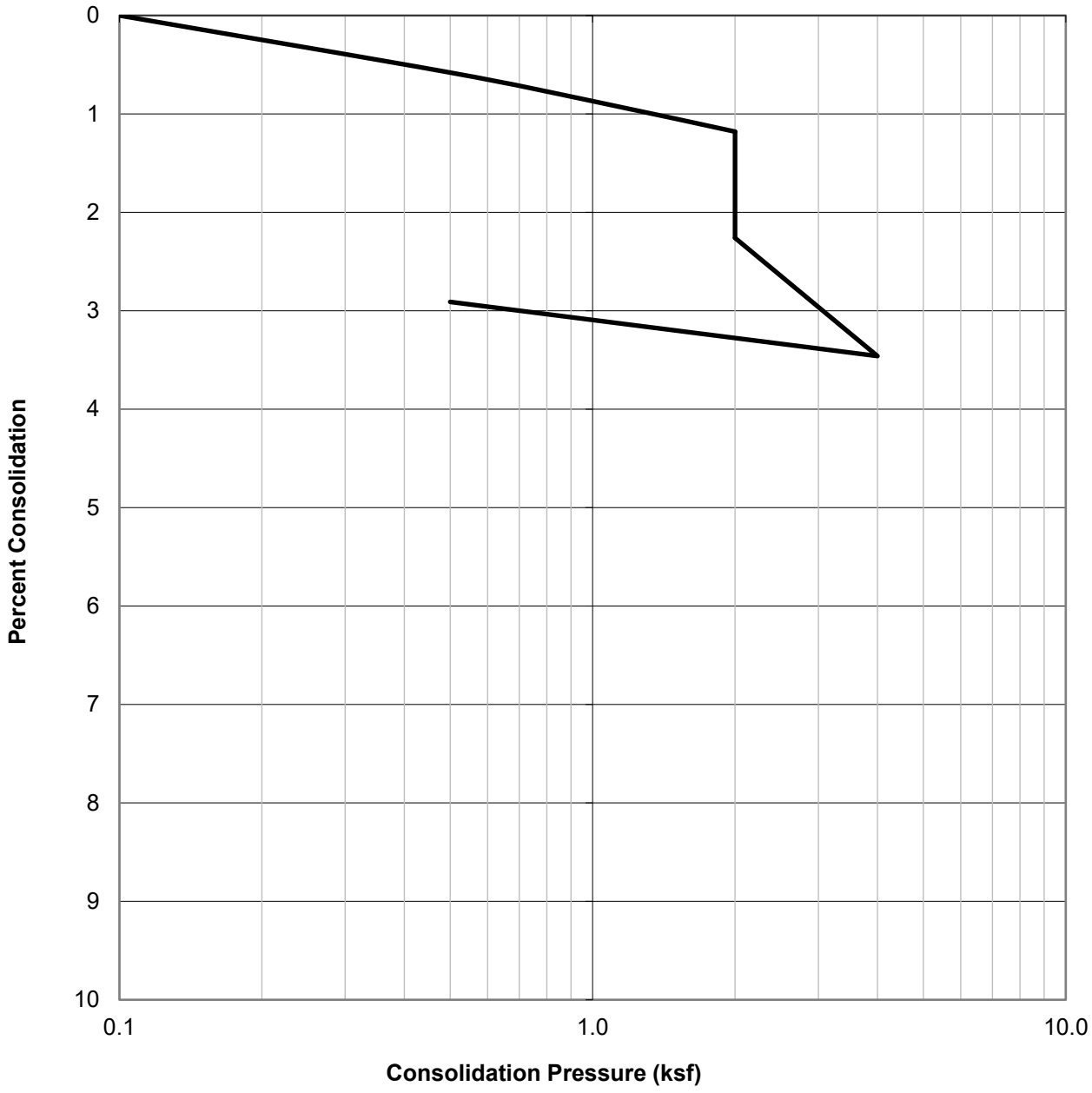
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@10'	Silty SAND (SM), brown	112.4	11.3	15.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

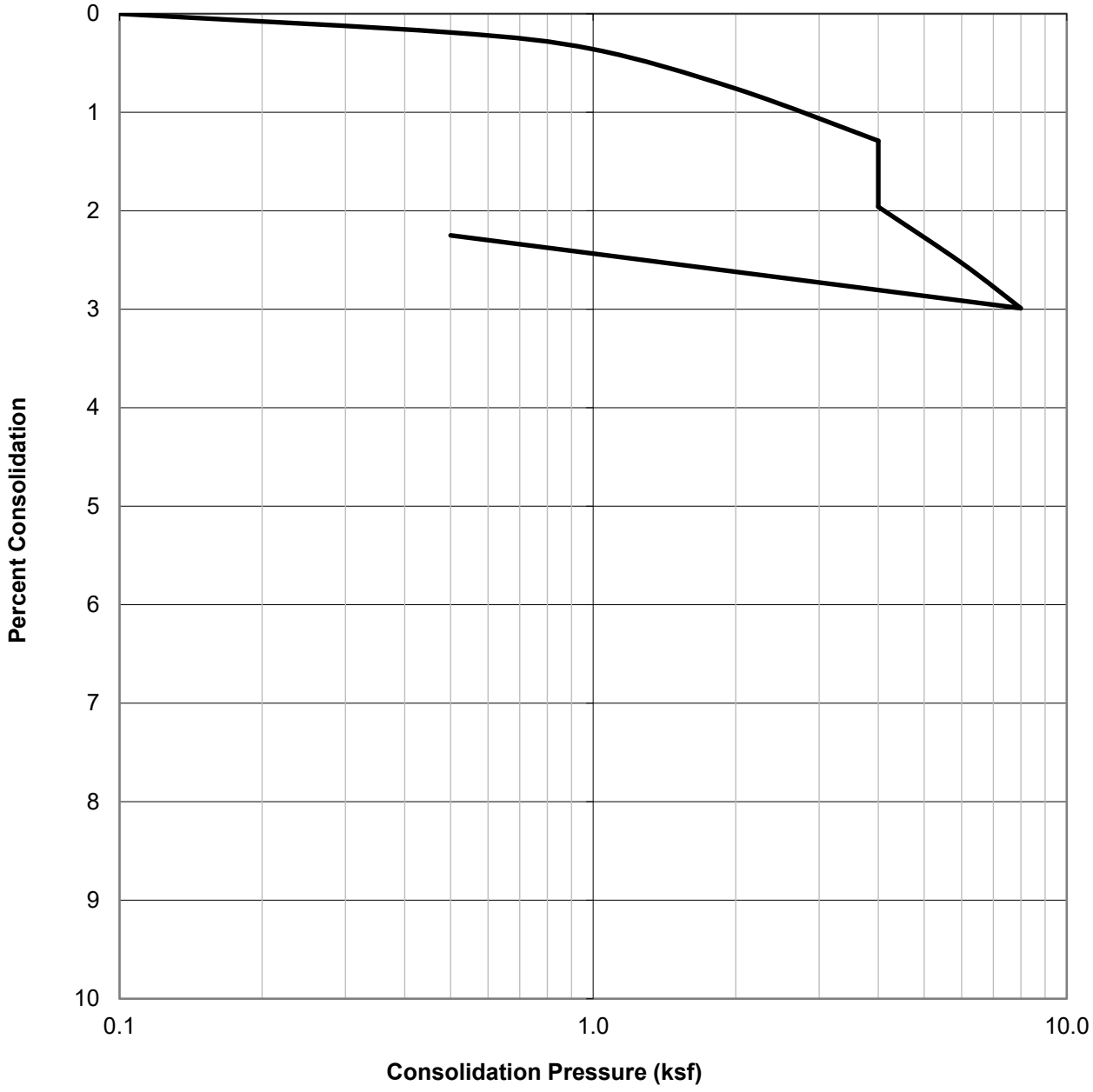
Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-7

WATER ADDED AT 4.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B-2@15'	Silty SAND (SM), brown	119.8	9.7	10.7

GEOCON

CONSOLIDATION TEST RESULTS

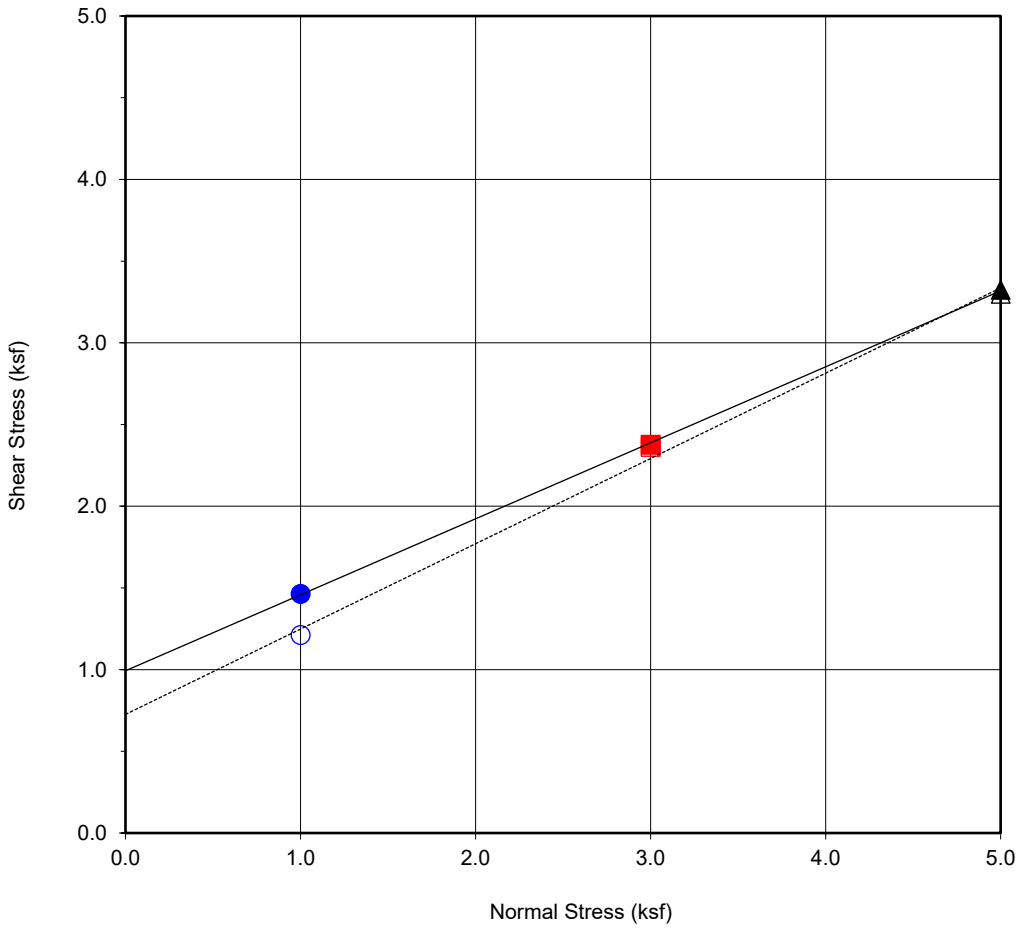
ASTM D-2435

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-8



Boring No.	**B-1**
Sample No.	**B-1@2.5'**
Depth (ft)	**2.5'**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	993	25
Ultimate	726	28

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.46	■ 2.38	▲ 3.32
Shear Stress @ End of Test (ksf)	○ 1.21	□ 2.36	△ 3.30
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	5.9	5.1	8.7
Initial Dry Density (pcf)	111.9	105.6	103.3
Initial Degree of Saturation (%)	31.5	23.0	37.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	14.4	14.8	15.1

GEOCON

DIRECT SHEAR TEST RESULTS

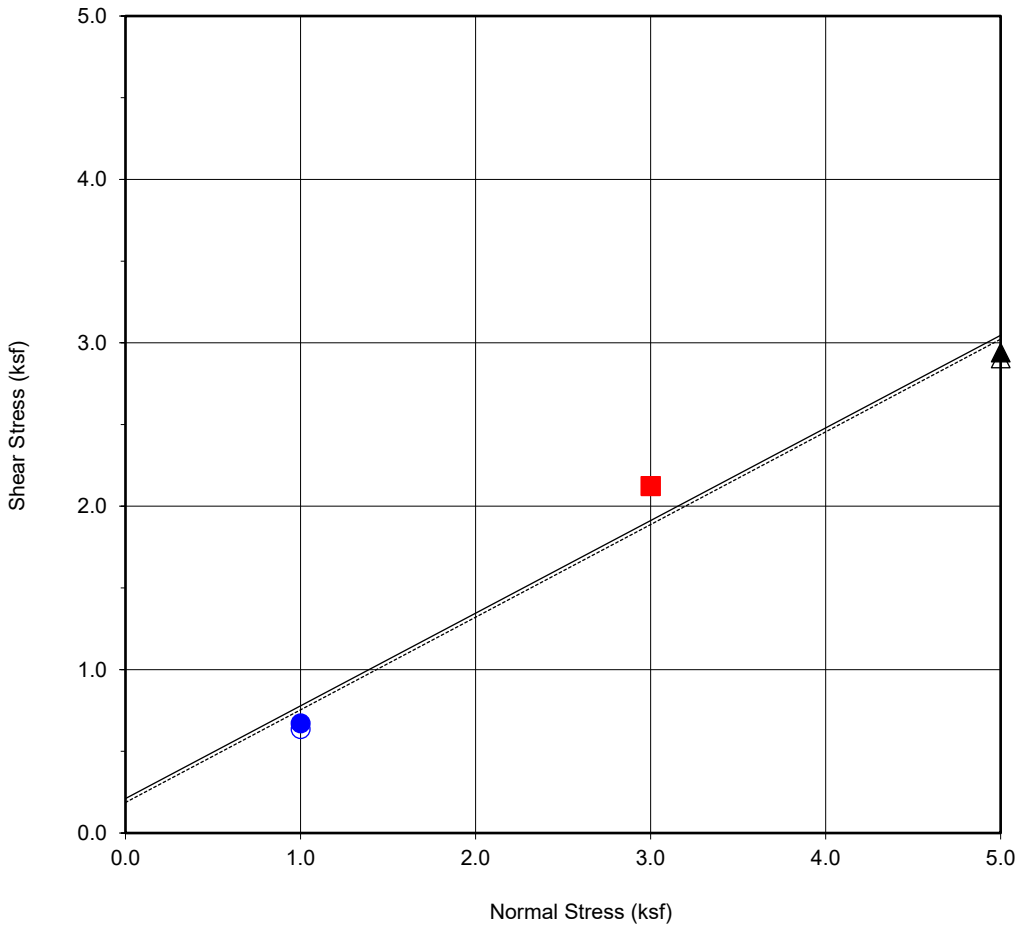
Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-9



Boring No.	**B-1**
Sample No.	**B-1@7.5'**
Depth (ft)	**7.5'**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	211	30
Ultimate	187	30

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.67	■ 2.12	▲ 2.94
Shear Stress @ End of Test (ksf)	○ 0.64	□ 2.12	△ 2.90
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	16.9	12.6	15.9
Initial Dry Density (pcf)	93.0	102.4	104.7
Initial Degree of Saturation (%)	56.2	52.7	70.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.0	19.5	20.4

GEOCON

DIRECT SHEAR TEST RESULTS

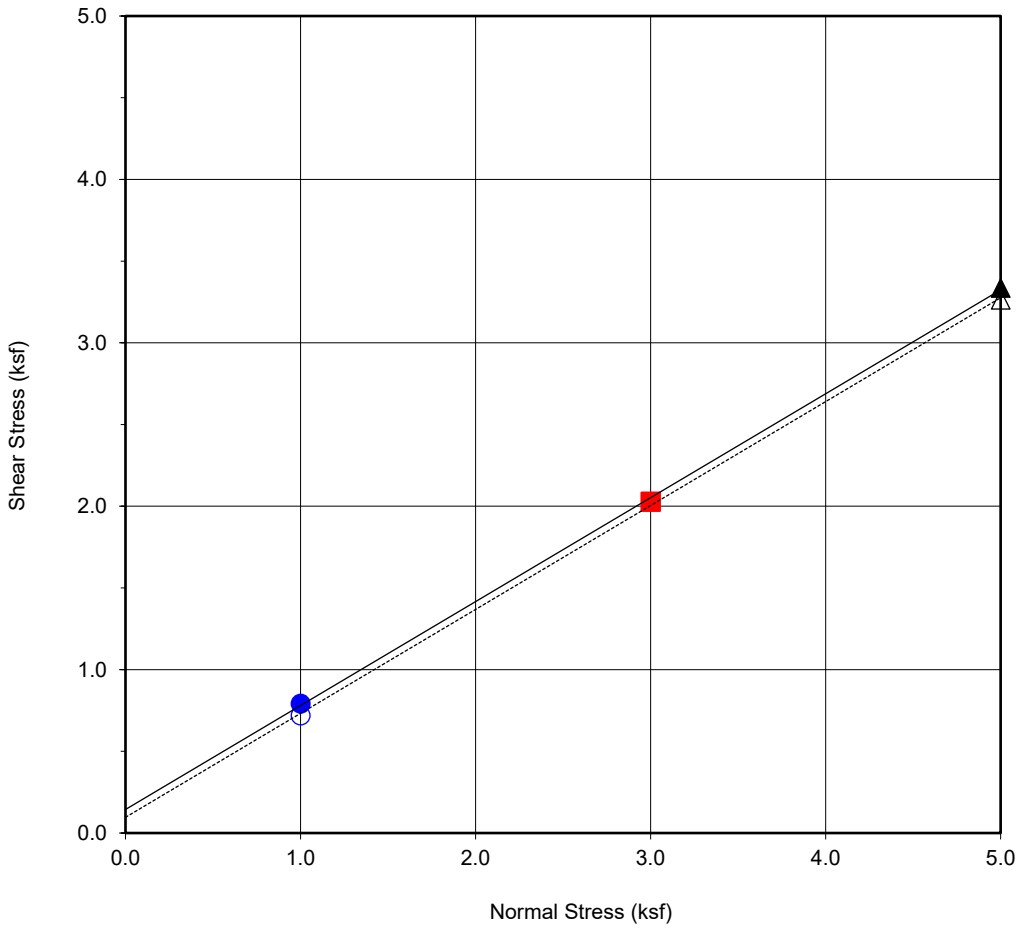
Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-10



Boring No.	**B1/B2**
Sample No.	**B1/B2@0-5'**
Depth (ft)	**0-5'**
Sample Type:	Bulk

Soil Identification:

Silty SAND (SM) with Gravel, light brown

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	144	32
Ultimate	96	32

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.79	■ 2.03	▲ 3.34
Shear Stress @ End of Test (ksf)	○ 0.72	□ 2.03	△ 3.26
Deformation Rate (in./min.)	0.005	0.005	0.005
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	8.4	8.4	8.5
Initial Dry Density (pcf)	120.0	120.1	120.0
Initial Degree of Saturation (%)	56.2	56.1	56.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	12.5	16.4	17.4

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: RNP

Project No.: T3070-22-01B

GILMAN RANCH EVENT CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

September 2025 Figure B-11

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

GILMAN RANCH EVENTS CENTER
1901 WILSON STREET
BANNING, CALIFORNIA

PROJECT NO. T3070-22-01B

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

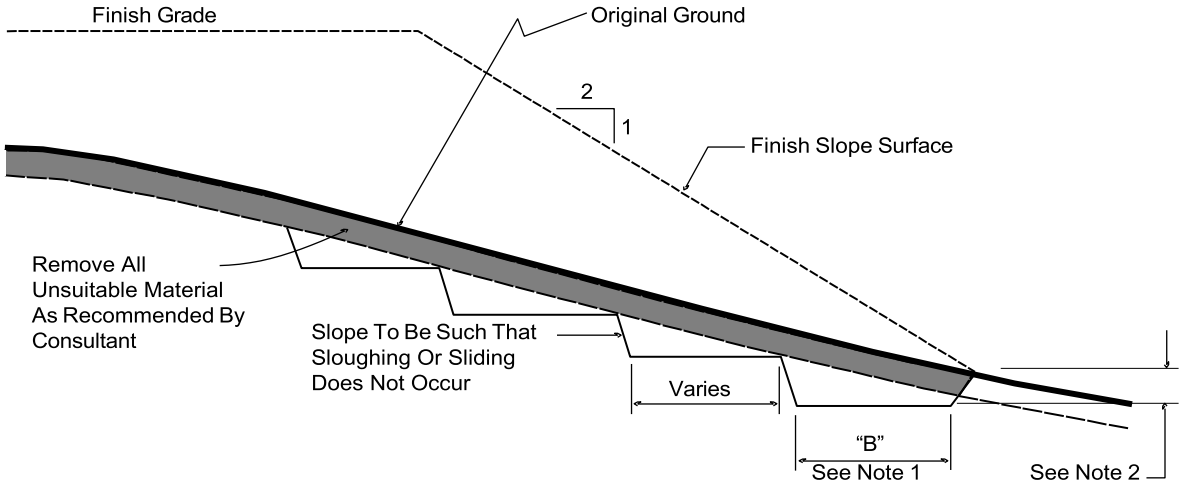
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

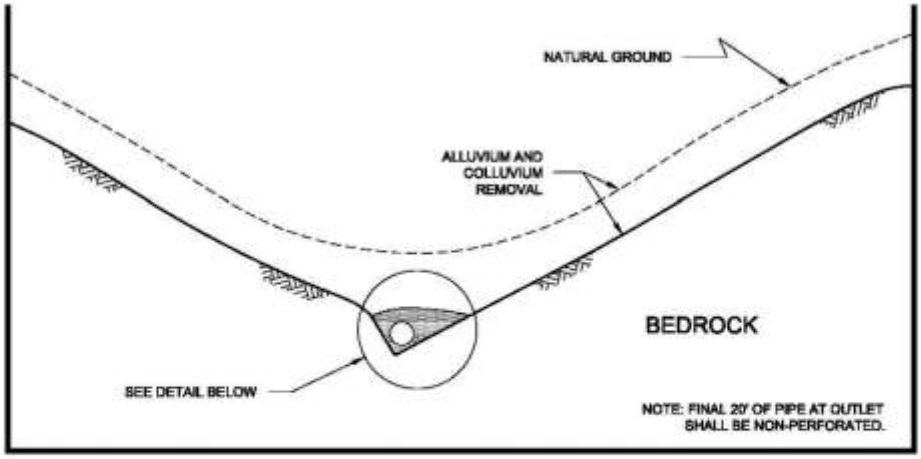
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

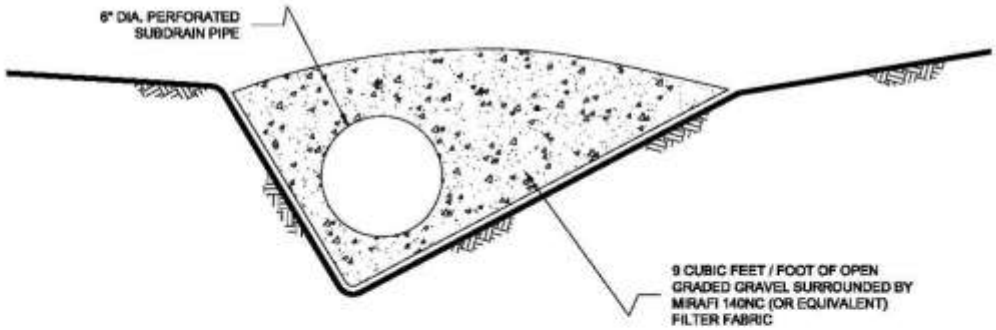
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

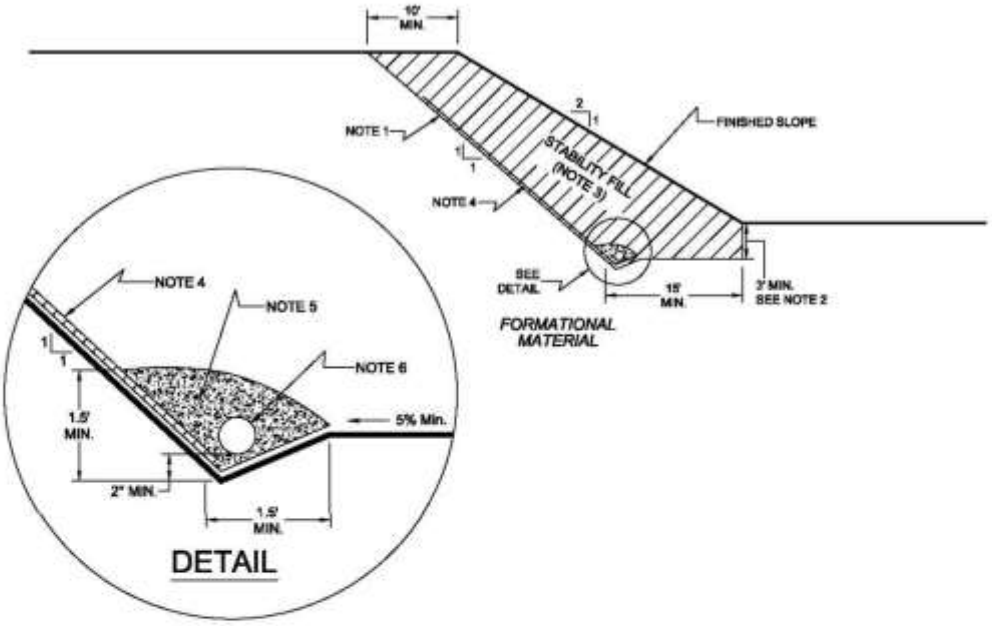
1.....8-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

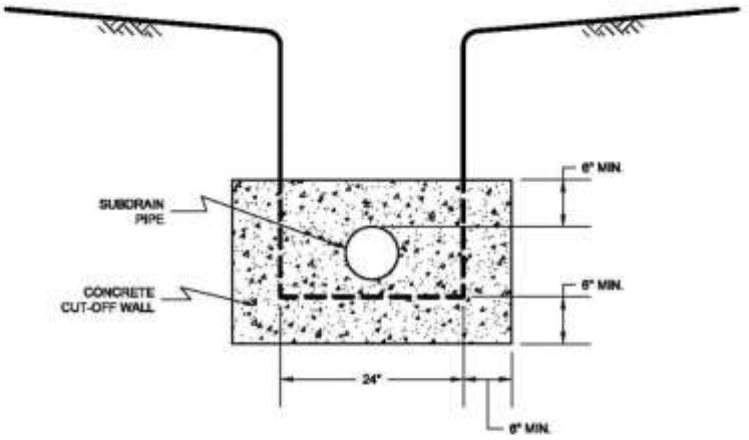
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

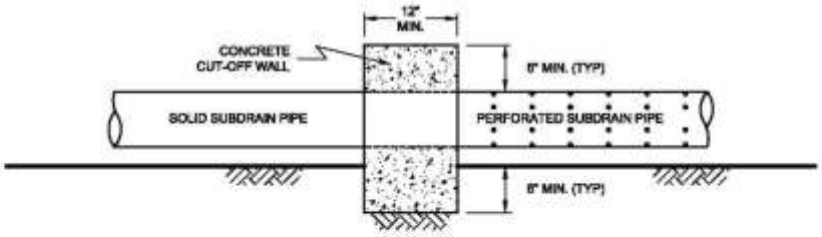
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

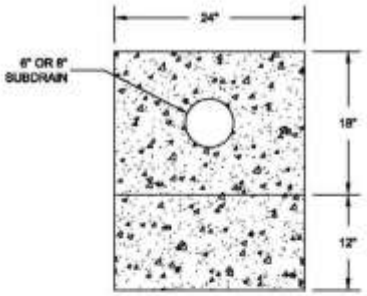


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

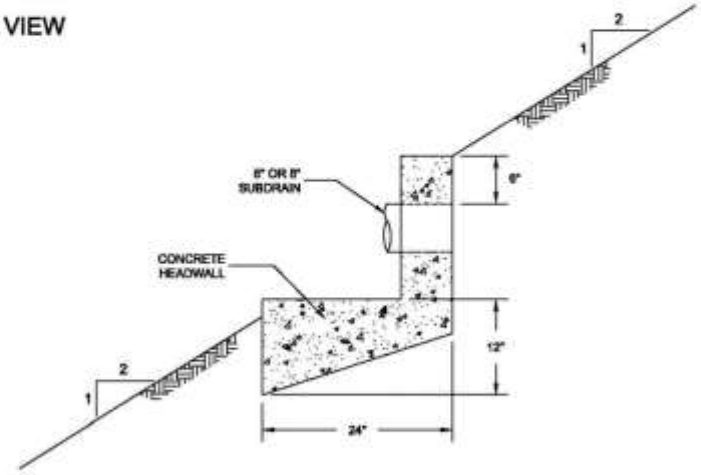
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 **Soil and Soil-Rock Fills:**

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4 Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

Appendix F

Structural BMP and/or Retention Facility Sizing Calculations
and Design Details

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

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RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

CW=(PERVIOUS AREA)*()+(IMPERVIOUS AREA)*()/(TOTAL AREA)
CW=(112263.2)*(78)+(139537.4)*(90)/(251800.6)=84.64

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

3. See Plate C-2 for a detailed description of cover types.

4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.

5. Reference Bibliography item 17.

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

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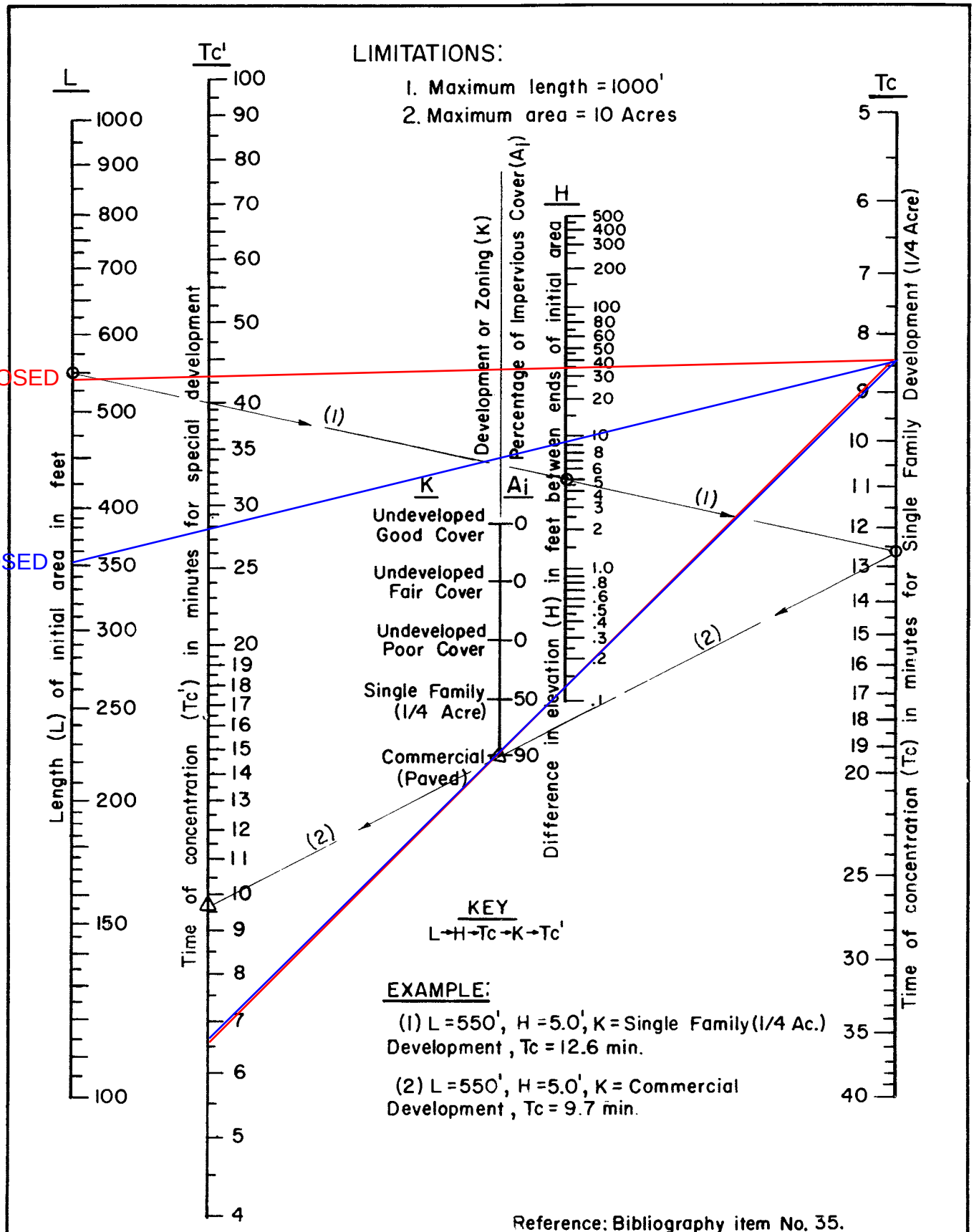
IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6



Reference: Bibliography item No. 35.

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TIME OF CONCENTRATION FOR INITIAL SUBAREA

PLATE D-3

NOAA Atlas 14, Volume 6, Version 2
Location name: Banning, California, USA*
Latitude: 33.9357°, Longitude: -116.8963°
Elevation: 2601 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.123 (0.102-0.149)	0.156 (0.130-0.190)	0.206 (0.171-0.251)	0.253 (0.208-0.310)	0.324 (0.258-0.412)	0.388 (0.302-0.504)	0.461 (0.350-0.613)	0.545 (0.402-0.747)	0.678 (0.479-0.969)	0.797 (0.543-1.18)
10-min	0.176 (0.147-0.213)	0.224 (0.186-0.272)	0.296 (0.246-0.360)	0.362 (0.298-0.444)	0.465 (0.370-0.591)	0.556 (0.433-0.722)	0.660 (0.501-0.879)	0.782 (0.576-1.07)	0.972 (0.687-1.39)	1.14 (0.779-1.69)
15-min	0.213 (0.177-0.258)	0.271 (0.225-0.329)	0.358 (0.297-0.436)	0.438 (0.360-0.537)	0.562 (0.447-0.715)	0.673 (0.523-0.873)	0.799 (0.606-1.06)	0.945 (0.697-1.30)	1.18 (0.830-1.68)	1.38 (0.942-2.04)
30-min	0.315 (0.263-0.382)	0.401 (0.334-0.487)	0.530 (0.440-0.645)	0.648 (0.533-0.796)	0.833 (0.662-1.06)	0.996 (0.775-1.29)	1.18 (0.898-1.57)	1.40 (1.03-1.92)	1.74 (1.23-2.49)	2.04 (1.40-3.03)
60-min	0.471 (0.393-0.571)	0.600 (0.499-0.728)	0.793 (0.658-0.965)	0.970 (0.798-1.19)	1.25 (0.991-1.58)	1.49 (1.16-1.93)	1.77 (1.34-2.36)	2.09 (1.54-2.87)	2.60 (1.84-3.72)	3.06 (2.09-4.53)
2-hr	0.676 (0.564-0.820)	0.852 (0.709-1.03)	1.10 (0.916-1.34)	1.33 (1.09-1.63)	1.66 (1.32-2.11)	1.94 (1.51-2.52)	2.25 (1.71-2.99)	2.59 (1.91-3.55)	3.11 (2.20-4.44)	3.55 (2.42-5.26)
3-hr	0.834 (0.695-1.01)	1.05 (0.871-1.27)	1.35 (1.12-1.64)	1.61 (1.32-1.97)	1.99 (1.58-2.52)	2.30 (1.79-2.99)	2.64 (2.01-3.52)	3.02 (2.22-4.13)	3.56 (2.52-5.10)	4.02 (2.74-5.96)
6-hr	1.20 (1.00-1.46)	1.51 (1.26-1.83)	1.93 (1.60-2.35)	2.29 (1.88-2.81)	2.80 (2.23-3.56)	3.21 (2.50-4.17)	3.65 (2.77-4.85)	4.11 (3.03-5.63)	4.78 (3.38-6.83)	5.32 (3.63-7.88)
12-hr	1.66 (1.38-2.01)	2.11 (1.76-2.56)	2.72 (2.26-3.31)	3.23 (2.66-3.97)	3.94 (3.14-5.01)	4.50 (3.50-5.85)	5.09 (3.86-6.77)	5.70 (4.21-7.81)	6.56 (4.64-9.38)	7.25 (4.94-10.7)
24-hr	2.18 (1.93-2.52)	2.85 (2.52-3.29)	3.74 (3.30-4.33)	4.48 (3.92-5.22)	5.50 (4.66-6.62)	6.30 (5.23-7.74)	7.13 (5.78-8.97)	8.00 (6.31-10.3)	9.20 (6.97-12.4)	10.2 (7.44-14.2)
2-day	2.64 (2.34-3.04)	3.53 (3.12-4.07)	4.75 (4.19-5.50)	5.78 (5.06-6.75)	7.26 (6.15-8.74)	8.44 (7.01-10.4)	9.70 (7.86-12.2)	11.0 (8.71-14.3)	12.9 (9.81-17.4)	14.5 (10.6-20.2)
3-day	2.83 (2.51-3.27)	3.84 (3.39-4.43)	5.24 (4.62-6.06)	6.46 (5.65-7.53)	8.22 (6.96-9.90)	9.67 (8.02-11.9)	11.2 (9.10-14.1)	12.9 (10.2-16.7)	15.4 (11.7-20.7)	17.4 (12.8-24.3)
4-day	3.06 (2.71-3.53)	4.16 (3.68-4.80)	5.72 (5.04-6.62)	7.08 (6.19-8.25)	9.06 (7.67-10.9)	10.7 (8.87-13.1)	12.5 (10.1-15.7)	14.4 (11.4-18.6)	17.2 (13.1-23.2)	19.6 (14.4-27.3)
7-day	3.55 (3.14-4.10)	4.82 (4.26-5.57)	6.61 (5.83-7.65)	8.16 (7.14-9.52)	10.4 (8.83-12.6)	12.3 (10.2-15.1)	14.3 (11.6-18.0)	16.5 (13.0-21.3)	19.7 (14.9-26.5)	22.3 (16.4-31.1)
10-day	3.89 (3.44-4.48)	5.27 (4.66-6.08)	7.21 (6.36-8.34)	8.89 (7.78-10.4)	11.3 (9.60-13.6)	13.3 (11.1-16.4)	15.5 (12.6-19.5)	17.8 (14.1-23.1)	21.2 (16.1-28.6)	24.0 (17.6-33.5)
20-day	4.86 (4.30-5.60)	6.61 (5.85-7.63)	9.06 (7.99-10.5)	11.2 (9.77-13.0)	14.2 (12.0-17.1)	16.7 (13.9-20.5)	19.3 (15.7-24.4)	22.2 (17.5-28.8)	26.4 (20.0-35.5)	29.8 (21.8-41.5)
30-day	5.75 (5.09-6.63)	7.85 (6.94-9.06)	10.8 (9.49-12.5)	13.3 (11.6-15.5)	16.8 (14.3-20.3)	19.8 (16.4-24.3)	22.9 (18.5-28.8)	26.2 (20.7-33.9)	31.0 (23.5-41.8)	35.0 (25.6-48.7)
45-day	6.90 (6.11-7.96)	9.43 (8.34-10.9)	12.9 (11.4-15.0)	15.9 (13.9-18.6)	20.2 (17.1-24.3)	23.6 (19.6-29.1)	27.3 (22.1-34.4)	31.2 (24.6-40.4)	36.8 (27.9-49.6)	41.4 (30.3-57.7)
60-day	8.03 (7.10-9.25)	11.0 (9.68-12.6)	15.0 (13.2-17.3)	18.4 (16.1-21.5)	23.3 (19.7-28.1)	27.2 (22.6-33.5)	31.4 (25.4-39.5)	35.9 (28.3-46.4)	42.2 (32.0-56.9)	47.4 (34.7-66.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

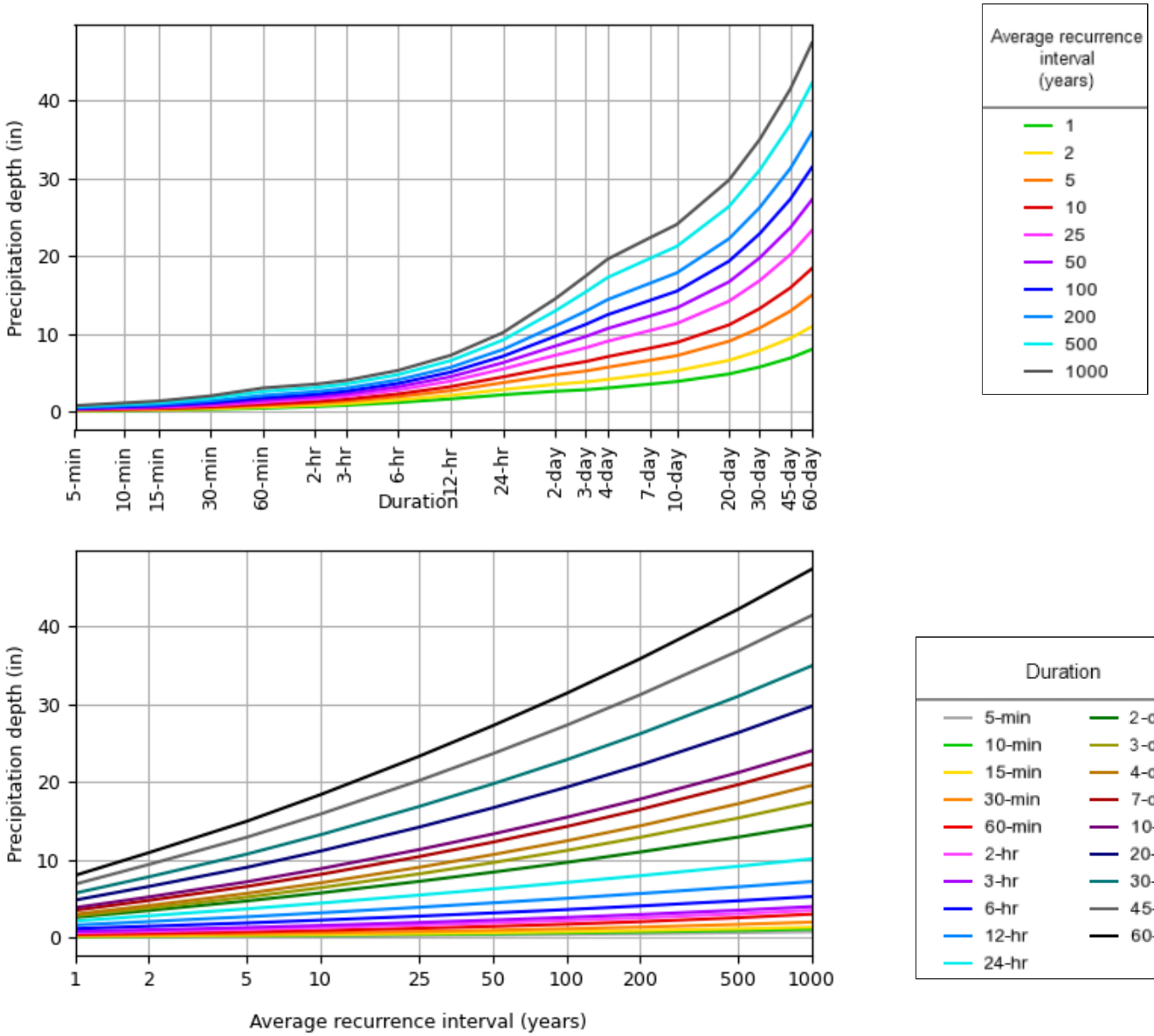
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.9357°, Longitude: -116.8963°



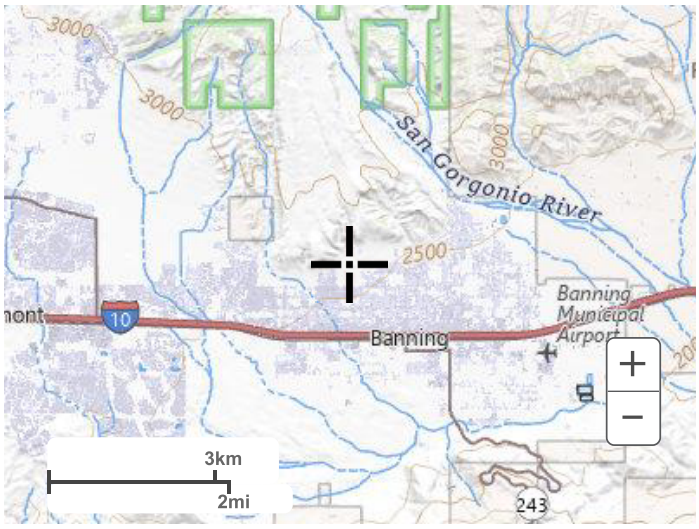
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Wed Jan 21 23:52:00 2026

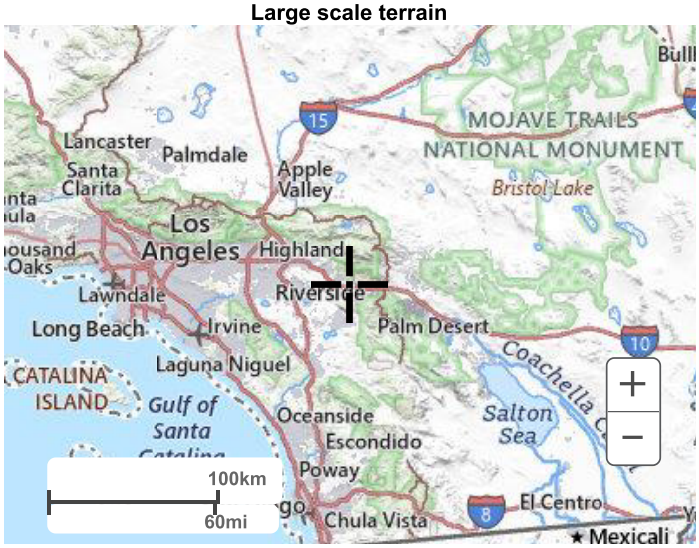
Back to Top

Maps & aerials

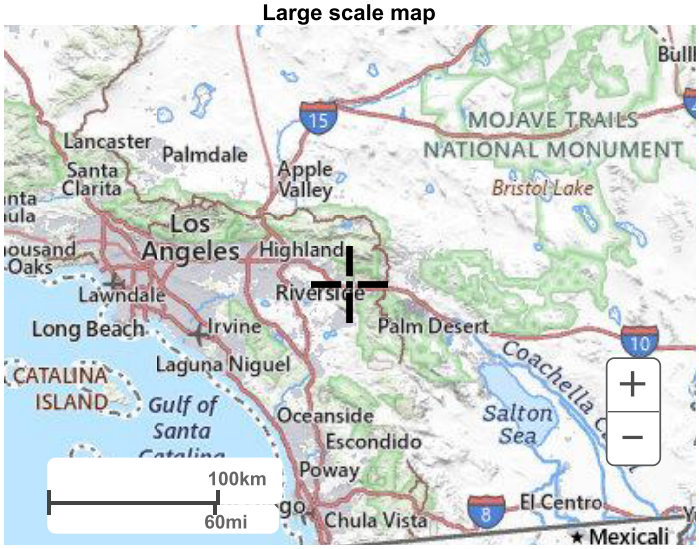
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

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              F L O O D    R O U T I N G    A N A L Y S I S

 ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION
DISTRICT
                      (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2016 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 23.0)
                  Release Date: 07/01/2016  License ID 1545

                           Analysis prepared by:




  ************************** DESCRIPTION OF STUDY
**************************
 * GILMAN RANCH
*
 * EXISTING CONDITION DMA 1
*
 * 100 YEAR 3 HOUR STORM EVENT
*

**************************************************************************
*

   FILE NAME: GR100YE.DAT
   TIME/DATE OF STUDY: 10:34 07/28/2026



**************************************************************************
***
   FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =   1
 ----------------------------------------------------------------------
----
   >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

==========================================================================
===

        (UNIT-HYDROGRAPH ADDED TO STREAM #1)

           WATERSHED AREA =       5.780 ACRES
           BASEFLOW =   0.000 CFS/SQUARE-MILE
```

Warning: Watershed Area is less than 10 acres
*USER ENTERED "LAG" TIME = 0.800 HOURS
DESERT S-GRAPH SELECTED
UNIFORM MEAN SOIL-LOSS(INCH/HOUR) = 0.250
LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
USER-ENTERED RAINFALL = 2.64 INCHES
RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 10.417

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.458	0.320
2	1.642	0.827
3	3.525	1.316
4	6.115	1.810
5	9.513	2.375
6	15.167	3.952
7	23.833	6.058
8	33.940	7.065
9	42.487	5.974
10	49.233	4.716
11	54.847	3.924
12	59.300	3.113
13	62.925	2.534
14	66.015	2.160
15	68.730	1.898
16	71.217	1.738
17	73.370	1.505
18	75.283	1.337
19	77.075	1.252
20	78.705	1.139
21	80.088	0.966
22	81.443	0.947
23	82.613	0.818
24	83.738	0.786
25	84.800	0.743
26	85.800	0.699
27	86.770	0.678
28	87.617	0.592

29	88.446	0.580
30	89.137	0.484
31	89.762	0.437
32	90.374	0.428
33	90.958	0.408
34	91.535	0.403
35	92.050	0.360
36	92.550	0.349
37	93.029	0.335
38	93.487	0.320
39	93.927	0.307
40	94.289	0.253
41	94.644	0.248
42	94.998	0.248
43	95.352	0.248
44	95.679	0.229
45	95.952	0.191
46	96.223	0.189
47	96.494	0.190
48	96.764	0.189
49	96.994	0.160
50	97.181	0.131
51	97.369	0.131
52	97.557	0.131
53	97.742	0.130
54	97.873	0.091
55	97.977	0.073
56	98.081	0.073
57	98.185	0.073
58	98.291	0.074
59	98.413	0.085
60	98.538	0.087
61	98.663	0.088
62	98.788	0.087
63	98.913	0.088
64	99.037	0.087
65	99.162	0.087
66	99.287	0.087
67	99.411	0.087
68	99.536	0.087
69	99.660	0.087
70	99.785	0.087
71	99.909	0.087
72	100.000	0.064

```
*************************************************************************
***
         UNIT              UNIT             UNIT             EFFECTIVE
        PERIOD           RAINFALL       SOIL-LOSS           RAINFALL
      (NUMBER)           (INCHES)        (INCHES)           (INCHES)
 ------------------------------------------------------------------------
----
           1              0.0343           0.0208             0.0135
           2              0.0343           0.0208             0.0135
           3              0.0290           0.0208             0.0082
           4              0.0396           0.0208             0.0188
           5              0.0396           0.0208             0.0188
           6              0.0475           0.0208             0.0267
           7              0.0396           0.0208             0.0188
           8              0.0475           0.0208             0.0267
           9              0.0475           0.0208             0.0267
          10              0.0396           0.0208             0.0188
          11              0.0422           0.0208             0.0214
          12              0.0475           0.0208             0.0267
          13              0.0581           0.0208             0.0372
          14              0.0581           0.0208             0.0372
          15              0.0581           0.0208             0.0372
          16              0.0528           0.0208             0.0320
          17              0.0686           0.0208             0.0478
          18              0.0713           0.0208             0.0504
          19              0.0634           0.0208             0.0425
          20              0.0713           0.0208             0.0504
          21              0.0871           0.0208             0.0663
          22              0.0818           0.0208             0.0610
          23              0.0766           0.0208             0.0557
          24              0.0792           0.0208             0.0584
          25              0.0818           0.0208             0.0610
          26              0.1109           0.0208             0.0900
          27              0.1320           0.0208             0.1112
          28              0.0924           0.0208             0.0716
          29              0.1795           0.0208             0.1587
          30              0.1927           0.0208             0.1719
          31              0.2165           0.0208             0.1956
          32              0.1558           0.0208             0.1349
          33              0.0528           0.0208             0.0320
          34              0.0475           0.0208             0.0267
          35              0.0475           0.0208             0.0267
          36              0.0158           0.0143             0.0016

        TOTAL STORM RAINFALL(INCHES) =  2.64
        TOTAL SOIL-LOSS(INCHES) =  0.74
        TOTAL EFFECTIVE RAINFALL(INCHES) =  1.90

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     TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =       0.3581
     TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =       0.9130
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3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0001	0.02	Q	.	.	.	.
0.250	0.0004	0.03	Q	.	.	.	.
0.333	0.0007	0.05	Q	.	.	.	.
0.417	0.0013	0.09	Q	.	.	.	.
0.500	0.0024	0.15	Q	.	.	.	.
0.583	0.0040	0.24	Q	.	.	.	.
0.667	0.0064	0.35	VQ	.	.	.	.
0.750	0.0095	0.45	VQ	.	.	.	.
0.833	0.0133	0.55	V Q	.	.	.	.
0.917	0.0179	0.67	V Q	.	.	.	.
1.000	0.0232	0.78	.V Q	.	.	.	.
1.083	0.0293	0.88	.V Q	.	.	.	.
1.167	0.0360	0.97	.V Q	.	.	.	.
1.250	0.0433	1.06	.V Q	.	.	.	.
1.333	0.0511	1.13	. V Q	.	.	.	.
1.417	0.0594	1.20	. V Q	.	.	.	.
1.500	0.0684	1.31	. V Q	.	.	.	.

1.583	0.0784	1.45	.	V Q	.	.	.
1.667	0.0894	1.60	.	V Q	.	.	.
1.750	0.1013	1.73	.	V Q	.	.	.
1.833	0.1141	1.87	.	V Q	.	.	.
1.917	0.1281	2.02	.	V Q	.	.	.
2.000	0.1431	2.19	.	V Q	.	.	.
2.083	0.1593	2.34	.	V Q	.	.	.
2.167	0.1765	2.50	.	V Q	.	.	.
2.250	0.1952	2.72	.	V Q	.	.	.
2.333	0.2154	2.93	.	V.Q	.	.	.
2.417	0.2369	3.12	.	V Q	.	.	.
2.500	0.2600	3.36	.	.V Q	.	.	.
2.583	0.2854	3.68	.	. V Q	.	.	.
2.667	0.3137	4.12	.	. V Q	.	.	.
2.750	0.3451	4.55	.	. V Q	.	.	.
2.833	0.3792	4.96	.	. V Q.	.	.	.
2.917	0.4163	5.39	.	. V .Q	.	.	.
3.000	0.4568	5.87	.	. V Q	.	.	.
3.083	0.4991	6.15	.	. .V Q	.	.	.
3.167	0.5406	6.02	.	. . VQ	.	.	.
3.250	0.5783	5.48	.	. .Q V	.	.	.
3.333	0.6111	4.77	.	. Q. V	.	.	.
3.417	0.6395	4.12	.	. Q .	V .	.	.
3.500	0.6639	3.54	.	. Q .	V.	.	.
3.583	0.6848	3.03	.	. Q .	V.	.	.
3.667	0.7029	2.63	.	Q .	V	.	.
3.750	0.7189	2.33	.	Q. .	.V	.	.

3.833	0.7332	2.08	.	Q	.	.	V
3.917	0.7461	1.87	.	Q	.	.	V
4.000	0.7578	1.70	.	Q	.	.	V
4.083	0.7684	1.54	.	Q	.	.	V
4.167	0.7782	1.42	.	Q	.	.	V
4.250	0.7871	1.30	.	Q	.	.	V
4.333	0.7953	1.20	.	Q	.	.	V
4.417	0.8030	1.11	.	Q	.	.	V
4.500	0.8101	1.03	.	Q	.	.	V
4.583	0.8168	0.97	.	Q	.	.	V
4.667	0.8230	0.90	.	Q	.	.	V
4.750	0.8288	0.84	.	Q	.	.	V
4.833	0.8342	0.78	.	Q	.	.	V
4.917	0.8392	0.72	.	Q	.	.	V
5.000	0.8438	0.67	.	Q	.	.	V
5.083	0.8481	0.62	.	Q	.	.	V
5.167	0.8522	0.59	.	Q	.	.	V
5.250	0.8560	0.56	.	Q	.	.	V
5.333	0.8596	0.53	.	Q	.	.	V
5.417	0.8631	0.50	.	Q	.	.	V
5.500	0.8663	0.47	.	Q	.	.	V
5.583	0.8694	0.45	.	Q	.	.	V
5.667	0.8723	0.42	.	Q	.	.	V
5.750	0.8750	0.39	.	Q	.	.	V
5.833	0.8775	0.37	.	Q	.	.	V
5.917	0.8799	0.35	.	Q	.	.	V
6.000	0.8822	0.33	.	Q	.	.	V

```
    6.083      0.8844      0.31  .Q        .         .         .       V
.
    6.167      0.8864      0.29  .Q        .         .         .       V
.
    6.250      0.8883      0.27  .Q        .         .         .       V
.
    6.333      0.8900      0.26  .Q        .         .         .       V
.
    6.417      0.8917      0.24  Q         .         .         .
V.
    6.500      0.8933      0.23  Q         .         .         .
V.
    6.583      0.8947      0.21  Q         .         .         .
V.
    6.667      0.8961      0.19  Q         .         .         .
V.
    6.750      0.8973      0.18  Q         .         .         .
V.
    6.833      0.8985      0.17  Q         .         .         .
V.
    6.917      0.8996      0.16  Q         .         .         .
V.
    7.000      0.9006      0.15  Q         .         .         .
V.
    7.083      0.9016      0.14  Q         .         .         .
V.
    7.167      0.9025      0.13  Q         .         .         .
V.
    7.250      0.9033      0.13  Q         .         .         .
V.
    7.333      0.9042      0.13  Q         .         .         .
V.
    7.417      0.9050      0.12  Q         .         .         .
V.
    7.500      0.9059      0.12  Q         .         .         .
V.
    7.583      0.9067      0.12  Q         .         .         .
V.
    7.667      0.9075      0.11  Q         .         .         .
V.
    7.750      0.9082      0.11  Q         .         .         .
V.
    7.833      0.9089      0.10  Q         .         .         .
V.
    7.917      0.9096      0.10  Q         .         .         .
V.
    8.000      0.9102      0.09  Q         .         .         .
V.
    8.083      0.9108      0.09  Q         .         .         .
V.
    8.167      0.9114      0.08  Q         .         .         .
V.
    8.250      0.9119      0.07  Q         .         .         .
V.
```

```
    8.333      0.9123      0.06  Q          .          .          .
V.
    8.417      0.9126      0.05  Q          .          .          .
V.
    8.500      0.9128      0.03  Q          .          .          .
V.
    8.583      0.9129      0.02  Q          .          .          .
V.
    8.667      0.9130      0.01  Q          .          .          .
V.     0.9130 AC-FT =39,770.28 CF
--------------------------------------------------------------------------
-------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                            520.0
              10%                            255.0
              20%                            170.0
              30%                            130.0
              40%                             95.0
              50%                             70.0
              60%                             50.0
              70%                             40.0
              80%                             30.0
              90%                             15.0

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   END OF FLOODSCx ROUTING ANALYSIS
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              F L O O D    R O U T I N G    A N A L Y S I S

 ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION
DISTRICT
                      (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2016 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 23.0)
                  Release Date: 07/01/2016  License ID 1545

                           Analysis prepared by:




  ************************** DESCRIPTION OF STUDY
**************************
 * GILMAN RANCH
*
 * PROPOSED CONDITION DMA 1
*
 * 100 YEAR 3 HOUR STORM EVENT
*

**************************************************************************
*

   FILE NAME: GR100Y.DAT
   TIME/DATE OF STUDY: 10:31 07/28/2026



**************************************************************************
***
   FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =   1
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   >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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        (UNIT-HYDROGRAPH ADDED TO STREAM #1)

           WATERSHED AREA =       4.970 ACRES
           BASEFLOW =   0.000 CFS/SQUARE-MILE
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Warning: Watershed Area is less than 10 acres
*USER ENTERED "LAG" TIME = 0.800 HOURS
DESERT S-GRAPH SELECTED
UNIFORM MEAN SOIL-LOSS(INCH/HOUR) = 0.200
LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.800
USER-ENTERED RAINFALL = 2.64 INCHES
RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 10.417

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.458	0.275
2	1.642	0.711
3	3.525	1.132
4	6.115	1.557
5	9.513	2.043
6	15.167	3.398
7	23.833	5.209
8	33.940	6.075
9	42.487	5.137
10	49.233	4.055
11	54.847	3.374
12	59.300	2.677
13	62.925	2.179
14	66.015	1.857
15	68.730	1.632
16	71.217	1.495
17	73.370	1.294
18	75.283	1.150
19	77.075	1.077
20	78.705	0.980
21	80.088	0.831
22	81.443	0.814
23	82.613	0.703
24	83.738	0.676
25	84.800	0.639
26	85.800	0.601
27	86.770	0.583
28	87.617	0.509

29	88.446	0.498
30	89.137	0.416
31	89.762	0.376
32	90.374	0.368
33	90.958	0.351
34	91.535	0.347
35	92.050	0.310
36	92.550	0.300
37	93.029	0.288
38	93.487	0.276
39	93.927	0.264
40	94.289	0.218
41	94.644	0.213
42	94.998	0.213
43	95.352	0.213
44	95.679	0.197
45	95.952	0.164
46	96.223	0.163
47	96.494	0.163
48	96.764	0.163
49	96.994	0.138
50	97.181	0.113
51	97.369	0.113
52	97.557	0.113
53	97.742	0.112
54	97.873	0.079
55	97.977	0.063
56	98.081	0.062
57	98.185	0.063
58	98.291	0.064
59	98.413	0.073
60	98.538	0.075
61	98.663	0.075
62	98.788	0.075
63	98.913	0.075
64	99.037	0.075
65	99.162	0.075
66	99.287	0.075
67	99.411	0.075
68	99.536	0.075
69	99.660	0.075
70	99.785	0.075
71	99.909	0.075
72	100.000	0.055

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*************************************************************************
***
         UNIT              UNIT             UNIT             EFFECTIVE
        PERIOD           RAINFALL       SOIL-LOSS           RAINFALL
       (NUMBER)          (INCHES)        (INCHES)           (INCHES)
 -----------------------------------------------------------------------
----
            1             0.0343           0.0167            0.0177
            2             0.0343           0.0167            0.0177
            3             0.0290           0.0167            0.0124
            4             0.0396           0.0167            0.0229
            5             0.0396           0.0167            0.0229
            6             0.0475           0.0167            0.0309
            7             0.0396           0.0167            0.0229
            8             0.0475           0.0167            0.0309
            9             0.0475           0.0167            0.0309
           10             0.0396           0.0167            0.0229
           11             0.0422           0.0167            0.0256
           12             0.0475           0.0167            0.0309
           13             0.0581           0.0167            0.0414
           14             0.0581           0.0167            0.0414
           15             0.0581           0.0167            0.0414
           16             0.0528           0.0167            0.0361
           17             0.0686           0.0167            0.0520
           18             0.0713           0.0167            0.0546
           19             0.0634           0.0167            0.0467
           20             0.0713           0.0167            0.0546
           21             0.0871           0.0167            0.0705
           22             0.0818           0.0167            0.0652
           23             0.0766           0.0167            0.0599
           24             0.0792           0.0167            0.0625
           25             0.0818           0.0167            0.0652
           26             0.1109           0.0167            0.0942
           27             0.1320           0.0167            0.1153
           28             0.0924           0.0167            0.0757
           29             0.1795           0.0167            0.1628
           30             0.1927           0.0167            0.1760
           31             0.2165           0.0167            0.1998
           32             0.1558           0.0167            0.1391
           33             0.0528           0.0167            0.0361
           34             0.0475           0.0167            0.0309
           35             0.0475           0.0167            0.0309
           36             0.0158           0.0127            0.0032

          TOTAL STORM RAINFALL(INCHES) =  2.64
          TOTAL SOIL-LOSS(INCHES) =  0.60
          TOTAL EFFECTIVE RAINFALL(INCHES) =  2.04

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     TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =       0.2468
     TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =       0.8461
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3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0002	0.02	Q	.	.	.	.
0.250	0.0004	0.04	Q	.	.	.	.
0.333	0.0008	0.06	Q	.	.	.	.
0.417	0.0015	0.10	Q	.	.	.	.
0.500	0.0027	0.17	Q	.	.	.	.
0.583	0.0045	0.27	VQ	.	.	.	.
0.667	0.0071	0.38	VQ	.	.	.	.
0.750	0.0105	0.49	VQ	.	.	.	.
0.833	0.0146	0.60	V Q	.	.	.	.
0.917	0.0195	0.71	V Q	.	.	.	.
1.000	0.0252	0.82	.V Q	.	.	.	.
1.083	0.0314	0.91	.V Q	.	.	.	.
1.167	0.0383	1.00	.V Q	.	.	.	.
1.250	0.0458	1.08	. V Q	.	.	.	.
1.333	0.0537	1.15	. V Q	.	.	.	.
1.417	0.0621	1.22	. V Q	.	.	.	.
1.500	0.0712	1.32	. V Q	.	.	.	.

1.583	0.0811	1.44	.	V Q	.	.	.
1.667	0.0919	1.57	.	V Q	.	.	.
1.750	0.1035	1.69	.	V Q	.	.	.
1.833	0.1160	1.81	.	V Q	.	.	.
1.917	0.1294	1.95	.	VQ	.	.	.
2.000	0.1438	2.09	.	V Q	.	.	.
2.083	0.1591	2.22	.	VQ	.	.	.
2.167	0.1754	2.37	.	VQ.	.	.	.
2.250	0.1930	2.55	.	VQ	.	.	.
2.333	0.2119	2.74	.	Q	.	.	.
2.417	0.2319	2.91	.	VQ	.	.	.
2.500	0.2533	3.11	.	.VQ	.	.	.
2.583	0.2766	3.39	.	. Q	.	.	.
2.667	0.3026	3.77	.	. VQ	.	.	.
2.750	0.3311	4.14	.	. VQ	.	.	.
2.833	0.3621	4.49	.	. Q	.	.	.
2.917	0.3956	4.87	.	. VQ.	.	.	.
3.000	0.4319	5.28	.	. VQ	.	.	.
3.083	0.4699	5.52	.	. . Q	.	.	.
3.167	0.5071	5.40	.	. .Q V	.	.	.
3.250	0.5411	4.93	.	. Q.	V	.	.
3.333	0.5708	4.32	.	. Q	. V	.	.
3.417	0.5966	3.75	.	. Q	.	V	.
3.500	0.6189	3.23	.	. Q	.	V.	.
3.583	0.6379	2.76	.	.Q	.	V	.
3.667	0.6545	2.40	.	Q.	.	V	.
3.750	0.6691	2.12	.	Q .	.	.V	.

3.833	0.6822	1.89	.	Q	.	.	. V
3.917	0.6939	1.70	.	Q	.	.	. V
4.000	0.7046	1.55	.	Q	.	.	. V
4.083	0.7143	1.41	.	Q	.	.	. V
4.167	0.7232	1.29	.	Q	.	.	. V
4.250	0.7313	1.18	.	Q	.	.	. V
4.333	0.7388	1.09	.	Q	.	.	. V
4.417	0.7458	1.01	.	Q	.	.	. V
4.500	0.7523	0.94	.	Q	.	.	. V
4.583	0.7584	0.88	.	Q	.	.	. V
4.667	0.7640	0.82	.	Q	.	.	. V
4.750	0.7693	0.77	.	Q	.	.	. V
4.833	0.7742	0.71	.	Q	.	.	. V
4.917	0.7788	0.66	.	Q	.	.	. V
5.000	0.7830	0.61	.	Q	.	.	. V
5.083	0.7869	0.57	.	Q	.	.	. V
5.167	0.7907	0.54	.	Q	.	.	. V
5.250	0.7942	0.51	.	Q	.	.	. V
5.333	0.7975	0.48	.	Q	.	.	. V
5.417	0.8006	0.45	.	Q	.	.	. V
5.500	0.8036	0.43	.	Q	.	.	. V
5.583	0.8064	0.41	.	Q	.	.	. V
5.667	0.8090	0.38	.	Q	.	.	. V
5.750	0.8115	0.36	.	Q	.	.	. V
5.833	0.8138	0.34	.	Q	.	.	. V
5.917	0.8160	0.32	.	Q	.	.	. V
6.000	0.8181	0.30	.	Q	.	.	. V

```
    6.083      0.8200      0.29  .Q        .         .         .         V
.
    6.167      0.8219      0.27  .Q        .         .         .         V
.
    6.250      0.8236      0.25  Q         .         .         .         V
.
    6.333      0.8252      0.24  Q         .         .         .
V.
    6.417      0.8268      0.22  Q         .         .         .
V.
    6.500      0.8282      0.21  Q         .         .         .
V.
    6.583      0.8295      0.19  Q         .         .         .
V.
    6.667      0.8307      0.18  Q         .         .         .
V.
    6.750      0.8319      0.17  Q         .         .         .
V.
    6.833      0.8330      0.16  Q         .         .         .
V.
    6.917      0.8340      0.15  Q         .         .         .
V.
    7.000      0.8349      0.13  Q         .         .         .
V.
    7.083      0.8357      0.12  Q         .         .         .
V.
    7.167      0.8366      0.12  Q         .         .         .
V.
    7.250      0.8374      0.12  Q         .         .         .
V.
    7.333      0.8381      0.11  Q         .         .         .
V.
    7.417      0.8389      0.11  Q         .         .         .
V.
    7.500      0.8397      0.11  Q         .         .         .
V.
    7.583      0.8404      0.11  Q         .         .         .
V.
    7.667      0.8411      0.10  Q         .         .         .
V.
    7.750      0.8418      0.10  Q         .         .         .
V.
    7.833      0.8424      0.09  Q         .         .         .
V.
    7.917      0.8430      0.09  Q         .         .         .
V.
    8.000      0.8436      0.08  Q         .         .         .
V.
    8.083      0.8441      0.08  Q         .         .         .
V.
    8.167      0.8446      0.07  Q         .         .         .
V.
    8.250      0.8450      0.06  Q         .         .         .
V.
```

```
    8.333      0.8454      0.05  Q         .         .         .
V.
    8.417      0.8457      0.04  Q         .         .         .
V.
    8.500      0.8459      0.03  Q         .         .         .
V.
    8.583      0.8460      0.02  Q         .         .         .
V.
    8.667      0.8461      0.01  Q         .         .         .
V.
-------------------------------------------------------------------------
-------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                            520.0
              10%                            260.0
              20%                            180.0
              30%                            135.0
              40%                            100.0
              50%                             75.0
              60%                             55.0
              70%                             40.0
              80%                             30.0
              90%                             15.0



*************************************************************************
***
   FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =   1
 ---------------------------------------------------------------------
----
   >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

=========================================================================
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       (UNIT-HYDROGRAPH ADDED TO STREAM #1)

          WATERSHED AREA =       0.810 ACRES
          BASEFLOW =   0.000 CFS/SQUARE-MILE
   Warning: Watershed Area is less than 10 acres
          *USER ENTERED "LAG" TIME =    0.800 HOURS
          DESERT S-GRAPH SELECTED
          UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.200
          LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.800
          USER-ENTERED RAINFALL =  2.64 INCHES
          RCFC&WCD 3-Hour Storm (5-Minute period) SELECTED
          RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000
```

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 10.417

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.458	0.045
2	1.642	0.116
3	3.525	0.184
4	6.115	0.254
5	9.513	0.333
6	15.167	0.554
7	23.833	0.849
8	33.940	0.990
9	42.487	0.837
10	49.233	0.661
11	54.847	0.550
12	59.300	0.436
13	62.925	0.355
14	66.015	0.303
15	68.730	0.266
16	71.217	0.244
17	73.370	0.211
18	75.283	0.187
19	77.075	0.176
20	78.705	0.160
21	80.088	0.135
22	81.443	0.133
23	82.613	0.115
24	83.738	0.110
25	84.800	0.104
26	85.800	0.098
27	86.770	0.095
28	87.617	0.083
29	88.446	0.081
30	89.137	0.068
31	89.762	0.061
32	90.374	0.060
33	90.958	0.057
34	91.535	0.056
35	92.050	0.050
36	92.550	0.049

37	93.029	0.047
38	93.487	0.045
39	93.927	0.043
40	94.289	0.036
41	94.644	0.035
42	94.998	0.035
43	95.352	0.035
44	95.679	0.032
45	95.952	0.027
46	96.223	0.027
47	96.494	0.027
48	96.764	0.026
49	96.994	0.022
50	97.181	0.018
51	97.369	0.018
52	97.557	0.018
53	97.742	0.018
54	97.873	0.013
55	97.977	0.010
56	98.081	0.010
57	98.185	0.010
58	98.291	0.010
59	98.413	0.012
60	98.538	0.012
61	98.663	0.012
62	98.788	0.012
63	98.913	0.012
64	99.037	0.012
65	99.162	0.012
66	99.287	0.012
67	99.411	0.012
68	99.536	0.012
69	99.660	0.012
70	99.785	0.012
71	99.909	0.012
72	100.000	0.009

```
*************************************************************************
***
```

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0343	0.0167	0.0177
2	0.0343	0.0167	0.0177
3	0.0290	0.0167	0.0124
4	0.0396	0.0167	0.0229
5	0.0396	0.0167	0.0229
6	0.0475	0.0167	0.0309
7	0.0396	0.0167	0.0229
8	0.0475	0.0167	0.0309
9	0.0475	0.0167	0.0309
10	0.0396	0.0167	0.0229
11	0.0422	0.0167	0.0256
12	0.0475	0.0167	0.0309
13	0.0581	0.0167	0.0414
14	0.0581	0.0167	0.0414
15	0.0581	0.0167	0.0414
16	0.0528	0.0167	0.0361
17	0.0686	0.0167	0.0520
18	0.0713	0.0167	0.0546
19	0.0634	0.0167	0.0467
20	0.0713	0.0167	0.0546
21	0.0871	0.0167	0.0705
22	0.0818	0.0167	0.0652
23	0.0766	0.0167	0.0599
24	0.0792	0.0167	0.0625
25	0.0818	0.0167	0.0652
26	0.1109	0.0167	0.0942
27	0.1320	0.0167	0.1153
28	0.0924	0.0167	0.0757
29	0.1795	0.0167	0.1629
30	0.1927	0.0167	0.1761
31	0.2165	0.0167	0.1998
32	0.1558	0.0167	0.1391
33	0.0528	0.0167	0.0361
34	0.0475	0.0167	0.0309
35	0.0475	0.0167	0.0309
36	0.0158	0.0127	0.0032

```
          TOTAL STORM RAINFALL(INCHES) =  2.64
          TOTAL SOIL-LOSS(INCHES) =  0.60
          TOTAL EFFECTIVE RAINFALL(INCHES) =  2.04

 ------------------------------------------------------------------------
----
     TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =       0.0402
     TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =       0.1379
```

==========
===

3 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========
===

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0001	0.01	Q	.	.	.	.
0.333	0.0001	0.01	Q	.	.	.	.
0.417	0.0002	0.02	Q	.	.	.	.
0.500	0.0004	0.03	Q	.	.	.	.
0.583	0.0007	0.04	Q	.	.	.	.
0.667	0.0012	0.06	Q	.	.	.	.
0.750	0.0017	0.08	Q	.	.	.	.
0.833	0.0024	0.10	Q	.	.	.	.
0.917	0.0032	0.12	Q	.	.	.	.
1.000	0.0041	0.13	QV	.	.	.	.
1.083	0.0051	0.15	QV	.	.	.	.
1.167	0.0062	0.16	QV	.	.	.	.
1.250	0.0075	0.18	Q V	.	.	.	.
1.333	0.0088	0.19	Q V	.	.	.	.
1.417	0.0101	0.20	Q V	.	.	.	.
1.500	0.0116	0.21	Q V	.	.	.	.

1.583	0.0132	0.23	Q V	.	.	.
1.667	0.0150	0.26	.Q V	.	.	.
1.750	0.0169	0.27	.Q V	.	.	.
1.833	0.0189	0.29	.Q V	.	.	.
1.917	0.0211	0.32	.Q V	.	.	.
2.000	0.0234	0.34	.Q V	.	.	.
2.083	0.0259	0.36	.Q V	.	.	.
2.167	0.0286	0.39	.Q V	.	.	.
2.250	0.0315	0.42	.Q V.		.	.
2.333	0.0345	0.45	.Q V		.	.
2.417	0.0378	0.47	.Q V		.	.
2.500	0.0413	0.51	. Q .V		.	.
2.583	0.0451	0.55	. Q . V		.	.
2.667	0.0493	0.61	. Q . V		.	.
2.750	0.0540	0.68	. Q . V		.	.
2.833	0.0590	0.73	. Q . V		.	.
2.917	0.0645	0.79	. Q . V		.	.
3.000	0.0704	0.86	. Q . V		.	.
3.083	0.0766	0.90	. Q . V		.	.
3.167	0.0827	0.88	. Q . V		.	.
3.250	0.0882	0.80	. Q . V		.	.
3.333	0.0930	0.70	. Q . V		.	.
3.417	0.0972	0.61	. Q . V		.	.
3.500	0.1009	0.53	. Q . V.		.	.
3.583	0.1040	0.45	.Q . V		.	.
3.667	0.1067	0.39	.Q . V		.	.
3.750	0.1091	0.35	.Q . .V		.	.

3.833	0.1112	0.31	.Q	.	.	. V
3.917	0.1131	0.28	.Q	.	.	. V
4.000	0.1148	0.25	.Q	.	.	. V
4.083	0.1164	0.23	Q	.	.	. V
4.167	0.1179	0.21	Q	.	.	. V
4.250	0.1192	0.19	Q	.	.	. V
4.333	0.1204	0.18	Q	.	.	. V
4.417	0.1216	0.17	Q	.	.	. V
4.500	0.1226	0.15	Q	.	.	. V
4.583	0.1236	0.14	Q	.	.	. V
4.667	0.1245	0.13	Q	.	.	. V
4.750	0.1254	0.13	Q	.	.	. V
4.833	0.1262	0.12	Q	.	.	. V
4.917	0.1269	0.11	Q	.	.	. V
5.000	0.1276	0.10	Q	.	.	. V
5.083	0.1283	0.09	Q	.	.	. V
5.167	0.1289	0.09	Q	.	.	. V
5.250	0.1294	0.08	Q	.	.	. V
5.333	0.1300	0.08	Q	.	.	. V
5.417	0.1305	0.07	Q	.	.	. V
5.500	0.1310	0.07	Q	.	.	. V
5.583	0.1314	0.07	Q	.	.	. V
5.667	0.1319	0.06	Q	.	.	. V
5.750	0.1323	0.06	Q	.	.	. V
5.833	0.1326	0.05	Q	.	.	. V
5.917	0.1330	0.05	Q	.	.	. V
6.000	0.1333	0.05	Q	.	.	. V

6.083	0.1337	0.05	Q	.	.	.	V
6.167	0.1340	0.04	Q	.	.	.	V
6.250	0.1342	0.04	Q	.	.	.	V
6.333	0.1345	0.04	Q	.	.	.	
6.417	0.1347	0.04	Q	.	.	.	
6.500	0.1350	0.03	Q	.	.	.	
6.583	0.1352	0.03	Q	.	.	.	
6.667	0.1354	0.03	Q	.	.	.	
6.750	0.1356	0.03	Q	.	.	.	
6.833	0.1358	0.03	Q	.	.	.	
6.917	0.1359	0.02	Q	.	.	.	
7.000	0.1361	0.02	Q	.	.	.	
7.083	0.1362	0.02	Q	.	.	.	
7.167	0.1363	0.02	Q	.	.	.	
7.250	0.1365	0.02	Q	.	.	.	
7.333	0.1366	0.02	Q	.	.	.	
7.417	0.1367	0.02	Q	.	.	.	
7.500	0.1368	0.02	Q	.	.	.	
7.583	0.1370	0.02	Q	.	.	.	
7.667	0.1371	0.02	Q	.	.	.	
7.750	0.1372	0.02	Q	.	.	.	
7.833	0.1373	0.02	Q	.	.	.	
7.917	0.1374	0.01	Q	.	.	.	
8.000	0.1375	0.01	Q	.	.	.	
8.083	0.1376	0.01	Q	.	.	.	
8.167	0.1377	0.01	Q	.	.	.	
8.250	0.1377	0.01	Q	.	.	.	

```
    8.333      0.1378      0.01  Q          .          .          .
V.
-------------------------------------------------------------------------
-------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                            500.0
              10%                            260.0
              20%                            180.0
              30%                            135.0
              40%                            100.0
              50%                             75.0
              60%                             55.0
              70%                             40.0
              80%                             30.0
              90%                             15.0

=========================================================================
===

   END OF FLOODSCx ROUTING ANALYSIS
```

0.1378+ 0.8461=0.9839AC-FT =42,858.684CF

Drawdown Time

$$t = 12 * \frac{Vol}{A} * \frac{SF}{K}$$

$$t = 12 * \frac{42{,}858.68}{27{,}691.99} * \frac{3}{1.15} = 47.11\ hours < 48\ hours$$

Refer to Geotechnical Report in Appendix E for infiltration rates.

Infiltration Basin - Design Procedure (Rev. 03-2012)	BMP ID DMA 1	Legend:	Required Entries / Calculated Cells

Company Name: IMEG — Date: 7/28/2026

Designed by: AF — County/City Case No.:

Design Volume

a) Tributary area (BMP subarea)	A_T =	5.78	acres
b) Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	8,766	ft^3

Maximum Depth

a) Infiltration rate	I =	0.63	in/hr
b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook)	FS =	3	
c) Calculate D_1 $D_1 = \frac{I\ (in/hr) \times 72\ hrs}{12\ (in/ft) \times FS}$	D_1 =	1.3	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		100	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		100	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	89.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	1.3	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	z =	4	:1
b) Proposed basin depth (excluding freeboard)	d_B =	1	ft
c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$)	A_S =	8766	ft^2
d) Proposed Design Surface Area	A_D =	13771	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	44	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =		ft
c) Forebay surface area (minimum)	Area =		ft^2
d) Full height notch-type weir	Width (W) =		in

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: IMEG
Date:
Designed by:
Case No:
Company Project Number/Name:

BMP Identification

BMP NAME / ID: Infiltration Basin

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.80 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
IMP	*139537.4*	*Concrete or Asphalt*	*1*	*0.89*	*124467.4*			
Perv	*112263.2*	*Natural (A Soil)*	*0.03*	*0.06*	*7021.1*			

Appendix G

AGREEMENTS – CC&RS, COVENANT AND AGREEMENTS, BMP MAINTENANCE AGREEMENTS AND/OR OTHER MECHANISMS FOR ENSURING ONGOING OPERATION, MAINTENANCE, FUNDING AND TRANSFER OF REQUIREMENTS FOR THIS PROJECT-SPECIFIC WQMP

Covenant and Agreement

Water Quality Management Plan and Urban Runoff BMP
Transfer, Access and Maintenance Agreement
(adapted from documents from the Ventura County Stormwater Management Program)

Recorded at the request of:

City of _____

After recording, return to:

City of _____

City Clerk _____

Water Quality Management Plan and Urban Runoff BMP
Transfer, Access and Maintenance Agreement

OWNER: _____

PROPERTY ADDRESS: _____

_____

APN: _____

THIS AGREEMENT is made and entered into in

_____, California, this _____ day of

_____ , by and between

_____, herein after

referred to as "Owner" and the CITY OF _____, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as "CITY";

WHEREAS, the Owner owns real property ("Property") in the City of

_____, County of Riverside, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference;

WHEREAS, at the time of initial approval of development project known as

_____ within the Property described herein, the City required the project to employ Best Management Practices, hereinafter referred to as "BMPs", to minimize pollutants in urban runoff;

WHEREAS, the Owner has chosen to install and/or implement BMPs as described in the Water Quality Management Plan, on file with the City, hereinafter referred to as "WQMP", to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, said WQMP has been certified by the Owner and reviewed and approved by the City;

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance or replacement, therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement;

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. Owner hereby provides the City of City's designee complete access, of any duration, to the BMPs and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by City's Director of Public Works no advance notice, for the purpose of inspection, sampling, testing of the Device, and in case of emergency, to undertake all necessary repairs or other preventative measures at owner's expense as provided in paragraph 3 below. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Owner shall use its best efforts diligently to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the City, the City is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assigns, including administrative costs,

attorney's fees and interest thereon at the maximum rate authorized by the Civil Code from the date of the notice of expense until paid in full.

4. The City may require the owner to post security in form and for a time period satisfactory to the city to guarantee the performance of the obligations state herein. Should the Owner fail to perform the obligations under the Agreement, the City may, in the case of a cash bond, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the Director may withdraw any previous Urban Runoff-related approval with respect to the property on which BMPs have been installed and/or implemented until such time as Owner repays to City its reasonable costs incurred in accordance with paragraph 3 above.

5. This agreement shall be recorded in the Office of the Recorder of Riverside County, California, at the expense of the Owner and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth, and also a lien in such amount as will fully reimburse the City, including interest as herein above set forth, subject to foreclosure in event of default in payment.

6. In event of legal action occasioned by any default or action of the Owner, or its successors or assigns, then the Owner and its successors or assigns agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

7. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien there against.

8. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time is of the essence in the performance of this Agreement.

10. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IF TO CITY:

_____

_____

_____

_____

IF TO OWNER:

_____

_____

_____

_____

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

APPROVED AS TO FORM:

_____
City Attorney

_____
CITY OF

_____
Name

_____
Title

ATTEST:

_____
City Clerk Date

OWNER:

_____
Name

_____
Title

OWNER:

_____
Name

_____
Title

NOTARIES ON FOLLOWING PAGE

Appendix H

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT – SUMMARY OF SITE REMEDIATION CONDUCTED AND USE RESTRICTIONS

Appendix I

PROJECT-SPECIFIC WQMP SUMMARY DATA FORM

Project-Specific WQMP Summary Data Form

Applicant Information	
Name and Title	
Company	
Phone	
Email	

Project Information	
Project Name (as shown on project application/project-specific WQMP)	Gilman Ranch
Street Address	1901 W. Wilson St Banning. CA
Nearest Cross Streets	
Municipality (City or Unincorporated County)	Riverside County and City of Banning
Zip Code	92220
Tract Number(s) and/or Assessor Parcel Number(s)	
Other (other information to help identify location of project)	

Indicate type of project.	**Priority Development Projects (Use an "X" in cell preceding project type):**	
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 25%
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 10% & erosive soils
		Commercial or Industrial ≥ 100,000 sq. ft.
		Automotive repair shop
		Retail Gasoline Outlet disturbing > 5,000 sq. ft.
		Restaurant disturbing > 5,000 sq. ft.
		Home subdivision ≥ 10 housing units
	X	Parking lot ≥ 5,000 sq. ft. or ≥ 25 parking spaces

Date Project-Specific WQMP Submitted	
Size of Project Area (nearest 0.1 acre)	5.78 acres
Will the project replace more than 50% of the impervious surfaces on an existing developed site?	No
Project Area managed with LID/Site Design BMPs (nearest 0.1 acre)	Yes
Are Treatment Control BMPs required?	No
Is the project subject to onsite retention by ordinance or policy?	Yes, the city of banning ordinance
Did the project meet the 100% LID/Site Design Measurable Goal?	Yes
Name of the entity that will implement, operate, and maintain the post-construction BMPs	Owner
Contact Name	TBD
Street or Mailing Address	TBD
City	TBD
Zip Code	TBD
Phone	TBD

Space Below for Use by City/County Staff Only	
Preceding Information Verified by (consistent with information in project-specific WQMP)	**Name:** **Date:**
Date Project-Specific WQMP Approved:	
Data Entered by	**Name:** **Date:**
Other Comments	

APPENDIX G

AMBIENT NOISE MEASUREMENT DATA

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16431 Scientific Way
Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part A

Date: 1/27/26 Day of Week: Tuesday Time: 1425 Project Number: 7196

Monitoring Segment / Area: 1 Monitoring Site Address: 2021 W Wilson St

Measurement Taken By: Amir Ayati of UltraSystems Environmental

Average Wind Speed: 7.7 mph [km/hr] Compass Heading (meter ⊥ to source) 169° S

Temp: 62.6 °F Relative Humidity: 15.1 % Compass Heading (into wind) 66° NE

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 191 feet

Approximate distance of sound level meter from construction site: _____
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☑ Residential ☐ Institutional ☐ Comm./Ind. ☐ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BLH080004

Meter Setting: ☑ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 1425 Measurement End Time: 1440

Total Measurement Time: 15min Session File Name (e.g., S012): S002

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 114.0
$L_{eq\ (h)}$	Slow: 52.9 Fast:
L_{max}	Slow: 70.7 Fast:
L_{90}	Slow: 43.7 Fast:

Field Notes:

1. Dogs barking, wind chimes, crows
2. _____
3. _____

Noise Monitor's Signature: _____ Date: 1/27/26

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Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part B

Date: 1/27/26 Day of Week: Tuesday Time: 1425 Project Number: 7196

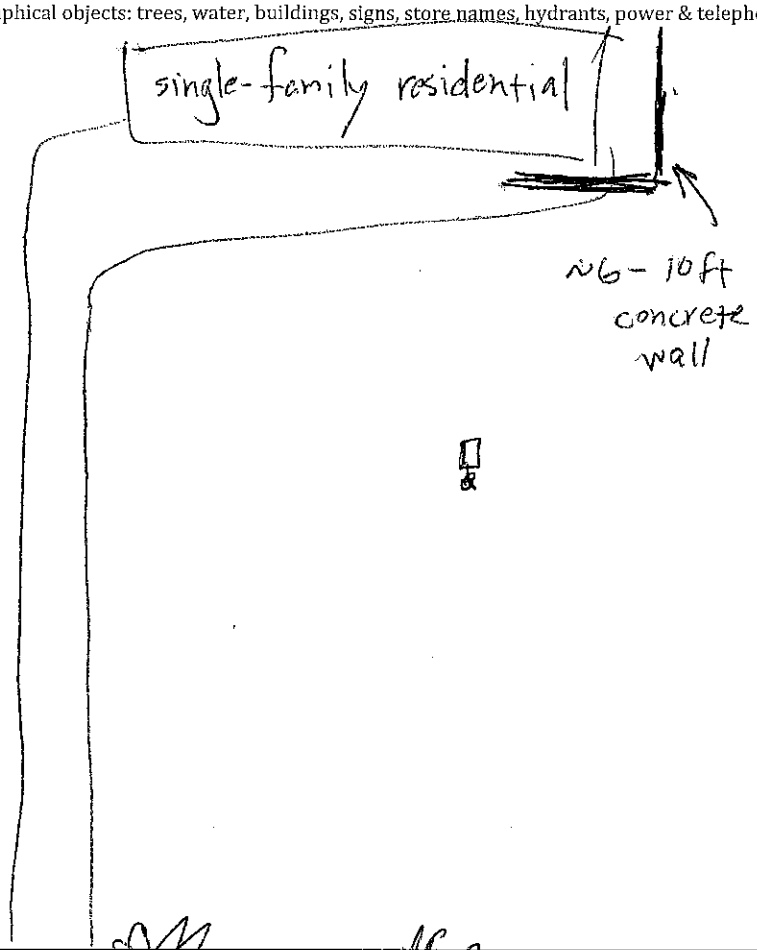
Monitoring Segment / Area: 1 Monitoring Site Address: 2021 W Wilson St

Site Map

Plan View

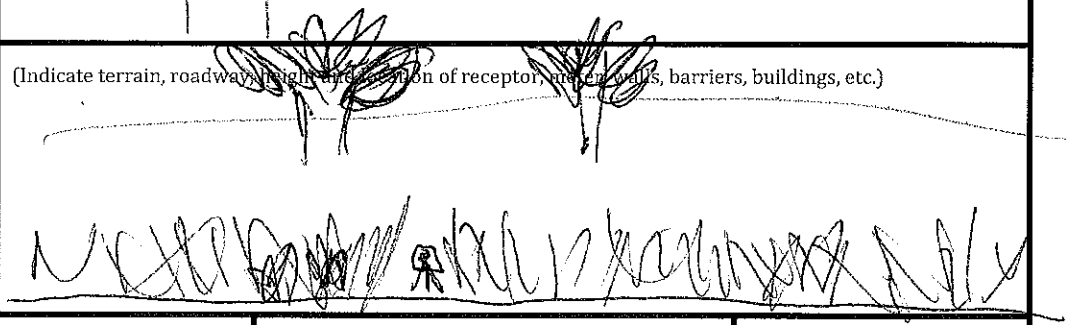
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.935126°	Longitude: -116.898695°	Elevation: 2,603 ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S002_BLH080004_28012026_130544
Start Time	1/27/2026 2:25:21 PM
Stop Time	1/27/2026 2:40:21 PM
Device Name	BLH080004
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	52.9 dB	L90	1	43.7 dB
Lmax	1	70.7 dB	Lmin	1	39.7 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

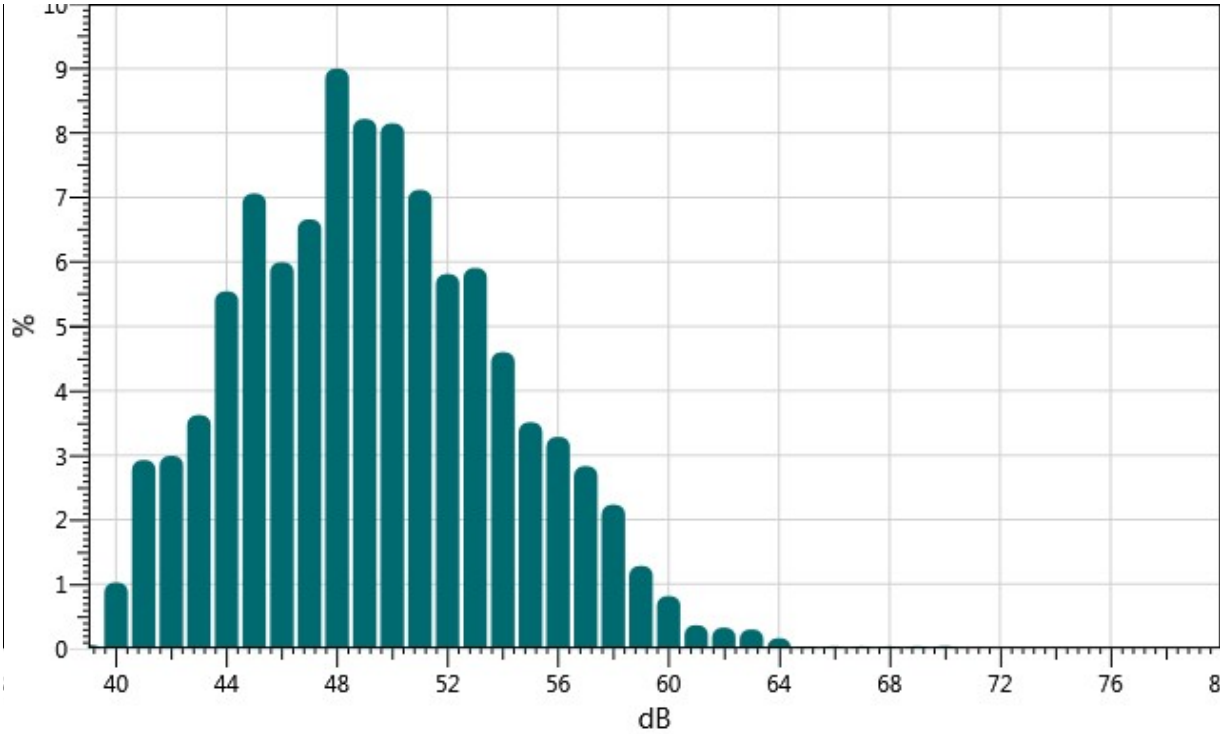
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
39:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.06
40:	0.05	0.03	0.03	0.03	0.04	0.11	0.14	0.15	0.18	0.25	1.02
41:	0.22	0.28	0.23	0.29	0.28	0.29	0.36	0.34	0.30	0.33	2.93
42:	0.34	0.24	0.27	0.25	0.30	0.33	0.36	0.31	0.32	0.28	2.99
43:	0.29	0.31	0.40	0.39	0.41	0.34	0.44	0.36	0.31	0.36	3.62
44:	0.36	0.47	0.48	0.48	0.52	0.60	0.63	0.67	0.70	0.65	5.54
45:	0.81	0.65	0.56	0.69	0.67	0.69	0.74	0.72	0.75	0.78	7.06
46:	0.72	0.59	0.60	0.62	0.56	0.58	0.53	0.62	0.57	0.61	5.99
47:	0.59	0.59	0.65	0.60	0.70	0.70	0.74	0.65	0.69	0.74	6.66
48:	1.01	1.02	0.66	0.94	0.86	0.88	0.98	0.96	0.86	0.84	9.00
49:	0.91	0.90	0.91	0.81	0.80	0.77	0.80	0.72	0.89	0.72	8.22
50:	0.86	0.82	0.78	0.82	0.79	0.86	0.81	0.86	0.79	0.77	8.15
51:	0.85	0.84	0.50	0.72	0.73	0.75	0.77	0.66	0.70	0.61	7.12

52:	0.58	0.64	0.60	0.55	0.54	0.61	0.57	0.56	0.60	0.55	5.81
53:	0.53	0.63	0.68	0.62	0.59	0.66	0.60	0.60	0.50	0.50	5.90
54:	0.50	0.59	0.33	0.48	0.45	0.47	0.51	0.47	0.39	0.40	4.60
55:	0.41	0.39	0.37	0.34	0.40	0.34	0.31	0.30	0.35	0.29	3.51
56:	0.31	0.32	0.31	0.30	0.33	0.38	0.34	0.34	0.35	0.30	3.28
57:	0.31	0.37	0.23	0.29	0.29	0.29	0.26	0.25	0.29	0.26	2.83
58:	0.27	0.29	0.26	0.22	0.23	0.22	0.22	0.18	0.16	0.18	2.23
59:	0.17	0.14	0.14	0.13	0.13	0.14	0.10	0.11	0.10	0.12	1.28
60:	0.11	0.13	0.08	0.09	0.07	0.11	0.09	0.05	0.04	0.06	0.81
61:	0.06	0.07	0.04	0.03	0.02	0.04	0.03	0.03	0.02	0.03	0.36
62:	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.32
63:	0.04	0.05	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.30
64:	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.16
65:	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
66:	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.04
67:	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.04
68:	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.04
69:	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04
70:	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.04

Statistics Chart

S002_BLH080004_28012026_130544: Statistics Chart

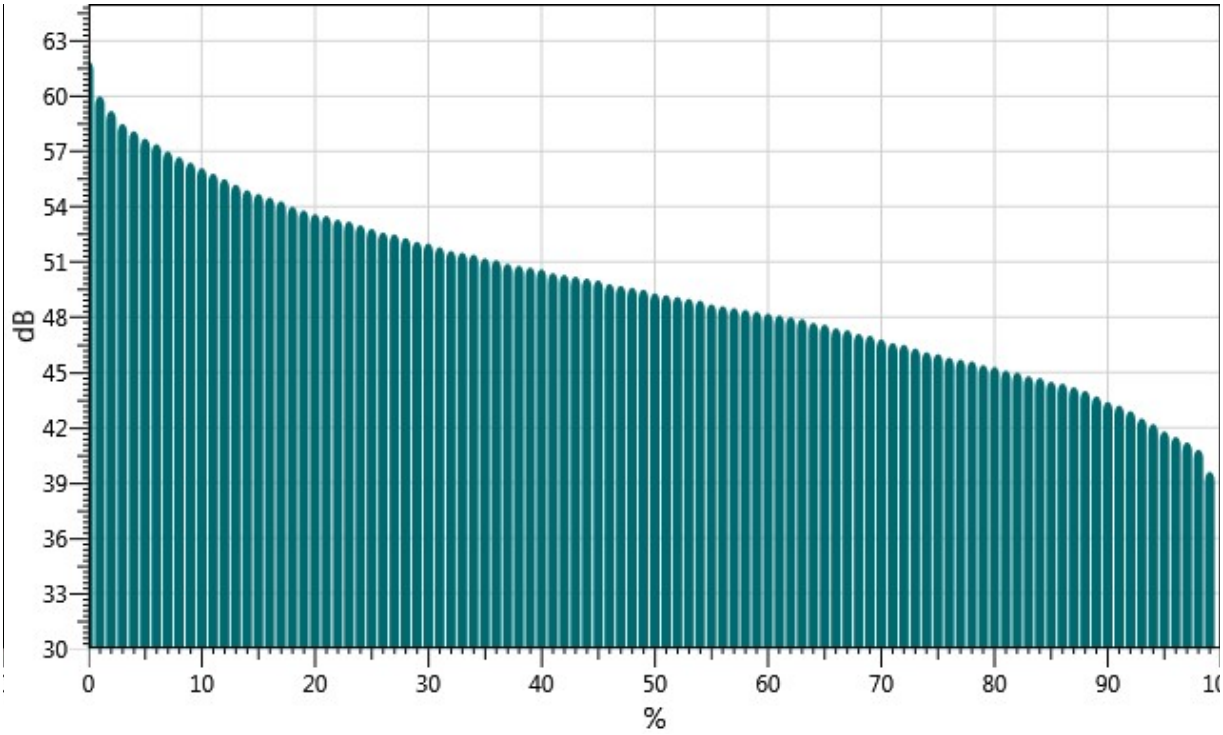


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		61.9	60.0	59.2	58.5	58.1	57.7	57.4	57.0	56.7
10%:	56.4	56.1	55.8	55.5	55.2	54.9	54.7	54.5	54.3	54.0
20%:	53.8	53.6	53.5	53.3	53.2	53.0	52.8	52.6	52.5	52.3
30%:	52.1	52.0	51.8	51.6	51.5	51.4	51.2	51.1	50.9	50.8
40%:	50.7	50.6	50.4	50.3	50.2	50.1	50.0	49.8	49.7	49.6
50%:	49.5	49.3	49.2	49.1	49.0	48.9	48.7	48.6	48.5	48.4
60%:	48.3	48.2	48.1	48.0	47.9	47.7	47.6	47.4	47.3	47.1
70%:	47.0	46.8	46.6	46.5	46.3	46.1	46.0	45.8	45.7	45.6
80%:	45.4	45.3	45.1	45.0	44.8	44.7	44.5	44.4	44.2	44.0
90%:	43.7	43.4	43.2	42.9	42.5	42.2	41.8	41.5	41.2	40.8
100%:	39.6									

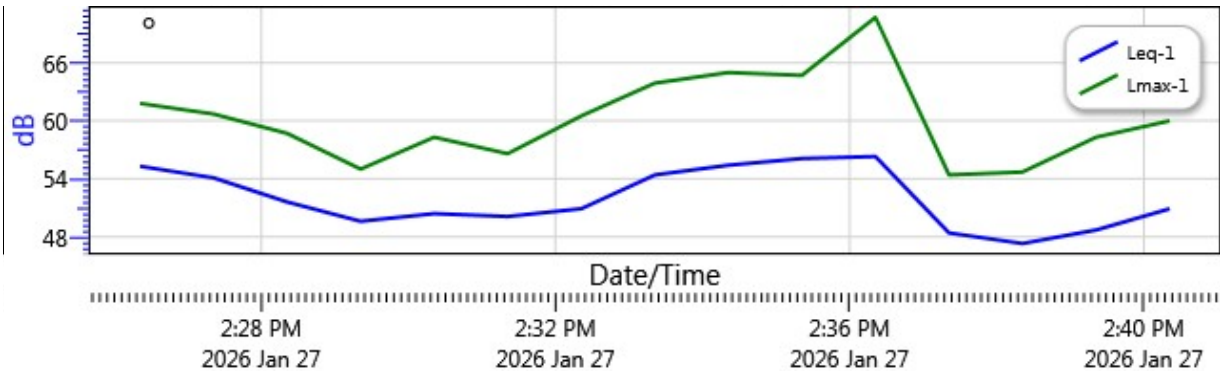
Exceedance Chart

S002_BLH080004_28012026_130544: Exceedance Chart



Logged Data Chart

S002_BLH080004_28012026_130544: Logged Data Chart



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16431 Scientific Way
Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part A

Date: 1/27/2026 Day of Week: Tuesday Time: ~~10:30am~~ 11:02 Project Number: 7196

Monitoring Segment / Area: 2 Monitoring Site Address: 1901 N Wilson St

Measurement Taken By: SH AA of UltraSystems Environmental

Average Wind Speed: 1.8 mph [km/hr] Compass Heading (meter ⊥ to source) 171S

Temp: 65.3 °F Relative Humidity: 23.6 % Compass Heading (into wind) 108E

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 140 feet

Approximate distance of sound level meter from construction site: —
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☐ Residential ☑ Institutional ☐ Comm./Ind. ☒ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BIP080009

Meter Setting: ☒ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: ~~10:36~~ 11:02 Measurement End Time: ~~10:51~~ 11:17

Total Measurement Time: 15 min Session File Name (e.g., S012): S001

Check the measurement purpose:

☒ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 113.7
$L_{eq\ (h)}$	Slow: 60.6 Fast:
L_{max}	Slow: 87.3 Fast:
L_{90}	Slow: 48.4 Fast:

Calibrate
View session
raise ~5'

Field Notes:

1. birds, bugs, dogs, some people, train, rooster,
2.
3.

Noise Monitor's Signature: [signature] Date: 1/27/26

Proofread

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Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part B

Date: 1/27/2026 Day of Week: Tuesday Time: 10:36 Project Number: 7196 Gilman

Monitoring Segment / Area: 2 Monitoring Site Address: 1901 W Wilson St, Banning CA 92220

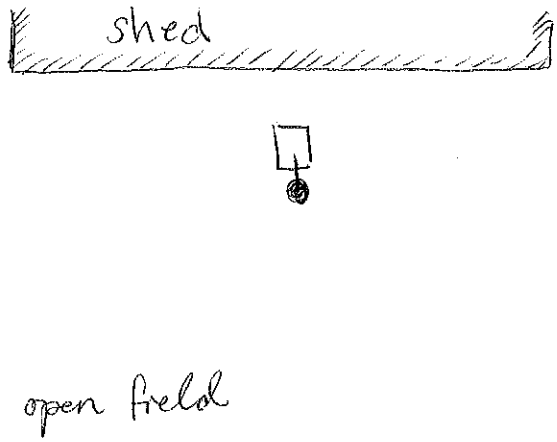
Site Map

Plan View

N

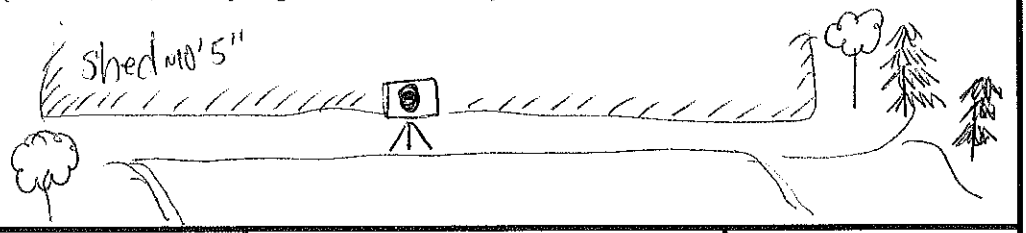
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.935433° N	Longitude: 116.896301° W	Elevation: 2606'

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S001_BIP080009_28012026_125412
Start Time	1/27/2026 11:01:46 AM
Stop Time	1/27/2026 11:16:46 AM
Device Name	BIP080009
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	60.6 dB	L90	1	48.4 dB
Lmax	1	87.3 dB	Lmin	1	47.4 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	FAST			

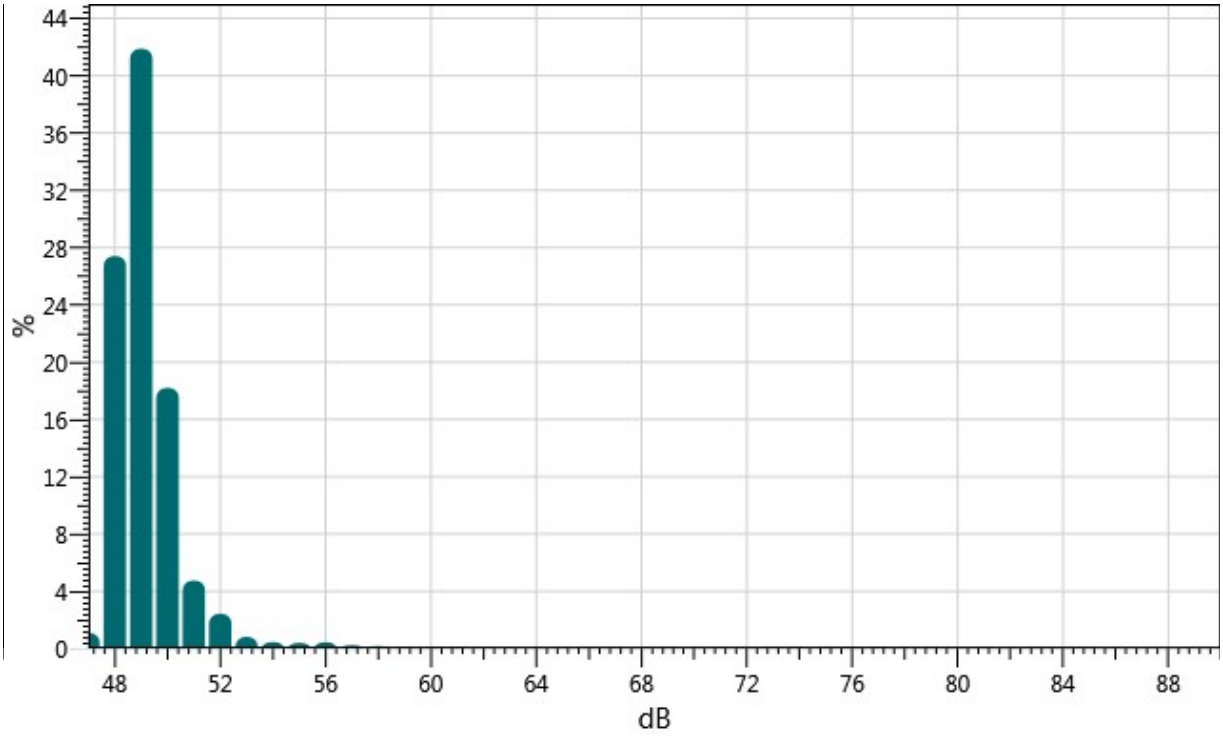
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
47:	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.15	0.37	0.51	1.08
48:	0.75	1.16	1.64	2.20	2.98	3.47	3.52	3.75	3.79	4.14	27.40
49:	4.32	4.67	5.03	4.64	4.47	4.43	3.65	3.80	3.46	3.39	41.88
50:	2.87	1.74	2.36	2.34	1.95	1.95	1.56	1.30	1.17	0.96	18.19
51:	0.85	0.80	0.59	0.43	0.37	0.44	0.37	0.37	0.27	0.26	4.75
52:	0.28	0.28	0.25	0.26	0.25	0.27	0.26	0.20	0.20	0.18	2.42
53:	0.18	0.06	0.11	0.09	0.08	0.05	0.06	0.07	0.07	0.05	0.81
54:	0.04	0.05	0.05	0.05	0.06	0.06	0.03	0.04	0.04	0.04	0.45
55:	0.05	0.04	0.04	0.05	0.04	0.04	0.03	0.04	0.03	0.03	0.40
56:	0.05	0.03	0.04	0.05	0.04	0.04	0.05	0.05	0.04	0.05	0.43
57:	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.24
58:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.01	0.18
59:	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.10

60:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
61:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
62:	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.06
63:	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05
64:	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.06
65:	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.07
66:	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.06
67:	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.06
68:	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
69:	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.05
70:	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.05
71:	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
72:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.05
73:	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.06
74:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
75:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
76:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
77:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
78:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
79:	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.07
80:	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.05
81:	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.05
82:	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.05
83:	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.06
84:	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.05
85:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
86:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
87:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Statistics Chart

S001_BIP080009_28012026_125412: Statistics Chart

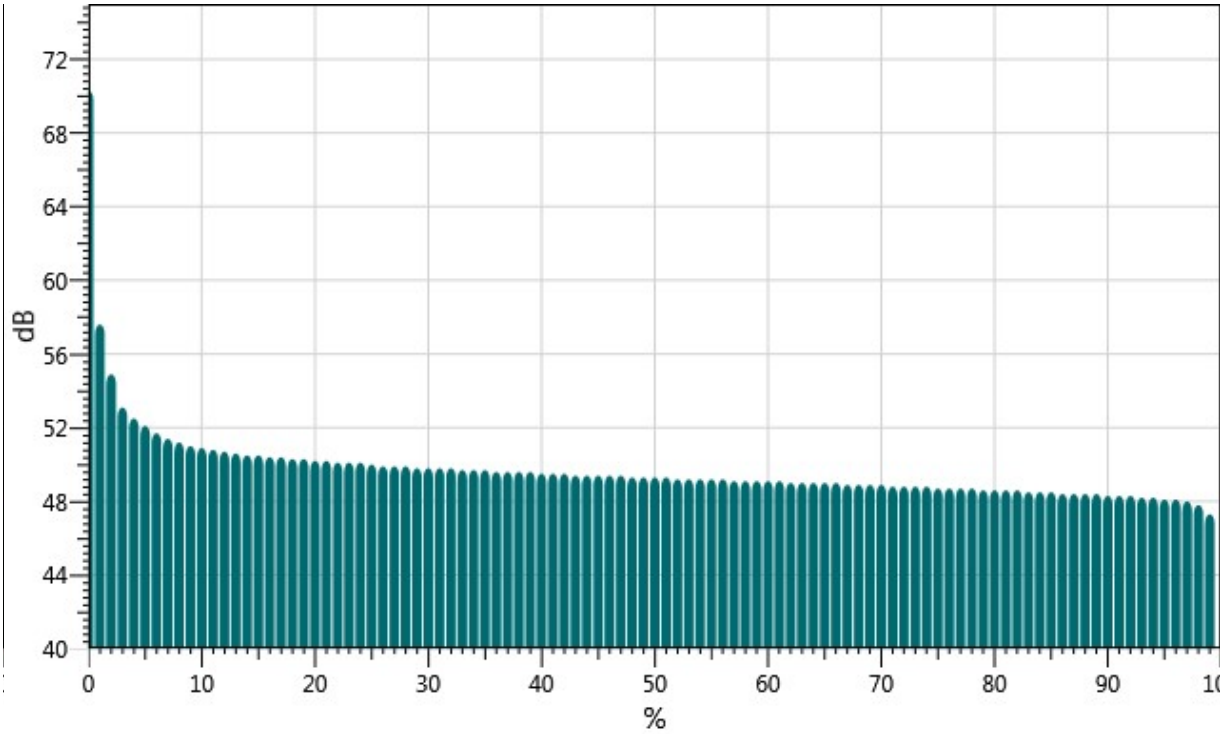


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		70.3	57.6	54.9	53.1	52.5	52.1	51.7	51.4	51.2
10%:	51.0	50.9	50.8	50.7	50.6	50.5	50.5	50.4	50.4	50.3
20%:	50.3	50.2	50.2	50.1	50.1	50.1	50.0	49.9	49.9	49.9
30%:	49.8	49.8	49.8	49.8	49.7	49.7	49.7	49.6	49.6	49.6
40%:	49.6	49.5	49.5	49.5	49.4	49.4	49.4	49.4	49.4	49.3
50%:	49.3	49.3	49.3	49.2	49.2	49.2	49.2	49.2	49.1	49.1
60%:	49.1	49.1	49.1	49.0	49.0	49.0	49.0	49.0	48.9	48.9
70%:	48.9	48.9	48.8	48.8	48.8	48.8	48.7	48.7	48.7	48.7
80%:	48.6	48.6	48.6	48.6	48.5	48.5	48.5	48.4	48.4	48.4
90%:	48.4	48.3	48.3	48.3	48.2	48.2	48.1	48.1	48.0	47.8
100%:	47.3									

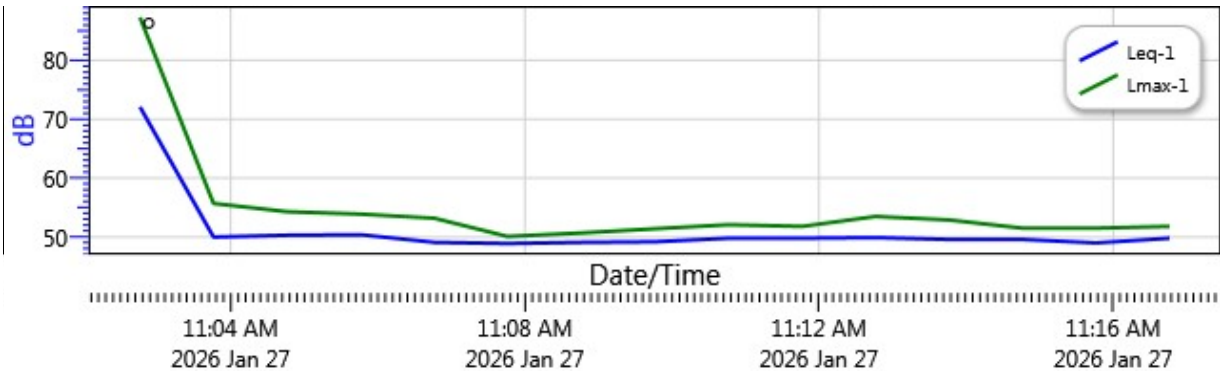
Exceedance Chart

S001_BIP080009_28012026_125412: Exceedance Chart



Logged Data Chart

S001_BIP080009_28012026_125412: Logged Data Chart



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949.788.4900

Noise Measurement Report Form – Part A

Date: 1/27/26 Day of Week: Tuesday Time: 1350 Project Number: 7196

Monitoring Segment / Area: 3 Monitoring Site Address: 980 Harvest Moon Lane

Measurement Taken By: Amir Ayati of UltraSystems Environmental

Average Wind Speed: 2.4 mph [km/hr] Compass Heading (meter ⊥ to source) 260° W

Temp: 65.9 °F Relative Humidity: 19.8 % Compass Heading (into wind) 228° SW

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 40 feet

Approximate distance of sound level meter from construction site: —
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☑ Residential ☐ Institutional ☐ Comm./Ind. ☐ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BLH080004

Meter Setting: ☑ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 1350 Measurement End Time: 1405

Total Measurement Time: 15 min Session File Name (e.g., S012): S001

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 114.0
$L_{eq\ (h)}$	Slow: 49.5 Fast:
L_{max}	Slow: 67.1 Fast:
L_{90}	Slow: 39.0 Fast:

Field Notes:

1. Traffic noise along Harvest Moon Lane.
2. Birds, wind, dog barking.
3.

Noise Monitor's Signature: [signature] Date: 1/27/26

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Noise Measurement Report Form – Part B

Date: 1/27/26 Day of Week: Tuesday Time: 1350 Project Number: 7196

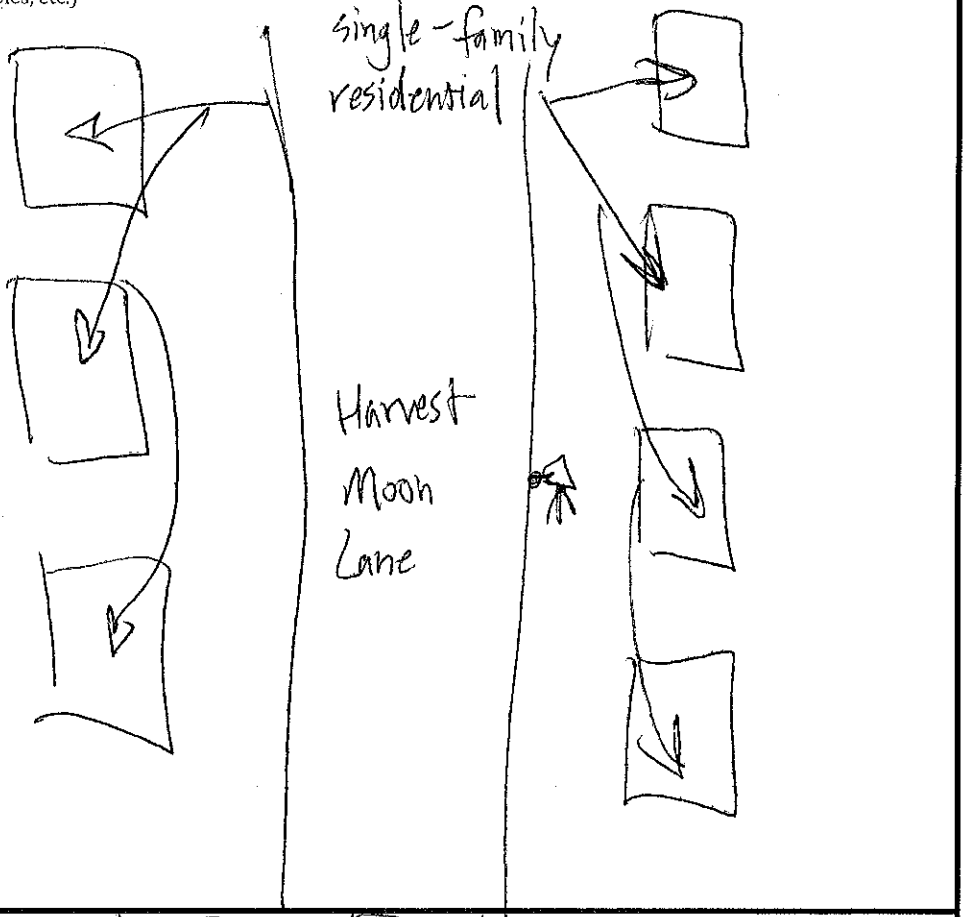
Monitoring Segment / Area: 3 Monitoring Site Address: 980 Harvest Moon Lane

Site Map

Plan View

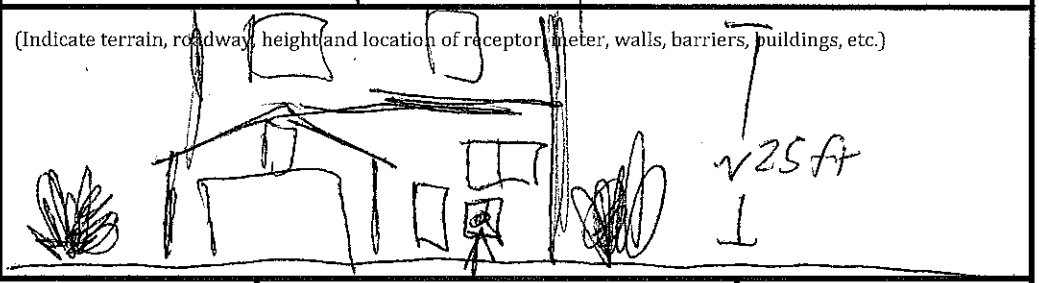
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.934004°	Longitude: -116.899604°	Elevation: 2,572 ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S001_BLH080004_28012026_130525
Start Time	1/27/2026 1:50:20 PM
Stop Time	1/27/2026 2:05:20 PM
Device Name	BLH080004
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.5 dB	L90	1	39 dB
Lmax	1	67.1 dB	Lmin	1	36.6 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	FAST			

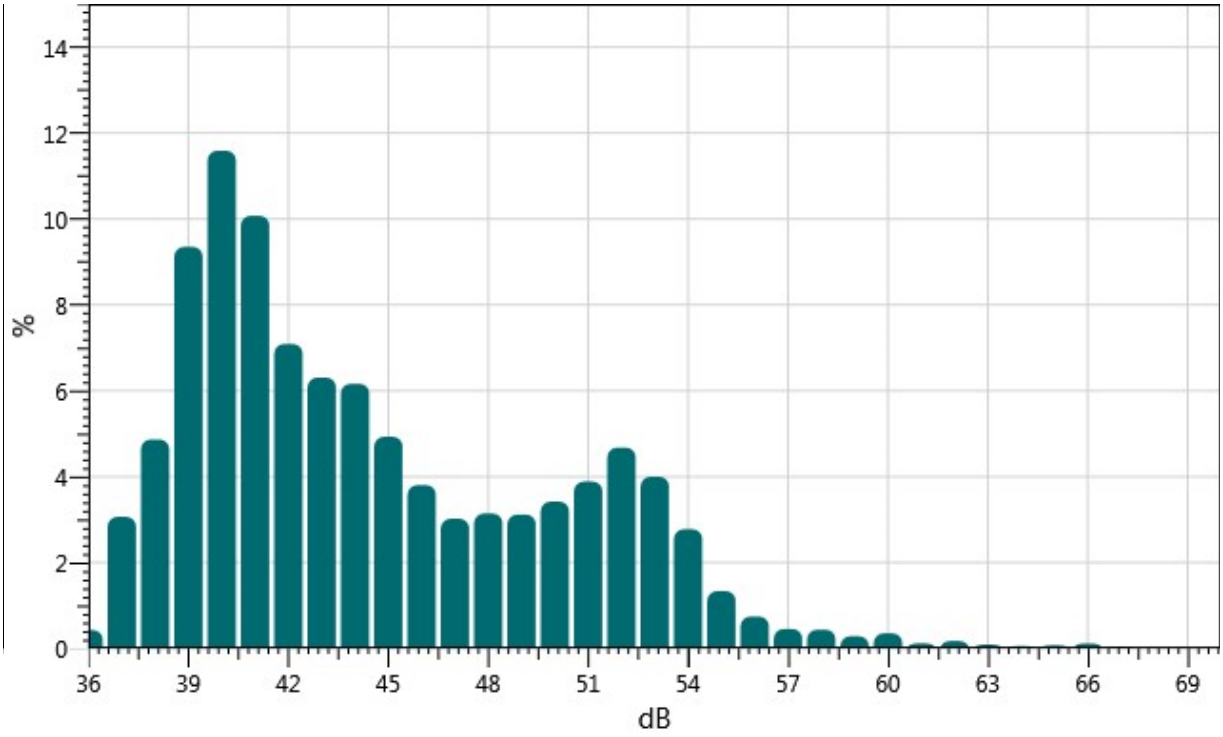
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
36:	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.12	0.21	0.43
37:	0.27	0.32	0.45	0.27	0.20	0.44	0.41	0.22	0.25	0.23	3.07
38:	0.20	0.27	0.29	0.43	0.55	0.53	0.63	0.78	0.53	0.65	4.87
39:	0.92	0.81	0.81	0.94	1.07	1.13	0.80	0.90	0.90	1.07	9.35
40:	1.05	1.04	1.12	1.10	1.12	1.16	1.53	1.21	1.16	1.10	11.59
41:	1.06	1.10	1.19	0.93	1.23	0.88	0.86	0.92	0.86	1.04	10.07
42:	0.88	0.63	0.58	0.87	0.67	0.72	0.75	0.79	0.60	0.60	7.09
43:	0.66	0.73	0.63	0.63	0.54	0.59	0.68	0.62	0.65	0.58	6.31
44:	0.61	0.62	0.56	0.61	0.70	0.76	0.57	0.52	0.63	0.59	6.16
45:	0.60	0.49	0.40	0.49	0.51	0.57	0.54	0.47	0.44	0.41	4.93
46:	0.49	0.49	0.41	0.38	0.36	0.35	0.37	0.33	0.31	0.31	3.80
47:	0.27	0.25	0.27	0.28	0.32	0.39	0.29	0.36	0.28	0.31	3.02
48:	0.35	0.31	0.23	0.37	0.35	0.32	0.30	0.29	0.34	0.28	3.14

49:	0.30	0.29	0.35	0.31	0.30	0.30	0.31	0.32	0.31	0.33	3.12
50:	0.32	0.32	0.29	0.39	0.34	0.40	0.33	0.32	0.35	0.37	3.42
51:	0.39	0.41	0.26	0.41	0.41	0.39	0.39	0.40	0.39	0.43	3.89
52:	0.46	0.45	0.50	0.46	0.48	0.46	0.46	0.45	0.48	0.48	4.68
53:	0.43	0.43	0.42	0.46	0.41	0.40	0.39	0.41	0.31	0.33	4.00
54:	0.36	0.41	0.22	0.27	0.26	0.31	0.25	0.26	0.21	0.23	2.78
55:	0.19	0.16	0.13	0.14	0.14	0.13	0.13	0.11	0.09	0.12	1.34
56:	0.11	0.10	0.08	0.08	0.07	0.09	0.05	0.05	0.06	0.06	0.74
57:	0.06	0.06	0.04	0.05	0.06	0.05	0.03	0.04	0.03	0.04	0.46
58:	0.04	0.04	0.05	0.04	0.05	0.05	0.04	0.06	0.04	0.03	0.44
59:	0.05	0.03	0.02	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.29
60:	0.02	0.02	0.02	0.03	0.04	0.06	0.06	0.06	0.02	0.01	0.35
61:	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.12
62:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.04	0.18
63:	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
64:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
65:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
66:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.12
67:	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04

Statistics Chart

S001_BLH080004_28012026_130525: Statistics Chart

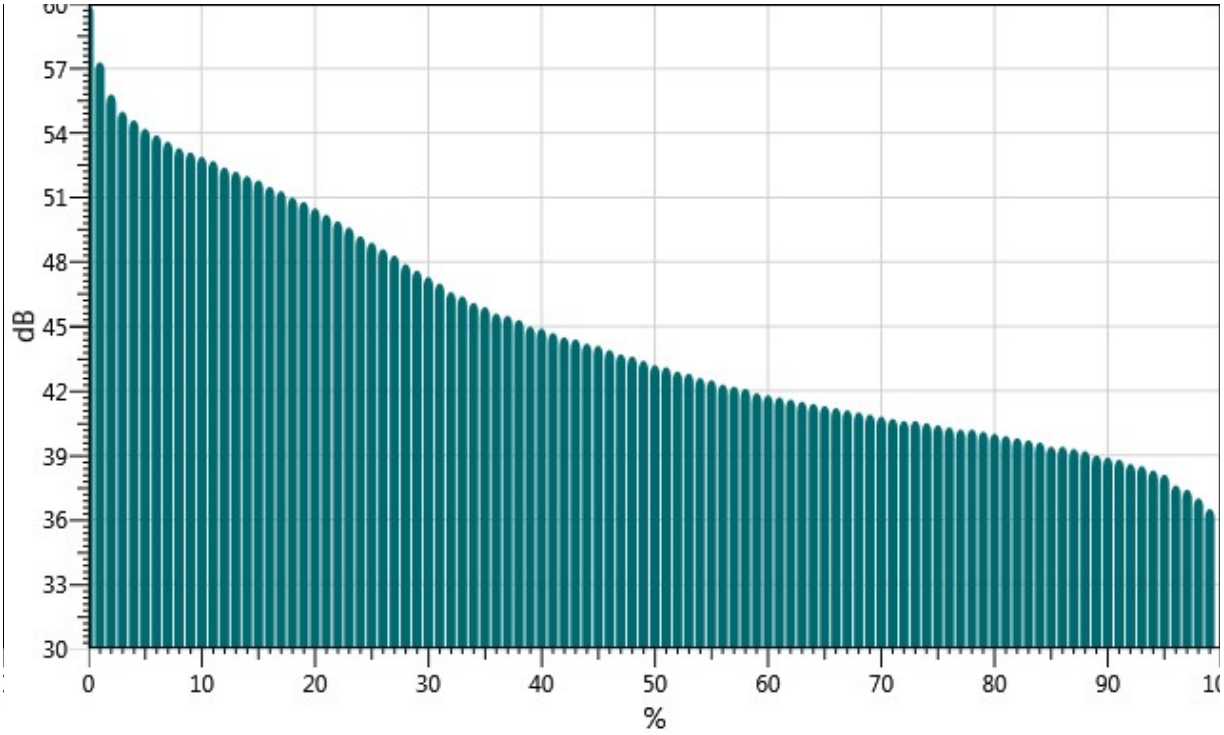


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		60.0	57.3	55.8	55.0	54.6	54.2	53.9	53.6	53.3
10%:	53.1	52.9	52.7	52.4	52.2	52.0	51.8	51.5	51.3	51.0
20%:	50.8	50.5	50.2	49.9	49.6	49.2	48.9	48.6	48.3	47.9
30%:	47.6	47.3	47.0	46.6	46.4	46.1	45.9	45.6	45.5	45.3
40%:	45.0	44.9	44.7	44.5	44.4	44.2	44.1	43.9	43.7	43.6
50%:	43.4	43.2	43.1	42.9	42.8	42.6	42.5	42.3	42.2	42.1
60%:	41.9	41.8	41.7	41.6	41.5	41.4	41.3	41.2	41.1	41.0
70%:	40.9	40.8	40.7	40.6	40.6	40.5	40.4	40.3	40.2	40.2
80%:	40.1	40.0	39.9	39.8	39.7	39.6	39.4	39.4	39.3	39.2
90%:	39.0	38.9	38.8	38.6	38.5	38.3	38.1	37.6	37.4	37.0
100%:	36.5									

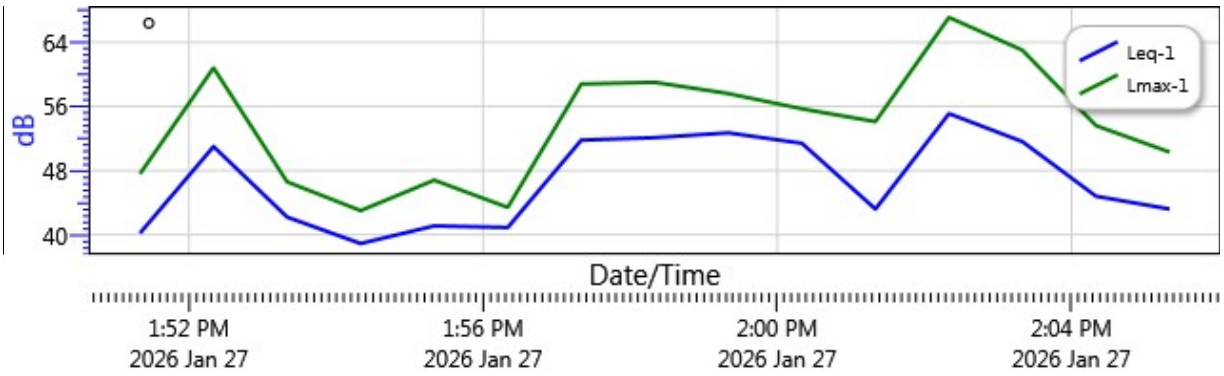
Exceedance Chart

S001_BLH080004_28012026_130525: Exceedance Chart



Logged Data Chart

S001_BLH080004_28012026_130525: Logged Data Chart



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Noise Measurement Report Form – Part A

Date: 1/27/26 Day of Week: Tuesday Time: 13:45 Project Number: 7196

Monitoring Segment / Area: 4 Monitoring Site Address: 2200 W Wilson St, Banning CA 92220

Measurement Taken By: SH of UltraSystems Environmental

Average Wind Speed: 9.7 mph [km/hr] Compass Heading (meter ⊥ to source) 343°N

Temp: 62.4 °F Relative Humidity: _____ % Compass Heading (into wind) 74E

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 68 feet

Approximate distance of sound level meter from construction site: – (Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☒ Residential ☐ Institutional ☐ Comm./Ind. ☐ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BIP080099

Meter Setting: ☒ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 13.45 Measurement End Time: 14:00

Total Measurement Time: 15 min Session File Name (e.g., S012): S006

Check the measurement purpose:

☒ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 113.8
L_{eq} (h)	Slow: 87.5 Fast:
L_{max}	Slow: 100.8 Fast:
L_{90}	Slow: 52.5 Fast:

Field Notes:

1. traffic, birds, dogs, wind
2.
3.

Noise Monitor's Signature: _____ Date: 1/27/26

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Noise Measurement Report Form – Part B

Date: 1/27/20 Day of Week: Tuesday Time: 13:45 Project Number: 7196

Monitoring Segment / Area: 4 Monitoring Site Address: 2200 W Wilson St

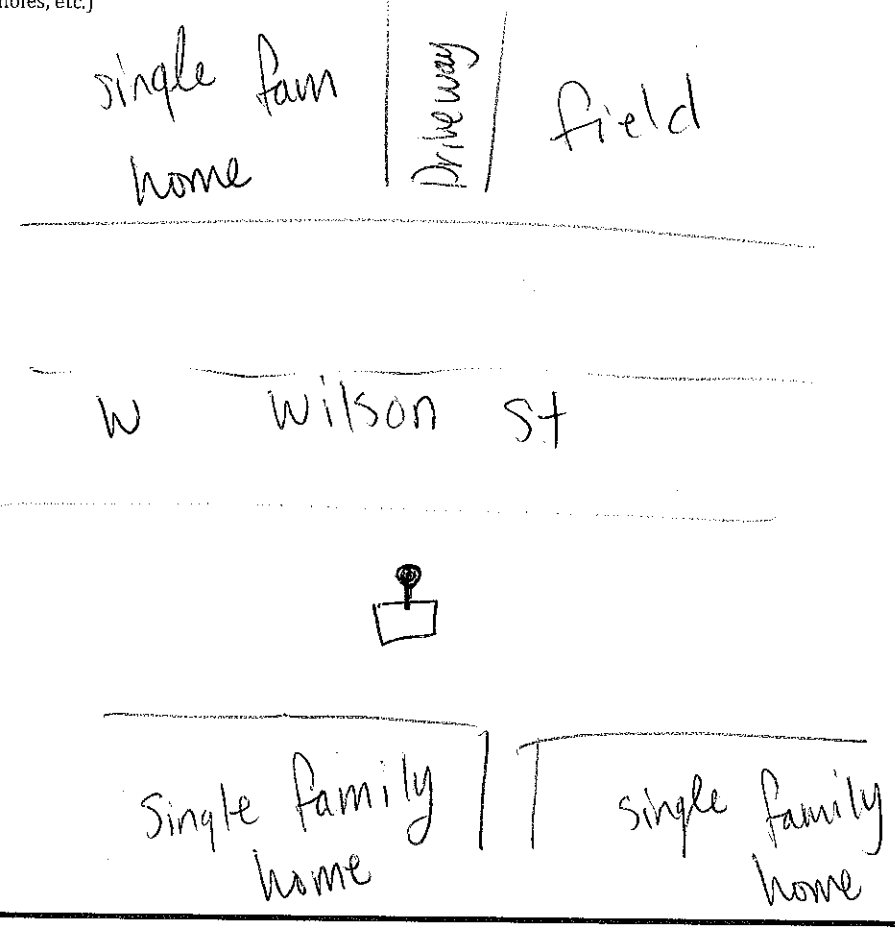
Site Map

Plan View

N

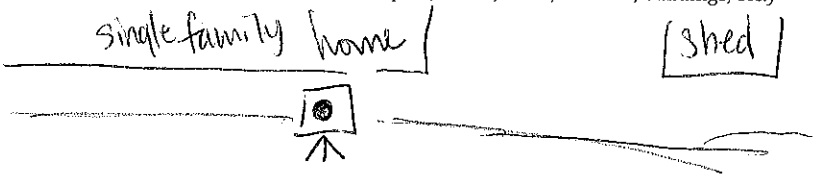
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.932426°	Longitude: -116.899219°	Elevation: 2,541 ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S006_BIP080009_28012026_125522
Start Time	1/27/2026 1:45:13 PM
Stop Time	1/27/2026 2:00:13 PM
Device Name	BIP080009
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	87.5 dB	L90	1	52.5 dB
Lmax	1	100.8 dB	Lmin	1	48.8 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	FAST			

Statistics Table

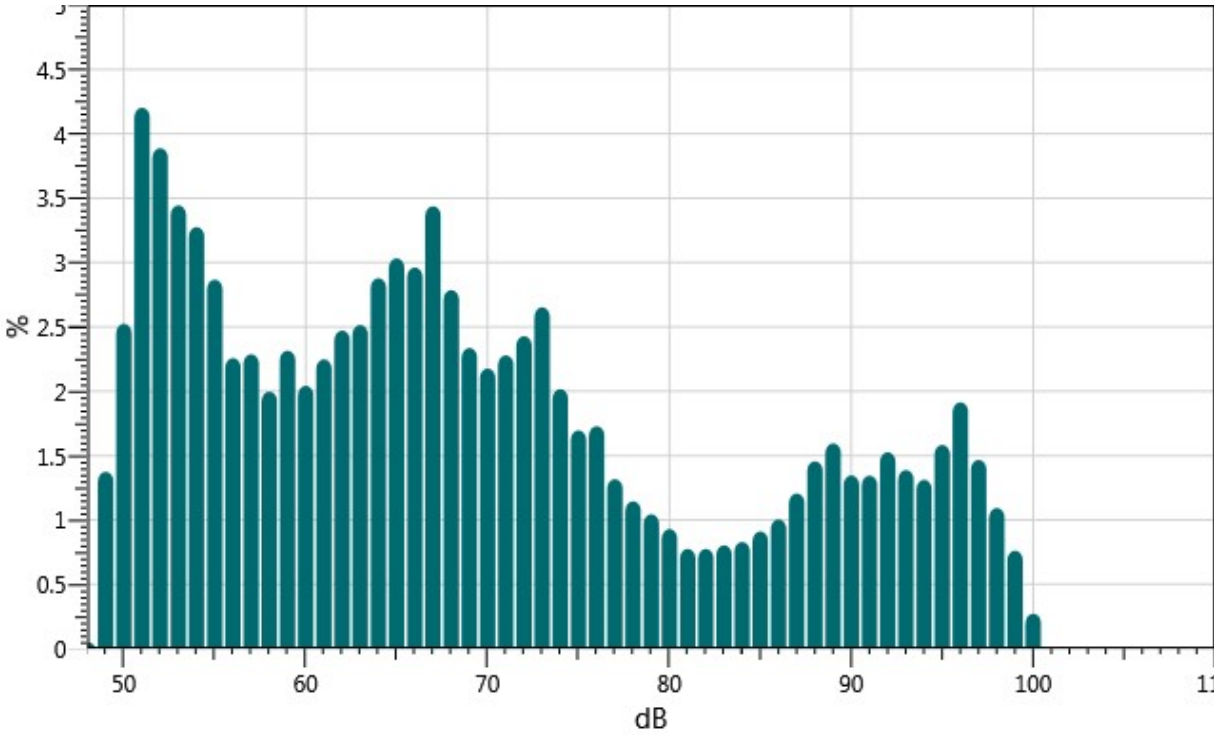
dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
48:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05
49:	0.06	0.08	0.10	0.13	0.09	0.11	0.14	0.16	0.20	0.31	1.38
50:	0.22	0.11	0.16	0.20	0.21	0.23	0.24	0.30	0.39	0.46	2.52
51:	0.37	0.44	0.64	0.56	0.56	0.38	0.24	0.29	0.40	0.31	4.20
52:	0.32	0.23	0.23	0.28	0.28	0.35	0.44	0.73	0.63	0.40	3.89
53:	0.37	0.17	0.36	0.37	0.28	0.35	0.33	0.41	0.46	0.33	3.44
54:	0.42	0.39	0.40	0.37	0.38	0.25	0.29	0.31	0.25	0.23	3.28
55:	0.27	0.26	0.26	0.29	0.30	0.31	0.30	0.30	0.27	0.30	2.87
56:	0.26	0.16	0.21	0.21	0.23	0.33	0.27	0.21	0.21	0.18	2.26
57:	0.23	0.26	0.28	0.25	0.26	0.25	0.20	0.20	0.18	0.19	2.29
58:	0.15	0.14	0.14	0.19	0.23	0.19	0.25	0.27	0.20	0.23	2.00
59:	0.25	0.16	0.23	0.23	0.22	0.23	0.22	0.29	0.26	0.23	2.32
60:	0.21	0.22	0.22	0.24	0.21	0.17	0.18	0.18	0.23	0.19	2.04

61:	0.18	0.19	0.20	0.24	0.23	0.23	0.21	0.23	0.23	0.30	2.25
62:	0.26	0.21	0.21	0.25	0.26	0.26	0.26	0.26	0.24	0.26	2.47
63:	0.24	0.28	0.26	0.26	0.23	0.23	0.24	0.23	0.26	0.28	2.52
64:	0.31	0.26	0.34	0.31	0.34	0.29	0.26	0.28	0.24	0.25	2.88
65:	0.29	0.24	0.28	0.30	0.31	0.32	0.37	0.31	0.34	0.28	3.03
66:	0.28	0.31	0.33	0.32	0.26	0.27	0.27	0.32	0.31	0.30	2.96
67:	0.27	0.30	0.33	0.47	0.34	0.32	0.37	0.38	0.33	0.34	3.44
68:	0.31	0.35	0.24	0.29	0.32	0.30	0.26	0.23	0.22	0.27	2.79
69:	0.26	0.29	0.21	0.21	0.24	0.22	0.25	0.20	0.23	0.23	2.34
70:	0.20	0.21	0.23	0.24	0.20	0.21	0.26	0.19	0.21	0.23	2.18
71:	0.22	0.24	0.16	0.25	0.26	0.28	0.23	0.22	0.21	0.21	2.28
72:	0.22	0.22	0.22	0.25	0.22	0.23	0.24	0.34	0.27	0.23	2.43
73:	0.24	0.23	0.23	0.24	0.28	0.31	0.31	0.25	0.29	0.28	2.65
74:	0.24	0.32	0.14	0.24	0.17	0.22	0.24	0.13	0.16	0.17	2.02
75:	0.18	0.16	0.17	0.16	0.17	0.19	0.16	0.16	0.18	0.15	1.70
76:	0.15	0.21	0.18	0.19	0.19	0.15	0.17	0.18	0.16	0.14	1.73
77:	0.16	0.16	0.10	0.15	0.12	0.13	0.14	0.11	0.13	0.11	1.32
78:	0.11	0.10	0.11	0.12	0.15	0.12	0.12	0.11	0.11	0.10	1.15
79:	0.10	0.11	0.12	0.10	0.11	0.09	0.10	0.10	0.10	0.11	1.05
80:	0.12	0.11	0.06	0.11	0.09	0.09	0.09	0.09	0.09	0.09	0.93
81:	0.08	0.08	0.08	0.09	0.08	0.08	0.06	0.07	0.06	0.07	0.78
82:	0.07	0.08	0.08	0.07	0.09	0.08	0.07	0.08	0.07	0.08	0.78
83:	0.09	0.09	0.07	0.09	0.08	0.08	0.08	0.07	0.08	0.08	0.80
84:	0.09	0.07	0.09	0.09	0.09	0.08	0.09	0.08	0.07	0.08	0.83
85:	0.08	0.09	0.07	0.09	0.08	0.09	0.09	0.11	0.11	0.10	0.91
86:	0.11	0.12	0.07	0.10	0.09	0.10	0.10	0.11	0.10	0.11	1.01
87:	0.10	0.12	0.10	0.12	0.11	0.13	0.14	0.12	0.15	0.12	1.21
88:	0.15	0.12	0.15	0.11	0.17	0.12	0.16	0.13	0.17	0.17	1.46
89:	0.16	0.20	0.15	0.15	0.17	0.17	0.16	0.16	0.15	0.14	1.60
90:	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.14	0.11	1.35
91:	0.15	0.12	0.14	0.13	0.14	0.12	0.14	0.13	0.14	0.15	1.35
92:	0.16	0.19	0.15	0.09	0.17	0.15	0.16	0.15	0.15	0.14	1.53
93:	0.13	0.13	0.13	0.14	0.14	0.13	0.14	0.14	0.15	0.15	1.39
94:	0.14	0.15	0.13	0.13	0.12	0.11	0.11	0.13	0.15	0.14	1.31
95:	0.14	0.15	0.17	0.11	0.14	0.15	0.18	0.19	0.16	0.18	1.58
96:	0.17	0.20	0.21	0.22	0.19	0.16	0.17	0.19	0.20	0.19	1.91
97:	0.15	0.17	0.16	0.14	0.14	0.14	0.15	0.15	0.13	0.13	1.47

98:	0.13	0.14	0.15	0.09	0.12	0.12	0.10	0.09	0.07	0.08	1.09
99:	0.06	0.05	0.07	0.08	0.09	0.11	0.09	0.07	0.07	0.06	0.76
100:	0.06	0.05	0.07	0.04	0.03	0.01	0.01	0.00	0.00	0.00	0.27

Statistics Chart

S006_BIP080009_28012026_125522: Statistics Chart

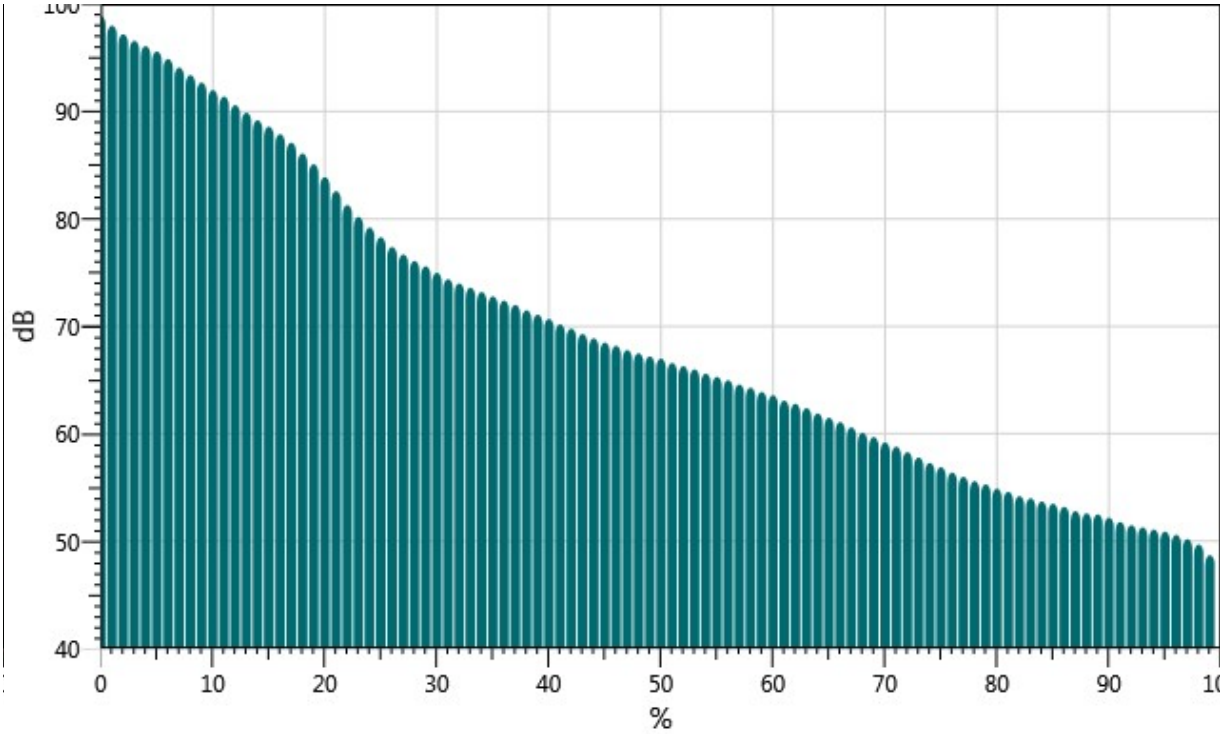


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		98.9	98.0	97.2	96.6	96.1	95.6	94.9	94.1	93.4
10%:	92.7	92.0	91.4	90.6	89.9	89.2	88.6	87.9	87.1	86.1
20%:	85.1	83.9	82.6	81.3	80.2	79.2	78.3	77.4	76.7	76.1
30%:	75.6	75.0	74.4	74.0	73.6	73.2	72.8	72.4	72.0	71.5
40%:	71.1	70.7	70.2	69.8	69.3	68.9	68.5	68.2	67.8	67.5
50%:	67.2	67.0	66.6	66.3	66.0	65.6	65.3	65.0	64.6	64.3
60%:	63.9	63.6	63.1	62.8	62.4	61.9	61.5	61.1	60.6	60.1
70%:	59.7	59.2	58.8	58.3	57.8	57.3	56.9	56.4	56.0	55.6
80%:	55.3	54.9	54.6	54.2	54.0	53.7	53.5	53.2	52.8	52.6
90%:	52.5	52.2	51.8	51.5	51.3	51.1	50.9	50.6	50.2	49.7
100%:	48.7									

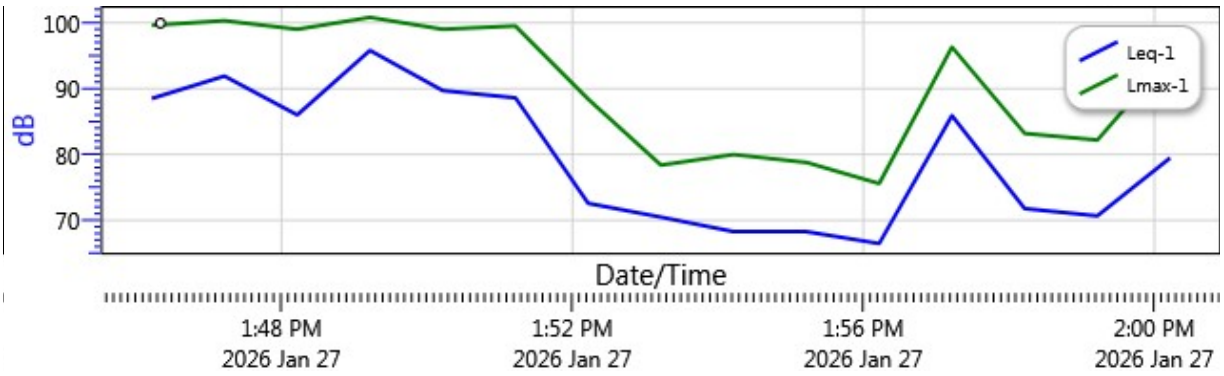
Exceedance Chart

S006_BIP080009_28012026_125522: Exceedance Chart



Logged Data Chart

S006_BIP080009_28012026_125522: Logged Data Chart



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949.788.4900

Noise Measurement Report Form – Part A

Date: 1/27/2026 Day of Week: Tuesday Time: 13:08 Project Number: 7196

Monitoring Segment / Area: 5 Monitoring Site Address: 776 Sims St, Banning CA 92220

Measurement Taken By: SH AA of UltraSystems Environmental

Average Wind Speed: 2.5 mph [km/hr] Compass Heading (meter ⊥ to source) 341 N

Temp: 69.5 °F Relative Humidity: _____ % Compass Heading (into wind) 74 E

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 14 feet

Approximate distance of sound level meter from construction site: —
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☒ Residential ☐ Institutional ☐ Comm./Ind. ☐ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BIP080009

Meter Setting: ☐ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 13:08 Measurement End Time: 13:23

Total Measurement Time: 15 min Session File Name (e.g., S012): S005

Check the measurement purpose:

☑ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: [illegible] 113.6
$L_{eq\,(h)}$	Slow: 77.2 Fast:
L_{max}	Slow: 99.2 Fast:
L_{90}	Slow: 51.0 Fast:

Field Notes:

1. traffic noise, wind, birds
2.
3.

Noise Monitor's Signature: _____ Date: 1/27/26

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Noise Measurement Report Form – Part B

Date: 1/27/26 Day of Week: Tuesday Time: 13:08 Project Number: 7196

Monitoring Segment / Area: 5 Monitoring Site Address: 776 Sims St, Banning CA 92220

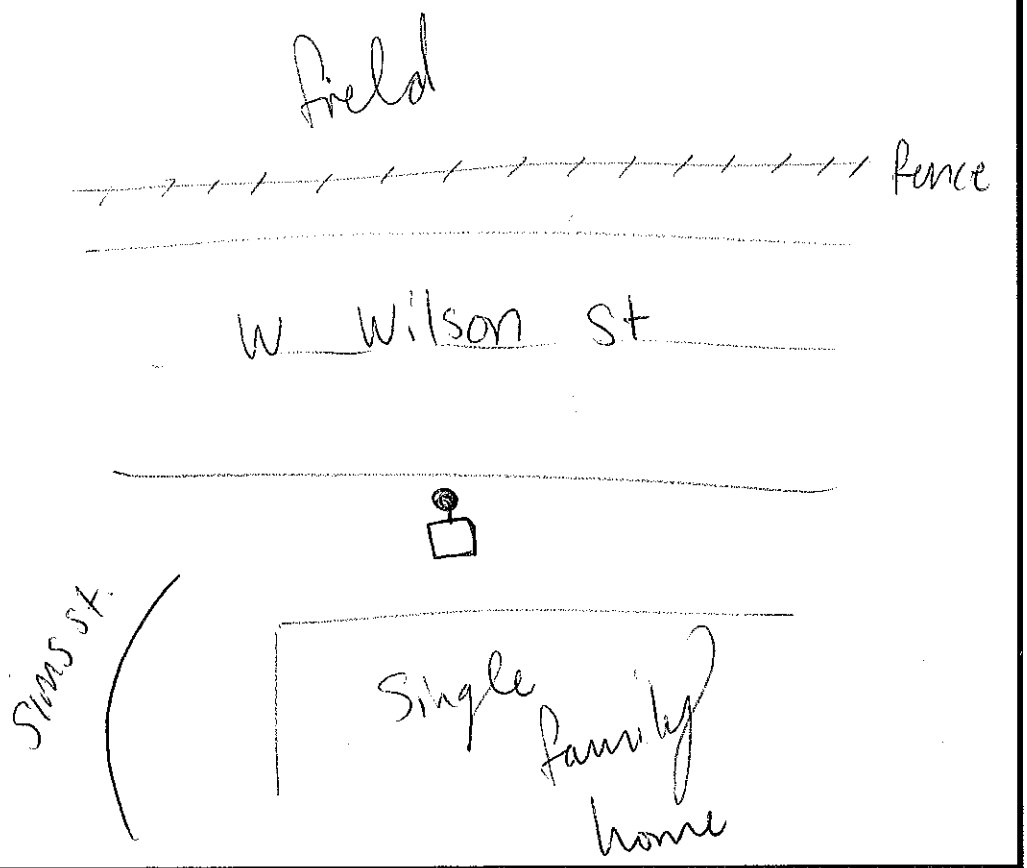
Site Map

Plan View

N

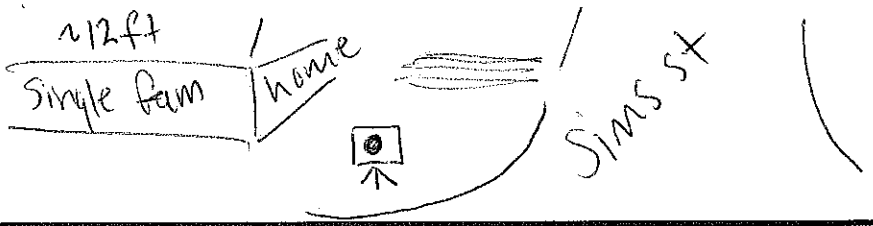
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.932454°	Longitude: -116.895984°	Elevation: 2,539 ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S005_BIP080009_28012026_125511
Start Time	1/27/2026 1:07:41 PM
Stop Time	1/27/2026 1:22:41 PM
Device Name	BIP080009
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	77.2 dB	L90	1	51 dB
Lmax	1	99.2 dB	Lmin	1	47.7 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	FAST			

Statistics Table

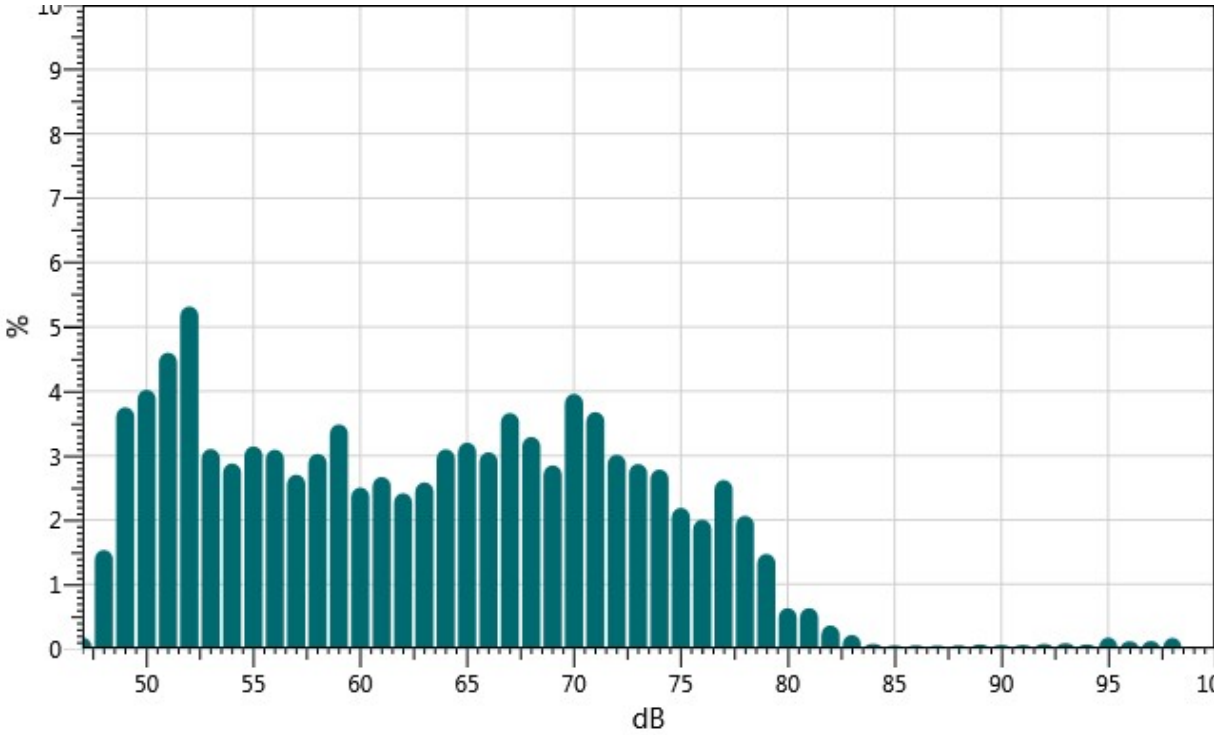
dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
47:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.18
48:	0.13	0.15	0.20	0.15	0.12	0.13	0.14	0.18	0.16	0.17	1.53
49:	0.23	0.26	0.31	0.26	0.30	0.34	0.48	0.51	0.60	0.48	3.75
50:	0.52	0.36	0.50	0.44	0.41	0.35	0.31	0.40	0.35	0.37	4.02
51:	0.47	0.41	0.39	0.45	0.53	0.42	0.49	0.56	0.44	0.45	4.60
52:	0.48	0.64	0.52	0.43	0.64	0.56	0.56	0.57	0.49	0.43	5.32
53:	0.47	0.17	0.39	0.31	0.38	0.30	0.25	0.26	0.26	0.33	3.10
54:	0.22	0.31	0.31	0.27	0.26	0.30	0.24	0.30	0.32	0.35	2.88
55:	0.32	0.31	0.27	0.30	0.39	0.32	0.33	0.27	0.28	0.35	3.14
56:	0.34	0.30	0.41	0.35	0.31	0.29	0.24	0.26	0.29	0.30	3.09
57:	0.30	0.28	0.26	0.28	0.27	0.23	0.25	0.28	0.27	0.27	2.70
58:	0.31	0.29	0.30	0.31	0.32	0.28	0.24	0.30	0.35	0.34	3.03
59:	0.34	0.27	0.37	0.42	0.38	0.38	0.36	0.32	0.33	0.33	3.49

60:	0.27	0.24	0.25	0.24	0.25	0.25	0.24	0.23	0.22	0.31	2.50
61:	0.27	0.24	0.28	0.27	0.32	0.26	0.27	0.24	0.25	0.27	2.67
62:	0.28	0.23	0.25	0.27	0.25	0.24	0.23	0.23	0.20	0.23	2.42
63:	0.24	0.20	0.22	0.23	0.24	0.24	0.29	0.28	0.31	0.34	2.59
64:	0.29	0.29	0.30	0.30	0.33	0.29	0.31	0.32	0.34	0.35	3.10
65:	0.33	0.30	0.24	0.33	0.32	0.32	0.33	0.31	0.36	0.35	3.20
66:	0.33	0.31	0.32	0.34	0.32	0.32	0.29	0.28	0.28	0.27	3.05
67:	0.29	0.31	0.34	0.35	0.40	0.38	0.39	0.40	0.39	0.42	3.66
68:	0.40	0.43	0.22	0.32	0.31	0.32	0.31	0.34	0.33	0.31	3.29
69:	0.23	0.24	0.23	0.26	0.24	0.28	0.29	0.35	0.37	0.36	2.85
70:	0.31	0.35	0.41	0.37	0.39	0.37	0.42	0.41	0.50	0.42	3.96
71:	0.43	0.40	0.26	0.45	0.42	0.41	0.41	0.29	0.31	0.31	3.68
72:	0.31	0.36	0.34	0.28	0.30	0.33	0.34	0.26	0.28	0.23	3.02
73:	0.24	0.22	0.25	0.30	0.31	0.31	0.31	0.31	0.32	0.29	2.87
74:	0.32	0.30	0.20	0.27	0.28	0.24	0.27	0.31	0.35	0.24	2.78
75:	0.22	0.23	0.19	0.25	0.26	0.22	0.24	0.19	0.19	0.20	2.19
76:	0.16	0.15	0.15	0.17	0.17	0.22	0.21	0.25	0.29	0.24	2.01
77:	0.28	0.34	0.24	0.26	0.25	0.28	0.23	0.22	0.22	0.30	2.62
78:	0.30	0.27	0.24	0.24	0.20	0.16	0.19	0.16	0.13	0.18	2.07
79:	0.17	0.14	0.22	0.17	0.07	0.13	0.15	0.16	0.14	0.12	1.47
80:	0.11	0.07	0.04	0.06	0.05	0.05	0.05	0.07	0.06	0.09	0.63
81:	0.09	0.07	0.07	0.08	0.07	0.04	0.06	0.04	0.05	0.06	0.63
82:	0.06	0.04	0.04	0.05	0.03	0.03	0.02	0.02	0.04	0.03	0.36
83:	0.02	0.02	0.01	0.01	0.03	0.02	0.02	0.03	0.02	0.02	0.22
84:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
85:	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.05
86:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
87:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.05
88:	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.05
89:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
90:	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.06
91:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
92:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
93:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
94:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
95:	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.02	0.01	0.18
96:	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.12

97:	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.12
98:	0.01	0.02	0.01	0.00	0.01	0.02	0.03	0.02	0.03	0.02	0.17
99:	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Statistics Chart

S005_BIP080009_28012026_125511: Statistics Chart

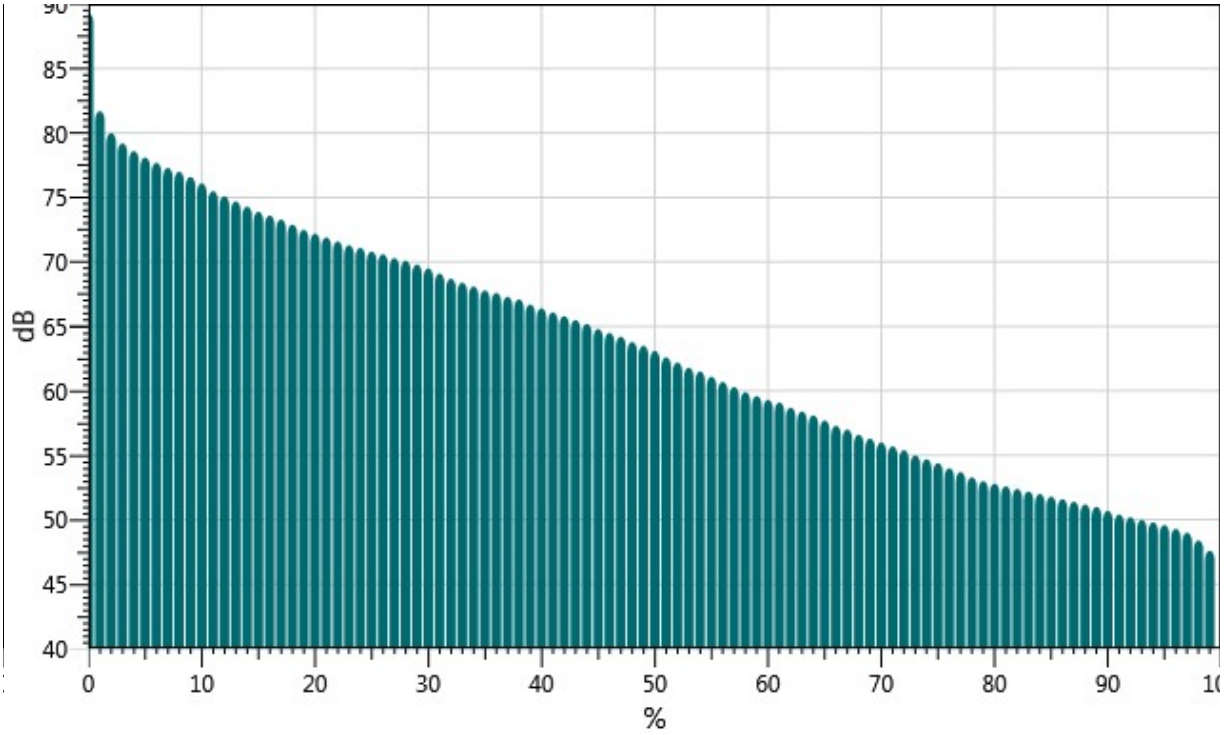


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		89.3	81.7	80.0	79.2	78.6	78.1	77.7	77.3	77.0
10%:	76.6	76.1	75.5	75.1	74.7	74.3	73.9	73.6	73.3	72.9
20%:	72.5	72.2	71.9	71.6	71.3	71.1	70.8	70.6	70.3	70.1
30%:	69.8	69.5	69.1	68.7	68.4	68.1	67.8	67.6	67.3	67.1
40%:	66.7	66.4	66.1	65.8	65.5	65.2	64.8	64.5	64.2	63.8
50%:	63.5	63.1	62.6	62.2	61.8	61.5	61.1	60.7	60.3	59.9
60%:	59.6	59.3	59.1	58.7	58.4	58.1	57.7	57.3	57.0	56.6
70%:	56.3	56.0	55.7	55.4	55.0	54.7	54.4	54.0	53.7	53.3
80%:	53.0	52.8	52.6	52.4	52.2	52.0	51.8	51.6	51.4	51.2
90%:	51.0	50.7	50.4	50.2	50.0	49.8	49.6	49.3	49.0	48.4
100%:	47.6									

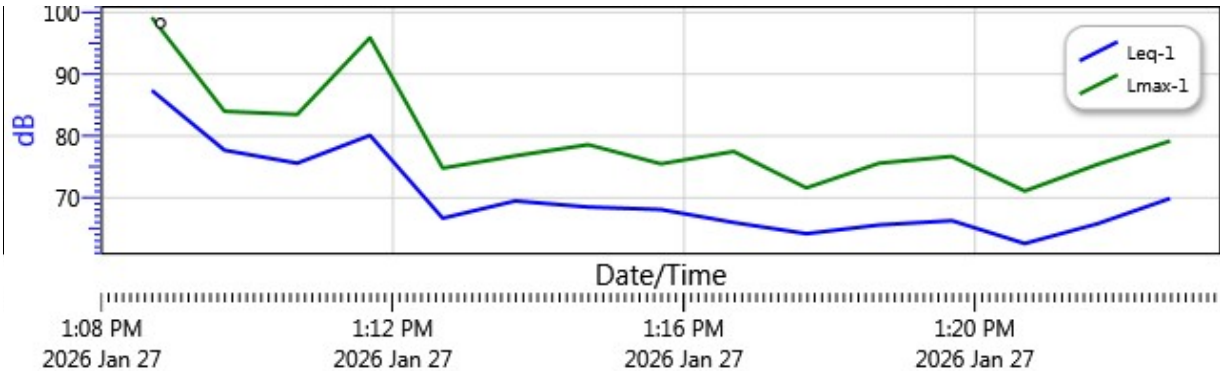
Exceedance Chart

S005_BIP080009_28012026_125511: Exceedance Chart



Logged Data Chart

S005_BIP080009_28012026_125511: Logged Data Chart



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Noise Measurement Report Form – Part A

Date: 1/27/16 Day of Week: Tuesday Time: ~~11:40~~ 11:42 Project Number: 7196

Monitoring Segment / Area: 6 Monitoring Site Address: 629 Paseo De1 Sol Banning CA 92220

Measurement Taken By: SH AA of UltraSystems Environmental

Average Wind Speed: 3 (mph) [km/hr] Compass Heading (meter ⊥ to source) 59°NE

Temp: 64.5 °F Relative Humidity: 18.8 % Compass Heading (into wind) 154SE

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 60 feet

Approximate distance of sound level meter from construction site: —
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☒ Residential ☐ Institutional ☐ Comm./Ind. ☒ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BEP080009

Meter Setting: ☒ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 11:42 Measurement End Time: 11:57

Total Measurement Time: 15 min Session File Name (e.g., S012): S002

Check the measurement purpose:

☒ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 113.8
$L_{eq\ (h)}$	Slow: 64.0 Fast:
L_{max}	Slow: 90.6 Fast:
L_{90}	Slow: 47.9 Fast:

Field Notes:

1. Birds, wind, some hammering in distance
2.
3.

Noise Monitor's Signature: _____ Date: 1/27/16

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Noise Measurement Report Form – Part B

Date: 1/27/2026 Day of Week: Tuesday Time: 11:42 Project Number: 7196 Gilman

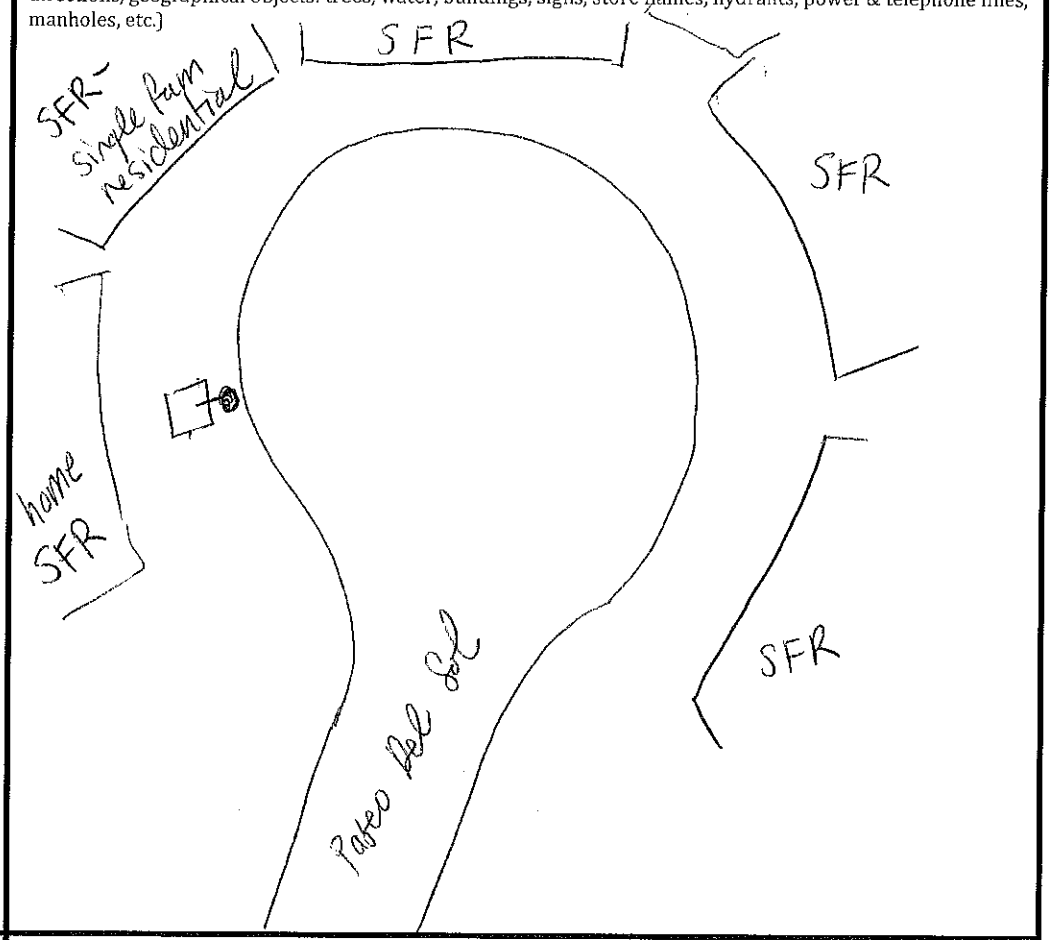
Monitoring Segment / Area: 6 Monitoring Site Address: 1029 Paseo Del Sol, Banning CA, 92220

Site Map

Plan View

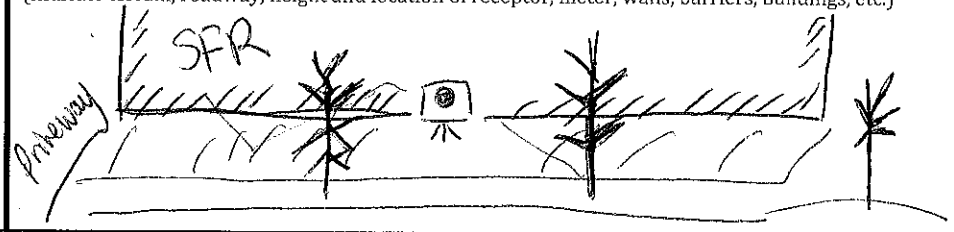
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.934614°	Longitude: -116.893877°	Elevation: 2,564 ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S002_BIP080009_28012026_125432
Start Time	1/27/2026 11:41:44 AM
Stop Time	1/27/2026 11:56:44 AM
Device Name	BIP080009
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	64 dB	L90	1	47.9 dB
Lmax	1	90.6 dB	Lmin	1	47.1 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	FAST			

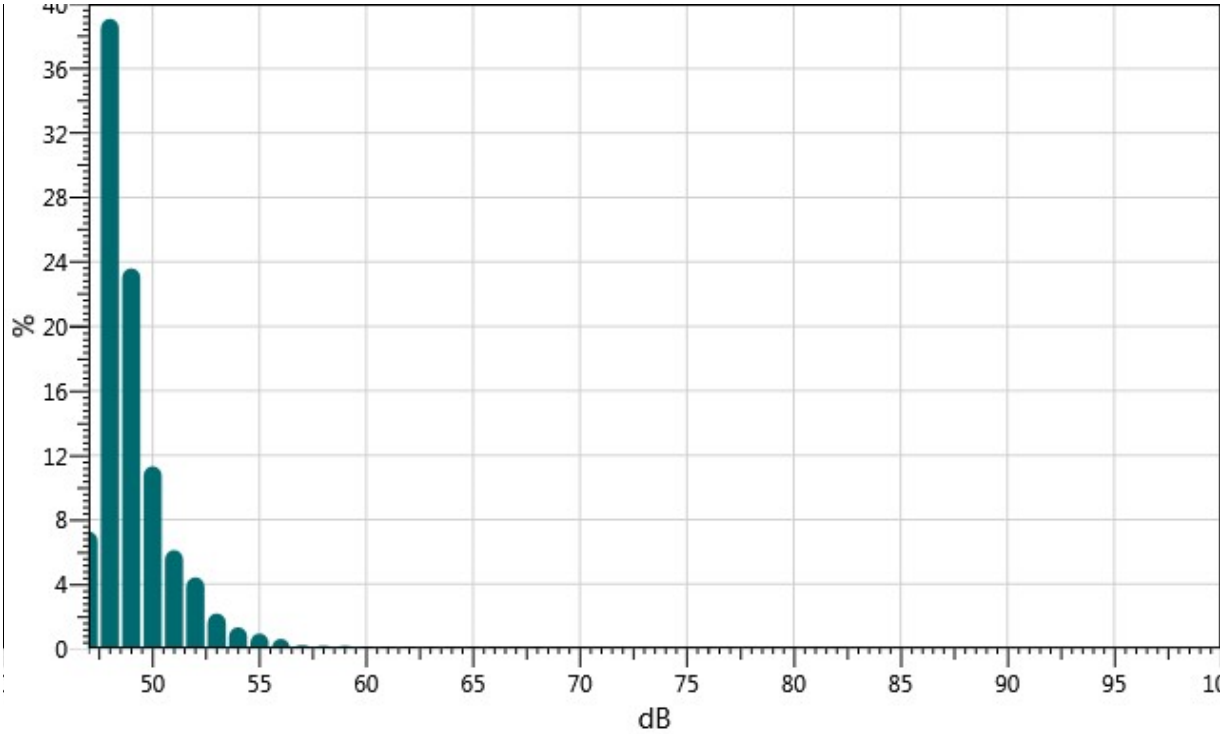
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
47:	0.00	0.01	0.03	0.06	0.12	0.29	0.59	1.20	2.04	2.93	7.27
48:	3.44	3.81	3.48	3.66	4.14	4.35	4.38	4.19	3.77	3.86	39.09
49:	3.53	3.55	2.76	2.43	2.11	2.08	1.91	1.64	1.77	1.83	23.60
50:	1.64	0.92	1.22	1.29	1.22	1.11	1.07	1.03	0.97	0.84	11.31
51:	0.80	0.84	0.68	0.59	0.56	0.51	0.52	0.49	0.55	0.58	6.12
52:	0.46	0.42	0.50	0.46	0.46	0.53	0.44	0.43	0.38	0.35	4.42
53:	0.36	0.13	0.27	0.32	0.25	0.23	0.17	0.16	0.15	0.15	2.19
54:	0.15	0.17	0.16	0.16	0.13	0.11	0.13	0.10	0.09	0.11	1.33
55:	0.13	0.10	0.11	0.12	0.08	0.07	0.10	0.07	0.09	0.08	0.94
56:	0.09	0.06	0.06	0.06	0.07	0.05	0.07	0.07	0.05	0.04	0.61
57:	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.22
58:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.19
59:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.18

60:	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.14
61:	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.13
62:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
63:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
64:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
65:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
66:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
67:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
68:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
69:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
70:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
71:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
72:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
73:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
74:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
75:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
76:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
77:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
78:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
79:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
80:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
81:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
82:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
83:	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.05
84:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
85:	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.05
86:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
87:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
88:	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03
89:	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.03
90:	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02

Statistics Chart

S002_BIP080009_28012026_125432: Statistics Chart

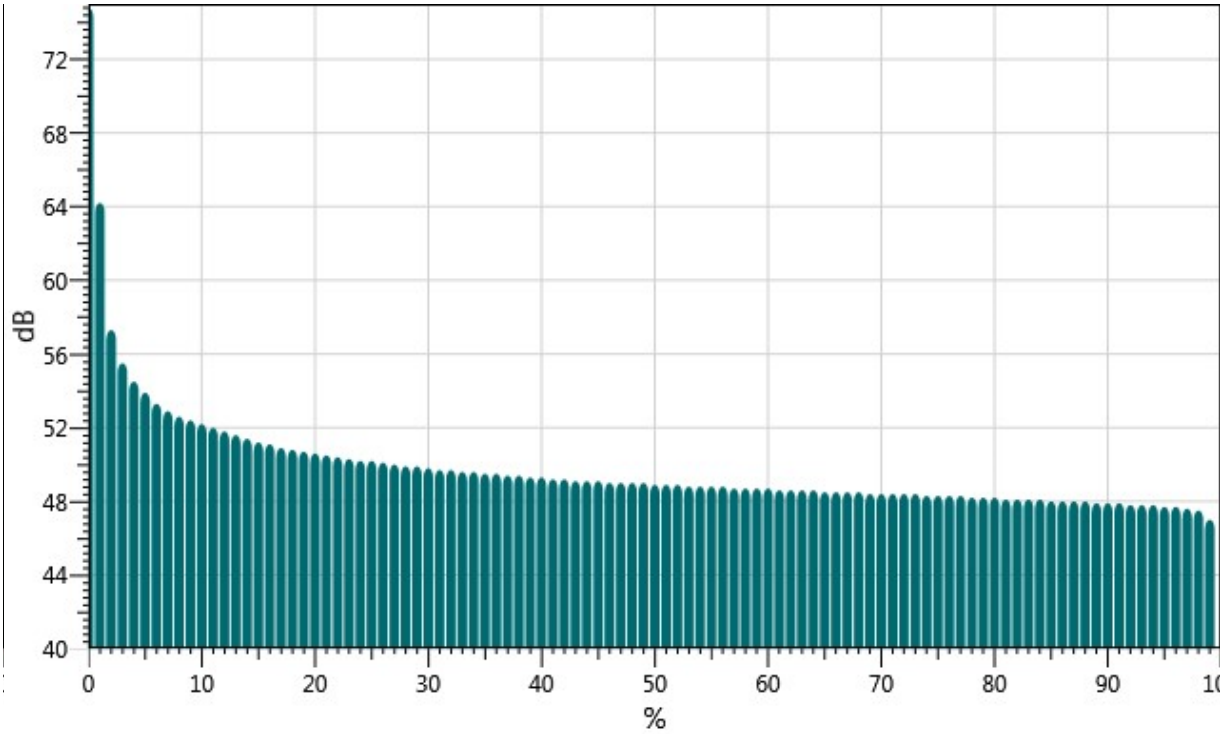


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		74.8	64.2	57.3	55.5	54.5	53.9	53.3	52.9	52.6
10%:	52.4	52.2	52.0	51.8	51.6	51.4	51.2	51.1	50.9	50.8
20%:	50.7	50.6	50.5	50.4	50.3	50.2	50.2	50.1	50.0	49.9
30%:	49.9	49.8	49.7	49.7	49.6	49.6	49.5	49.5	49.4	49.4
40%:	49.3	49.3	49.2	49.2	49.1	49.1	49.1	49.0	49.0	49.0
50%:	49.0	48.9	48.9	48.9	48.8	48.8	48.8	48.8	48.7	48.7
60%:	48.7	48.7	48.6	48.6	48.6	48.6	48.5	48.5	48.5	48.5
70%:	48.4	48.4	48.4	48.4	48.4	48.3	48.3	48.3	48.3	48.2
80%:	48.2	48.2	48.1	48.1	48.1	48.1	48.0	48.0	48.0	48.0
90%:	47.9	47.9	47.9	47.8	47.8	47.8	47.7	47.7	47.6	47.5
100%:	47.0									

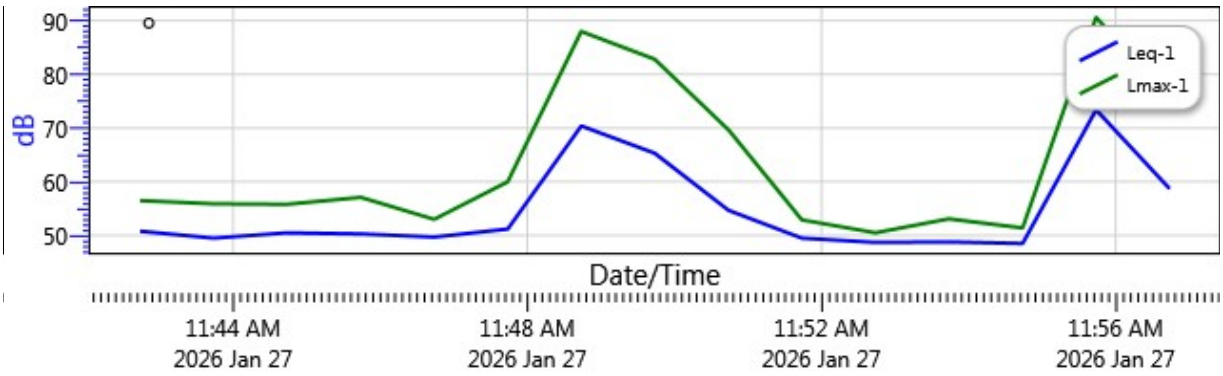
Exceedance Chart

S002_BIP080009_28012026_125432: Exceedance Chart



Logged Data Chart

S002_BIP080009_28012026_125432: Logged Data Chart



UltraSystems
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16431 Scientific Way
Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part A

Date: 1/27/2026 Day of Week: Tuesday Time: 12:10 Project Number: 7196 Gilman

Monitoring Segment / Area: 7 Monitoring Site Address: ~~177~~ 1575 W Wilson St, Banning CA 92220

Measurement Taken By: AA SH of UltraSystems Environmental

Average Wind Speed: 5.1 mph [km/hr] Compass Heading (meter ⊥ to source) 206 SW

Temp: 63.6 °F Relative Humidity: 18.5 % Compass Heading (into wind) 68E

Cloud Cover Class (1 = heavy overcast, 2 = lightly overcast, 3 = sunny) 3

Approximate distance of sound level meter from receptor location: 46 feet

Approximate distance of sound level meter from construction site: –
(Leave Blank for Baseline Ambient)

Receptor Land Use (Check One): ☒ Residential ☐ Institutional ☐ Comm./Ind. ☐ Recreational

Sound Level Meter: Make and Model: Quest SoundPro DL-1-1/3 Serial Number: BEP080009

Meter Setting: ☒ A-Weighted Sound Level (SLOW) ☐ A-Weighted Sound Level (FAST)

Measurement Start Time: 12:10 Measurement End Time: 12:25

Total Measurement Time: 15 min Session File Name (e.g., S012): S003

Check the measurement purpose:

☒ Baseline condition ☐ Ongoing construction ☐ Caltrans ☐ Complaint response

Measurement Results

Measurement Type	Measured Levels (dB)
Calibration	Pre: 114.0 Post: 113.6
$L_{eq\ (h)}$	Slow: 81.5 Fast:
L_{max}	Slow: 101.8 Fast:
L_{90}	Slow: 52.0 Fast:

Field Notes:

1. Street cars, driving, birds, wind, traffic noise along Wilson St
2.
3.

Noise Monitor's Signature: [signature] Date: 1/27/26

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16431 Scientific Way
Irvine, CA 92618
949.788.4900

Noise Measurement Report Form – Part B

Date: 1/27/26 Day of Week: Tuesday Time: 12:10 Project Number: 7196

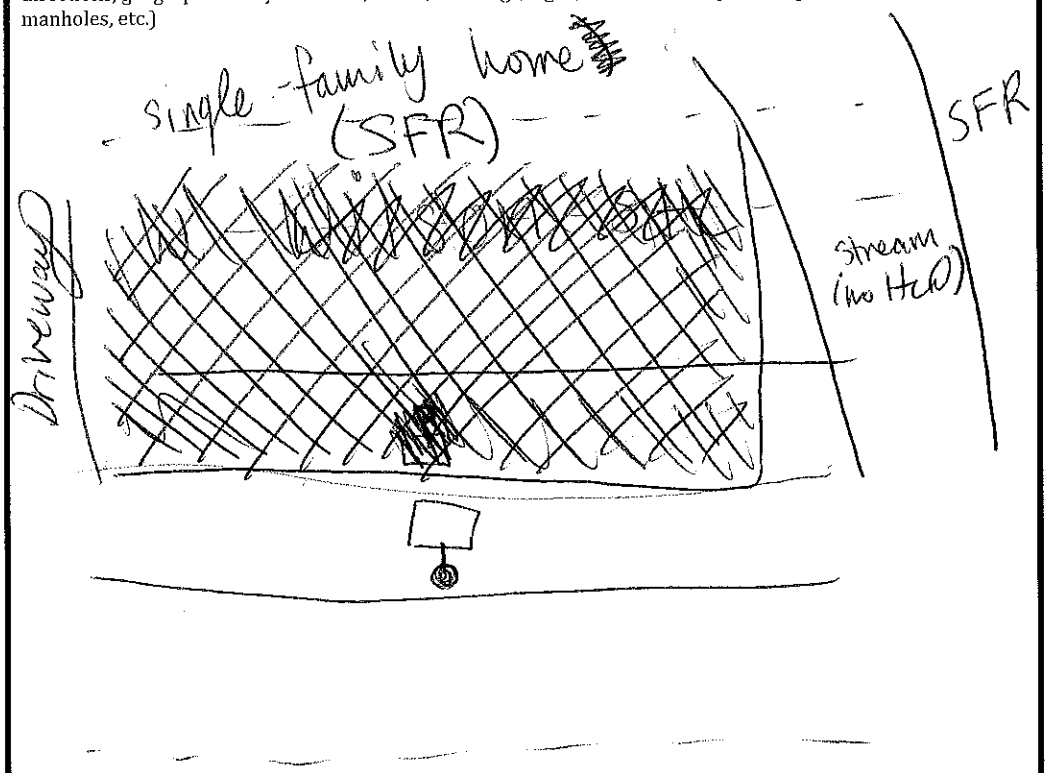
Monitoring Segment / Area: 7 Monitoring Site Address: 1575 W Wilson St, Banning, CA 92220

Site Map

Plan View

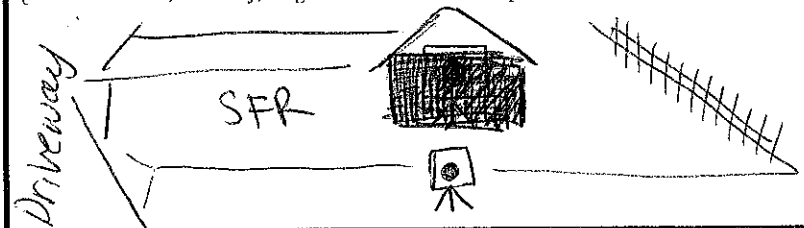
North Arrow (fill-in)

(Indicate site location, receptor location, meter location, distance in feet to landmarks, roadways, travel lane directions, geographical objects: trees, water, buildings, signs, store names, hydrants, power & telephone lines, manholes, etc.)



Elevation View

(Indicate terrain, roadway, height and location of receptor, meter, walls, barriers, buildings, etc.)



Latitude: 33.9326450	Longitude: -116.8936990	Elevation: 2,526ft

Noise Monitor's Signature: _____ Date: 1/27/26

Session Report

1/28/2026

Information Panel

Name	S003_BIP080009_28012026_125445
Start Time	1/27/2026 12:10:00 PM
Stop Time	1/27/2026 12:25:00 PM
Device Name	BIP080009
Model Type	SoundPro DL
Device Firmware Rev	R.13J
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	81.5 dB	L90	1	52 dB
Lmax	1	101.8 dB	Lmin	1	48.4 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	FAST			

Statistics Table

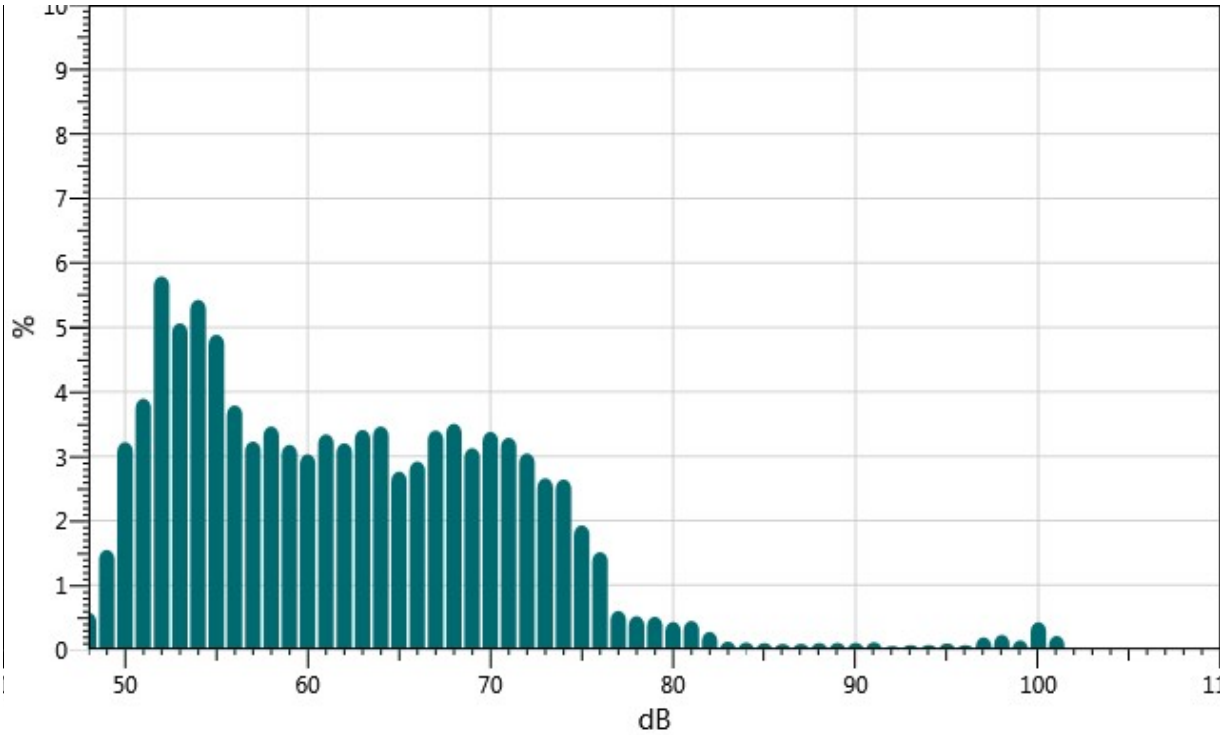
dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
48:	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.09	0.21	0.23	0.57
49:	0.36	0.26	0.16	0.12	0.06	0.15	0.11	0.05	0.09	0.17	1.55
50:	0.16	0.17	0.32	0.26	0.29	0.45	0.44	0.32	0.42	0.40	3.22
51:	0.40	0.36	0.35	0.44	0.40	0.38	0.38	0.37	0.41	0.40	3.89
52:	0.48	0.51	0.61	0.64	0.57	0.45	0.51	0.69	0.59	0.74	5.79
53:	0.51	0.21	0.45	0.48	0.55	0.55	0.56	0.50	0.59	0.65	5.06
54:	0.55	0.55	0.56	0.47	0.46	0.45	0.68	0.59	0.53	0.60	5.43
55:	0.53	0.51	0.40	0.40	0.46	0.41	0.58	0.50	0.60	0.51	4.89
56:	0.43	0.35	0.39	0.36	0.37	0.34	0.37	0.41	0.38	0.38	3.79
57:	0.32	0.33	0.31	0.38	0.30	0.32	0.32	0.30	0.29	0.36	3.23
58:	0.37	0.34	0.36	0.38	0.34	0.33	0.35	0.30	0.34	0.35	3.46
59:	0.35	0.27	0.37	0.33	0.33	0.32	0.31	0.26	0.29	0.33	3.18
60:	0.35	0.33	0.32	0.30	0.33	0.27	0.29	0.26	0.27	0.31	3.03

61:	0.29	0.30	0.30	0.39	0.35	0.31	0.32	0.30	0.37	0.41	3.34
62:	0.35	0.26	0.30	0.28	0.29	0.36	0.38	0.32	0.33	0.33	3.20
63:	0.38	0.35	0.37	0.31	0.35	0.32	0.36	0.33	0.30	0.34	3.41
64:	0.36	0.34	0.34	0.44	0.37	0.36	0.32	0.31	0.31	0.31	3.46
65:	0.31	0.30	0.23	0.28	0.29	0.28	0.27	0.29	0.25	0.26	2.76
66:	0.29	0.30	0.32	0.24	0.26	0.25	0.32	0.31	0.31	0.31	2.92
67:	0.33	0.34	0.34	0.33	0.34	0.30	0.34	0.34	0.39	0.34	3.40
68:	0.35	0.45	0.30	0.31	0.30	0.34	0.33	0.35	0.41	0.37	3.51
69:	0.33	0.31	0.28	0.28	0.31	0.33	0.31	0.31	0.35	0.32	3.13
70:	0.35	0.30	0.31	0.36	0.31	0.31	0.37	0.36	0.38	0.33	3.38
71:	0.37	0.36	0.25	0.32	0.31	0.35	0.38	0.32	0.31	0.31	3.29
72:	0.28	0.32	0.33	0.34	0.31	0.33	0.30	0.28	0.29	0.27	3.05
73:	0.24	0.23	0.27	0.28	0.28	0.29	0.24	0.32	0.25	0.26	2.66
74:	0.28	0.28	0.19	0.29	0.39	0.30	0.24	0.20	0.24	0.24	2.64
75:	0.19	0.21	0.23	0.23	0.16	0.19	0.19	0.18	0.18	0.16	1.93
76:	0.17	0.15	0.19	0.14	0.12	0.15	0.17	0.17	0.15	0.11	1.51
77:	0.10	0.05	0.05	0.05	0.06	0.08	0.04	0.05	0.06	0.05	0.60
78:	0.03	0.04	0.06	0.05	0.06	0.06	0.07	0.07	0.04	0.04	0.52
79:	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.06	0.07	0.51
80:	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.06	0.43
81:	0.06	0.05	0.04	0.05	0.06	0.05	0.04	0.03	0.05	0.03	0.45
82:	0.03	0.03	0.03	0.04	0.03	0.02	0.03	0.03	0.01	0.02	0.28
83:	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.13
84:	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.11
85:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
86:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
87:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
88:	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.10
89:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
90:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11
91:	0.02	0.01	0.02	0.01	0.02	0.02	0.01	0.00	0.01	0.01	0.11
92:	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.06
93:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
94:	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.07
95:	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
96:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.07
97:	0.00	0.01	0.01	0.02	0.02	0.03	0.02	0.02	0.03	0.01	0.19

98:	0.02	0.02	0.02	0.03	0.03	0.02	0.01	0.03	0.03	0.03	0.23
99:	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.15
100:	0.03	0.03	0.04	0.03	0.03	0.05	0.05	0.06	0.05	0.06	0.43
101:	0.06	0.05	0.05	0.03	0.01	0.01	0.01	0.01	0.00	0.00	0.21

Statistics Chart

S003_BIP080009_28012026_125445: Statistics Chart

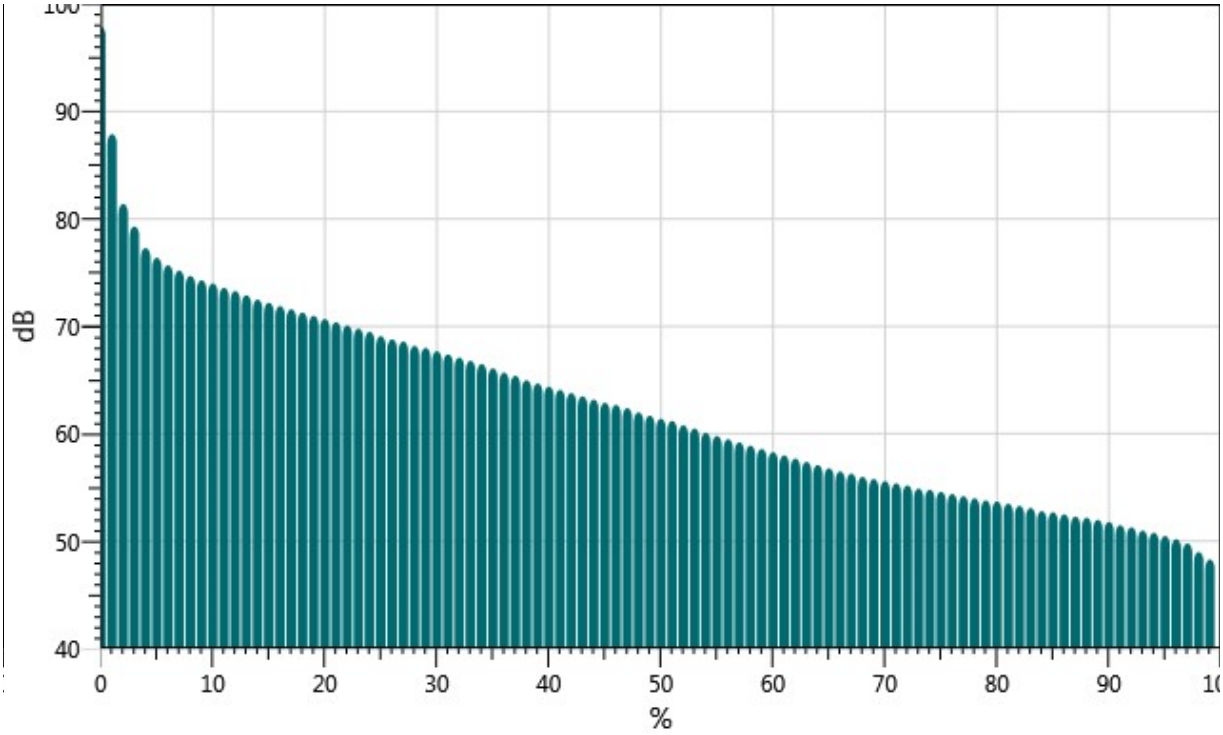


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		97.9	87.9	81.4	79.3	77.3	76.4	75.7	75.2	74.7
10%:	74.3	74.0	73.6	73.3	72.9	72.5	72.2	71.9	71.6	71.3
20%:	71.0	70.7	70.4	70.1	69.8	69.5	69.1	68.8	68.6	68.2
30%:	68.0	67.7	67.4	67.1	66.8	66.5	66.1	65.7	65.4	65.0
40%:	64.7	64.4	64.1	63.8	63.5	63.2	62.9	62.7	62.4	62.0
50%:	61.7	61.4	61.2	60.8	60.5	60.1	59.8	59.5	59.2	58.9
60%:	58.6	58.3	58.0	57.7	57.4	57.1	56.8	56.5	56.3	56.0
70%:	55.8	55.6	55.4	55.2	54.9	54.8	54.6	54.4	54.2	54.0
80%:	53.8	53.7	53.5	53.3	53.1	52.8	52.7	52.5	52.3	52.2
90%:	52.0	51.8	51.5	51.3	51.0	50.8	50.5	50.2	49.8	49.0
100%:	48.3									

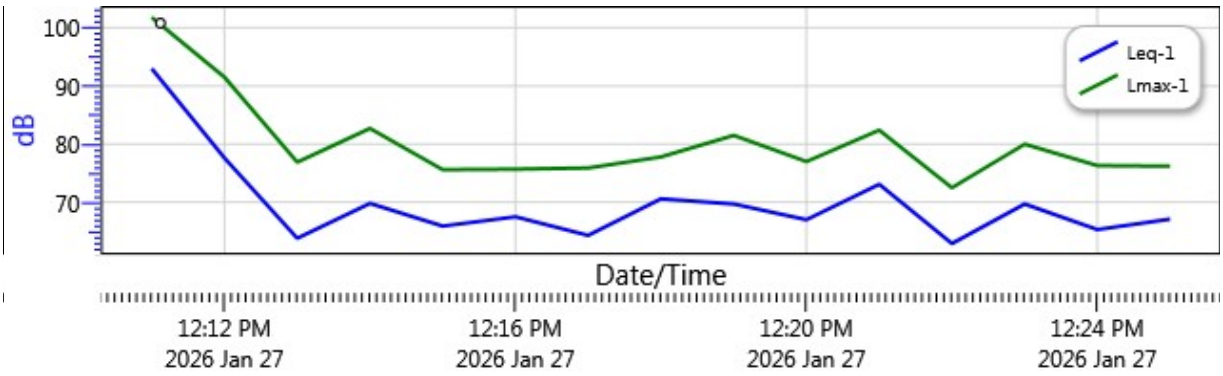
Exceedance Chart

S003_BIP080009_28012026_125445: Exceedance Chart



Logged Data Chart

S003_BIP080009_28012026_125445: Logged Data Chart



APPENDIX H1
VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT

OCTOBER 22, 2026

Mr. Michael Milroy
ULTRASYSTEMS ENVIRONMENTAL
16431 Scientific Way
Irvine, CA 92618

SUBJECT: GILMAN RANCH HISTORIC PARK IMPROVEMENTS VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT, CITY OF BANNING

Dear Mr. Milroy:

INTRODUCTION

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this Vehicle Miles Traveled (VMT) Screening Assessment for the proposed Gilman Ranch Historic Park Improvements Project (hereinafter referred to as "project").

The purpose of this study is to demonstrate that the project would not require a full VMT analysis per the requirements of the *County of Riverside Transportation Analysis Guidelines for Level of Service & Vehicle Miles Traveled,* dated December 2020 (County Guidelines).

PROJECT DESCRIPTION

The proposed project is located at 1901 W. Wilson Street, on the northeast corner of W. Wilson Street and 20th Street, in the City of Banning. The site is currently developed with the Gilman Historic Ranch and Wagon Museum, as well as a ranch house, but the remainder of the approximately 42-acre site is generally undeveloped.

The project would consist of a new events center; repair and improvements to several park components including the Bradshaw interpretive trail and the Native medicinal demonstration garden; new parking lots;100-seat outdoor classroom; a stagecoach hotel (9 units); new picnic areas; several courtyards; play areas; a community park; botanical and restoration garden/orchard; landscaping and irrigation throughout the site; outdoor lighting; new ADA site access and pathways throughout the site; new restroom buildings; and decomposed granite walking paths.

It is RK's understanding that special events may be held at the event center, event courtyard, and/or ceremony space approximately once a month, on any day of the week. All events at the event center are assumed to conclude by 10 PM. All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.

Exhibit A shows an aerial location map of the project site. **Exhibit B** shows the project's proposed site plan.

PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development. Typically, trip generation rates from the latest Institute of Transportation Engineers (ITE) Trip Generation Manual (12th Edition, 2025) are used when calculating a proposed project's trip generation forecast. This publication provides a comprehensive evaluation of trip generation rates for a variety of land uses.

It should be noted that trip generation for VMT screening is based on typical weekday conditions since the screening analysis is intended to evaluate routine project travel using a consistent screening metric. Due to the infrequency of the special events, this VMT assessment instead focuses on typical weekday uses, which are assumed to include the park, the stagecoach hotel, and the 100-seat outdoor classroom.

As such, ITE Land Use 411: Public Park and ITE Land Use 416: Campground/Recreational Vehicle Park trip rates are the most appropriate for the park and stagecoach hotel, respectively. It should be noted that the ITE Land Use 411 also encompasses trips associated with the park's passive and active park amenities, such as picnic areas, playgrounds, walking trails, etc.

Although the ITE Trip Generation Manual includes trip rates for schools, those rates are not directly applicable to the proposed 100-seat outdoor classroom. Because the facility is expected to serve students arriving by bus for scheduled field trips, its travel demand will differ from that of a typical school use. As such, the trip generation for the outdoor classroom is calculated based on its anticipated operations.

Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom. All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. A 1.5 Passenger Car Equivalent (PCE) factor has been applied to the number of school buses.

It should also be noted that no existing trip credit has been applied to the trip generation because the Existing Gilman Historic Ranch and Wagon Museum will continue to be in operation with the development of the Project.

Table 1 shows the appropriate ITE trip generation rates and the forecasted project trip generation.

Table 1 | Project Trip Generation Rates & Forecast[1]

Land Use (ITE Code)	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
ITE Trip Generation Rates[1]									
Campground/Recreational Vehicle Park (416)	--	Campsites	27%	73%	0.07	54%	46%	0.09	1.04
Public Park (411)[2]	--	Acres	62%	38%	0.05	57%	43%	0.15	0.78
Proposed Project Trip Generation Forecast									
Stagecoach Hotel (416)	9	Campsites	0	1	1	1	0	1	9
Public Park (411)	42	Acres	1	1	2	3	3	6	33
Outdoor Classroom[3]	100	Students	--	--	--	--	--	--	--
	Actual Trips		2	2	4	2	2	4	8
	PCE Adjusted[4]		3	3	6	3	3	6	12
	7	Workers	7	0	7	0	7	7	14
	Sub-Total		10	3	13	3	10	13	26
Total Typical Weekday Trip Generation Forecasts (Actual Vehicles)			**10**	**4**	**14**	**6**	**12**	**18**	**64**
Total Typical Weekday Trip Generation Forecasts (W/ PCE Adj.)			**11**	**5**	**16**	**7**	**13**	**20**	**68**

[1] *Source*: ITE Trip Generation Manual (12th Edition, 2025).

[2] Per the ITE Trip Generation Manual (12th Edition, 2025), ITE Trip Generation Land Use 411: Public Park encompasses passive and active park amenities (e.g., horseshoe pits, picnic areas, etc.)

[3] Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom.

[4] All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. A 1.5 Passenger Car Equivalent (PCE) factor has been applied to the number of school buses.

As shown in Table 1, based on the ITE trip generation rates and considerations of typical weekday conditions only, the proposed project is forecast to generate approximately 64 actual daily trips, which include approximately 14 actual AM peak hour trips and 18 actual PM peak hour trips.

VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT

The *County Guidelines* provides recommendations in the form of thresholds of significance and methodologies for identifying VMT related impacts. The proposed project is subject to a VMT screening analysis and will adhere to the recommendations and practices described in the City's guidelines.

The County of Riverside has developed six (6) types of screening criteria that can be applied to effectively screen projects from project-level assessment.

Table 2 identifies these criteria and summarizes the results of the VMT screening assessment, as further discussed below.

Table 2 | VMT Screening Assessment Summary

VMT Screening Criteria	Project Assessment
Project Type	**Satisfied**
Projects Near High Quality Transit	Does Not Satisfy
Local Serving Retail	Does Not Satisfy
Affordable Housing	Does Not Satisfy
Local Essential Service	**Satisfied**
Map Based Screening	Does Not Satisfy

Small Projects

The following project types may be presumed to have a less than significant impact on VMT:

- Single Family Housing projects less than or equal to 110 Dwelling Units; or
- Multi Family (low rise) Housing projects less than or equal to 147 Dwelling Units; or
- Multi Family (mid-rise) Housing projects less than or equal to 194 Dwelling Units; or
- General Office Building with area less than or equal to 165,000 SF; or
- Retail buildings with area less than or equal to 60,000 SF; or
- Warehouse (unrefrigerated) buildings with area less than or equal to 208,000 SF; or
- General Light Industrial buildings with area less than or equal to 179,000 SF
- Project GHG emissions less than 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO2e) as determined by a methodology acceptable to the Transportation Department; or
- Unless specified above, project trip generation is less than 110 trips per day per the ITE Manual or other acceptable source determined by Riverside County.

As previously shown in Table 1, the project is forecast to generate less than 110 daily trips (i.e., 64 actual daily trips) and therefore meets the small projects screening criteria.

Furthermore, based on the results of the greenhouse gas analysis conducted for the Initial Study, (UltraSystems, 2026) the project's annual greenhouse gas emissions were forecasted to be **670.61 $MTCO_2e$**, which does not exceed the 3,000 $MTCO_2e$ per year screening level thresholds. Relevant excerpts from the draft initial study are included in **Appendix A.**

As such, the project meets the small project screening criteria and may be presumed to have a less than significant impact on VMT. Therefore, full VMT analysis is not required

Projects Near High Quality Transit

Projects that are located within a ½ mile of an existing major transit stop and maintains a service interval frequency of 15 minutes or less during the morning and afternoon peak commute periods may be presumed to have a less than significant impact on VMT.

The project is not located within a ½ mile of an existing major transit stop and therefore does not meet the *Projects Near High Quality Transit* screening criteria.

Local Serving Retail

Local serving retail projects that are less than 50,000 square feet may be presumed to have a less than significant impact on VMT. Since this project is not a retail land use, this screening criteria is not applicable to the project.

Affordable Housing

Affordable housing projects may be presumed to have a less than significant impact on VMT. Since this project does not consist of any affordable housing, this screening criteria is not applicable to the project.

Local Essential Service

The following project types may be presumed to have a less than significant impact on VMT:

- Project is local-serving as determined by the Transportation Department
- Local-serving and Day care center
- Police or Fire facility
- Medical/Dental office building under 50,000 square feet
- Government offices (in-person services such as post office, library, and utilities)
- Local or Community Parks

The project satisfies the local essential service screening criteria because the project is a community park.

As such, the project may be presumed to have a less than significant impact on VMT and a full VMT analysis is not required

Map Based Screening

Residential and office projects located within an area of development that is under the threshold of significant as shown on a screening map may be presumed to have a less than significant impact on VMT. Since this project is not a residential or office land use, this screening criteria is not applicable to the project.

CONCLUSIONS

RK Engineering Group, Inc. has completed this Vehicle Miles Traveled (VMT) Screening Assessment for the proposed Gilman Ranch Historic Park Improvements Project

Since the proposed project generates less than 110 daily trips (i.e., 64 daily trips), less than 3,000 1MTCO$_2$e (i.e., 670.62 MTCO$_2$e), and is considered a local essential service (i.e., community park), the project is screened out from a full VMT analysis based on the small projects and local essential service screening criteria.

As such, the Project may be presumed to have a less than significant impact on VMT under CEQA Therefore, no additional VMT analysis is required.

RK Engineering Group, Inc. appreciates this opportunity to work with ULTRASYSTEMS ENVIRONMENTAL on the Gilman Ranch Historic Park Improvements Project. If you have any questions regarding this review, or need further clarification, please contact us at (949) 474-0809.

Sincerely,
RK ENGINEERING GROUP, INC.

Justin Tucker, P.E., T.E.
Principal

Attachments



Nhi Ly, T.E.
Engineer IV

Exhibits



Legend

= Project Site Boundary

Exhibit A

Location Map



N

Exhibit B

Site Plan

Appendix A
Relevant Excerpts from the Initial Study & CalEEMod Worksheets

4.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			**X**	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			**X**	

4.8.1 Background Information on Greenhouse Gas Emissions

Life on earth depends on energy coming from the sun. About half the light reaching Earth's atmosphere passes through the air and clouds to the surface, where it is absorbed and then radiated upward in the form of infrared heat. About 90 percent of this heat is then absorbed by carbon dioxide (CO_2) and other greenhouse gases (GHGs) and radiated back toward the surface, which is warmed to a life-supporting average of 59 degrees Fahrenheit (°F) (NASA, 2024).

Human activities are changing the natural greenhouse. Over the last century, the burning of fossil fuels such as coal and oil has increased the concentration of atmospheric CO_2. This happens because the coal or oil burning process combines carbon in the fuel with oxygen in the air to make CO_2. To a lesser extent, the clearing of land for agriculture, industry, and other human activities has increased concentrations of GHGs (NASA, 2024).

GHGs are defined under the California Global Warming Solutions Act of 2006 as CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) (AB 32, chapter 488). HFCs, PFCs, and SF_6 would not be emitted in significant amounts by the new activities in the proposed project, so they will not be discussed further.

Associated with each GHG species is a "global warming potential" (GWP), which is a value used to compare the abilities of different GHGs to trap heat in the atmosphere. GWPs are based on the heat-absorbing ability of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years). The GWPs of CO_2, CH_4 and N_2O are 1, 25 and 298, respectively (IPCC, 2007). "Carbon dioxide equivalent" (CO_2e) emissions are calculated by weighting each GHG compound's emissions by its GWP and then summing the products.

Carbon Dioxide (CO_2). Carbon dioxide is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter (such as coal, oil, or natural gas) is burned in the presence of oxygen. Since the industrial revolution began in the mid-1700s, industrial activities have increased in scale and distribution. Prior to the industrial revolution, CO_2 concentrations were stable at a range of 275 to 285 parts per million (ppm) (IPCC, 2007). The National Oceanic and Atmospheric Administration's Earth System Research Laboratory indicates that the global concentration of CO_2

was 424.54 ppm in October 2025 (NOAA, 2026). These concentrations of CO_2 exceed by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

Methane (CH_4). Methane is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is combustible, and is the main constituent of natural gas, a fossil fuel. It is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Anthropogenic sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies, and the buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide (N_2O). Nitrous oxide is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas," and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests (USEPA, 2025a). Manmade sources of N_2O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Atmospheric concentrations of N_2O also began to rise at the beginning of the industrial revolution.

4.8.2 Regulatory Setting

GHGs are regulated at the national, state, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (USEPA) regulates at the national level; the California Air Resources Board (ARB) regulates at the state level; and the South Coast Air Quality Management District (SCAQMD) regulates at the air basin level in the Gilman Historic Ranch project area.

Federal Regulations

The USEPA collects several types of GHG emissions data. These data help policy makers, businesses, and the USEPA track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. The USEPA has been maintaining a national inventory of GHG emissions since 1990 and in 2009 established mandatory reporting of GHG emissions from large GHG emissions sources.

EPA is also obtaining GHG reductions through partnerships and initiatives, evaluating policy options, costs, and benefits, advancing the science, partnering internationally and with states, localities, and tribes, and helping communities adapt.

Corporate Average Fuel Economy (CAFE) Standards

The National Highway Traffic Safety Administration's (NHTSA's) Corporate Average Fuel Economy (CAFE) standards regulate the distance vehicles must cover per gallon of fuel. The agency establishes CAFE standards for passenger cars and light trucks (referred to as light-duty vehicles), as well as separate guidelines for fuel consumption by medium- and heavy-duty trucks and engines. The CAFE standards that became effective August 23, 2024 increased fuel efficiency for passenger cars by 2 percent annually for model years 2027–31. Light trucks were increased by 2 percent annually for model years 2029–31. Additionally, NHTSA is setting final fuel efficiency standards for heavy-duty pickup trucks and vans (HDPUVs) with a 10 percent annual increase for model years 2030–32 and

further increases for model years 2033–35. However, Public Law (PL) 119-21, Title IV, § 40006, signed into law on July 4, 2025, removed civil penalties for failing to comply with federal fuel economy standards.

State Regulations

Executive Order S-3-05

On June 1, 2005, the governor issued Executive Order (EO) S-3-05, which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

To meet these targets, the Climate Action Team (CAT)[1] prepared a report to the governor in 2006 that contains recommendations and strategies to help ensure that the targets in EO S-3-05 were met.

Assembly Bill 32 (AB 32)

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as AB 32. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. AB 32 required that GHGs emitted in California be reduced to 1990 levels by the year 2020. The ARB is the state agency charged with monitoring and regulating sources of emissions of GHGs that cause global warming. AB 32 also required that by January 1, 2008, the ARB determine what the statewide GHG emissions level was in 1990, and that it had to approve a statewide GHG emissions limit, so it could be applied to the 2020 benchmark. The ARB approved a 1990 GHG emissions level of 427 million metric tons of CO_2e ($MMTCO_2e$), on December 6, 2007, in its Staff Report. Therefore, in 2020, emissions in California were required to be at or below 427 $MMTCO_2e$.

Under the "business as usual or BAU"[2] scenario established in 2008, statewide emissions were increasing at a rate of approximately one percent per year, as noted below. It was estimated that the 2020 estimated BAU of 596 MMTCO2e would have required a 28 percent reduction to reach the 1990 level of 427 $MMTCO_2e$.

As part of the 2014 update to the ARB AB 32 Scoping Plan (ARB, 2014),[3] the ARB revised the 2020 Statewide limit to 431 million MT of CO_2e, an approximately one percent increase from the original estimate. The 2020 business as usual forecast in the update is 509 million MT of CO_2e. The state would need to reduce those emissions by 15.3 percent to meet the 431 million MT of CO_2e 2020 limit.

1 The Climate Action Team (CAT) members are state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency (Cal/EPA). They coordinate statewide efforts to implement global warming emission reduction programs and the state's Climate Adaptation Strategy.

2 A business-as-usual (BAU) scenario assumes that none of the Scoping Plan measures are implemented, although existing regulations that control GHG to some extent continue (ARB, 2024b).

3 The original ARB AB 32 Scoping Plan is discussed in the next section.

Climate Change Scoping Plan

The first AB 32 Scoping Plan (ARB, 2008) contained the main strategies to achieve the 2020 emissions cap. The strategies included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

In December 2022, the ARB approved its Final 2022 Scoping Plan Update (ARB, 2022), which adds carbon neutrality to the former Scoping Plan. The 2022 Plan identifies a technologically feasible, cost-effective path to reduce GHG emissions by 85 percent below 1990 levels and achieve carbon neutrality by 2045 or earlier. Through the lens of carbon neutrality, the 2022 Plan expands the scope to more meaningfully consider how our natural and working lands (NWL) contribute to our long-term climate goal through carbon capture. The 2022 Plan focuses on efforts to shift away from fossil fuels, resulting in a 94 percent decrease in liquid petroleum demand, a 71 percent decrease in smog-related pollutants, a job increase of 4 million, and $200 billion of health cost savings for Californians (ARB, 2022).

Renewables Portfolio Standard (RPS)(Scoping Action E-3)

The California Energy Commission estimates that in 2023 about 43 percent of California's retail electric load was met with RPS-Certified Renewable Energy. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Increased use of renewables will decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector. In October 2015, Governor Brown signed into law Senate Bill (SB) 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 requires an increase in the RPS to 60 percent by 2030, along with a long-term goal of 100 percent of RPS and zero-carbon energy by 2045 (CEC, 2025).

Senate Bill 375 (SB 375)

Senate Bill (SB) 375 passed the Senate on August 30, 2008, and was signed by the governor on September 30, 2008. Per SB 375, the transportation sector is the largest contributor of GHG emissions and contributes approximately 45 percent of the GHG emissions in California, with automobiles and light trucks alone contributing almost 30 percent. SB 375 indicates that GHGs from automobiles and light trucks can be reduced by new vehicle technology. However, significant reductions from changed land use patterns and improved transportation also are necessary. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies (SCS) in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Executive Order B-30-15

On April 29, 2015, Governor Brown issued EO B-30-15, which added an interim target of GHG emissions reductions to help ensure that the State meets its 80 percent reduction by 2050, as set in EO S-3-05. The interim target is to reduce GHG emissions by 40 percent by 2030. It also directs State agencies to update the Scoping Plan, update the Adaptation Strategy every three years, and take climate change into account in their planning and investment strategies. Additionally, it requires the

State's Five-Year Infrastructure Plan to take current and future climate change impacts into account in all infrastructure projects.

Title 24

Although not originally intended to reduce GHGs, California Code of Regulations Title 24 Part 6: California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficient technologies and methods. The California Energy Commission updates the standards every three years. The 2025 standard, which went into effect January 1, 2026, encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more (CEC, 2026).

South Coast Air Quality Management District (SCAQMD)

In the process of fulfilling its mandate to reduce local air pollution, the SCAQMD has promoted a few programs to combat climate change, e.g., energy conservation, low-carbon fuel technologies, renewable energy, vehicle miles traveled (VMT) reduction programs and market incentive programs.

Air Quality-Related Energy Policy

In 2011, the SCAQMD Board adopted an Air Quality-Related Energy Policy (SCAQMD, 2011) that integrates air quality, energy, and climate change issues in a coordinated and consolidated manner. The Energy Policy presents policies to guide and coordinate SCAQMD efforts and actions to support the policies.

Local Regulations

The City of Banning General Plan (City of Banning, 2012), Chapter IV Environmental Resources, contains the following goals and policies that address GHG Emissions:

- Water Resources Element
    - Policy 2: The City shall require the use of drought-tolerant, low water-consuming landscaping as a means of reducing water demand for new development.
- Energy and Mineral Resources Element
    - Goal: Efficient, sustainable, and environmentally appropriate use and management of energy and mineral resources, assuring their long-term availability and affordability.
    - Policy 2: Promote the integration of alternative energy systems, including but not limited to solar thermal, photovoltaics, and other clean energy systems, directly into building design and construction.

City of Banning Municipal Code

The City of Banning Municipal Code (City of Banning, 2025) regulations that support the reduction of GHG emissions include, but are not limited to, the following:

- Banning MC Chapter 8.52 is intended to eliminate barriers to recycling in the city in order to enable the city to reach waste reduction goals mandated by Assembly Bill 939 and space

allocation requirements mandated by the California Solid Waste Reuse and Recycling Access Act of 1991 (AB1327).

- Banning MC Chapter 8.60 is intended to protect the public health, welfare, and safety by reducing congestion and air pollution caused by vehicle trips and vehicle miles traveled.
- Banning MC Chapter 13.16 establishes a water conservation plan to reduce water consumption in the landscape environment using xeriscape principles.

4.8.3 GHG Emissions

National Emissions

The United States is the second largest emitter of GHGs globally (behind China) and emitted approximately 6,343 million metric tons of carbon dioxide equivalent in 2022 ($MMTCO_2e$) (USEPA, 2025g), not including GHG absorbed by forests and agricultural land. The largest source of GHG in the United States (28 percent) is burning fossil fuels for transportation (USEPA, 2025g). Generating electric power accounted for the second largest portion (25 percent). The remaining 47 percent of U.S. GHG emissions were contributed by the agriculture, industry, and residential and commercial sectors.

State Emissions

The ARB reports that in 2022, total GHG emissions in California were 371.1 $MMTCO_2e$ (ARB, 2024). The largest source of GHG in California is burning fossil fuels for transportation (39 percent) (ARB, 2022). The industrial sector accounted for the second largest portion (23 percent). The remaining 38 percent of state GHG emissions were contributed by the agriculture, electricity, and residential and commercial sectors.

Local Emissions

City of Banning does not have an adopted climate action plan. An approach to identifying potential conflict with GHG reduction plans, policies, or regulations is to examine General Plan and Municipal Code provisions that prescribe or enable GHG emissions control.

GHG Thresholds

To provide guidance to local lead agencies on determining the significance of GHG emissions in their CEQA documents, the South Coast Air Quality Management District (SCAQMD) Board adopted an Interim CEQA GHG Significance Threshold for Stationary Sources, Rules, and Plans (SCAQMD, 2008). The Interim Guidance uses a tiered approach to determining significance. Although this Interim Guidance was developed primarily to apply to stationary source industrial projects where the SCAQMD is the lead agency under CEQA, in the absence of more directly applicable policy, the SCAQMD's Interim Guidance is often used as general guidance by local agencies to address the long-term adverse impacts associated with global climate change. The guidance is described in detail in **Section 4.8.5**.

4.8.4 Impact Thresholds

The following thresholds of significance are based on criteria in Appendix G of the State CEQA Guidelines. A project has the potential to create a significant environmental impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of GHG.

4.8.5 Impact Analysis

Methodology

Short-term construction GHG emissions and long-term operational GHG emissions were assessed using the California Environmental Emissions Estimator Model (CalEEMod) Version 2022.1.1.39 (CAPCOA, 2022). This analysis focused upon emissions of CO_2, CH_4, and N_2O only. HFCs, PFCs, and SF_6 would be emitted in negligible quantities by the proposed project's sources, so they are not discussed further.

a) Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact

California has enacted several pieces of legislation that relate to GHG emissions and climate change, many of which set aggressive goals for GHG reductions within the state. Per Senate Bill 97, the California Natural Resources Agency adopted amendments to the CEQA Guidelines address the specific obligations of public agencies when analyzing GHG emissions under CEQA to determine a project's effects on the environment. However, neither a threshold of significance nor any specific mitigations are included or provided in these CEQA Guideline amendments.

GHG Significance Threshold

Neither the City of Banning, the SCAQMD, nor the State CEQA Guidelines Amendments has adopted quantitative thresholds of significance for addressing a project's GHG emissions. Nonetheless, § 15064.4 of the CEQA Guidelines serves to assist lead agencies in determining the significance of the impacts of GHGs. As required in § 15064.4 of the CEQA Guidelines, this analysis includes an impact determination based on (1) an estimate of the amount of GHG emissions resulting from the proposed project; (2) a qualitative analysis or performance-based standards; (3) a quantification of the extent to which the proposed project increases GHG emissions as compared to the existing environmental setting; and (4) the extent to which the proposed project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

SCAQMD's guidance (SCAQMD, 2008) uses a tiered approach rather than a single numerical emissions threshold. If a project's GHG emissions "fail" the non-significance of a given tier, then one goes to the next tier.

The threshold selected for this analysis is Tier 3, which establishes a screening significance threshold level to determine significance using a 90 percent emission capture rate. For Tier 3, the SCAQMD estimated that at a threshold of approximately 3,000 metric tons CO_2e per year, emissions would capture 90 percent of the GHG emissions from new commercial and residential projects. Operational

GHG emissions from the project will be negligible. Thus, this analysis uses 3,000 $MTCO_2e$ per year as the significance threshold under the first impact criterion in **Section 4.8.3.**

Construction GHG Emissions

Construction is an episodic, temporary source of GHG emissions. Emissions are generally associated with the operation of construction equipment and the disposal of construction waste. To be consistent with the guidance from the SCAQMD for calculating emissions of criteria pollutants from construction activities, only GHG emissions from onsite construction activities and offsite hauling and construction worker commuting are considered as project-generated. As explained by the California Air Pollution Control Officers Association (CAPCOA) in its 2008 white paper (CAPCOA, 2008), the information needed to characterize GHG emissions from the manufacture, transport, and end-of-life of construction materials would be speculative at the CEQA analysis level. CEQA does not require an evaluation of speculative impacts (CEQA Guidelines § 15145). Therefore, the construction analysis does not consider such GHG emissions, but does consider non-speculative onsite construction activities, and offsite hauling, and construction worker trips. All GHG emissions are identified on an annual basis.

Estimated criteria pollutant emissions from the Gilman Historic Ranch Master Plan and Stagecoach Stop Park Design Project's onsite and offsite project construction activities were calculated using CalEEMod, Version 2022.1.1.39, which was described in **Section 4.3.7**. The results of this analysis are presented in **Table 4.8-1** The total GHG emissions from construction activities for Phase 1 and the Master Plan would be **606.96 metric tons** and **1303.02 metric tons**, respectively. Consistent with SCAQMD recommendations (SCAQMD, 2008, p. 3-10) and to ensure that construction emissions are assessed in a quantitative sense, the total construction GHG emissions have been amortized over a 30-year period. The amortized value, **63.67 $MTCO_2e$**, has been added to the proposed project's annual operational GHG emissions. Modeling results are in **Appendix B**.

Table 4.8-1
PROJECT CONSTRUCTION-RELATED GHG EMISSIONS FOR PHASE 1 AND MASTER PLAN

Year/Phase	Annual Emissions (MT)			
	CO_2	CH_4	N_2O	CO_2e
2026/Phase 1	58.62	0.00	0.00	59.41
2027/Phase 1	479.57	0.02	0.03	488.90
2028/ Phase 1	58.28	0.00	0.00	58.66
Total - Phase 1	**596.48**	**0.02**	**0.03**	**606.96**
2028/ Master Plan	427.40	0.02	0.00	429.08
2029/ Master Plan	303.47	0.01	0.00	305.01
2030/ Master Plan	303.01	0.01	0.00	304.56
2031/ Master Plan	260.49	0.01	0.00	261.77
2032/ Master Plan	2.58	0.00	0.00	2.60
Total - Master Plan	**1,296.95**	**0.05**	**0.02**	**1,303.02**
Total – Phase 1 & Master Plan	**1,893.43**	**0.07**	**0.05**	**1,909.98**

Operational GHG Emissions

Projected operational GHG emissions by the proposed Gilman Historic Ranch Phase 1 and Master Plan are shown in **Table 4.8-2**. The combined annual GHG emissions from operational activities for Phase 1 and Master Plan would be **670.61 metric tons**.

Table 4.8-2
PROJECT OPERATIONAL GHG EMISSIONS FOR PHASE 1 AND MASTER PLAN

Emissions Source	Estimated Project Generated CO_2e Emissions (Metric Tons per Year)
Area Sources	1.14
Energy Demand (Electricity & Natural Gas)	146.12
Mobile (Motor Vehicles)	430.63
Solid Waste Generation	3.10
Water Demand	21.43
Refrigeration	4.52
Construction Emissions[a]	63.67
Total	**670.61**

[a] Total construction GHG emissions were amortized over 30 years and added to those resulting from the operation of the project.

Therefore, under the first significance criterion, GHG emissions would be less than significant, and no mitigation is necessary.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG?

Less than Significant Impact

The City of Banning does not have an adopted climate action plan. An approach to identifying potential conflict with GHG reduction plans, policies, or regulations is to examine General Plan provisions that prescribe or enable GHG emissions control. The City of Banning's General Plan (City of Banning, 2012) lists goals and policies that reduce GHG emissions and help to quantify emissions reductions. However, the policies prescribe actions to be taken by the City and not measures to be implemented by a project proponent. Nevertheless, the proposed project would not conflict with any of the GHG emission reduction policies; an analysis of project consistency with General Plan policies intended to reduce GHG emissions is provided in **Section 4.11**. Therefore, the project would not hinder the implementation of General Plan policies for reducing GHG emissions.

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	7196 Gilman Historic Ranch_Phase 1 & Master Plan Combined
Construction Start Date	11/24/2026
Operational Year	2032
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	19.2000
Location	1901 W Wilson St, Banning, CA 92220, USA
County	Riverside-South Coast
City	Banning
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5630
EDFZ	11
Electric Utility	City of Banning Electric Department
Gas Utility	Southern California Gas
App Version	2022.1.1.39

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Arena	8.19700	1000sqft	2.63475	8,197.00	152,460	2,680.00	—	Event Center

Other Non-Asphalt Surfaces	2.94000	1000sqft	0.06749	0.00000	0.00000	0.00000	—	Courtyard
Other Non-Asphalt Surfaces	2.55000	1000sqft	0.05854	0.00000	0.00000	0.00000	—	Event Courtyard, Ceremonial gathering space
Other Non-Asphalt Surfaces	30.5450	1000sqft	0.70122	30,545.0	0.00000	0.00000	—	Main entry drive
Other Non-Asphalt Surfaces	15.4500	1000sqft	0.35468	0.00000	0.00000	0.00000	—	Vehicular drop-off loop
City Park	36.5400	Acre	36.5400	0.00000	196,020	221,592	—	—
Parking Lot	360.000	Space	3.24000	0.00000	0.00000	0.00000	—	—
Hotel	12.0000	Room	0.40000	17,424.0	0.00000	0.00000	—	—
Other Non-Asphalt Surfaces	43.0000	1000sqft	0.98714	0.00000	0.00000	0.00000	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.68953	3.10410	27.5152	29.4357	0.06093	1.14375	7.89497	9.03873	1.05225	3.99357	5.04582	—	6,863.92	6,863.92	0.27074	0.07138	1.68466	6,890.22
Mit.	3.68953	3.10410	27.5152	29.4357	0.06093	1.14375	7.89497	9.03873	1.05225	3.99357	5.04582	—	6,863.92	6,863.92	0.27074	0.07138	1.68466	6,890.22

% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.67083	3.47098	53.8788	35.0220	0.21942	1.57420	10.1030	11.6772	1.48449	3.99357	5.13668	—	30,045.0	30,045.0	0.70937	3.77666	1.25676	31,189.5
Mit.	4.67083	3.47098	53.8788	35.0220	0.21942	1.57420	10.1030	11.6772	1.48449	3.99357	5.13668	—	30,045.0	30,045.0	0.70937	3.77666	1.25676	31,189.5
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.86176	1.59524	12.2242	14.1934	0.02670	0.47998	1.56049	2.04046	0.44162	0.66967	1.11129	—	3,160.78	3,160.78	0.11716	0.18979	1.24584	3,221.09
Mit.	1.86176	1.59524	12.2242	14.1934	0.02670	0.47998	1.56049	2.04046	0.44162	0.66967	1.11129	—	3,160.78	3,160.78	0.11716	0.18979	1.24584	3,221.09
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33977	0.29113	2.23091	2.59029	0.00487	0.08760	0.28479	0.37238	0.08060	0.12221	0.20281	—	523.303	523.303	0.01940	0.03142	0.20626	533.288
Mit.	0.33977	0.29113	2.23091	2.59029	0.00487	0.08760	0.28479	0.37238	0.08060	0.12221	0.20281	—	523.303	523.303	0.01940	0.03142	0.20626	533.288
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34941	1.13025	9.75738	14.5942	0.02547	0.34071	0.38710	0.72782	0.31379	0.09404	0.40782	—	2,988.42	2,988.42	0.10725	0.07138	1.68466	3,014.06

2028	3.68953	3.10410	27.5152	29.4357	0.06093	1.14375	7.89497	9.03873	1.05225	3.99357	5.04582	—	6,863.92	6,863.92	0.27074	0.06301	0.75354	6,890.22
2029	1.18376	0.99293	8.68770	13.3338	0.02407	0.27699	0.11716	0.39416	0.25494	0.02854	0.28348	—	2,572.55	2,572.55	0.09955	0.03537	0.41886	2,586.00
2030	1.15280	0.96404	8.49116	13.2882	0.02407	0.26147	0.11716	0.37863	0.24066	0.02854	0.26920	—	2,568.53	2,568.53	0.09955	0.03537	0.37151	2,581.93
2031	1.12467	0.94085	8.21444	13.2257	0.02407	0.24458	0.11716	0.36174	0.22445	0.02854	0.25299	—	2,564.50	2,564.50	0.09940	0.03184	0.32661	2,576.80
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	4.67083	3.47098	53.8788	35.0220	0.21942	1.57420	10.1030	11.6772	1.48449	3.99357	5.13668	—	30,045.0	30,045.0	0.70937	3.77666	1.25676	31,189.5
2027	4.54959	3.36847	51.5906	34.5123	0.21942	1.49590	10.1030	11.5989	1.41245	3.23242	4.64487	—	29,588.5	29,588.5	0.70891	3.62527	1.15934	30,687.7
2028	3.50004	3.04885	24.4070	28.1054	0.06093	0.98510	3.85082	4.83592	0.90629	1.48624	2.39253	—	6,842.63	6,842.63	0.27118	0.07138	0.03942	6,868.21
2029	1.18224	0.98855	8.69441	13.2339	0.02407	0.27699	0.11716	0.39416	0.25494	0.02854	0.28348	—	2,565.32	2,565.32	0.09971	0.03537	0.01089	2,578.36
2030	1.15152	0.96267	8.49854	13.1993	0.02407	0.26147	0.11716	0.37863	0.24066	0.02854	0.26920	—	2,561.44	2,561.44	0.09971	0.03537	0.00964	2,574.48
2031	2.95543	2.93492	8.21814	13.1391	0.02407	0.24458	0.11716	0.36174	0.22445	0.02854	0.25299	—	2,557.53	2,557.53	0.09955	0.03469	0.00846	2,570.37
2032	2.95251	2.93251	0.77259	1.13635	0.00173	0.00813	0.01307	0.02120	0.00748	0.00306	0.01054	—	144.956	144.956	0.00555	0.00115	0.00061	145.437
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.21567	0.17987	1.67482	1.57277	0.00308	0.06686	0.16926	0.23611	0.06162	0.06913	0.13075	—	361.331	361.331	0.01270	0.01461	0.08761	366.088
2027	1.08620	0.89216	8.63471	10.9857	0.02578	0.28858	0.65119	0.93977	0.26714	0.18861	0.45574	—	3,160.78	3,160.78	0.10051	0.18979	1.24584	3,221.09
2028	1.86176	1.59524	12.2242	14.1934	0.02670	0.47998	1.56049	2.04046	0.44162	0.66967	1.11129	—	3,002.44	3,002.44	0.11716	0.03343	0.22513	3,015.56
2029	0.84450	0.70616	6.21064	9.46511	0.01719	0.19785	0.08269	0.28054	0.18210	0.02014	0.20224	—	1,833.09	1,833.09	0.07122	0.02526	0.12925	1,842.53
2030	0.82239	0.68745	6.07025	9.43831	0.01719	0.18676	0.08269	0.26945	0.17190	0.02014	0.19203	—	1,830.31	1,830.31	0.07122	0.02526	0.11470	1,839.73
2031	0.72064	0.62531	4.25355	6.79995	0.01243	0.12586	0.05999	0.18585	0.11550	0.01460	0.13010	—	1,318.91	1,318.91	0.05131	0.01786	0.07270	1,325.59
2032	0.30623	0.30415	0.08013	0.11808	0.00018	0.00084	0.00134	0.00218	0.00078	0.00031	0.00109	—	15.0494	15.0494	0.00058	0.00016	0.00105	15.1129
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03936	0.03283	0.30566	0.28703	0.00056	0.01220	0.03089	0.04309	0.01125	0.01262	0.02386	—	59.8224	59.8224	0.00210	0.00242	0.01451	60.6101
2027	0.19823	0.16282	1.57583	2.00489	0.00471	0.05267	0.11884	0.17151	0.04875	0.03442	0.08317	—	523.303	523.303	0.01664	0.03142	0.20626	533.288
2028	0.33977	0.29113	2.23091	2.59029	0.00487	0.08760	0.28479	0.37238	0.08060	0.12221	0.20281	—	497.088	497.088	0.01940	0.00554	0.03727	499.260
2029	0.15412	0.12887	1.13344	1.72738	0.00314	0.03611	0.01509	0.05120	0.03323	0.00367	0.03691	—	303.490	303.490	0.01179	0.00418	0.02140	305.052
2030	0.15009	0.12546	1.10782	1.72249	0.00314	0.03408	0.01509	0.04918	0.03137	0.00367	0.03505	—	303.028	303.028	0.01179	0.00418	0.01899	304.589

2031	0.13152	0.11412	0.77627	1.24099	0.00227	0.02297	0.01095	0.03392	0.02108	0.00266	0.02374	—	218.360	218.360	0.00850	0.00296	0.01204	219.466
2032	0.05589	0.05551	0.01462	0.02155	0.00003	0.00015	0.00024	0.00040	0.00014	0.00006	0.00020	—	2.49160	2.49160	0.00010	0.00003	0.00017	2.50212

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	0.00000	0.33657	0.30965	0.00000	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	0.00000	2,405.30
2028	3.61333	3.03620	27.4549	28.3524	0.06093	1.14375	7.66623	8.80999	1.05225	3.93995	4.99221	—	6,598.26	6,598.26	0.26765	0.05353	0.00000	6,620.90
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2031	1.09751	0.91839	8.11856	12.8454	0.02340	0.24323	0.00000	0.24323	0.22377	0.00000	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.74146	3.14387	29.1635	28.8082	0.06093	1.24251	7.66623	8.90875	1.14311	3.93995	5.08307	—	6,598.58	6,598.58	0.26767	0.05353	0.00000	6,621.22
2027	3.50534	2.94546	25.5801	27.2816	0.06093	1.04307	3.64570	4.68877	0.95962	1.43349	2.39311	—	6,598.08	6,598.08	0.26765	0.05353	0.00000	6,620.72
2028	3.42509	3.01432	24.3289	27.1688	0.06093	0.98510	3.58940	4.57450	0.90629	1.42496	2.33126	—	6,598.26	6,598.26	0.26765	0.05353	0.00000	6,620.90
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2031	2.95219	2.93215	8.11856	12.8454	0.02340	0.24323	0.00000	0.24323	0.22377	0.00000	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2032	2.94940	2.92985	0.77005	1.10069	0.00173	0.00813	0.00000	0.00813	0.00748	0.00000	0.00748	—	133.504	133.504	0.00542	0.00108	0.00000	133.962
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.20765	0.17432	1.58437	1.48999	0.00257	0.06541	0.13547	0.20089	0.06018	0.06031	0.12049	—	273.246	273.246	0.01108	0.00222	0.00000	274.184
2027	0.96814	0.81060	7.34144	9.80279	0.01818	0.26806	0.14269	0.41075	0.24662	0.05611	0.30272	—	1,876.62	1,876.62	0.07612	0.01522	0.00000	1,883.06
2028	1.81626	1.55157	12.1437	13.5998	0.02645	0.47948	1.39849	1.87796	0.44112	0.63133	1.07245	—	2,824.10	2,824.10	0.11456	0.02291	0.00000	2,833.79
2029	0.82383	0.68938	6.12975	9.21517	0.01671	0.19689	0.00000	0.19689	0.18114	0.00000	0.18114	—	1,712.02	1,712.02	0.06945	0.01389	0.00000	1,717.90

2030	0.80266	0.67167	5.99426	9.20340	0.01671	0.18580	0.00000	0.18580	0.17093	0.00000	0.17093	—	1,712.02	1,712.02	0.06945	0.01389	0.00000	1,717.90
2031	0.70715	0.61433	4.20056	6.64007	0.01208	0.12517	0.00000	0.12517	0.11516	0.00000	0.11516	—	1,235.44	1,235.44	0.05011	0.01002	0.00000	1,239.68
2032	0.30591	0.30388	0.07987	0.11416	0.00018	0.00084	0.00000	0.00084	0.00078	0.00000	0.00078	—	13.8468	13.8468	0.00056	0.00011	0.00000	13.8943
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03790	0.03181	0.28915	0.27192	0.00047	0.01194	0.02472	0.03666	0.01098	0.01101	0.02199	—	45.2390	45.2390	0.00184	0.00037	0.00000	45.3943
2027	0.17669	0.14793	1.33981	1.78901	0.00332	0.04892	0.02604	0.07496	0.04501	0.01024	0.05525	—	310.696	310.696	0.01260	0.00252	0.00000	311.762
2028	0.33147	0.28316	2.21622	2.48196	0.00483	0.08750	0.25522	0.34273	0.08050	0.11522	0.19572	—	467.562	467.562	0.01897	0.00379	0.00000	469.167
2029	0.15035	0.12581	1.11868	1.68177	0.00305	0.03593	0.00000	0.03593	0.03306	0.00000	0.03306	—	283.445	283.445	0.01150	0.00230	0.00000	284.418
2030	0.14649	0.12258	1.09395	1.67962	0.00305	0.03391	0.00000	0.03391	0.03120	0.00000	0.03120	—	283.445	283.445	0.01150	0.00230	0.00000	284.418
2031	0.12905	0.11211	0.76660	1.21181	0.00220	0.02284	0.00000	0.02284	0.02102	0.00000	0.02102	—	204.541	204.541	0.00830	0.00166	0.00000	205.242
2032	0.05583	0.05546	0.01458	0.02083	0.00003	0.00015	0.00000	0.00015	0.00014	0.00000	0.00014	—	2.29249	2.29249	0.00009	0.00002	0.00000	2.30036

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.11865	0.10037	0.36644	1.65625	0.00207	0.00414	0.38710	0.39124	0.00414	0.09404	0.09818	—	591.343	591.343	0.01001	0.05193	1.68466	608.755
2028	0.08708	0.07760	0.06900	1.23812	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	265.660	265.660	0.00309	0.00948	0.75354	269.316
2029	0.03040	0.02779	0.10604	0.43255	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	175.716	175.716	0.00233	0.01592	0.41886	180.938
2030	0.02907	0.02370	0.09920	0.40347	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	171.698	171.698	0.00233	0.01592	0.37151	176.873
2031	0.02717	0.02247	0.09588	0.38028	0.00067	0.00135	0.11716	0.11851	0.00067	0.02854	0.02921	—	167.668	167.668	0.00217	0.01239	0.32661	171.742
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.04822	0.42698	26.6535	7.45134	0.15849	0.45283	6.45733	6.91016	0.45283	1.79893	2.25176	—	23,446.5	23,446.5	0.44170	3.72312	1.25676	24,568.3
2027	1.04425	0.42301	26.0105	7.23061	0.15849	0.45283	6.45733	6.91016	0.45283	1.79893	2.25176	—	22,990.4	22,990.4	0.44126	3.57174	1.15934	24,067.0
2028	0.10030	0.09165	0.37549	1.19408	0.00207	0.00414	0.38710	0.39124	0.00414	0.09404	0.09818	—	554.318	554.318	0.00846	0.05193	0.03942	570.046
2029	0.02888	0.02342	0.11275	0.33266	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	168.483	168.483	0.00248	0.01592	0.01089	173.302

2030	0.02780	0.02234	0.10658	0.31454	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	164.602	164.602	0.00248	0.01592	0.00964	169.419
2031	0.02589	0.02110	0.09958	0.29374	0.00067	0.00135	0.11716	0.11851	0.00067	0.02854	0.02921	—	160.697	160.697	0.00233	0.01525	0.00846	165.308
2032	0.00311	0.00266	0.00255	0.03566	0.00000	0.00000	0.01307	0.01307	0.00000	0.00306	0.00306	—	11.4519	11.4519	0.00013	0.00007	0.00061	11.4755
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00802	0.00555	0.09045	0.08278	0.00051	0.00144	0.03378	0.03523	0.00144	0.00882	0.01027	—	88.0847	88.0847	0.00161	0.01239	0.08761	91.9046
2027	0.11806	0.08156	1.29327	1.18289	0.00760	0.02052	0.50850	0.52902	0.02052	0.13250	0.15302	—	1,284.16	1,284.16	0.02438	0.17456	1.24584	1,338.03
2028	0.04550	0.04366	0.08051	0.59360	0.00025	0.00050	0.16200	0.16250	0.00050	0.03834	0.03884	—	178.340	178.340	0.00260	0.01052	0.22513	181.765
2029	0.02067	0.01677	0.08089	0.24995	0.00048	0.00096	0.08269	0.08366	0.00096	0.02014	0.02110	—	121.071	121.071	0.00177	0.01137	0.12925	124.634
2030	0.01973	0.01578	0.07600	0.23491	0.00048	0.00096	0.08269	0.08366	0.00096	0.02014	0.02110	—	118.285	118.285	0.00177	0.01137	0.11470	121.833
2031	0.01350	0.01099	0.05300	0.15988	0.00035	0.00069	0.05999	0.06068	0.00035	0.01460	0.01495	—	83.4702	83.4702	0.00120	0.00784	0.07270	85.9098
2032	0.00032	0.00028	0.00026	0.00391	0.00000	0.00000	0.00134	0.00134	0.00000	0.00031	0.00031	—	1.20263	1.20263	0.00001	0.00005	0.00105	1.21867
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00146	0.00101	0.01651	0.01511	0.00009	0.00026	0.00617	0.00643	0.00026	0.00161	0.00187	—	14.5834	14.5834	0.00027	0.00205	0.01451	15.2159
2027	0.02155	0.01489	0.23602	0.21588	0.00139	0.00374	0.09280	0.09655	0.00374	0.02418	0.02793	—	212.607	212.607	0.00404	0.02890	0.20626	221.526
2028	0.00830	0.00797	0.01469	0.10833	0.00005	0.00009	0.02956	0.02966	0.00009	0.00700	0.00709	—	29.5262	29.5262	0.00043	0.00174	0.03727	30.0933
2029	0.00377	0.00306	0.01476	0.04562	0.00009	0.00018	0.01509	0.01527	0.00018	0.00367	0.00385	—	20.0447	20.0447	0.00029	0.00188	0.02140	20.6347
2030	0.00360	0.00288	0.01387	0.04287	0.00009	0.00018	0.01509	0.01527	0.00018	0.00367	0.00385	—	19.5834	19.5834	0.00029	0.00188	0.01899	20.1709
2031	0.00246	0.00201	0.00967	0.02918	0.00006	0.00013	0.01095	0.01107	0.00006	0.00266	0.00273	—	13.8195	13.8195	0.00020	0.00130	0.01204	14.2234
2032	0.00006	0.00005	0.00005	0.00071	0.00000	0.00000	0.00024	0.00024	0.00000	0.00006	0.00006	—	0.19911	0.19911	< 0.000005	0.00001	0.00017	0.20176

2.2.4. Total Construction Emissions by Year, Mitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34941	1.13025	9.75738	14.5942	0.02547	0.34071	0.38710	0.72782	0.31379	0.09404	0.40782	—	2,988.42	2,988.42	0.10725	0.07138	1.68466	3,014.06

2028	3.68953	3.10410	27.5152	29.4357	0.06093	1.14375	7.89497	9.03873	1.05225	3.99357	5.04582	—	6,863.92	6,863.92	0.27074	0.06301	0.75354	6,890.22
2029	1.18376	0.99293	8.68770	13.3338	0.02407	0.27699	0.11716	0.39416	0.25494	0.02854	0.28348	—	2,572.55	2,572.55	0.09955	0.03537	0.41886	2,586.00
2030	1.15280	0.96404	8.49116	13.2882	0.02407	0.26147	0.11716	0.37863	0.24066	0.02854	0.26920	—	2,568.53	2,568.53	0.09955	0.03537	0.37151	2,581.93
2031	1.12467	0.94085	8.21444	13.2257	0.02407	0.24458	0.11716	0.36174	0.22445	0.02854	0.25299	—	2,564.50	2,564.50	0.09940	0.03184	0.32661	2,576.80
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	4.67083	3.47098	53.8788	35.0220	0.21942	1.57420	10.1030	11.6772	1.48449	3.99357	5.13668	—	30,045.0	30,045.0	0.70937	3.77666	1.25676	31,189.5
2027	4.54959	3.36847	51.5906	34.5123	0.21942	1.49590	10.1030	11.5989	1.41245	3.23242	4.64487	—	29,588.5	29,588.5	0.70891	3.62527	1.15934	30,687.7
2028	3.50004	3.04885	24.4070	28.1054	0.06093	0.98510	3.85082	4.83592	0.90629	1.48624	2.39253	—	6,842.63	6,842.63	0.27118	0.07138	0.03942	6,868.21
2029	1.18224	0.98855	8.69441	13.2339	0.02407	0.27699	0.11716	0.39416	0.25494	0.02854	0.28348	—	2,565.32	2,565.32	0.09971	0.03537	0.01089	2,578.36
2030	1.15152	0.96267	8.49854	13.1993	0.02407	0.26147	0.11716	0.37863	0.24066	0.02854	0.26920	—	2,561.44	2,561.44	0.09971	0.03537	0.00964	2,574.48
2031	2.95543	2.93492	8.21814	13.1391	0.02407	0.24458	0.11716	0.36174	0.22445	0.02854	0.25299	—	2,557.53	2,557.53	0.09955	0.03469	0.00846	2,570.37
2032	2.95251	2.93251	0.77259	1.13635	0.00173	0.00813	0.01307	0.02120	0.00748	0.00306	0.01054	—	144.956	144.956	0.00555	0.00115	0.00061	145.437
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.21567	0.17987	1.67482	1.57277	0.00308	0.06686	0.16926	0.23611	0.06162	0.06913	0.13075	—	361.331	361.331	0.01270	0.01461	0.08761	366.088
2027	1.08620	0.89216	8.63471	10.9857	0.02578	0.28858	0.65119	0.93977	0.26714	0.18861	0.45574	—	3,160.78	3,160.78	0.10051	0.18979	1.24584	3,221.09
2028	1.86176	1.59524	12.2242	14.1934	0.02670	0.47998	1.56049	2.04046	0.44162	0.66967	1.11129	—	3,002.44	3,002.44	0.11716	0.03343	0.22513	3,015.56
2029	0.84450	0.70616	6.21064	9.46511	0.01719	0.19785	0.08269	0.28054	0.18210	0.02014	0.20224	—	1,833.09	1,833.09	0.07122	0.02526	0.12925	1,842.53
2030	0.82239	0.68745	6.07025	9.43831	0.01719	0.18676	0.08269	0.26945	0.17190	0.02014	0.19203	—	1,830.31	1,830.31	0.07122	0.02526	0.11470	1,839.73
2031	0.72064	0.62531	4.25355	6.79995	0.01243	0.12586	0.05999	0.18585	0.11550	0.01460	0.13010	—	1,318.91	1,318.91	0.05131	0.01786	0.07270	1,325.59
2032	0.30623	0.30415	0.08013	0.11808	0.00018	0.00084	0.00134	0.00218	0.00078	0.00031	0.00109	—	15.0494	15.0494	0.00058	0.00016	0.00105	15.1129
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03936	0.03283	0.30566	0.28703	0.00056	0.01220	0.03089	0.04309	0.01125	0.01262	0.02386	—	59.8224	59.8224	0.00210	0.00242	0.01451	60.6101
2027	0.19823	0.16282	1.57583	2.00489	0.00471	0.05267	0.11884	0.17151	0.04875	0.03442	0.08317	—	523.303	523.303	0.01664	0.03142	0.20626	533.288
2028	0.33977	0.29113	2.23091	2.59029	0.00487	0.08760	0.28479	0.37238	0.08060	0.12221	0.20281	—	497.088	497.088	0.01940	0.00554	0.03727	499.260
2029	0.15412	0.12887	1.13344	1.72738	0.00314	0.03611	0.01509	0.05120	0.03323	0.00367	0.03691	—	303.490	303.490	0.01179	0.00418	0.02140	305.052
2030	0.15009	0.12546	1.10782	1.72249	0.00314	0.03408	0.01509	0.04918	0.03137	0.00367	0.03505	—	303.028	303.028	0.01179	0.00418	0.01899	304.589

2031	0.13152	0.11412	0.77627	1.24099	0.00227	0.02297	0.01095	0.03392	0.02108	0.00266	0.02374	—	218.360	218.360	0.00850	0.00296	0.01204	219.466
2032	0.05589	0.05551	0.01462	0.02155	0.00003	0.00015	0.00024	0.00040	0.00014	0.00006	0.00020	—	2.49160	2.49160	0.00010	0.00003	0.00017	2.50212

2.2.5. Onsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	0.00000	0.33657	0.30965	0.00000	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	0.00000	2,405.30
2028	3.61333	3.03620	27.4549	28.3524	0.06093	1.14375	7.66623	8.80999	1.05225	3.93995	4.99221	—	6,598.26	6,598.26	0.26765	0.05353	0.00000	6,620.90
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2031	1.09751	0.91839	8.11856	12.8454	0.02340	0.24323	0.00000	0.24323	0.22377	0.00000	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.74146	3.14387	29.1635	28.8082	0.06093	1.24251	7.66623	8.90875	1.14311	3.93995	5.08307	—	6,598.58	6,598.58	0.26767	0.05353	0.00000	6,621.22
2027	3.50534	2.94546	25.5801	27.2816	0.06093	1.04307	3.64570	4.68877	0.95962	1.43349	2.39311	—	6,598.08	6,598.08	0.26765	0.05353	0.00000	6,620.72
2028	3.42509	3.01432	24.3289	27.1688	0.06093	0.98510	3.58940	4.57450	0.90629	1.42496	2.33126	—	6,598.26	6,598.26	0.26765	0.05353	0.00000	6,620.90
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2030	1.12372	0.94034	8.39196	12.8848	0.02340	0.26012	0.00000	0.26012	0.23931	0.00000	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2031	2.95219	2.93215	8.11856	12.8454	0.02340	0.24323	0.00000	0.24323	0.22377	0.00000	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
2032	2.94940	2.92985	0.77005	1.10069	0.00173	0.00813	0.00000	0.00813	0.00748	0.00000	0.00748	—	133.504	133.504	0.00542	0.00108	0.00000	133.962
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.20765	0.17432	1.58437	1.48999	0.00257	0.06541	0.13547	0.20089	0.06018	0.06031	0.12049	—	273.246	273.246	0.01108	0.00222	0.00000	274.184
2027	0.96814	0.81060	7.34144	9.80279	0.01818	0.26806	0.14269	0.41075	0.24662	0.05611	0.30272	—	1,876.62	1,876.62	0.07612	0.01522	0.00000	1,883.06
2028	1.81626	1.55157	12.1437	13.5998	0.02645	0.47948	1.39849	1.87796	0.44112	0.63133	1.07245	—	2,824.10	2,824.10	0.11456	0.02291	0.00000	2,833.79
2029	0.82383	0.68938	6.12975	9.21517	0.01671	0.19689	0.00000	0.19689	0.18114	0.00000	0.18114	—	1,712.02	1,712.02	0.06945	0.01389	0.00000	1,717.90

2030	0.80266	0.67167	5.99426	9.20340	0.01671	0.18580	0.00000	0.18580	0.17093	0.00000	0.17093	—	1,712.02	1,712.02	0.06945	0.01389	0.00000	1,717.90
2031	0.70715	0.61433	4.20056	6.64007	0.01208	0.12517	0.00000	0.12517	0.11516	0.00000	0.11516	—	1,235.44	1,235.44	0.05011	0.01002	0.00000	1,239.68
2032	0.30591	0.30388	0.07987	0.11416	0.00018	0.00084	0.00000	0.00084	0.00078	0.00000	0.00078	—	13.8468	13.8468	0.00056	0.00011	0.00000	13.8943
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03790	0.03181	0.28915	0.27192	0.00047	0.01194	0.02472	0.03666	0.01098	0.01101	0.02199	—	45.2390	45.2390	0.00184	0.00037	0.00000	45.3943
2027	0.17669	0.14793	1.33981	1.78901	0.00332	0.04892	0.02604	0.07496	0.04501	0.01024	0.05525	—	310.696	310.696	0.01260	0.00252	0.00000	311.762
2028	0.33147	0.28316	2.21622	2.48196	0.00483	0.08750	0.25522	0.34273	0.08050	0.11522	0.19572	—	467.562	467.562	0.01897	0.00379	0.00000	469.167
2029	0.15035	0.12581	1.11868	1.68177	0.00305	0.03593	0.00000	0.03593	0.03306	0.00000	0.03306	—	283.445	283.445	0.01150	0.00230	0.00000	284.418
2030	0.14649	0.12258	1.09395	1.67962	0.00305	0.03391	0.00000	0.03391	0.03120	0.00000	0.03120	—	283.445	283.445	0.01150	0.00230	0.00000	284.418
2031	0.12905	0.11211	0.76660	1.21181	0.00220	0.02284	0.00000	0.02284	0.02102	0.00000	0.02102	—	204.541	204.541	0.00830	0.00166	0.00000	205.242
2032	0.05583	0.05546	0.01458	0.02083	0.00003	0.00015	0.00000	0.00015	0.00014	0.00000	0.00014	—	2.29249	2.29249	0.00009	0.00002	0.00000	2.30036

2.2.6. Offsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.11865	0.10037	0.36644	1.65625	0.00207	0.00414	0.38710	0.39124	0.00414	0.09404	0.09818	—	591.343	591.343	0.01001	0.05193	1.68466	608.755
2028	0.08708	0.07760	0.06900	1.23812	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	265.660	265.660	0.00309	0.00948	0.75354	269.316
2029	0.03040	0.02779	0.10604	0.43255	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	175.716	175.716	0.00233	0.01592	0.41886	180.938
2030	0.02907	0.02370	0.09920	0.40347	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	171.698	171.698	0.00233	0.01592	0.37151	176.873
2031	0.02717	0.02247	0.09588	0.38028	0.00067	0.00135	0.11716	0.11851	0.00067	0.02854	0.02921	—	167.668	167.668	0.00217	0.01239	0.32661	171.742
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.04822	0.42698	26.6535	7.45134	0.15849	0.45283	6.45733	6.91016	0.45283	1.79893	2.25176	—	23,446.5	23,446.5	0.44170	3.72312	1.25676	24,568.3
2027	1.04425	0.42301	26.0105	7.23061	0.15849	0.45283	6.45733	6.91016	0.45283	1.79893	2.25176	—	22,990.4	22,990.4	0.44126	3.57174	1.15934	24,067.0
2028	0.10030	0.09165	0.37549	1.19408	0.00207	0.00414	0.38710	0.39124	0.00414	0.09404	0.09818	—	554.318	554.318	0.00846	0.05193	0.03942	570.046
2029	0.02888	0.02342	0.11275	0.33266	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	168.483	168.483	0.00248	0.01592	0.01089	173.302

2030	0.02780	0.02234	0.10658	0.31454	0.00067	0.00135	0.11716	0.11851	0.00135	0.02854	0.02989	—	164.602	164.602	0.00248	0.01592	0.00964	169.419
2031	0.02589	0.02110	0.09958	0.29374	0.00067	0.00135	0.11716	0.11851	0.00067	0.02854	0.02921	—	160.697	160.697	0.00233	0.01525	0.00846	165.308
2032	0.00311	0.00266	0.00255	0.03566	0.00000	0.00000	0.01307	0.01307	0.00000	0.00306	0.00306	—	11.4519	11.4519	0.00013	0.00007	0.00061	11.4755
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00802	0.00555	0.09045	0.08278	0.00051	0.00144	0.03378	0.03523	0.00144	0.00882	0.01027	—	88.0847	88.0847	0.00161	0.01239	0.08761	91.9046
2027	0.11806	0.08156	1.29327	1.18289	0.00760	0.02052	0.50850	0.52902	0.02052	0.13250	0.15302	—	1,284.16	1,284.16	0.02438	0.17456	1.24584	1,338.03
2028	0.04550	0.04366	0.08051	0.59360	0.00025	0.00050	0.16200	0.16250	0.00050	0.03834	0.03884	—	178.340	178.340	0.00260	0.01052	0.22513	181.765
2029	0.02067	0.01677	0.08089	0.24995	0.00048	0.00096	0.08269	0.08366	0.00096	0.02014	0.02110	—	121.071	121.071	0.00177	0.01137	0.12925	124.634
2030	0.01973	0.01578	0.07600	0.23491	0.00048	0.00096	0.08269	0.08366	0.00096	0.02014	0.02110	—	118.285	118.285	0.00177	0.01137	0.11470	121.833
2031	0.01350	0.01099	0.05300	0.15988	0.00035	0.00069	0.05999	0.06068	0.00035	0.01460	0.01495	—	83.4702	83.4702	0.00120	0.00784	0.07270	85.9098
2032	0.00032	0.00028	0.00026	0.00391	0.00000	0.00000	0.00134	0.00134	0.00000	0.00031	0.00031	—	1.20263	1.20263	0.00001	0.00005	0.00105	1.21867
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00146	0.00101	0.01651	0.01511	0.00009	0.00026	0.00617	0.00643	0.00026	0.00161	0.00187	—	14.5834	14.5834	0.00027	0.00205	0.01451	15.2159
2027	0.02155	0.01489	0.23602	0.21588	0.00139	0.00374	0.09280	0.09655	0.00374	0.02418	0.02793	—	212.607	212.607	0.00404	0.02890	0.20626	221.526
2028	0.00830	0.00797	0.01469	0.10833	0.00005	0.00009	0.02956	0.02966	0.00009	0.00700	0.00709	—	29.5262	29.5262	0.00043	0.00174	0.03727	30.0933
2029	0.00377	0.00306	0.01476	0.04562	0.00009	0.00018	0.01509	0.01527	0.00018	0.00367	0.00385	—	20.0447	20.0447	0.00029	0.00188	0.02140	20.6347
2030	0.00360	0.00288	0.01387	0.04287	0.00009	0.00018	0.01509	0.01527	0.00018	0.00367	0.00385	—	19.5834	19.5834	0.00029	0.00188	0.01899	20.1709
2031	0.00246	0.00201	0.00967	0.02918	0.00006	0.00013	0.01095	0.01107	0.00006	0.00266	0.00273	—	13.8195	13.8195	0.00020	0.00130	0.01204	14.2234
2032	0.00006	0.00005	0.00005	0.00071	0.00000	0.00000	0.00024	0.00024	0.00000	0.00006	0.00006	—	0.19911	0.19911	< 0.000005	0.00001	0.00017	0.20176

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.24742	2.09034	1.23383	13.2707	0.03300	0.04105	3.08847	3.12951	0.03886	0.78361	0.82247	12.7056	4,201.28	4,213.98	1.46544	0.15032	33.3464	4,328.76

Mit.	2.24742	2.09034	1.23383	13.2707	0.03300	0.04105	3.08847	3.12951	0.03886	0.78361	0.82247	12.7056	4,201.28	4,213.98	1.46544	0.15032	33.3464	4,328.76
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.76492	1.64177	1.28457	8.95206	0.03090	0.03671	3.08847	3.12518	0.03558	0.78361	0.81919	12.7056	3,993.84	4,006.54	1.46711	0.15415	27.4463	4,116.60
Mit.	1.76492	1.64177	1.28457	8.95206	0.03090	0.03671	3.08847	3.12518	0.03558	0.78361	0.81919	12.7056	3,993.84	4,006.54	1.46711	0.15415	27.4463	4,116.60
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.89621	1.76732	1.14900	9.51185	0.02657	0.03669	2.56784	2.60454	0.03502	0.65163	0.68665	12.7056	3,547.37	3,560.07	1.45132	0.13470	29.4909	3,665.99
Mit.	1.89621	1.76732	1.14900	9.51185	0.02657	0.03669	2.56784	2.60454	0.03502	0.65163	0.68665	12.7056	3,547.37	3,560.07	1.45132	0.13470	29.4909	3,665.99
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34606	0.32254	0.20969	1.73591	0.00485	0.00670	0.46863	0.47533	0.00639	0.11892	0.12531	2.10355	587.307	589.411	0.24028	0.02230	4.88255	606.946
Mit.	0.34606	0.32254	0.20969	1.73591	0.00485	0.00670	0.46863	0.47533	0.00639	0.11892	0.12531	2.10355	587.307	589.411	0.24028	0.02230	4.88255	606.946
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.05789	0.94724	0.97886	10.6310	0.03145	0.01889	3.08847	3.10736	0.01776	0.78361	0.80137	—	3,214.61	3,214.61	0.10059	0.12565	6.05718	3,260.62
Area	1.16373	1.13021	0.02055	2.44281	0.00015	0.00434	—	0.00434	0.00328	—	0.00328	—	10.0451	10.0451	0.00042	0.00009	—	10.0813

Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	2.24742	2.09034	1.23383	13.2707	0.03300	0.04105	3.08847	3.12951	0.03886	0.78361	0.82247	12.7056	4,201.28	4,213.98	1.46544	0.15032	33.3464	4,328.76
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.01041	0.90015	1.05014	8.75515	0.02950	0.01890	3.08847	3.10737	0.01777	0.78361	0.80138	—	3,017.21	3,017.21	0.10269	0.12956	0.15706	3,058.55
Area	0.72873	0.72873	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	1.76492	1.64177	1.28457	8.95206	0.03090	0.03671	3.08847	3.12518	0.03558	0.78361	0.81919	12.7056	3,993.84	4,006.54	1.46711	0.15415	27.4463	4,116.60
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84374	0.75071	0.90050	7.64177	0.02507	0.01591	2.56784	2.58375	0.01495	0.65163	0.66659	—	2,563.86	2,563.86	0.08660	0.11006	2.20167	2,601.03
Area	1.02668	1.00371	0.01408	1.67316	0.00010	0.00297	—	0.00297	0.00225	—	0.00225	—	6.88021	6.88021	0.00029	0.00006	—	6.90501
Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	1.89621	1.76732	1.14900	9.51185	0.02657	0.03669	2.56784	2.60454	0.03502	0.65163	0.68665	12.7056	3,547.37	3,560.07	1.45132	0.13470	29.4909	3,665.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.15398	0.13701	0.16434	1.39462	0.00457	0.00290	0.46863	0.47153	0.00273	0.11892	0.12165	—	424.477	424.477	0.01434	0.01822	0.36451	430.630
Area	0.18737	0.18318	0.00257	0.30535	0.00002	0.00054	—	0.00054	0.00041	—	0.00041	—	1.13910	1.13910	0.00005	0.00001	—	1.14320
Energy	0.00471	0.00235	0.04278	0.03594	0.00026	0.00325	—	0.00325	0.00325	—	0.00325	—	145.555	145.555	0.01132	0.00096	—	146.125
Water	—	—	—	—	—	—	—	—	—	—	—	1.21681	16.1365	17.3533	0.12594	0.00311	—	21.4278

Waste	—	—	—	—	—	—	—	—	—	—	—	0.88674	0.00000	0.88674	0.08863	0.00000	—	3.10242
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.51804	4.51804
Total	0.34606	0.32254	0.20969	1.73591	0.00485	0.00670	0.46863	0.47533	0.00639	0.11892	0.12531	2.10355	587.307	589.411	0.24028	0.02230	4.88255	606.946

2.5. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.05789	0.94724	0.97886	10.6310	0.03145	0.01889	3.08847	3.10736	0.01776	0.78361	0.80137	—	3,214.61	3,214.61	0.10059	0.12565	6.05718	3,260.62
Area	1.16373	1.13021	0.02055	2.44281	0.00015	0.00434	—	0.00434	0.00328	—	0.00328	—	10.0451	10.0451	0.00042	0.00009	—	10.0813
Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	2.24742	2.09034	1.23383	13.2707	0.03300	0.04105	3.08847	3.12951	0.03886	0.78361	0.82247	12.7056	4,201.28	4,213.98	1.46544	0.15032	33.3464	4,328.76
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.01041	0.90015	1.05014	8.75515	0.02950	0.01890	3.08847	3.10737	0.01777	0.78361	0.80138	—	3,017.21	3,017.21	0.10269	0.12956	0.15706	3,058.55
Area	0.72873	0.72873	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	1.76492	1.64177	1.28457	8.95206	0.03090	0.03671	3.08847	3.12518	0.03558	0.78361	0.81919	12.7056	3,993.84	4,006.54	1.46711	0.15415	27.4463	4,116.60
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.84374	0.75071	0.90050	7.64177	0.02507	0.01591	2.56784	2.58375	0.01495	0.65163	0.66659	—	2,563.86	2,563.86	0.08660	0.11006	2.20167	2,601.03

Area	1.02668	1.00371	0.01408	1.67316	0.00010	0.00297	—	0.00297	0.00225	—	0.00225	—	6.88021	6.88021	0.00029	0.00006	—	6.90501
Energy	0.02579	0.01289	0.23442	0.19692	0.00141	0.01782	—	0.01782	0.01782	—	0.01782	—	879.159	879.159	0.06840	0.00582	—	882.603
Water	—	—	—	—	—	—	—	—	—	—	—	7.34958	97.4653	104.815	0.76071	0.01877	—	129.425
Waste	—	—	—	—	—	—	—	—	—	—	—	5.35599	0.00000	5.35599	0.53531	0.00000	—	18.7388
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.2892	27.2892
Total	1.89621	1.76732	1.14900	9.51185	0.02657	0.03669	2.56784	2.60454	0.03502	0.65163	0.68665	12.7056	3,547.37	3,560.07	1.45132	0.13470	29.4909	3,665.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.15398	0.13701	0.16434	1.39462	0.00457	0.00290	0.46863	0.47153	0.00273	0.11892	0.12165	—	424.477	424.477	0.01434	0.01822	0.36451	430.630
Area	0.18737	0.18318	0.00257	0.30535	0.00002	0.00054	—	0.00054	0.00041	—	0.00041	—	1.13910	1.13910	0.00005	0.00001	—	1.14320
Energy	0.00471	0.00235	0.04278	0.03594	0.00026	0.00325	—	0.00325	0.00325	—	0.00325	—	145.555	145.555	0.01132	0.00096	—	146.125
Water	—	—	—	—	—	—	—	—	—	—	—	1.21681	16.1365	17.3533	0.12594	0.00311	—	21.4278
Waste	—	—	—	—	—	—	—	—	—	—	—	0.88674	0.00000	0.88674	0.08863	0.00000	—	3.10242
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.51804	4.51804
Total	0.34606	0.32254	0.20969	1.73591	0.00485	0.00670	0.46863	0.47533	0.00639	0.11892	0.12531	2.10355	587.307	589.411	0.24028	0.02230	4.88255	606.946

3. Construction Emissions Details

3.1. Phase 1 Demolition (2026)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

APPENDIX H2

PARKING ANALYSIS

OCTOBER 22, 2026

Mr. Michael Milroy
ULTRASYSTEMS ENVIRONMENTAL
16431 Scientific Way
Irvine, CA 92618

SUBJECT: GILMAN RANCH HISTORIC PARK IMPROVEMENTS PROJECT PARKING ANALYSIS, CITY OF BANNING

Dear Mr. Milroy:

INTRODUCTION

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this parking analysis for the proposed Gilman Ranch Historic Park Improvements Project (hereinafter referred to as "project"). The purpose of this study is to determine whether the proposed parking supply is adequate for typical weekday conditions based on County of Riverside Municipal Code and the future parking demand generated by 750-guest special events based on anticipated operations. A special events analysis assuming up to 1,000 guests was also conducted for informational purposes only.

PROJECT DESCRIPTION

The proposed project is located at 1901 W. Wilson Street, on the northeast corner of W. Wilson Street and 20th Street, in the City of Banning. The site is currently developed with the Gilman Historic Ranch and Wagon Museum, as well as a ranch house, but the remainder of the approximately 42-acre site is generally undeveloped. The project would consist of a new events center; repair and improvements to several park components including the Bradshaw interpretive trail and the Native medicinal demonstration garden; new parking lots; 100-seat outdoor classroom; a stagecoach hotel (9 units); new picnic areas; several courtyards; play areas; a community park; botanical and restoration garden/orchard; landscaping and irrigation throughout the site; outdoor lighting; new ADA site access and pathways throughout the site; new restroom buildings; and decomposed granite walking paths.

It is RK's understanding that special events may be held at the event center, event courtyard, and/or ceremony space approximately once a month, on any day of the week. All events at the event center are assumed to conclude by 10 PM. All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.

Exhibit A shows an aerial location map of the project site. **Exhibit B** shows the project's proposed site plan.

PARKING SPACE INVENTORY

Table 1 summarizes the project's parking space inventory. As shown in Table 1, the Gilman Historic Ranch and Wagon Museum has an existing parking lot that provides 51 parking spaces. The project proposes to provide 293 additional on-site standard and ADA parking spaces, for a total of 344 standard and ADA parking spaces. The project also proposes 4 bus parking spaces and 2 trailer parking spaces, for a total parking inventory of 350 spaces.

Table 1 | Parking Space Inventory Summary

Parking Space Inventory	
Existing Parking Spaces	51
Proposed Parking Spaces	293
Proposed Bus and Trailer Parking Spaces	6
Total Parking Inventory	**350**

PARKING ANALYSIS FOR TYPICAL CONDITIONS

Parking demand for the proposed land uses under typical conditions was calculated based on County of Riverside Municipal Code Section 17.188.030, Parking Design Standards, which establishes the required number of parking spaces for various land use types. It should be noted that the event center is expected to host special events approximately once a month and is therefore excluded from the parking demand calculations under typical conditions. The parking demand under special events is addressed separately in its corresponding section.

Exhibit C identifies the land use areas categorized for the typical conditions parking demand calculations.

Existing Gilman Historic Ranch and Wagon Museum

The Existing Gilman Historic Ranch and Wagon Museum currently operates on Saturdays from 10:00 AM to 4:00 PM and is served by an existing parking lot containing approximately 51 parking spaces. For purposes of a conservative analysis, the 51-space parking lot is assumed to remain entirely dedicated to the Existing Gilman Historic Ranch and Wagon Museum under typical conditions.

Park and Recreational Uses

Per §17.188.030 of the County of Riverside Municipal Code, the following parking requirements have been utilized for parks and recreational uses:

- Parks and Recreational Uses:
    - 1 space per 8,000 square feet of active recreational area within a park or playground.
    - 1 space per acre of passive recreational area within a park or playground.

Active recreation refers to a structured individual or team activity that requires the use of special facilities. As such, the active recreational areas are estimated to be approximately 109,369 SF.

Passive recreation refers to recreational activities that do not require prepared facilities, such as walking trails and picnicking areas. In order to provide a conservative analysis, the passive recreational area used in the parking requirement calculations was calculated as the net difference of the total project site area and the areas occupied by the existing Gilman Historic Ranch and Wagon Museum, the proposed stagecoach hotel, the 100-seat outdoor classroom and the active recreational area. The passive recreational area is estimated to be approximately 36.6 acres.

As such, the active recreational area would require 14 parking spaces and the passive recreational area would require 37 parking spaces for a total of **51 required parking spaces.**

Stagecoach Hotel

Per §17.188.030 of the County of Riverside Municipal Code, the following parking requirements have been utilized for the stagecoach hotel:

- Recreational Vehicle Parks:
    - 1 space per recreational vehicle site.
    - 1 visitor space per 5 recreational sites.

Since the stagecoach hotel consists of 9 vehicle sites, the stagecoach hotel would require 9 standard parking spaces and 2 visitor parking spaces for a total of **11 required parking spaces.**

100-Seat Outdoor Classroom

Although the County of Riverside Municipal Code §17.188.030 includes parking rates for schools, those rates are not directly applicable to the proposed 100-seat outdoor classroom. Because the facility is expected to serve students arriving by bus for scheduled field trips, its parking demand will differ from that of a typical school use. As such, the parking requirement for the outdoor classroom is calculated based on its anticipated operations.

Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom. All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats.

As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily, which would require **2 bus parking spaces**. An average vehicle ridership (AVR) of 1.5 people per vehicle has been assumed for the seven (7) new hires, which would therefore require **5 standard parking spaces.**

Parking Demand for Typical Conditions Summary

Table 2 summarizes the parking requirement calculations described above and the proposed parking inventory. As shown in Table 2, the project is required to provide 120 parking spaces under typical conditions and proposes to provide 350 parking spaces. As such, based on the parking demand calculations presented in Table 2, the proposed parking supply is sufficient for the project's parking demand under typical conditions.

Table 2 | Parking Requirement for Typical Conditions Calculations Summary

Project			County of Riverside Municipal Code §17.188.030		Total Required Parking
Land Use	**Quantity**	**Units**	**Land Use**	**Parking Requirement**	
Park and Recreational Uses	109,369	SF of active recreational area	Park and Recreational Uses	1 space per 8,000 square feet of active recreational area within a park or playground.	14
	36.6	Acre of passive recreational area		1 space per acre of passive recreational area within a park or playground.	37
				Park and Recreational Uses Required Parking Sub-Total	**51**
Stagecoach Hotel	9	Recreational vehicle sites	Recreational Vehicle Park	1 space per recreational vehicle site.	9
				1 visitor space per 5 recreational sites.	2
				Stagecoach Required Parking Sub-Total	**11**
Outdoor Classroom[1,2]	100	Students	--	--	2
	7	Workers	--	--	5
				Outdoor Classroom Required Parking Sub-Total	**7**
				Total Parking Requirement[3]	**120**
				Proposed Parking Inventory	**350**
				Number of Surplus Parking Spaces	**230**

[1] Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. No new staff are expected to be hired for the near-term operations of the outdoor classroom. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom.

[2] All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. An average vehicle ridership (AVR) of 1.5 people per vehicle has been assumed for the seven (7) new hires, which would therefore require 5 standard parking spaces.

[3] The existing 51-space parking lot is assumed to remain dedicated to the Existing Gilman Historic Ranch and Wagon Museum under typical conditions. As such, the total parking requirement is calculated based on the sum of the parking requirement for the park and recreational uses (i.e., 51 parking spaces), stagecoach hotel (i.e., 11 parking spaces), outdoor classroom (i.e., 7 parking spaces), and the existing Gilman Historic Ranch and Wagon Museum (i.e., 51 parking spaces) for a total of 120 required parking spaces.

PARKING ANALYSIS FOR SPECIAL EVENTS CONDITIONS

This parking analysis evaluates the following two additional scenarios, which are based on projected trip generation informed by the project team's description of proposed special event operations and supplemented by engineering judgment:

A) Typical Conditions Plus 750-Guest Special Event

B) Typical Conditions Plus 1,000-Guest Special Event *(For Informational Purposes Only)*

Special Events Trip Generation

The following assumptions have been utilized to calculate the projected Event Arrival & Event Departure peak hour trip generation of a 750-Guest and 1,000 Guest special event, as shown in **Table 3** and **Table 4,** respectively:

- The special event center, courtyard, and ceremony space are assumed to operate concurrently and were therefore combined for the purposes of the analysis.
- During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation.
- The special events are assumed to be held on any day of the week. Frequency of special events is anticipated to be approximately once a month.
- All events at the event center are assumed to conclude by 10 PM.
- All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.
- For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour. This equates to 675 guests for a 750-guest event and 900 guests for a 1,000-guest event arriving/departing within the peak arrival/departure hour.
- **Guests (Personal Vehicles):** For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. During the peak arrival/departure hour, this equates to 641 guests for a 750-guest event and 855 guests for a 1,000-guest event. An average vehicle ridership (AVR) of 3.0 people per vehicle has been assumed, which results in **214 vehicles** for a 750-guest event and **285 vehicles** for a 1,000-guest event.
- **Guests (Rideshare):** For special event guests, the remaining 5% of guests are assumed to arrive/depart via some mode of rideshare (e.g., Uber, Lyft, Taxi, etc.). During the peak arrival/departure hour, this equates to 34 guests for a 750-guest event and 41 guests for a 1,000-guest event. An AVR of 2.0 people per vehicle has been conservatively assumed, which results in **17 vehicles** for a 750-guest event and **23 vehicles** for a 1,000-guest event.
- **Event Staff:** The total staff count for a special event has been assumed to be 5% of the total guest count. As such, a total event staff count of 38 workers are assumed to work a 750-guest event and a staff count of 50 workers are assumed to work a 1,000-guest event. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff, which results in **25 vehicles** for a 750-guest event and **33 vehicles** for a 1,000-guest event.

Table 3 | 750-Guest Special Event Trip Generation Rates & Forecast[1,2]

Type of Trip	Quantity	Units	Event Arrival Peak Hour			Event Departure Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Guests (Personal Vehicles)[3]	712	Guests	214	0	214	0	214	214	474
Guests (Rideshare)[4]	38	Guests	17	17	34	17	17	34	76
Event Staff[5]	38	Staff	0	0	0	0	0	0	76
Special Events Trip Generation Forecasts			**231**	**17**	**248**	**17**	**231**	**248**	**626**

[1] The Existing Gilman Historic Ranch and Wagon Museum and Ranch House are assumed to be closed during special events. The park's passive and active park amenities, and the stagecoach hotel are assumed to be operational during special events.
[2] For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour.
[3] For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. For special event guests, an AVR of 3.0 people per vehicle (i.e., AVR = 3.0) has been assumed.
[4] For special event guests, 5% of guests are assumed to arrive/depart using rideshare. For special event guests, an AVR of 2.0 people per vehicle (i.e., AVR = 2.0) has been conservatively assumed.
[5] The total staff count for a special event has been assumed to be 5% of the total guest count. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff.

Table 4 | 1,000-Guest Special Event Trip Generation Rates & Forecast[1,2]

Type of Trip	Quantity	Units	Event Arrival Peak Hour			Event Departure Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Guests (Personal Vehicles)[3]	950	Guests	285	0	285	0	285	285	634
Guests (Rideshare)[4]	50	Guests	23	23	46	23	23	46	100
Event Staff[5]	50	Staff	0	0	0	0	0	0	100
Special Events Trip Generation Forecasts			**308**	**23**	**331**	**23**	**308**	**331**	**834**

[1] The Existing Gilman Historic Ranch and Wagon Museum and Ranch House are assumed to be closed during special events. The park's passive and active park amenities, and the stagecoach hotel are assumed to be operational during special events.
[2] For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour.
[3] For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. For special event guests, an AVR of 3.0 people per vehicle (i.e., AVR = 3.0) has been assumed.
[4] For special event guests, 5% of guests are assumed to arrive/depart using rideshare. For special event guests, an AVR of 2.0 people per vehicle (i.e., AVR = 2.0) has been conservatively assumed.
[5] The total staff count for a special event has been assumed to be 5% of the total guest count. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff.

Parking Analysis for Typical Conditions Plus 750-Guest Special Event

The parking requirement for a 750-guest special event was determined based on the anticipated operations of the 750-guest special event, as detailed in the previous section.

During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation. As such, this scenario's parking requirements are based on the park, stagecoach hotel, and 750-guest special event.

Table 5 shows the parking demand calculations for the Typical Conditions Plus 750-Guest Special Events scenario.

Table 5 | Parking Requirement Calculation Summary Typical Conditions Plus 750-Guest Special Event

Type of Trip	Quantity	Units	Average Vehicle Ridership	Parking Spaces Required
Typical Conditions Parking Requirement (During the Times of Special Events)[1]				
Park and Recreational Uses	109,369 36.6	SF of active recreational area Acre of passive recreational area	--	51
Stagecoach Hotel	9	Recreational vehicle sites	--	11
Typical Conditions Parking Requirement (During the Times of Special Events) Sub-Total [A]				**62**
750-Guest Event Parking Requirement				
Guests (Personal Vehicles)	712	Guests	3.0	238
Guests (Rideshare)[4]	38	Guests	2.0	19
Event Staff[5]	38	Staff	1.5	25
750-Guest Special Event Parking Requirement Sub-Total [B]				**282**
Total Typical Conditions Plus 750-Guest Special Event Parking Requirement [A] + [B]				**344**
Proposed Parking Inventory				**350**
Number of Surplus Parking Spaces				**+6**

[1] During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation. The parking demand calculations for the park and stagecoach hotel are based on the parking rates identified in the County of Riverside Municipal Code §17.188.030 and are shown in Table 2.

As shown in Table 5, the project's parking demand under the Typical Conditions Plus 750-Guest Special Event scenario is approximately 344 parking spaces. The project proposes 350 parking spaces, including 4 bus parking spaces and 2 trailer parking spaces, resulting in a surplus of 6 spaces. Although a parking management plan (PMP) was not prepared as part of this study, RK recommends that a PMP be developed and implemented to facilitate parking operations during 750-guest special events, including the use of the bus parking spaces for event shuttle or charter bus service.

Parking Analysis for Typical Conditions Plus 1,000-Guest Special Event

The parking requirement for a 1,000-guest special event was determined based on the anticipated operations of the 1,000-guest special event, as detailed in the previous section.

During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation. As such, the parking requirements calculation for this scenario are based on the park, stagecoach hotel, and the 1,000-guest special event.

Table 6 shows the parking demand calculations for the Typical Conditions Plus 1,000-Guest Special Events scenario.

Table 6 | Parking Requirement Calculation Summary Typical Conditions Plus 1,000-Guest Special Event

Type of Trip	Quantity	Units	Average Vehicle Ridership	Parking Spaces Required
Typical Conditions Parking Requirement (During the Times of Special Events)[1]				
Park and Recreational Uses	109,369 36.6	SF of active recreational area Acre of passive recreational area	--	51
Stagecoach Hotel	9	Recreational vehicle sites	--	11
Typical Conditions Parking Requirement (During the Times of Special Events) Sub-Total [A]				**62**
1,000-Guest Event Parking Requirement				
Guests (Personal Vehicles)	950	Guests	3.0	317
Guests (Rideshare)[4]	50	Guests	2.0	25
Event Staff[5]	50	Staff	1.5	33
1,000-Guest Special Event Parking Requirement Sub-Total [B]				**375**
Total Typical Conditions Plus 1,000-Guest Special Event Parking Requirement [A] + [B]				**437**
Proposed Parking Inventory				**350**
Number of Deficient Parking Spaces				**-87**

[1] During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation. The parking demand calculations for the park and stagecoach hotel are based on the parking rates identified in the County of Riverside Municipal Code §17.188.030 and are shown in Table 2.

As shown in Table 6, the project's parking demand under the Typical Conditions Plus 1,000-Guest Special Event scenario is approximately 437 parking spaces. The project proposes 350 parking spaces, including 4 bus parking spaces and 2 trailer parking spaces, resulting in a deficiency of 87 spaces.

The project is not anticipated to host 1,000-guest special events, and this scenario was evaluated for informational purposes only. Therefore, this analysis identifies no recommendations for this scenario.

CONCLUSIONS

RK Engineering Group, Inc. has completed this Parking Analysis for the proposed Gilman Ranch Historic Park Improvements Project.

Based on the parking analysis, the proposed parking inventory of 350 parking spaces, including 4 bus parking spaces and 2 trailer parking spaces, is adequate to accommodate the parking demand under typical conditions (120 parking spaces) and under the 750-guest special event scenario (344 parking spaces). The parking demand under the 1,000-guest special event scenario (437 parking spaces) is expected to exceed the proposed parking inventory.

Although this study did not include a parking management plan (PMP), RK recommends developing and implementing a PMP to support parking operations during 750-guest special events, including using the bus parking spaces for event shuttle or charter bus service.

The project is not anticipated to host 1,000-guest special events, and this scenario was evaluated for informational purposes only. Therefore, this analysis identifies no recommendations for this scenario.

RK Engineering Group, Inc. appreciates this opportunity to work with ULTRASYSTEMS ENVIRONMENTAL on the Gilman Ranch Historic Park Improvements Project. If you have any questions regarding this analysis or need further clarification, please contact us at (949) 474-0809.

Sincerely,

RK ENGINEERING GROUP, INC.

Rogier Goedecke
CEO

Nhi Ly, T.E.
Engineer IV

Attachments

Exhibits



N

Exhibit B

Site Plan



Exhibit C

Land Use Categories for Parking Calculations

RK ENGINEERING GROUP INC.



Legend

= Project Site Boundary

Exhibit A

Location Map

APPENDIX H3

FOCUSED TRAFFIC STUDY

OCTOBER 22, 2026

Mr. Michael Milroy
ULTRASYSTEMS ENVIRONMENTAL
16431 Scientific Way
Irvine, CA 92618

SUBJECT: GILMAN RANCH HISTORIC PARK IMPROVEMENTS FOCUSED TRAFFIC STUDY, CITY OF BANNING

Dear Mr. Milroy:

INTRODUCTION

RK ENGINEERING GROUP, INC. (RK) is pleased to submit this focused traffic study for the proposed Gilman Ranch Historic Park Improvements Project (hereinafter referred to as "project").

The purpose of this analysis is to assist the Gilman Ranch Historic Park Improvements Project with identifying roadway improvements that will be needed to accommodate the project from a traffic circulation standpoint. As such, this analysis does not constitute an official traffic impact study, and the scope of this analysis has not been approved by the County of Riverside.

PROJECT DESCRIPTION

The proposed project is located at 1901 W. Wilson Street, on the northeast corner of W. Wilson Street and 20th Street, in the City of Banning. The site is currently developed with the Gilman Historic Ranch and Wagon Museum, as well as a ranch house, but the remainder of the approximately 42-acre site is generally undeveloped. The project would consist of a new events center; repair and improvements to several park components including the Bradshaw interpretive trail and the Native medicinal demonstration garden; new parking lots; 100-seat outdoor classroom; a stagecoach hotel (9 units); new picnic areas; several courtyards; play areas; a community park; botanical and restoration garden/orchard; landscaping and irrigation throughout the site; outdoor lighting; new ADA site access and pathways throughout the site; new restroom buildings; and decomposed granite walking paths.

It is RK's understanding that special events may be held at the event center, event courtyard, and/or ceremony space approximately once a month, on any day of the week. All events at the event center are assumed to conclude by 10 PM. All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.

Primary access to the project is proposed to continue to be provided via the existing driveway located at N. 19th Street (N/S) at W. Wilson Street (E/W). Secondary access to the project is proposed to be provided via the currently closed-off driveway located at N. 16th Street (N/S) at W. Wilson Street (E/W).

Exhibit A shows the aerial location map of the proposed project. **Exhibit B** shows the proposed site plan.

STUDY AREA & ANALYSIS SCENARIOS

Exhibit C illustrates the traffic analysis study area. As shown in Exhibit C, the study area consists of the following two (2) intersections:

1. N. 20th Street (N/S) at W. Wilson Street (E/W)
2. N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

To provide a conservative analysis, the study assumes that all project traffic is entering and exiting the main driveway at N. 19th Street and W. Wilson Street. As such, the secondary driveway at N. 16th Street and W. Wilson Street is not included in the study area.

The following scenarios have been evaluated for level of service and 95th percentile queuing analysis under Opening Year (2028) With Project Conditions:

- Typical Conditions
- Typical Conditions Plus 750-Guest Special Event
- Typical Conditions Plus 1,000-Guest Special Event *(For Informational Purposes Only)*

Typical Conditions are evaluated during the weekday AM (7:00 AM to 9:00 AM) and weekday PM (4:00 PM to 6:00 PM) peak periods. The 750-Guest and 1,000-Guest Special Event scenarios are evaluated during the peak arrival (1:00 PM to 3:00 PM) and peak departure (4:00 PM to 6:00 PM) periods.

It should be noted that the total seating capacity for a special event is 855 seats and the project is not anticipated to host 1,000-guest special events. As such, the 1,000-guest special events analysis was conducted for informational purposes only.

Exhibit D identifies the existing roadway conditions (i.e., type of traffic control and number of lanes) of the study area.

EXISTING TRAFFIC VOLUMES

Average daily traffic (ADT) counts were collected over four days (March 12–15, 2026) under typical conditions to identify the highest volumes and establish peak periods for this analysis. The highest peak-period volumes occurred on March 12, 2026 (Thursday); therefore, RK collected manual peak-hour turning movement counts on March 12, 2026 (Thursday) for use in this analysis.

AM and PM peak hours were determined from the 7:00–9:00 AM and 4:00–6:00 PM periods, respectively, using the highest hour within each two-hour window. Peak arrival and peak departure hours were determined from the 1:00–3:00 PM and 4:00–6:00 PM periods, respectively, using the highest hour within each two-hour window.

Exhibit E-1 shows the existing traffic volumes for the typical weekday AM and PM peak hours. **Exhibit E-2** shows the existing traffic volumes for the peak special event arrival and peak departure hours.

The existing trip generation for the Existing Gilman Historic Ranch and Wagon Museum was determined by collecting existing 24-hour driveway counts at the main driveway at N. 19th Street (N/S) and W. Wilson Street (E/W) on March 14, 2026 (Saturday).

It should be noted that the Existing Gilman Historic Ranch and Wagon Museum is only open on Saturdays. Because the manual turning movement counts were collected on a Thursday, Museum-related trip generation was not included in the typical weekday conditions analysis. Furthermore, the museum is assumed to be closed during special events and is therefore not included in the special events analysis as well.

Table 1 shows the existing trip generation based on the 24-hour driveway counts.

Table 1 | Existing Trip Generation

Land Use	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Existing Gilman Historic Ranch and Wagon Museum[1]	6	0	6	0	4	4	48

[1] *Source*: 24-Hour Driveway Counts conducted on March 14, 2026 (Saturday).

As shown in Table 1, the Existing Gilman Historic Ranch and Wagon Museum generates approximately 48 daily trips, which includes 6 AM peak hour trips and 4 PM peak hour trips.

The existing traffic count worksheets are provided in **Appendix A.**

PROJECT TRIP GENERATION

Project Trip Generation for Typical Conditions

The proposed project trip generation for Typical Conditions was developed using applicable Institute of Transportation Engineers (ITE) Trip Generation Manual (12th Edition, 2025) and assumptions based on anticipated typical weekday operations consistent with the *Gilman Ranch Historic Park Improvements Project Vehicle Miles Traveled (VMT) Assessment,* prepared by RK Engineering Group, Inc., dated October 22, 2026.

Related excerpts from the VMT study detailing the assumptions utilized to calculate the project trip generation for typical conditions are included in **Appendix B.**

Table 2 shows the appropriate ITE trip generation rates and the existing and forecasted project trip generation for Typical Conditions. As shown in Table 2, based on the ITE trip generation rates and considerations of typical weekday conditions only, the proposed project is forecast to generate approximately 68 PCE daily trips, which include approximately 16 PCE AM peak hour trips and 20 PCE PM peak hour trips.

Table 2 | Typical Weekday Conditions Proj. Trip Generation Rates & Forecast[1]

Land Use (ITE Code)	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
ITE Trip Generation Rates[1]									
Campground/Recreational Vehicle Park (416)	--	Campsites	27%	73%	0.07	54%	46%	0.09	1.04
Public Park (411)[2]	--	Acres	62%	38%	0.05	57%	43%	0.15	0.78
Proposed Project Trip Generation Forecast									
Stagecoach Hotel (416)	9	Campsites	0	1	1	1	0	1	9
Public Park (411)	42	Acres	1	1	2	3	3	6	33
Outdoor Classroom[4]	100	Students	--	--	--	--	--	--	--
	Actual Trips		2	2	4	2	2	4	8
	PCE Adjusted[5]		3	3	6	3	3	6	12
	7	Workers	7	0	7	0	7	7	14
	Sub-Total		10	3	13	3	10	13	26
Total Typical Weekday Trip Generation Forecasts (Actual Vehicles)			**10**	**4**	**14**	**6**	**12**	**18**	**64**
Total Typical Weekday Trip Generation Forecasts (W/ PCE Adj.)			**11**	**5**	**16**	**7**	**13**	**20**	**68**

[1] *Source*: ITE Trip Generation Manual (12th Edition, 2025).

[2]Per the ITE Trip Generation Manual (12th Edition, 2025), ITE Trip Generation Land Use 411: Public Park encompasses passive and active park amenities (e.g., horseshoe pits, picnic areas, etc.)

[3] Trip Generation for the existing Gilman Ranch

[4]Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom.

[5]All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. A 1.5 Passenger Car Equivalent (PCE) factor has been applied to the number of school buses.

Project Trip Generation During Time of Special Events

The trip generation for the special events scenarios has been developed based on the project team's description of proposed special event operations and has been supplemented by engineering judgment, consistent with the *Gilman Ranch Historic Park Improvements Project Parking Analysis,* prepared by RK Engineering Group, Inc., dated October 22, 2026.

Related excerpts from the parking study detailing the assumptions utilized to calculate the projected Event Arrival & Event Departure peak hour trip generation of a 750-Guest and 1,000 Guest special event are included in **Appendix C.**

Table 3 summarizes the forecasted project trip generation for Typical Conditions Plus 750-Guest Special Event and the Typical Conditions Plus 1,000-Guest Special Event. As shown in Table 3, the proposed project is forecast to generate approximately 668 daily trips, which include approximately 251 AM peak hour trips and 255 PM peak hour trips. As previously discussed, the museum is assumed to be closed during special events and is therefore not included in the special events analysis.

Table 3 | Forecasted Special Event Trip Generation Summary[1,2]

Type of Trip	Quantity	Units	Event Arrival Peak Hour			Event Departure Peak Hour			Daily
			In	Out	Total	In	Out	Total	
750-Guest Special Event Trip Generation									
Guests (Personal Vehicles)[3]	712	Guests	214	0	214	0	214	214	474
Guests (Rideshare)[4]	38	Guests	17	17	34	17	17	34	76
Event Staff[5]	38	Staff	0	0	0	0	0	0	76
750-Guest Special Event Trip Generation [A]			**231**	**17**	**248**	**17**	**231**	**248**	**626**
1,000-Guest Special Event Trip Generation									
Guests (Personal Vehicles)[3]	950	Guests	285	0	285	0	285	285	634
Guests (Rideshare)[4]	50	Guests	23	23	46	23	23	46	100
Event Staff[5]	50	Staff	0	0	0	0	0	0	100
1000-Guest Special Events Trip Generation [B]			**308**	**23**	**331**	**23**	**308**	**331**	**834**
Typ. Uses During Special Events Trip Gen[6] [C]			**1**	**2**	**3**	**4**	**3**	**7**	**42**
Typ. Cond. + 750-Guest Trip Gen [A] + [C]			**232**	**19**	**251**	**21**	**234**	**255**	**668**
Typ. Cond. +1,000-Guest Trip Gen. [B] + [C]			**309**	**25**	**334**	**27**	**311**	**338**	**876**

[1] The Existing Gilman Historic Ranch and Wagon Museum and Ranch House are assumed to be closed during special events. The park's passive and active park amenities, and the stagecoach hotel are assumed to be operational during special events.

[2] For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour.

[3] For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. For special event guests, an AVR of 3.0 people per vehicle (i.e., AVR = 3.0) has been assumed.

[4] For special event guests, 5% of guests are assumed to arrive/depart using rideshare. For special event guests, an AVR of 2.0 people per vehicle (i.e., AVR = 2.0) has been conservatively assumed.

[5] The total staff count for a special event has been assumed to be 5% of the total guest count. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff.

[6] During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation.

PROJECT TRIP DISTRIBUTION & TRAFFIC ASSIGNMENT

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, employment and recreational opportunities, and the proximity to the regional freeway system. The project trip distribution is illustrated in **Exhibit F.**

The assignment of project traffic to the adjoining roadway system is based upon the project's trip generation, trip distribution, and arterial highway and local street systems that would be in place by the time of initial occupancy of the site.

Project-only traffic volumes during Typical Conditions, Typical Conditions Plus 750-Guest Special Event, and Typical Conditions Plus 1,000-Guest Special Event are shown in **Exhibit G-1**, **Exhibit G-2**, and **Exhibit G-3**, respectively.

FUTURE TRAFFIC VOLUMES

Future traffic volumes were developed by applying two (2) years of linear growth on top of existing traffic volumes at two percent (2%) per year (4% total growth), adding cumulative project related traffic volumes, and proposed project traffic volumes corresponding to each analysis scenario.

Table 4 shows the land uses, and daily and peak hour trip generation for the nearby cumulative projects. Information on future projects in the vicinity of the study area for inclusion in this analysis has been provided by the City of Banning's and County of Riverside's websites.

Table 4 | Cumulative Projects Trip Generation Summary[1,2,3]

ID	Jurisdiction	Project Name	Weekday						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
B1	City of Banning	Vista Robles	27	73	100	82	51	133	1,300
B2	City of Banning	Banning 98 Townhomes	17	54	71	56	34	90	1,081
B3	City of Banning	Wyndham Micro Hotel	14	14	28	19	19	38	473
B4	City of Banning	Brown Strauss Street	4	4	8	2	7	9	95
B5	City of Banning	First Industrial Lincoln	13	5	18	7	15	22	242
B6	City of Banning	AMCO Structures	21	4	25	6	19	25	184
Total Cumulative Projects Trip Generation			**96**	**154**	**250**	**172**	**145**	**317**	**3,375**

[1]Information on future projects in the vicinity of the study area for inclusion in this analysis has been provided by the City of Banning's and County of Riverside's websites.
[2]Source: *ITE Trip Generation Manual* (12th Editon, 2025).
[3] Development projects located within the County of Riverside have also been reviewed based on information provided by the County's website. No County of Riverside development projects are located within a 2-mile radius of the project site and are therefore not shown in the table.

A location map of the cumulative projects is shown on **Exhibit H.** Cumulative projects traffic volumes are shown on **Exhibit I.**

Project Opening Year (2028) Without Project Conditions traffic volumes under Typical Conditions are shown in **Exhibit J-1.** Project Opening Year (2028) Without Project Conditions traffic volumes during the special events are shown in **Exhibit J-2.**

Project Opening Year (2028) With Project Conditions traffic volumes under Typical Conditions, Typical Conditions Plus 750-Guest Special Event, and Typical Conditions Plus 1,000-Guest Special Event is shown in **Exhibit K-1**, **Exhibit K-2**, and **Exhibit K-3**, respectively.

INTERSECTION LEVEL OF SERVICE (LOS) ANALYSIS

Methodology

Consistent with County of Riverside's *Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled,* dated December 2020 (Guidelines), the Highway Capacity Manual 7th Edition (HCM 7) methodology is utilized as the technical guide in the evaluation of intersection traffic operations.

The methodology used to assess the operation of unsignalized study area intersections is the Highway Capacity Manual 7th Edition (HCM 7) methodology. The HCM defines level of service (LOS) as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of factors such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

For intersections with stop control on the minor approach only, the calculation of LOS is dependent on the occurrence of gaps occurring in the free-flow traffic movement of the major street, and the LOS is determined based on the worst individual movement or movements sharing a single lane.

Existing peak hour factors (PHFs) have been calculated based upon the manual turning movement counts collected at the study intersections. However, it should be noted that the high existing PHFs for the peak arrival hour (0.936) and peak departure hour (0.918) indicate a more uniform distribution of traffic within these peak hours, which may not represent special event conditions where vehicles are anticipated to arrive and depart in more concentrated waves. As such, a PHF of 0.5 has been conservatively applied to the turning movements entering/exiting the project access driveway for all special events scenarios.

LOS Performance Criteria & Thresholds for Requiring LOS Improvements

The County of Riverside requires that intersections operate at LOS D or better to be considered acceptable. Therefore, any intersection operating at LOS E or worse will be considered deficient and recommendations to improve delay to less than significant levels will be required.

Intersection Level of Service (LOS) Analysis Summary

The level of service (LOS) calculations for each analysis scenario are based on the lane geometry and traffic control illustrated in Exhibits D and their respective traffic volume exhibits (i.e., Exhibits K-1 to K-3). Detailed intersection analysis worksheets are contained in **Appendix D.**

The LOS analysis summary for the study area under Typical Conditions and during special events is shown in **Table 5** and **Table 6**, respectively.

Table 5 | Study Intersection LOS Summary – Typical Conditions

Study Intersection	Traffic Control[1]	Methodology	Acceptable LOS	Delay (sec/veh)[2,3]		Level of Service		Requires Improvement?	
				AM	PM	AM	PM	AM	PM
1. N. 20th Street (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	11.5	11.2	B	B	No	No
2. N. 19th Street / Main Driveway (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	15.3	12.9	C	B	No	No

[1] CSS = Cross-Street Stop

[2] Deficient operations shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2026.

Table 6 | Study Intersection LOS Summary – Special Event Scenarios

Study Intersection	Traffic Control[1]	Methodology	Acceptable LOS	Delay (sec/veh)[2,3]		Level of Service		Requires Improvement?	
				Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Typical Conditions Plus 750-Guest Special Event									
1. N. 20th Street (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	13.6	12.1	B	B	No	No
2. N. 19th Street / Main Driveway (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	**41.0**	20.5	**E**	C	No	No
Typical Conditions Plus 1,000-Guest Special Event									
1. N. 20th Street (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	14.5	12.4	B	B	No	No
2. N. 19th Street / Main Driveway (N/S) at W. Wilson Street (E/W)	CSS	HCM 7	D	**74.5**	**35.8**	**F**	**E**	No	No

[1] CSS = Cross-Street Stop

[2] Deficient operations shown in **Bold**.

[3] HCM Analysis Software: PTV Vistro, Version 2026.

As shown in Table 5, all study intersections currently operate at an acceptable LOS during the AM and PM peak hours under Typical Condition. As shown in Table 6, Intersection #2 is forecast to operate at a deficient LOS under both special event scenarios.

The deficient delay at Intersection #2 is primarily driven by the relatively low-volume turning movements exiting N. 19th Street. However, it should be noted that special events occur on a temporary and infrequent basis; therefore, the associated delay would be limited to event days. It should also be noted that the special events scenarios have been evaluated conservatively because it assumes event departures occur during the PM peak period; in practice, departures are expected to occur later in the evening when background traffic volumes are lower. The analysis is also conservative due to the assumed 0.5 peak hour factor at the turning movements, which concentrates a large share of event traffic within a single peak hour. In addition, the operational effects identified at the study intersection are primarily associated with site access/egress and queuing internal to the site, rather than degrading the mainline through movements along Wilson Street. As such, while temporary event-related delay may occur at the driveway/intersection during peak departures, it is largely contained within the site and does not result in adverse operational impacts to the roadway through movements. Therefore, no additional improvements have been recommended.

95TH PERCENTILE QUEUING ANALYSIS

The queue analysis has been performed utilizing the HCM 7 95th percentile queue evaluation methodology. Queue lengths have been reported for all turning movements entering/exiting the project site for all analysis scenarios.

Table 7 shows the results of the queue analysis under each analysis scenario. As shown in Table 7, the 95th percentile queues can be accommodated within the existing storage lengths with the exception of the eastbound left-turn movement at Intersection #2 under Typical Conditions Plus 1,000-Guest Special Event scenario.

Table 7 | 95TH Percentile Queuing Analysis Summary

Study Intersections		Movements	Existing Storage Length[2]	95th Percentile Queue Length Per Lane (feet)					
				Typical Conditions		750-Guest Special Event		1,000-Guest Special Event	
				AM	PM	AM	PM	AM	PM
1.	N. 20th Street (N/S) at W. Wilson Street (E/W)	WB LT	80	25[3]	25[3]	25[3]	25[3]	25[3]	25[3]
2.	N. 19th Street / Main Driveway (N/S) at W. Wilson Street (E/W)	EB LT	50	25[3]	25[3]	37	25[3]	**61**	25[3]
		WB TH/RT	200	25[3]	25[3]	25[3]	25[3]	25[3]	25[3]

[1]HCM Analysis Software: Vistro, Version 2026.
[2] The left-turn movement at Intersection #2 does not have an existing dedicated turn lane. As such, the existing storage length for this movement is measured as the length of the median up to the back-to-back transition taper for the westbound left-turn pocket at Intersection #1. existing storage length for the through/right turn (TH/RT) movement at Intersection #2 is measured as the distance to the next intersection.
[3]Minimum queue length of 25 feet reported for the purposes of this analysis, actual queue may be less.

It should be noted that the project is not anticipated to host 1,000-guest special events, and this scenario was evaluated for informational purposes only. Therefore, no recommendations are proposed for this scenario.

CONCLUSIONS

RK Engineering Group, Inc. has completed focused traffic study for the proposed Gilman Ranch Historic Park Improvements Project.

Based on Opening Year (2028) With Project Conditions, all intersections are forecast to operate at an acceptable LOS under Typical Conditions. During the special event scenarios, Intersection #2 is forecast to operate at an unacceptable LOS. However, it should be noted that special events occur on a temporary and infrequent basis; therefore, the associated delay would be limited to event days. It should also be noted that the special event evaluation was prepared conservatively (including use of a 0.5 PHF for event driveway movements and assignment of departures to the PM peak period), and the resulting effects are primarily contained within the site and does not degrade the through movements along Wilson Street.

Based on the 95th-percentile queuing analysis, the 95th percentile queues can generally be accommodated within existing storage, except for the eastbound left-turn at Intersection #2 under the Typical Conditions Plus 1,000-Guest Special Event scenario. However, since project is not anticipated to host 1,000-guest special events and this scenario was evaluated for informational purposes only. As such, no recommendations are proposed for this scenario.

RK Engineering Group, Inc. appreciates this opportunity to work with the ULTRASYSTEMS ENVIRONMENTAL on the Gilman Ranch Historic Park Improvements Project. If you have any questions regarding this review, or need further clarification, please contact us at (949) 474-0809.

Sincerely,

RK ENGINEERING GROUP, INC.

Justin Tucker, P.E., T.E.
Principal

Attachments



Nhi Ly, T.E.
Engineer IV

Exhibits



Legend

= Project Site Boundary

Exhibit A

Location Map



N

Exhibit B

Site Plan



N

Legend

① = Study Intersection

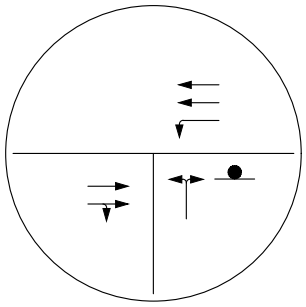
= Project Site Boundary

= Project Access Driveway

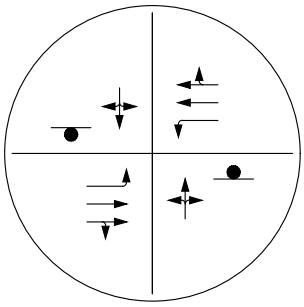
Exhibit C

Study Area





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

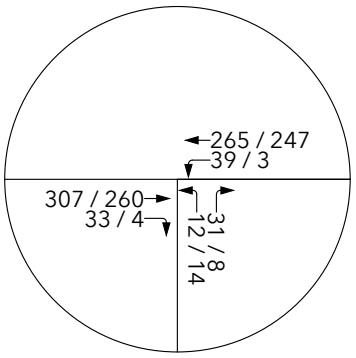
Legend

- (1) = Study Intersection
- = Project Site Boundary
- = Project Access Driveway
- = Stop Sign

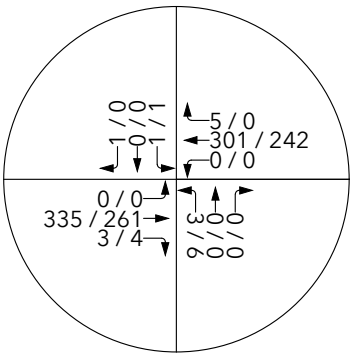
Exhibit D

Existing Lane Geometry & Traffic Controls





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

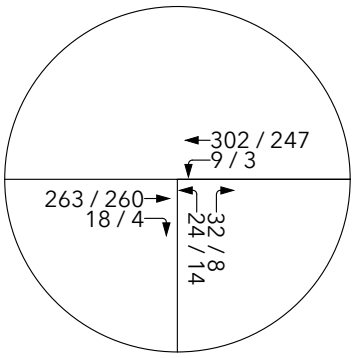
Legend

- (1) = Study Intersection
- = Project Site Boundary
- = Project Access Driveway
- X / X = AM / PM Peak Hour Volumes

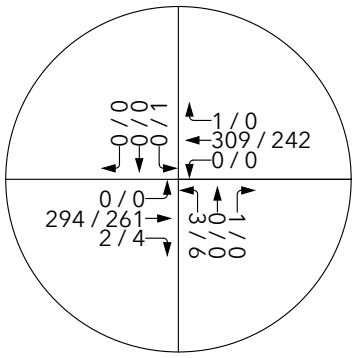
Exhibit E-1

Existing Traffic Volumes During AM & PM Peak Hours





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

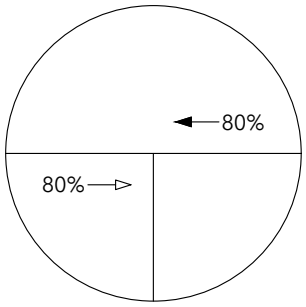
= Project Access Driveway

X / X = Peak Arrival / Departure Volumes

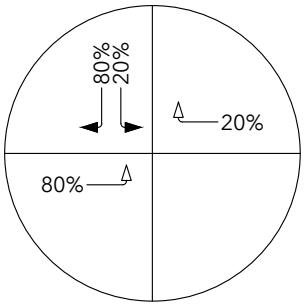
Exhibit E-2

Existing Traffic Volumes During Peak Arrival / Departure Hours





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

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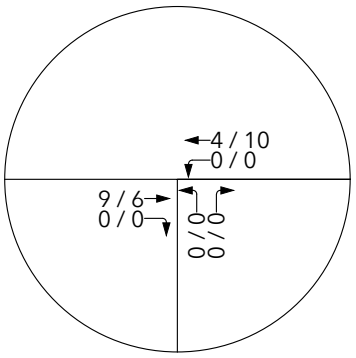
Legend

- (1) = Study Intersection
- = Project Site Boundary
- = Project Access Driveway
- = Inbound Project Trip Distribution
- = Outbound Project Trip Distribution

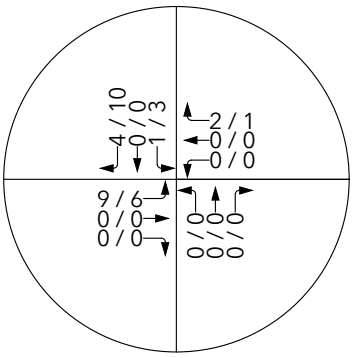
Exhibit F

Project Trip Distribution





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

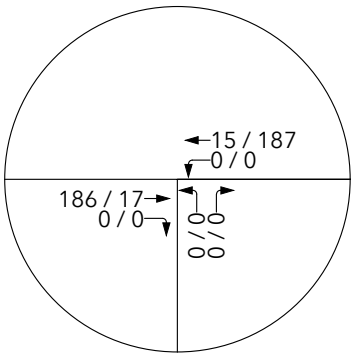
= Project Access Driveway

X / X = AM / PM Peak Hour Volumes

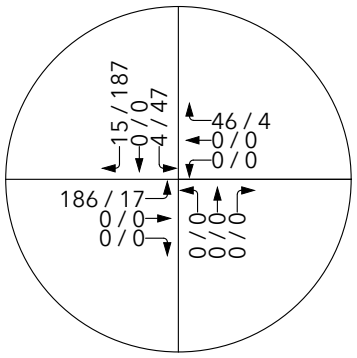
Exhibit G-1

Project-Only Traffic Volumes Under Typical Conditions





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

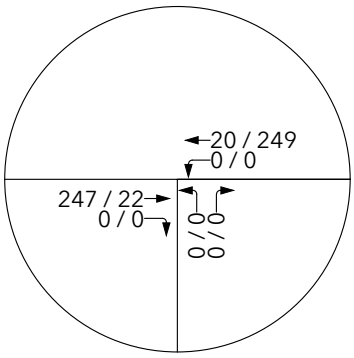
= Project Access Driveway

X / X = Peak Arrival / Departure Volumes

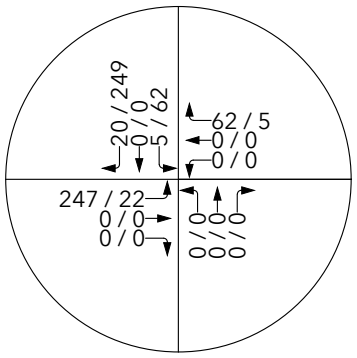
Exhibit G-2

Project-Only Traffic Volumes Under Typical Conditions Plus 750-Guest Special Event





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

= Project Access Driveway

X / X = Peak Arrival / Departure Volumes

Exhibit G-3

Project-Only Traffic Volumes Under Typical Conditions Plus 1,000-Guest Special Event

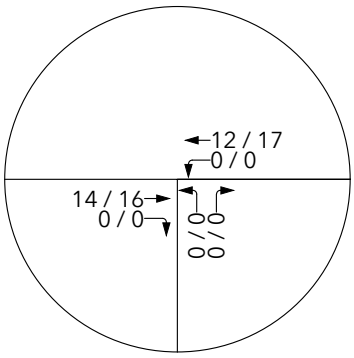


Note 1: Development projects located within the County of Riverside have also been reviewed based on information provided by the County's website. No County of Riverside development projects are located within a 2-mile radius of the project site, and are therefore not illustrated in this exhibit.
Note 2: Additional information and details about the cumulative projects are provided in Table 5.

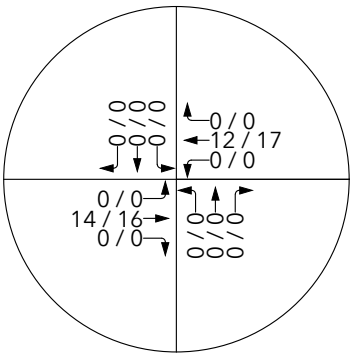
Exhibit H

Cumulative Projects Location Map





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

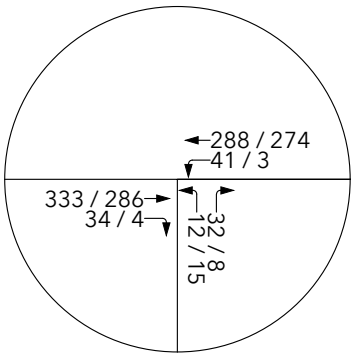
= Project Access Driveway

X / X = AM / PM Peak Hour Volumes

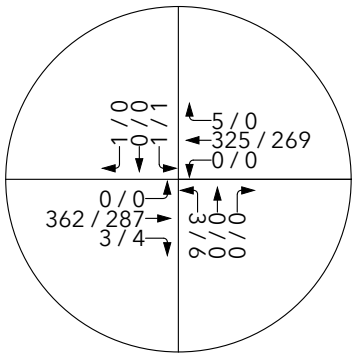
Exhibit I

Cumulative Projects Traffic Volumes





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

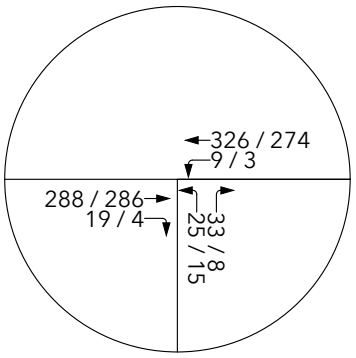
= Project Access Driveway

X / X = AM / PM Peak Hour Volumes

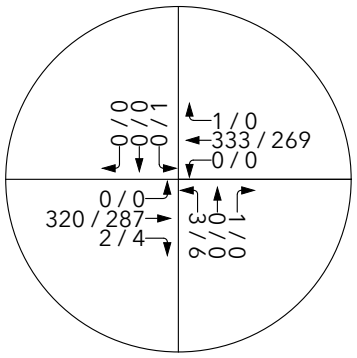
Exhibit J-1

Project Opening Year (2028) Without Project Traffic Volumes Under Typical Conditions





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

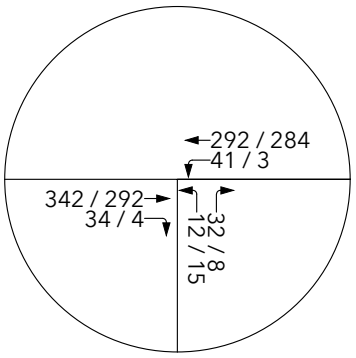
= Project Access Driveway

X / X = Peak Arrival / Departure Volumes

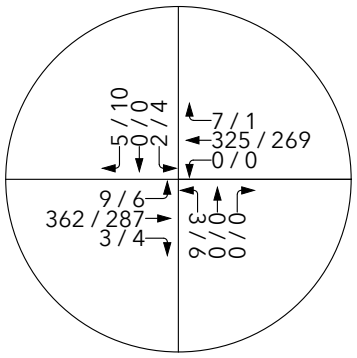
Exhibit J-2

Project Opening Year (2028) Without Project Traffic Volumes During Special Event





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

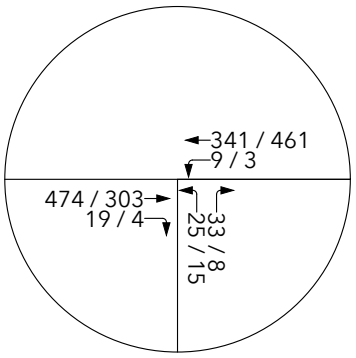
= Project Access Driveway

X / X = AM / PM Peak Hour Volumes

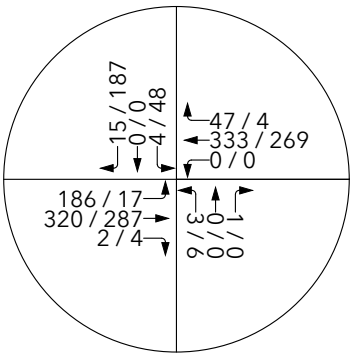
Exhibit K-1

Project Opening Year (2028) With Project Conditions Traffic Volumes Under Typical Conditions





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

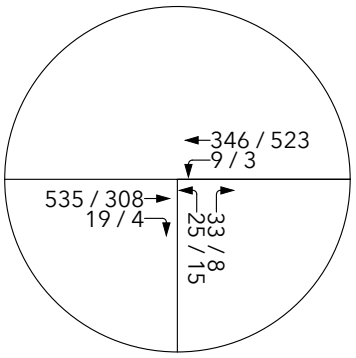
Legend

- (1) = Study Intersection
- = Project Site Boundary
- = Project Access Driveway
- X / X = Peak Arrival / Departure Volumes

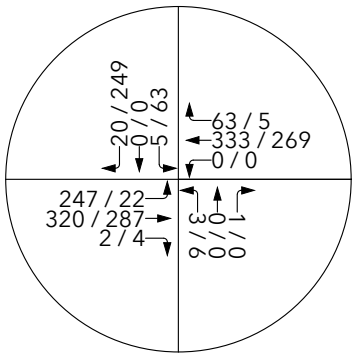
Exhibit K-2

Project Opening Year (2028) With Project Conditions Traffic Volumes Under Typical Conditions Plus 750-Guest Special Event





1. 20th Street (N/S) & Wilson Street (E/W)



2. 19th Street (N/S) & Wilson Street (E/W)

N

Legend

① = Study Intersection

= Project Site Boundary

= Project Access Driveway

X / X = Peak Arrival / Departure Volumes

Exhibit K-3

Project Opening Year (2028) With Project Conditions Traffic Volumes Under Typical Conditions Plus 1,000-Guest Special Event

Appendices

Appendix A
Existing Traffic Count Worksheets

Counts Unlimited, Inc

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

County of Riverside
19th Street
N/ Wilson Street
24 Hour Directional Volume Count

CRV002
Site Code: 105-26249
Date Start: 3/14/26

Start Time	3/14/26 Sat	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	0			0	**3**				
12:15		0	**0**			0	**1**				
12:30		0	**0**			0	**1**				
12:45		0	**1**	0	1	0	**1**	0	6	0	7
01:00		0	**3**			0	2				
01:15		0	0			0	0				
01:30		0	0			0	1				
01:45		0	1	0	4	0	1	0	4	0	8
02:00		0	1			0	0				
02:15		0	0			0	0				
02:30		0	0			0	0				
02:45		0	0	0	1	0	1	0	1	0	2
03:00		0	0			0	0				
03:15		0	1			0	1				
03:30		0	0			0	0				
03:45		0	0	0	1	0	0	0	1	0	2
04:00		0	0			0	1				
04:15		0	0			0	1				
04:30		0	0			0	1				
04:45		0	0	0	0	0	1	0	4	0	4
05:00		0	0			0	0				
05:15		0	0			0	0				
05:30		0	0			0	0				
05:45		0	0	0	0	0	0	0	0	0	0
06:00		0	0			0	0				
06:15		0	0			0	0				
06:30		0	0			0	0				
06:45		0	0	0	0	0	0	0	0	0	0
07:00		**0**	0			0	0				
07:15		**0**	0			0	0				
07:30		**1**	0			0	0				
07:45		**5**	0	6	0	0	0	0	0	6	0
08:00		0	1			1	0				
08:15		0	0			0	0				
08:30		0	0			0	0				
08:45		2	0	2	1	1	0	2	0	4	1
09:00		0	0			0	0				
09:15		0	0			0	0				
09:30		0	0			0	0				
09:45		1	0	1	0	0	0	0	0	1	0
10:00		1	0			1	0				
10:15		2	0			0	0				
10:30		2	0			1	0				
10:45		1	0	6	0	0	0	2	0	8	0
11:00		1	0			**2**	0				
11:15		0	0			**0**	0				
11:30		0	0			**1**	0				
11:45		0	0	1	0	**1**	0	4	0	5	0
Total		16	8	16	8	8	16	8	16	24	24
Combined Total		24		24		24		24		48	
AM Peak	-	07:00	-	-	-	11:00	-	-	-	-	-
Vol.	-	6	-	-	-	4	-	-	-	-	-
P.H.F.		0.300				0.500					
PM Peak	-	-	00:15	-	-	-	12:00	-	-	-	-
Vol.	-	-	4	-	-	-	6	-	-	-	-
P.H.F.			0.333				0.500				
Percentage		66.7%	33.3%			33.3%	66.7%				
ADT/AADT		ADT 48		AADT 48							

Counts Unlimited, Inc

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

County of Riverside
Wilson Street
W/ 19th Street
4 Day Directional Volume Count

CRV001
Site Code: 105-26249
Date Start: 3/12/26

Start Time	3/12/26 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		12	38			4	46				
12:15		4	43			5	42				
12:30		4	49			1	44				
12:45		7	46	27	176	3	41	13	173	40	349
01:00		3	70			4	44				
01:15		6	62			2	56				
01:30		4	71			2	65				
01:45		2	78	15	281	2	75	10	240	25	521
02:00		0	62			3	**73**				
02:15		2	72			1	**76**				
02:30		1	**80**			0	**86**				
02:45		2	**86**	5	300	2	**76**	6	311	11	611
03:00		1	**92**			0	65				
03:15		1	**85**			3	47				
03:30		2	79			6	64				
03:45		4	56	8	312	4	53	13	229	21	541
04:00		0	80			4	52				
04:15		2	59			5	54				
04:30		6	62			4	67				
04:45		3	52	11	253	9	44	22	217	33	470
05:00		2	70			4	72				
05:15		1	68			14	58				
05:30		11	64			7	57				
05:45		11	64	25	266	15	60	40	247	65	513
06:00		8	77			13	58				
06:15		17	81			18	51				
06:30		19	59			28	36				
06:45		19	54	63	271	33	43	92	188	155	459
07:00		31	53			40	35				
07:15		46	41			57	29				
07:30		82	39			61	33				
07:45		**101**	34	260	167	**82**	28	240	125	500	292
08:00		**68**	31			**84**	43				
08:15		**84**	55			**61**	39				
08:30		**85**	29			**76**	41				
08:45		84	39	321	154	77	17	298	140	619	294
09:00		44	39			58	18				
09:15		48	40			40	14				
09:30		45	24			31	22				
09:45		40	19	177	122	27	8	156	62	333	184
10:00		35	21			38	15				
10:15		32	32			30	15				
10:30		40	10			53	12				
10:45		38	13	145	76	38	8	159	50	304	126
11:00		47	13			48	8				
11:15		46	8			32	7				
11:30		45	4			37	6				
11:45		48	5	186	30	25	2	142	23	328	53
Total		1243	2408	1243	2408	1191	2005	1191	2005	2434	4413
Combined Total		3651		3651		3196		3196		6847	
AM Peak	-	07:45	-	-	-	07:45	-	-	-	-	-
Vol.	-	338	-	-	-	303	-	-	-	-	-
P.H.F.		0.837				0.902					
PM Peak	-	-	02:30	-	-	-	02:00	-	-	-	-
Vol.	-	-	343	-	-	-	311	-	-	-	-
P.H.F.			0.932				0.904				
Percentage		34.0%	66.0%			37.3%	62.7%				

Counts Unlimited, Inc

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

County of Riverside
Wilson Street
W/ 19th Street
4 Day Directional Volume Count

CRV001
Site Code: 105-26249
Date Start: 3/12/26

Start Time	3/13/26 Fri	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	62			2	43				
12:15		8	63			4	47				
12:30		3	61			2	42				
12:45		4	50	23	236	2	49	10	181	33	417
01:00		0	55			0	52				
01:15		8	50			4	32				
01:30		2	60			3	43				
01:45		1	49	11	214	2	36	9	163	20	377
02:00		1	48			1	48				
02:15		2	55			2	64				
02:30		0	**70**			1	50				
02:45		2	**81**	5	254	3	55	7	217	12	471
03:00		4	**69**			1	54				
03:15		1	**81**			2	41				
03:30		2	65			5	43				
03:45		1	66	8	281	2	43	10	181	18	462
04:00		3	70			8	55				
04:15		1	73			6	45				
04:30		3	74			3	**57**				
04:45		3	56	10	273	2	**60**	19	217	29	490
05:00		2	69			5	**63**				
05:15		5	62			9	**51**				
05:30		8	57			12	55				
05:45		11	69	26	257	10	50	36	219	62	476
06:00		5	57			15	41				
06:15		10	54			15	42				
06:30		15	39			27	36				
06:45		20	56	50	206	19	34	76	153	126	359
07:00		12	48			44	43				
07:15		34	48			38	36				
07:30		47	40			51	32				
07:45		42	34	135	170	53	22	186	133	321	303
08:00		39	39			46	26				
08:15		43	28			38	35				
08:30		50	29			46	25				
08:45		42	32	174	128	43	31	173	117	347	245
09:00		38	33			26	24				
09:15		42	34			39	16				
09:30		36	18			26	14				
09:45		44	22	160	107	44	16	135	70	295	177
10:00		34	15			38	7				
10:15		38	25			43	9				
10:30		39	24			33	10				
10:45		39	15	150	79	33	8	147	34	297	113
11:00		**39**	18			**46**	10				
11:15		**35**	22			**49**	5				
11:30		**63**	8			**41**	10				
11:45		**54**	7	191	55	**53**	9	189	34	380	89
Total		943	2260	943	2260	997	1719	997	1719	1940	3979
Combined Total		3203		3203		2716		2716		5919	
AM Peak	-	11:00	-	-	-	11:00	-	-	-	-	-
Vol.	-	191	-	-	-	189	-	-	-	-	-
P.H.F.		0.758				0.892					
PM Peak	-	-	02:30	-	-	-	04:30	-	-	-	-
Vol.	-	-	301	-	-	-	231	-	-	-	-
P.H.F.			0.929				0.917				
Percentage		29.4%	70.6%			36.7%	63.3%				

Counts Unlimited, Inc

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

County of Riverside
Wilson Street
W/ 19th Street
4 Day Directional Volume Count

CRV001
Site Code: 105-26249
Date Start: 3/12/26

Start	3/14/26	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Sat	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		16	58			6	59				
12:15		9	50			6	35				
12:30		10	62			6	44				
12:45		5	69	40	239	6	53	24	191	64	430
01:00		6	64			2	34				
01:15		4	58			2	41				
01:30		5	51			6	39				
01:45		4	45	19	218	6	35	16	149	35	367
02:00		4	59			5	35				
02:15		2	46			2	43				
02:30		3	47			3	40				
02:45		8	**64**	17	216	2	32	12	150	29	366
03:00		1	**73**			3	51				
03:15		0	**87**			2	32				
03:30		0	**61**			3	44				
03:45		1	47	2	268	2	41	10	168	12	436
04:00		2	53			4	47				
04:15		2	51			2	35				
04:30		3	43			7	**49**				
04:45		5	51	12	198	7	**42**	20	173	32	371
05:00		4	49			8	**59**				
05:15		3	44			5	**46**				
05:30		5	62			5	26				
05:45		7	49	19	204	6	36	24	167	43	371
06:00		7	37			7	37				
06:15		5	33			14	36				
06:30		12	40			14	35				
06:45		10	52	34	162	18	39	53	147	87	309
07:00		8	56			23	42				
07:15		18	42			24	25				
07:30		21	35			29	29				
07:45		18	34	65	167	27	29	103	125	168	292
08:00		26	29			36	21				
08:15		20	35			25	21				
08:30		27	27			41	27				
08:45		38	32	111	123	26	13	128	82	239	205
09:00		38	24			42	12				
09:15		**55**	20			51	15				
09:30		**43**	29			40	10				
09:45		**58**	19	194	92	31	24	164	61	358	153
10:00		**40**	25			**45**	9				
10:15		34	19			**39**	19				
10:30		52	26			**54**	13				
10:45		54	24	180	94	**32**	10	170	51	350	145
11:00		49	14			31	10				
11:15		40	10			36	9				
11:30		53	8			44	10				
11:45		53	12	195	44	38	8	149	37	344	81
Total		888	2025	888	2025	873	1501	873	1501	1761	3526
Combined Total		2913		2913		2374		2374		5287	
AM Peak	-	09:15	-	-	-	10:00	-	-	-	-	-
Vol.	-	196	-	-	-	170	-	-	-	-	-
P.H.F.		0.845				0.787					
PM Peak	-	-	02:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	285	-	-	-	196	-	-	-	-
P.H.F.			0.819				0.831				
Percentage		30.5%	69.5%			36.8%	63.2%				

Counts Unlimited, Inc

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

County of Riverside
Wilson Street
W/ 19th Street
4 Day Directional Volume Count

CRV001
Site Code: 105-26249
Date Start: 3/12/26

Start Time	3/15/26 Sun	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		10	62			6	35				
12:15		9	43			6	44				
12:30		6	51			3	52				
12:45		6	59	31	215	5	42	20	173	51	388
01:00		6	**73**			3	55				
01:15		7	**69**			2	53				
01:30		4	**54**			4	39				
01:45		5	**66**	22	262	3	42	12	189	34	451
02:00		2	56			2	47				
02:15		2	51			1	51				
02:30		2	55			1	49				
02:45		4	45	10	207	1	**52**	5	199	15	406
03:00		4	48			1	**40**				
03:15		1	50			0	**58**				
03:30		2	39			2	**56**				
03:45		3	41	10	178	0	43	3	197	13	375
04:00		1	38			2	37				
04:15		0	51			2	25				
04:30		7	50			0	22				
04:45		3	39	11	178	4	50	8	134	19	312
05:00		1	39			5	30				
05:15		1	40			10	34				
05:30		6	35			6	41				
05:45		4	45	12	159	8	35	29	140	41	299
06:00		3	36			0	39				
06:15		8	32			4	29				
06:30		16	53			10	31				
06:45		14	36	41	157	7	32	21	131	62	288
07:00		5	31			12	37				
07:15		14	53			15	30				
07:30		8	44			18	29				
07:45		18	40	45	168	20	26	65	122	110	290
08:00		23	36			27	30				
08:15		32	31			23	26				
08:30		36	39			33	20				
08:45		37	25	128	131	37	17	120	93	248	224
09:00		27	23			37	16				
09:15		24	33			38	11				
09:30		21	26			48	14				
09:45		48	12	120	94	40	10	163	51	283	145
10:00		31	14			48	10				
10:15		**53**	21			45	17				
10:30		**50**	17			51	8				
10:45		**49**	15	183	67	**43**	15	187	50	370	117
11:00		**33**	10			**54**	8				
11:15		43	19			**41**	10				
11:30		41	7			**66**	6				
11:45		32	6	149	42	38	3	199	27	348	69
Total		762	1858	762	1858	832	1506	832	1506	1594	3364
Combined Total		2620		2620		2338		2338		4958	
AM Peak	-	10:15	-	-	-	10:45	-	-	-	-	-
Vol.	-	185	-	-	-	204	-	-	-	-	-
P.H.F.		0.873				0.773					
PM Peak	-	-	01:00	-	-	-	02:45	-	-	-	-
Vol.	-	-	262	-	-	-	206	-	-	-	-
P.H.F.			0.897				0.888				
Percentage		29.1%	70.9%			35.6%	64.4%				
ADT/AADT		ADT 5,753		AADT 5,753							

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City of Banning
N/S: 20th Street
E/W: Wilson Street
Weather: Clear

File Name : 01_BAN_20th_Wil AM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	40	0	40	2	0	1	3	0	30	5	35	78
07:15 AM	0	0	0	0	3	54	0	57	2	0	3	5	0	42	3	45	107
07:30 AM	0	0	0	0	8	53	0	61	0	0	2	2	0	80	2	82	145
07:45 AM	0	0	0	0	5	78	0	83	3	0	4	7	0	100	4	104	194
Total	0	0	0	0	16	225	0	241	7	0	10	17	0	252	14	266	524
08:00 AM	0	0	0	0	7	77	0	84	5	0	7	12	0	60	9	69	165
08:15 AM	0	0	0	0	15	46	0	61	2	0	7	9	0	76	10	86	156
08:30 AM	0	0	0	0	12	64	0	76	2	0	13	15	0	71	10	81	172
08:45 AM	0	0	0	0	10	68	0	78	3	0	10	13	0	74	11	85	176
Total	0	0	0	0	44	255	0	299	12	0	37	49	0	281	40	321	669
Grand Total	0	0	0	0	60	480	0	540	19	0	47	66	0	533	54	587	1193
Apprch %	0	0	0		11.1	88.9	0		28.8	0	71.2		0	90.8	9.2		
Total %	0	0	0	0	5	40.2	0	45.3	1.6	0	3.9	5.5	0	44.7	4.5	49.2	

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	5	**78**	0	83	3	0	4	7	0	**100**	4	**104**	**194**
08:00 AM	0	0	0	0	7	77	0	**84**	**5**	0	7	12	0	60	9	69	165
08:15 AM	0	0	0	0	**15**	46	0	61	2	0	7	9	0	76	**10**	86	156
08:30 AM	0	0	0	0	12	64	0	76	2	0	**13**	**15**	0	71	10	81	172
Total Volume	0	0	0	0	39	265	0	304	12	0	31	43	0	307	33	340	687
% App. Total	0	0	0		12.8	87.2	0		27.9	0	72.1		0	90.3	9.7		
PHF	.000	.000	.000	.000	.650	.849	.000	.905	.600	.000	.596	.717	.000	.768	.825	.817	.885

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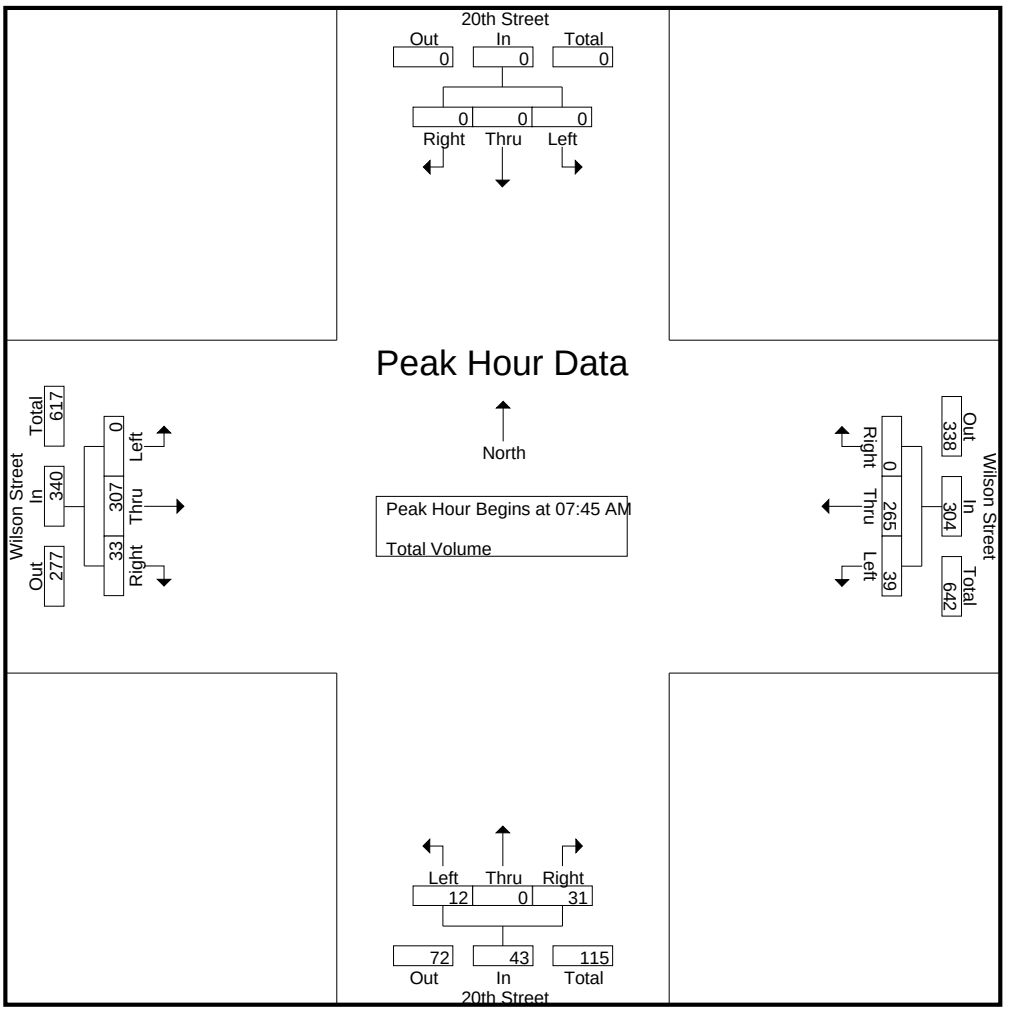
Site Code : 10526249
Start Date : 3/12/2026
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:45 AM				08:00 AM				07:30 AM			
+0 mins.	0	0	0	0	5	**78**	0	83	**5**	0	7	12	0	80	2	82
+15 mins.	0	0	0	0	7	77	0	**84**	2	0	7	9	0	**100**	4	**104**
+30 mins.	0	0	0	0	**15**	46	0	61	2	0	**13**	**15**	0	60	9	69
+45 mins.	0	0	0	0	12	64	0	76	3	0	10	13	0	76	**10**	86
Total Volume	0	0	0	0	39	265	0	304	12	0	37	49	0	316	25	341
% App. Total	0	0	0		12.8	87.2	0		24.5	0	75.5		0	92.7	7.3	
PHF	.000	.000	.000	.000	.650	.849	.000	.905	.600	.000	.712	.817	.000	.790	.625	.820

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Site Code : 10526249
Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	1	44	0	45	1	0	4	5	0	67	7	74	124
01:15 PM	0	0	0	0	5	51	0	56	2	0	2	4	0	61	6	67	127
01:30 PM	0	0	0	0	15	49	0	64	3	0	2	5	0	69	12	81	150
01:45 PM	0	0	0	0	7	70	0	77	16	0	27	43	0	52	12	64	184
Total	0	0	0	0	28	214	0	242	22	0	35	57	0	249	37	286	585
02:00 PM	0	0	0	0	0	72	0	72	2	0	1	3	0	60	1	61	136
02:15 PM	0	0	0	0	0	75	0	75	3	0	3	6	0	70	2	72	153
02:30 PM	0	0	0	0	2	85	0	87	3	0	1	4	0	81	3	84	175
02:45 PM	0	0	0	0	0	74	0	74	6	0	1	7	0	84	6	90	171
Total	0	0	0	0	2	306	0	308	14	0	6	20	0	295	12	307	635
Grand Total	0	0	0	0	30	520	0	550	36	0	41	77	0	544	49	593	1220
Apprch %	0	0	0		5.5	94.5	0		46.8	0	53.2		0	91.7	8.3		
Total %	0	0	0	0	2.5	42.6	0	45.1	3	0	3.4	6.3	0	44.6	4	48.6	

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	0	0	0	0	**7**	70	0	77	**16**	0	**27**	**43**	0	52	**12**	64	**184**
02:00 PM	0	0	0	0	0	72	0	72	2	0	1	3	0	60	1	61	136
02:15 PM	0	0	0	0	0	75	0	75	3	0	3	6	0	70	2	72	153
02:30 PM	0	0	0	0	2	**85**	0	**87**	3	0	1	4	0	**81**	3	**84**	175
Total Volume	0	0	0	0	9	302	0	311	24	0	32	56	0	263	18	281	648
% App. Total	0	0	0		2.9	97.1	0		42.9	0	57.1		0	93.6	6.4		
PHF	.000	.000	.000	.000	.321	.888	.000	.894	.375	.000	.296	.326	.000	.812	.375	.836	.880

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City of Banning
N/S: 20th Street
E/W: Wilson Street
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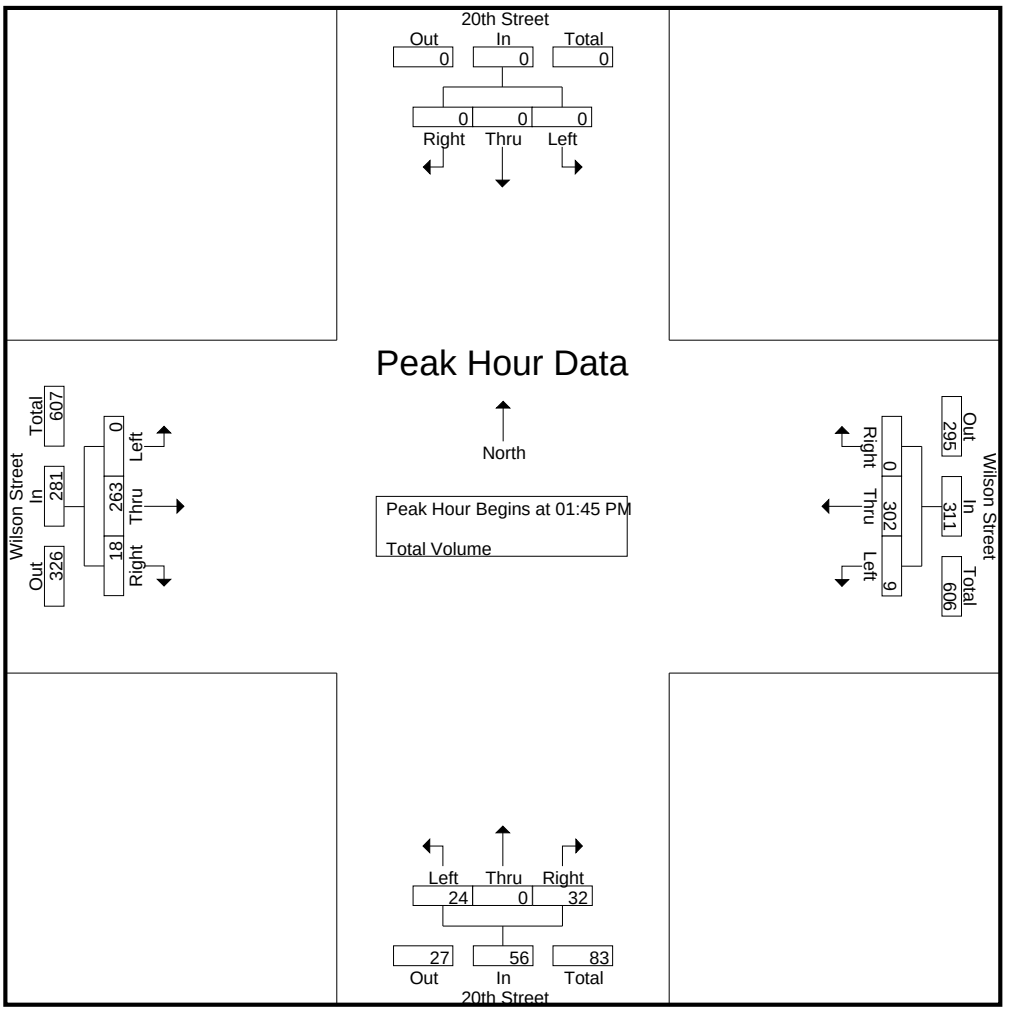
File Name : 01_BAN_20th_Wil MD
Site Code : 10526249
Start Date : 3/12/2026
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				01:45 PM				01:00 PM				02:00 PM			
+0 mins.	0	0	0	0	**7**	70	0	77	1	0	4	5	0	60	1	61
+15 mins.	0	0	0	0	0	72	0	72	2	0	2	4	0	70	2	72
+30 mins.	0	0	0	0	0	75	0	75	3	0	2	5	0	81	3	84
+45 mins.	0	0	0	0	2	**85**	0	**87**	**16**	0	**27**	**43**	0	**84**	**6**	**90**
Total Volume	0	0	0	0	9	302	0	311	22	0	35	57	0	295	12	307
% App. Total	0	0	0		2.9	97.1	0		38.6	0	61.4		0	96.1	3.9	
PHF	.000	.000	.000	.000	.321	.888	.000	.894	.344	.000	.324	.331	.000	.878	.500	.853

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City of Banning
N/S: 20th Street
E/W: Wilson Street
Weather: Clear

File Name : 01_BAN_20th_Wil PM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	1	51	0	52	4	0	4	8	0	76	2	78	138
04:15 PM	0	0	0	0	1	53	0	54	2	0	4	6	0	55	2	57	117
04:30 PM	0	0	0	0	0	65	0	65	3	0	1	4	0	60	3	63	132
04:45 PM	0	0	0	0	1	44	0	45	5	0	0	5	0	53	3	56	106
Total	0	0	0	0	3	213	0	216	14	0	9	23	0	244	10	254	493
05:00 PM	0	0	0	0	0	72	0	72	4	0	3	7	0	66	0	66	145
05:15 PM	0	0	0	0	1	60	0	61	3	0	1	4	0	69	0	69	134
05:30 PM	0	0	0	0	0	57	0	57	2	0	4	6	0	60	3	63	126
05:45 PM	0	0	0	0	2	58	0	60	5	0	0	5	0	65	1	66	131
Total	0	0	0	0	3	247	0	250	14	0	8	22	0	260	4	264	536
Grand Total	0	0	0	0	6	460	0	466	28	0	17	45	0	504	14	518	1029
Apprch %	0	0	0		1.3	98.7	0		62.2	0	37.8		0	97.3	2.7		
Total %	0	0	0	0	0.6	44.7	0	45.3	2.7	0	1.7	4.4	0	49	1.4	50.3	

	20th Street Southbound				Wilson Street Westbound				20th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**72**	0	**72**	4	0	3	**7**	0	66	0	66	**145**
05:15 PM	0	0	0	0	1	60	0	61	3	0	1	4	0	**69**	0	**69**	134
05:30 PM	0	0	0	0	0	57	0	57	2	0	**4**	6	0	60	**3**	63	126
05:45 PM	0	0	0	0	**2**	58	0	60	**5**	0	0	5	0	65	1	66	131
Total Volume	0	0	0	0	3	247	0	250	14	0	8	22	0	260	4	264	536
% App. Total	0	0	0		1.2	98.8	0		63.6	0	36.4		0	98.5	1.5		
PHF	.000	.000	.000	.000	.375	.858	.000	.868	.700	.000	.500	.786	.000	.942	.333	.957	.924

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City of Banning
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E/W: Wilson Street
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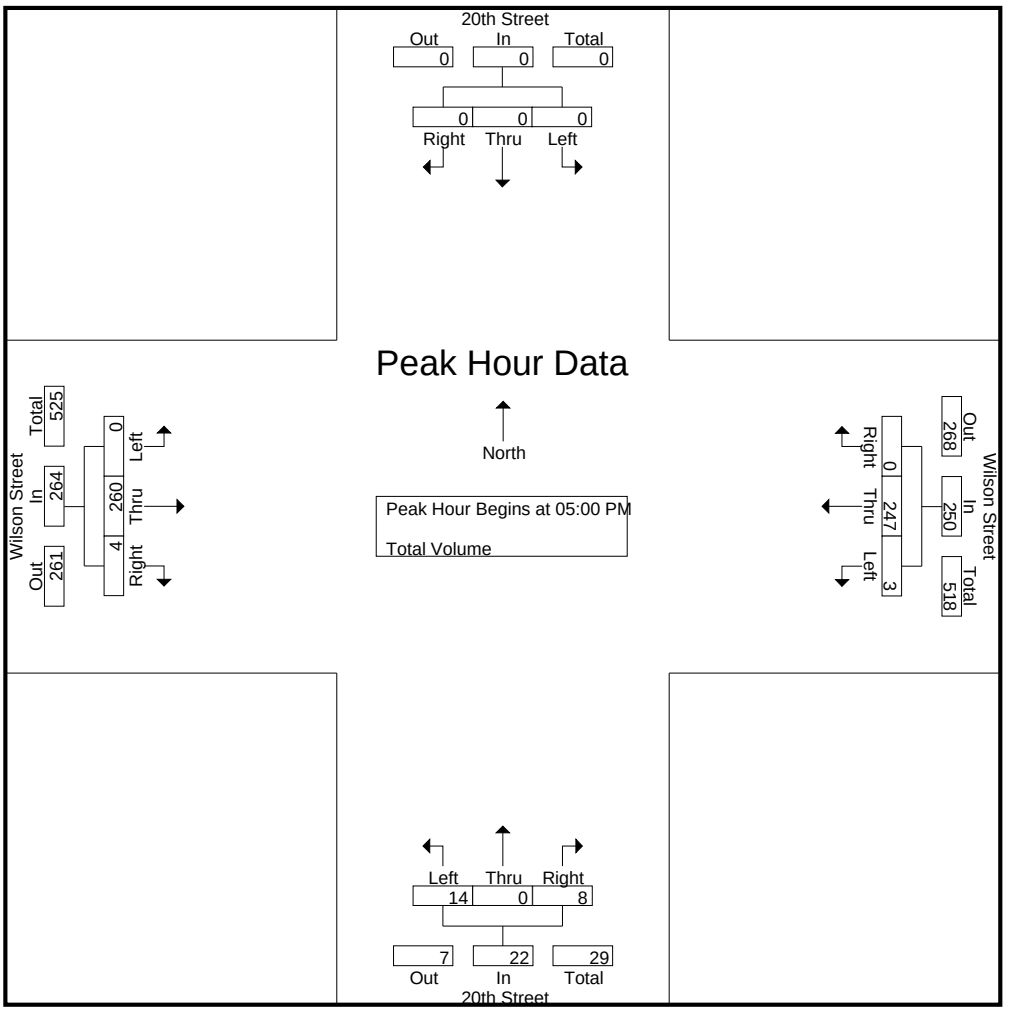
File Name : 01_BAN_20th_Wil PM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	**72**	0	**72**	4	0	**4**	**8**	0	66	0	66
+15 mins.	0	0	0	0	1	60	0	61	2	0	4	6	0	**69**	0	**69**
+30 mins.	0	0	0	0	0	57	0	57	3	0	1	4	0	60	**3**	63
+45 mins.	0	0	0	0	**2**	58	0	60	**5**	0	0	5	0	65	1	66
Total Volume	0	0	0	0	3	247	0	250	14	0	9	23	0	260	4	264
% App. Total	0	0	0		1.2	98.8	0		60.9	0	39.1		0	98.5	1.5	
PHF	.000	.000	.000	.000	.375	.858	.000	.868	.700	.000	.563	.719	.000	.942	.333	.957

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City of Banning
N/S: 19th Street
E/W: Wilson Street
Weather: Clear

File Name : 02_BAN_19th_Wil AM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	40	0	40	0	0	0	0	0	31	0	31	71
07:15 AM	0	0	2	2	0	57	0	57	0	0	1	1	2	44	0	46	106
07:30 AM	1	0	1	2	0	58	2	60	1	0	0	1	2	79	1	82	145
07:45 AM	0	0	1	1	0	84	3	87	1	0	0	1	0	102	0	102	191
Total	1	0	4	5	0	239	5	244	2	0	1	3	4	256	1	261	513
08:00 AM	1	0	0	1	0	83	1	84	1	0	0	1	0	66	2	68	154
08:15 AM	0	0	0	0	0	60	0	60	1	0	0	1	0	82	1	83	144
08:30 AM	0	0	0	0	0	74	1	75	0	0	0	0	0	85	0	85	160
08:45 AM	1	0	0	1	0	76	0	76	0	0	1	1	0	83	0	83	161
Total	2	0	0	2	0	293	2	295	2	0	1	3	0	316	3	319	619
Grand Total	3	0	4	7	0	532	7	539	4	0	2	6	4	572	4	580	1132
Apprch %	42.9	0	57.1		0	98.7	1.3		66.7	0	33.3		0.7	98.6	0.7		
Total %	0.3	0	0.4	0.6	0	47	0.6	47.6	0.4	0	0.2	0.5	0.4	50.5	0.4	51.2	

	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	**1**	**1**	0	**84**	**3**	**87**	**1**	0	0	**1**	0	**102**	0	**102**	**191**
08:00 AM	**1**	0	0	1	0	83	1	84	1	0	0	1	0	66	**2**	68	154
08:15 AM	0	0	0	0	0	60	0	60	1	0	0	1	0	82	1	83	144
08:30 AM	0	0	0	0	0	74	1	75	0	0	0	0	0	85	0	85	160
Total Volume	1	0	1	2	0	301	5	306	3	0	0	3	0	335	3	338	649
% App. Total	50	0	50		0	98.4	1.6		100	0	0		0	99.1	0.9		
PHF	.250	.000	.250	.500	.000	.896	.417	.879	.750	.000	.000	.750	.000	.821	.375	.828	.849

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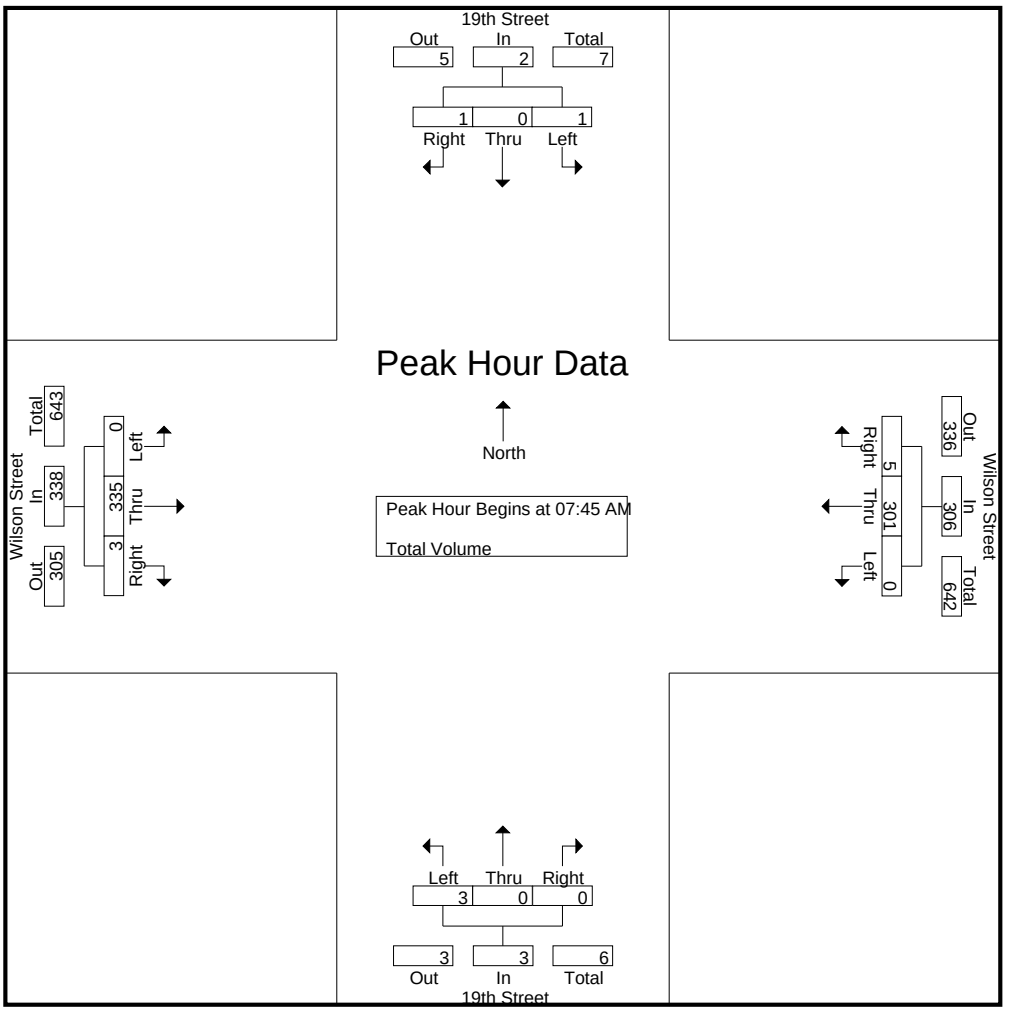
File Name : 02_BAN_19th_Wil AM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:15 AM				07:45 AM			
+0 mins.	0	0	**2**	**2**	0	**84**	**3**	**87**	0	0	**1**	**1**	0	**102**	0	**102**
+15 mins.	**1**	0	1	2	0	83	1	84	**1**	0	0	1	0	66	**2**	68
+30 mins.	0	0	1	1	0	60	0	60	1	0	0	1	0	82	1	83
+45 mins.	1	0	0	1	0	74	1	75	1	0	0	1	0	85	0	85
Total Volume	2	0	4	6	0	301	5	306	3	0	1	4	0	335	3	338
% App. Total	33.3	0	66.7		0	98.4	1.6		75	0	25		0	99.1	0.9	
PHF	.500	.000	.500	.750	.000	.896	.417	.879	.750	.000	.250	1.000	.000	.821	.375	.828

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Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

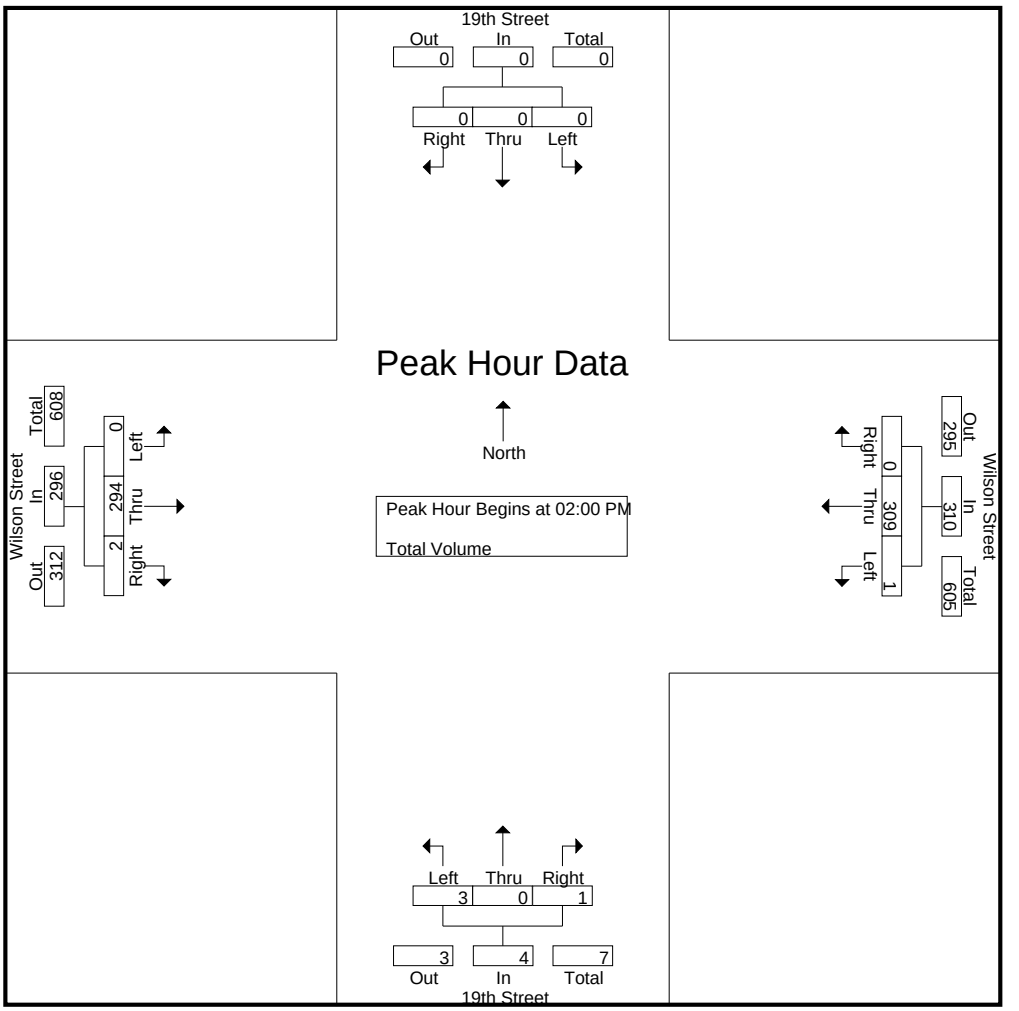
	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	0	43	0	43	0	0	0	0	0	69	0	69	112
01:15 PM	0	0	0	0	0	55	0	55	1	0	0	1	1	62	0	63	119
01:30 PM	0	0	0	0	1	65	0	66	0	0	1	1	0	72	1	73	140
01:45 PM	0	0	0	0	0	74	0	74	0	0	0	0	0	77	0	77	151
Total	0	0	0	0	1	237	0	238	1	0	1	2	1	280	1	282	522
02:00 PM	0	0	0	0	0	73	0	73	0	0	0	0	0	61	0	61	134
02:15 PM	0	0	0	0	0	75	0	75	2	0	1	3	0	71	1	72	150
02:30 PM	0	0	0	0	1	84	0	85	1	0	0	1	0	77	0	77	163
02:45 PM	0	0	0	0	0	77	0	77	0	0	0	0	0	85	1	86	163
Total	0	0	0	0	1	309	0	310	3	0	1	4	0	294	2	296	610
Grand Total	0	0	0	0	2	546	0	548	4	0	2	6	1	574	3	578	1132
Apprch %	0	0	0		0.4	99.6	0		66.7	0	33.3		0.2	99.3	0.5		
Total %	0	0	0	0	0.2	48.2	0	48.4	0.4	0	0.2	0.5	0.1	50.7	0.3	51.1	

	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	73	0	73	0	0	0	0	0	61	0	61	134
02:15 PM	0	0	0	0	0	75	0	75	**2**	0	**1**	**3**	0	71	**1**	72	150
02:30 PM	0	0	0	0	**1**	**84**	0	**85**	1	0	0	1	0	77	0	77	**163**
02:45 PM	0	0	0	0	0	77	0	77	0	0	0	0	0	**85**	1	**86**	163
Total Volume	0	0	0	0	1	309	0	310	3	0	1	4	0	294	2	296	610
% App. Total	0	0	0		0.3	99.7	0		75	0	25		0	99.3	0.7		
PHF	.000	.000	.000	.000	.250	.920	.000	.912	.375	.000	.250	.333	.000	.865	.500	.860	.936

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Banning
N/S: 19th Street
E/W: Wilson Street
Weather: Clear

File Name : 02_BAN_19th_Wil MD
Site Code : 10526249
Start Date : 3/12/2026
Page No : 2



Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				02:00 PM				01:30 PM				02:00 PM			
+0 mins.	0	0	0	0	0	73	0	73	0	0	**1**	1	0	61	0	61
+15 mins.	0	0	0	0	0	75	0	75	0	0	0	0	0	71	**1**	72
+30 mins.	0	0	0	0	**1**	**84**	0	**85**	0	0	0	0	0	77	0	77
+45 mins.	0	0	0	0	0	77	0	77	**2**	0	1	**3**	0	**85**	1	**86**
Total Volume	0	0	0	0	1	309	0	310	2	0	2	4	0	294	2	296
% App. Total	0	0	0		0.3	99.7	0		50	0	50		0	99.3	0.7	
PHF	.000	.000	.000	.000	.250	.920	.000	.912	.250	.000	.500	.333	.000	.865	.500	.860

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City of Banning
N/S: 19th Street
E/W: Wilson Street
Weather: Clear

File Name : 02_BAN_19th_Wil PM
Site Code : 10526249
Start Date : 3/12/2026
Page No : 1

Groups Printed- Total Volume

	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	1	50	0	51	3	0	0	3	0	78	1	79	133
04:15 PM	0	0	0	0	0	53	0	53	0	0	0	0	1	57	1	59	112
04:30 PM	0	0	1	1	0	67	0	67	0	0	0	0	0	60	2	62	130
04:45 PM	0	0	1	1	0	43	0	43	0	0	0	0	0	51	2	53	97
Total	0	0	2	2	1	213	0	214	3	0	0	3	1	246	6	253	472
05:00 PM	0	0	0	0	0	69	0	69	3	0	0	3	0	68	0	68	140
05:15 PM	0	0	0	0	0	57	0	57	1	0	0	1	0	68	1	69	127
05:30 PM	1	0	0	1	0	56	0	56	2	0	0	2	0	64	1	65	124
05:45 PM	0	0	0	0	0	60	0	60	0	0	0	0	0	61	2	63	123
Total	1	0	0	1	0	242	0	242	6	0	0	6	0	261	4	265	514
Grand Total	1	0	2	3	1	455	0	456	9	0	0	9	1	507	10	518	986
Apprch %	33.3	0	66.7		0.2	99.8	0		100	0	0		0.2	97.9	1.9		
Total %	0.1	0	0.2	0.3	0.1	46.1	0	46.2	0.9	0	0	0.9	0.1	51.4	1	52.5	

	19th Street Southbound				Wilson Street Westbound				19th Street Northbound				Wilson Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**69**	0	**69**	**3**	0	0	**3**	0	**68**	0	68	**140**
05:15 PM	0	0	0	0	0	57	0	57	1	0	0	1	0	68	1	**69**	127
05:30 PM	**1**	0	0	**1**	0	56	0	56	2	0	0	2	0	64	1	65	124
05:45 PM	0	0	0	0	0	60	0	60	0	0	0	0	0	61	**2**	63	123
Total Volume	1	0	0	1	0	242	0	242	6	0	0	6	0	261	4	265	514
% App. Total	100	0	0		0	100	0		100	0	0		0	98.5	1.5		
PHF	.250	.000	.000	.250	.000	.877	.000	.877	.500	.000	.000	.500	.000	.960	.500	.960	.918

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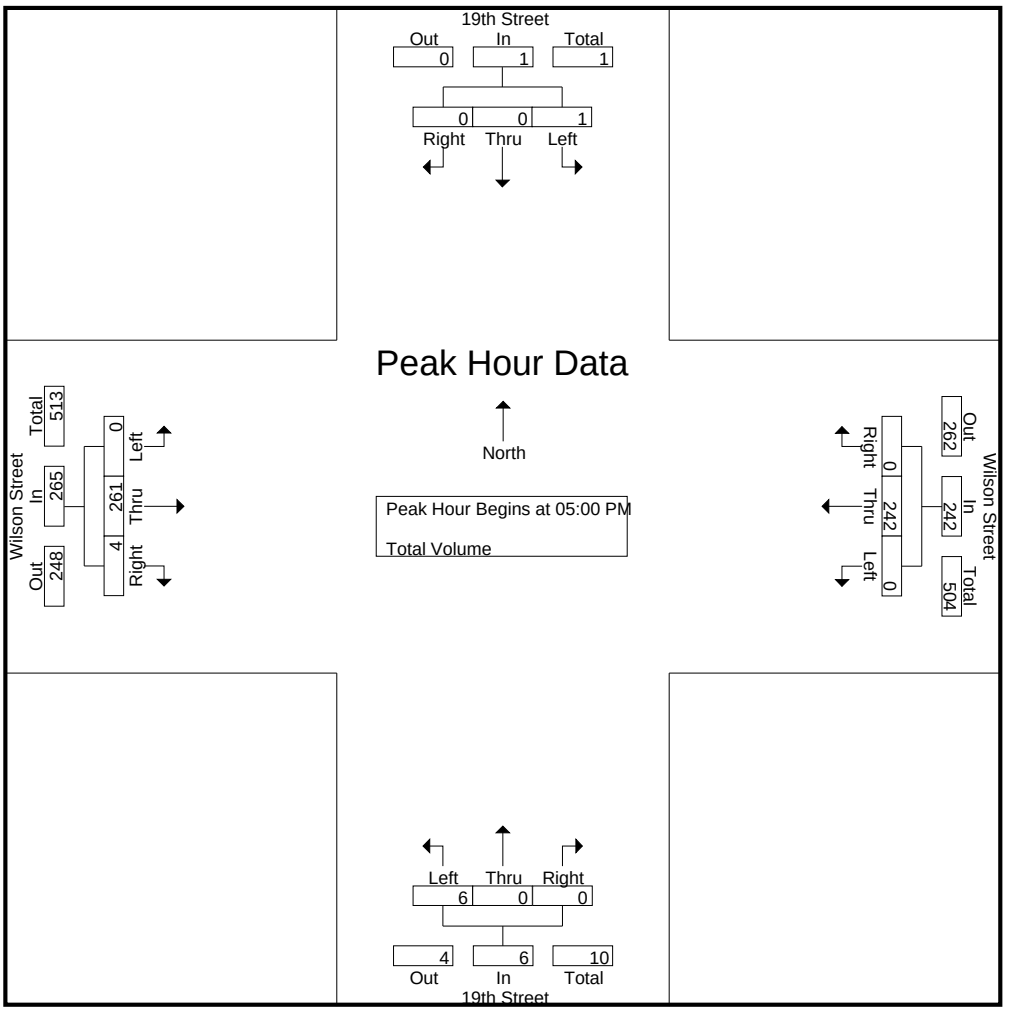

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	0	0	0	0	0	**69**	0	**69**	0	0	0	0	0	**68**	0	68
+15 mins.	0	0	0	0	0	57	0	57	**3**	0	0	**3**	0	68	1	**69**
+30 mins.	0	0	**1**	**1**	0	56	0	56	1	0	0	1	0	64	1	65
+45 mins.	0	0	1	1	0	60	0	60	2	0	0	2	0	61	**2**	63
Total Volume	0	0	2	2	0	242	0	242	6	0	0	6	0	261	4	265
% App. Total	0	0	100		0	100	0		100	0	0		0	98.5	1.5	
PHF	.000	.000	.500	.500	.000	.877	.000	.877	.500	.000	.000	.500	.000	.960	.500	.960

Appendix B

Relevant Trip Generation Excerpts from the *Gilman Ranch Historic Park Improvements Project Vehicle Miles Traveled (VMT) Assessment*, prepared by RK Engineering Group, Inc., dated October 22, 2026

OCTOBER 22, 2026

Mr. Michael Milroy
ULTRASYSTEMS ENVIRONMENTAL
16431 Scientific Way
Irvine, CA 92618

SUBJECT: GILMAN RANCH HISTORIC PARK IMPROVEMENTS VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT, CITY OF BANNING

Dear Mr. Milroy:

INTRODUCTION

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this Vehicle Miles Traveled (VMT) Screening Assessment for the proposed Gilman Ranch Historic Park Improvements Project (hereinafter referred to as "project").

The purpose of this study is to demonstrate that the project would not require a full VMT analysis per the requirements of the *County of Riverside Transportation Analysis Guidelines for Level of Service & Vehicle Miles Traveled,* dated December 2020 (County Guidelines).

PROJECT DESCRIPTION

The proposed project is located at 1901 W. Wilson Street, on the northeast corner of W. Wilson Street and 20th Street, in the City of Banning. The site is currently developed with the Gilman Historic Ranch and Wagon Museum, as well as a ranch house, but the remainder of the approximately 42-acre site is generally undeveloped.

The project would consist of a new events center; repair and improvements to several park components including the Bradshaw interpretive trail and the Native medicinal demonstration garden; new parking lots;100-seat outdoor classroom; a stagecoach hotel (9 units); new picnic areas; several courtyards; play areas; a community park; botanical and restoration garden/orchard; landscaping and irrigation throughout the site; outdoor lighting; new ADA site access and pathways throughout the site; new restroom buildings; and decomposed granite walking paths.

It is RK's understanding that special events may be held at the event center, event courtyard, and/or ceremony space approximately once a month, on any day of the week. All events at the event center are assumed to conclude by 10 PM. All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.

Exhibit A shows an aerial location map of the project site. **Exhibit B** shows the project's proposed site plan.

PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development. Typically, trip generation rates from the latest Institute of Transportation Engineers (ITE) Trip Generation Manual (12th Edition, 2025) are used when calculating a proposed project's trip generation forecast. This publication provides a comprehensive evaluation of trip generation rates for a variety of land uses.

It should be noted that trip generation for VMT screening is based on typical weekday conditions since the screening analysis is intended to evaluate routine project travel using a consistent screening metric. Due to the infrequency of the special events, this VMT assessment instead focuses on typical weekday uses, which are assumed to include the park, the stagecoach hotel, and the 100-seat outdoor classroom.

As such, ITE Land Use 411: Public Park and ITE Land Use 416: Campground/Recreational Vehicle Park trip rates are the most appropriate for the park and stagecoach hotel, respectively. It should be noted that the ITE Land Use 411 also encompasses trips associated with the park's passive and active park amenities, such as picnic areas, playgrounds, walking trails, etc.

Although the ITE Trip Generation Manual includes trip rates for schools, those rates are not directly applicable to the proposed 100-seat outdoor classroom. Because the facility is expected to serve students arriving by bus for scheduled field trips, its travel demand will differ from that of a typical school use. As such, the trip generation for the outdoor classroom is calculated based on its anticipated operations.

Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom. All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. A 1.5 Passenger Car Equivalent (PCE) factor has been applied to the number of school buses.

It should also be noted that no existing trip credit has been applied to the trip generation because the Existing Gilman Historic Ranch and Wagon Museum will continue to be in operation with the development of the Project.

Table 1 shows the appropriate ITE trip generation rates and the forecasted project trip generation.

Table 1 | Project Trip Generation Rates & Forecast[1]

Land Use (ITE Code)	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
ITE Trip Generation Rates[1]									
Campground/Recreational Vehicle Park (416)	--	Campsites	27%	73%	0.07	54%	46%	0.09	1.04
Public Park (411)[2]	--	Acres	62%	38%	0.05	57%	43%	0.15	0.78
Proposed Project Trip Generation Forecast									
Stagecoach Hotel (416)	9	Campsites	0	1	1	1	0	1	9
Public Park (411)	42	Acres	1	1	2	3	3	6	33
Outdoor Classroom[3]	100	Students	--	--	--	--	--	--	--
	Actual Trips		2	2	4	2	2	4	8
	PCE Adjusted[4]		3	3	6	3	3	6	12
	7	Workers	7	0	7	0	7	7	14
	Sub-Total		10	3	13	3	10	13	26
Total Typical Weekday Trip Generation Forecasts (Actual Vehicles)			**10**	**4**	**14**	**6**	**12**	**18**	**64**
Total Typical Weekday Trip Generation Forecasts (W/ PCE Adj.)			**11**	**5**	**16**	**7**	**13**	**20**	**68**

[1] *Source*: ITE Trip Generation Manual (12th Edition, 2025).

[2] Per the ITE Trip Generation Manual (12th Edition, 2025), ITE Trip Generation Land Use 411: Public Park encompasses passive and active park amenities (e.g., horseshoe pits, picnic areas, etc.)

[3] Per guidance from County Parks staff, field trip attendance is expected to be approximately 25 -50 students. However, to provide a more conservative analysis, the study assumes full capacity of the 100-seats and 7 new hires to facilitate the field trips at the outdoor classroom.

[4] All students are assumed to be bussed to/from the site. A standard, full-size (Type C) school bus has a seating capacity of approximately 50-90 seats. As such, the analysis assumes that two (2) school buses will drop-off/pick-up students to/from the site daily. A 1.5 Passenger Car Equivalent (PCE) factor has been applied to the number of school buses.

As shown in Table 1, based on the ITE trip generation rates and considerations of typical weekday conditions only, the proposed project is forecast to generate approximately 64 actual daily trips, which include approximately 14 actual AM peak hour trips and 18 actual PM peak hour trips.

VEHICLE MILES TRAVELED (VMT) SCREENING ASSESSMENT

The *County Guidelines* provides recommendations in the form of thresholds of significance and methodologies for identifying VMT related impacts. The proposed project is subject to a VMT screening analysis and will adhere to the recommendations and practices described in the City's guidelines.

The County of Riverside has developed six (6) types of screening criteria that can be applied to effectively screen projects from project-level assessment.

Table 2 identifies these criteria and summarizes the results of the VMT screening assessment, as further discussed below.

Appendix C

Relevant Trip Generation Excerpts from the *Gilman Ranch Historic Park Improvements Project Parking Study*, prepared by RK Engineering Group, Inc., dated October 22, 2026

OCTOBER 22, 2026

Mr. Michael Milroy
ULTRASYSTEMS ENVIRONMENTAL
16431 Scientific Way
Irvine, CA 92618

SUBJECT: GILMAN RANCH HISTORIC PARK IMPROVEMENTS PROJECT PARKING ANALYSIS, CITY OF BANNING

Dear Mr. Milroy:

INTRODUCTION

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this parking analysis for the proposed Gilman Ranch Historic Park Improvements Project (hereinafter referred to as "project"). The purpose of this study is to determine whether the proposed parking supply is adequate for typical weekday conditions based on County of Riverside Municipal Code and the future parking demand generated by 750-guest special events based on anticipated operations. A special events analysis assuming up to 1,000 guests was also conducted for informational purposes only.

PROJECT DESCRIPTION

The proposed project is located at 1901 W. Wilson Street, on the northeast corner of W. Wilson Street and 20th Street, in the City of Banning. The site is currently developed with the Gilman Historic Ranch and Wagon Museum, as well as a ranch house, but the remainder of the approximately 42-acre site is generally undeveloped. The project would consist of a new events center; repair and improvements to several park components including the Bradshaw interpretive trail and the Native medicinal demonstration garden; new parking lots; 100-seat outdoor classroom; a stagecoach hotel (9 units); new picnic areas; several courtyards; play areas; a community park; botanical and restoration garden/orchard; landscaping and irrigation throughout the site; outdoor lighting; new ADA site access and pathways throughout the site; new restroom buildings; and decomposed granite walking paths.

It is RK's understanding that special events may be held at the event center, event courtyard, and/or ceremony space approximately once a month, on any day of the week. All events at the event center are assumed to conclude by 10 PM. All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.

Exhibit A shows an aerial location map of the project site. **Exhibit B** shows the project's proposed site plan.

Special Events Trip Generation

The following assumptions have been utilized to calculate the projected Event Arrival & Event Departure peak hour trip generation of a 750-Guest and 1,000 Guest special event, as shown in **Table 3** and **Table 4,** respectively:

- The special event center, courtyard, and ceremony space are assumed to operate concurrently and were therefore combined for the purposes of the analysis.
- During the times of special events, the Existing Gilman Historic Ranch and Wagon Museum, and outdoor classroom are assumed to be closed, while the park and the stagecoach hotel are assumed to remain in operation.
- The special events are assumed to be held on any day of the week. Frequency of special events is anticipated to be approximately once a month.
- All events at the event center are assumed to conclude by 10 PM.
- All ceremonies at the ceremony/gathering space are assumed to conclude by 7 PM.
- For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour. This equates to 675 guests for a 750-guest event and 900 guests for a 1,000-guest event arriving/departing within the peak arrival/departure hour.
- **Guests (Personal Vehicles):** For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. During the peak arrival/departure hour, this equates to 641 guests for a 750-guest event and 855 guests for a 1,000-guest event. An average vehicle ridership (AVR) of 3.0 people per vehicle has been assumed, which results in **214 vehicles** for a 750-guest event and **285 vehicles** for a 1,000-guest event.
- **Guests (Rideshare):** For special event guests, the remaining 5% of guests are assumed to arrive/depart via some mode of rideshare (e.g., Uber, Lyft, Taxi, etc.). During the peak arrival/departure hour, this equates to 34 guests for a 750-guest event and 41 guests for a 1,000-guest event. An AVR of 2.0 people per vehicle has been conservatively assumed, which results in **17 vehicles** for a 750-guest event and **23 vehicles** for a 1,000-guest event.
- **Event Staff:** The total staff count for a special event has been assumed to be 5% of the total guest count. As such, a total event staff count of 38 workers are assumed to work a 750-guest event and a staff count of 50 workers are assumed to work a 1,000-guest event. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff, which results in **25 vehicles** for a 750-guest event and **33 vehicles** for a 1,000-guest event.

Table 3 | 750-Guest Special Event Trip Generation Rates & Forecast[1,2]

Type of Trip	Quantity	Units	Event Arrival Peak Hour			Event Departure Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Guests (Personal Vehicles)[3]	712	Guests	214	0	214	0	214	214	474
Guests (Rideshare)[4]	38	Guests	17	17	34	17	17	34	76
Event Staff[5]	38	Staff	0	0	0	0	0	0	76
Special Events Trip Generation Forecasts			**231**	**17**	**248**	**17**	**231**	**248**	**626**

[1] The Existing Gilman Historic Ranch and Wagon Museum and Ranch House are assumed to be closed during special events. The park's passive and active park amenities, and the stagecoach hotel are assumed to be operational during special events.
[2] For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour.
[3] For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. For special event guests, an AVR of 3.0 people per vehicle (i.e., AVR = 3.0) has been assumed.
[4] For special event guests, 5% of guests are assumed to arrive/depart using rideshare. For special event guests, an AVR of 2.0 people per vehicle (i.e., AVR = 2.0) has been conservatively assumed.
[5] The total staff count for a special event has been assumed to be 5% of the total guest count. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff.

Table 4 | 1,000-Guest Special Event Trip Generation Rates & Forecast[1,2]

Type of Trip	Quantity	Units	Event Arrival Peak Hour			Event Departure Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Guests (Personal Vehicles)[3]	950	Guests	285	0	285	0	285	285	634
Guests (Rideshare)[4]	50	Guests	23	23	46	23	23	46	100
Event Staff[5]	50	Staff	0	0	0	0	0	0	100
Special Events Trip Generation Forecasts			**308**	**23**	**331**	**23**	**308**	**331**	**834**

[1] The Existing Gilman Historic Ranch and Wagon Museum and Ranch House are assumed to be closed during special events. The park's passive and active park amenities, and the stagecoach hotel are assumed to be operational during special events.
[2] For the purposes of this analysis, it was assumed that 90% of guests would arrive/depart within the peak arrival/departure hour.
[3] For special event guests, 95% of guests are assumed to arrive/depart in a personal vehicle. For special event guests, an AVR of 3.0 people per vehicle (i.e., AVR = 3.0) has been assumed.
[4] For special event guests, 5% of guests are assumed to arrive/depart using rideshare. For special event guests, an AVR of 2.0 people per vehicle (i.e., AVR = 2.0) has been conservatively assumed.
[5] The total staff count for a special event has been assumed to be 5% of the total guest count. All event staff are expected to arrive before the guest arrival peak hour and depart after the guest departure peak hour. An AVR of 1.5 people per vehicle has been assumed for all event staff.

Appendix D
Detailed Intersection Analysis Worksheets

Appendix D-I

Detailed Intersection Analysis Worksheets for Opening Year (2028) With Project Conditions Under Typical Conditions

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	15.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	12	32	342	34	41	292
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	32	342	34	41	292
Peak Hour Factor	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	9	97	10	12	82
Total Analysis Volume [veh/h]	14	36	386	38	46	330
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.05	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	15.03	10.07	0.00	0.00	8.32	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.13	0.00
95th-Percentile Queue Length [ft/ln]	6.70	6.70	0.00	0.00	3.17	0.00
d_A, Approach Delay [s/veh]	11.46		0.00		1.02	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.12					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	3	0	0	2	0	5	9	362	3	0	325	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	0	2	0	5	9	362	3	0	325	7
Peak Hour Factor	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490	0.8490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	1	0	1	3	107	1	0	96	2
Total Analysis Volume [veh/h]	4	0	0	2	0	6	11	426	4	0	383	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.31	17.24	9.67	14.87	17.17	9.50	8.12	0.00	0.00	8.20	0.00	0.00
Movement LOS	C	C	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.86	0.86	0.86	0.97	0.97	0.97	0.72	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.31			10.85			0.20			0.00		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	0.28											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	15	8	292	4	3	284
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	8	292	4	3	284
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	79	1	1	77
Total Analysis Volume [veh/h]	16	9	316	4	3	307
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.24	9.46	0.00	0.00	7.92	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	3.25	3.25	0.00	0.00	0.18	0.00
d_A, Approach Delay [s/veh]	11.24		0.00		0.08	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.47					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	6	0	0	4	0	10	6	287	4	0	269	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	0	4	0	10	6	287	4	0	269	1
Peak Hour Factor	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	1	0	3	2	78	1	0	73	0
Total Analysis Volume [veh/h]	7	0	0	4	0	11	7	313	4	0	293	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.88	14.15	9.31	12.63	14.16	9.23	7.86	0.00	0.00	7.90	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.06	0.06	0.06	0.02	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.15	1.15	1.15	1.60	1.60	1.60	0.42	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.88			10.14			0.17			0.00		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.46											
Intersection LOS	B											

Appendix D-II

Detailed Intersection Analysis Worksheets for Opening Year (2028) With Project Conditions Under Typical Conditions Plus 750-Guest Special Event

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.083

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	25	33	474	19	9	341
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	33	474	19	9	341
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	135	5	3	97
Total Analysis Volume [veh/h]	28	38	539	22	10	388
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.05	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	16.86	11.19	0.00	0.00	8.61	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.47	0.47	0.00	0.00	0.03	0.00
95th-Percentile Queue Length [ft/ln]	11.72	11.72	0.00	0.00	0.75	0.00
d_A, Approach Delay [s/veh]	13.60		0.00		0.22	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.96					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	54.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.105

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	3	0	1	4	0	15	186	320	2	0	333	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	1	4	0	15	186	320	2	0	333	47
Peak Hour Factor	0.9360	0.9360	0.9360	0.5000	0.5000	0.5000	0.5000	0.9360	0.9360	0.9360	0.9360	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	2	0	8	93	85	1	0	89	24
Total Analysis Volume [veh/h]	3	0	1	8	0	30	372	342	2	0	356	94
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.10	0.00	0.04	0.34	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	51.15	53.60	10.66	54.43	51.52	11.89	9.89	0.00	0.00	7.97	0.00	0.00
Movement LOS	F	F	B	F	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.12	0.49	0.49	0.49	1.49	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.97	2.97	2.97	12.34	12.34	12.34	37.36	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	41.02			20.84			5.14			0.00		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	3.84											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	15	8	303	4	3	461
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	8	303	4	3	461
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	82	1	1	125
Total Analysis Volume [veh/h]	16	9	328	4	3	499
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.50	9.57	0.00	0.00	7.95	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	3.68	3.68	0.00	0.00	0.18	0.00
d_A, Approach Delay [s/veh]	12.09		0.00		0.05	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.225

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	6	0	0	48	0	187	17	287	4	0	269	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	0	48	0	187	17	287	4	0	269	4
Peak Hour Factor	0.9180	0.9180	0.9180	0.5000	0.5000	0.5000	0.5000	0.9180	0.9180	0.9180	0.9180	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	24	0	94	9	78	1	0	73	2
Total Analysis Volume [veh/h]	7	0	0	96	0	374	34	313	4	0	293	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.23	0.00	0.43	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	20.48	15.46	9.64	22.49	24.02	18.18	7.94	0.00	0.00	7.90	0.00	0.00
Movement LOS	C	C	A	C	C	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.09	4.93	4.93	4.93	0.08	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.25	2.25	2.25	123.18	123.18	123.18	2.08	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	20.48			19.06			0.77			0.00		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	8.30											
Intersection LOS	C											

Appendix D-III

Detailed Intersection Analysis Worksheets for Opening Year (2028) With Project Conditions Under Typical Conditions Plus 1,000-Guest Special Event

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	18.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.092

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	25	33	535	19	9	346
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	33	535	19	9	346
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	152	5	3	98
Total Analysis Volume [veh/h]	28	38	608	22	10	393
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.06	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	18.29	11.69	0.00	0.00	8.84	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.52	0.52	0.00	0.00	0.03	0.00
95th-Percentile Queue Length [ft/ln]	12.92	12.92	0.00	0.00	0.80	0.00
d_A, Approach Delay [s/veh]	14.49		0.00		0.22	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.95					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	104.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.251

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	3	0	1	5	0	20	247	320	2	0	333	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	1	5	0	20	247	320	2	0	333	63
Peak Hour Factor	0.9360	0.9360	0.9360	0.5000	0.5000	0.5000	0.5000	0.9360	0.9360	0.9360	0.9360	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	0	3	0	10	124	85	1	0	89	32
Total Analysis Volume [veh/h]	3	0	1	10	0	40	494	342	2	0	356	126
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.25	0.00	0.05	0.46	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	94.56	95.71	14.20	104.68	92.76	19.01	11.14	0.00	0.00	7.97	0.00	0.00
Movement LOS	F	F	B	F	F	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.22	0.22	0.22	1.21	1.21	1.21	2.46	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.60	5.60	5.60	30.18	30.18	30.18	61.49	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	74.47			36.14			6.57			0.00		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	5.54											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: N. 20th Street (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N. 20th Street		W. Wilson Street		W. Wilson Street	
Base Volume Input [veh/h]	15	8	308	4	3	523
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	8	308	4	3	523
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	83	1	1	142
Total Analysis Volume [veh/h]	16	9	333	4	3	566
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	14.01	9.62	0.00	0.00	7.96	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	3.86	3.86	0.00	0.00	0.19	0.00
d_A, Approach Delay [s/veh]	12.43		0.00		0.04	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: N. 19th Street/Main Driveway (N/S) at W. Wilson Street (E/W)

Control Type:	Two-way stop	Delay (sec / veh):	39.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.309

Intersection Setup

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	N. 19th Street			Main Driveway			W. Wilson Street			W Wilson Street		
Base Volume Input [veh/h]	6	0	0	63	0	249	22	287	4	0	269	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	0	63	0	249	22	287	4	0	269	5
Peak Hour Factor	0.9180	0.9180	0.9180	0.5000	0.5000	0.5000	0.5000	0.9180	0.9180	0.9180	0.9180	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	32	0	125	11	78	1	0	73	3
Total Analysis Volume [veh/h]	7	0	0	126	0	498	44	313	4	0	293	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.31	0.00	0.57	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	26.83	16.28	10.08	39.57	41.10	34.90	7.97	0.00	0.00	7.90	0.00	0.00
Movement LOS	D	C	B	E	E	D	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.13	10.97	10.97	10.97	0.11	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.16	3.16	3.16	274.18	274.18	274.18	2.72	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	26.83			35.84			0.97			0.00		
Approach LOS	D			E			A			A		
d_I, Intersection Delay [s/veh]	17.69											
Intersection LOS	E											