

# **Aramis Solar Energy Generation and Storage**



## **PUBLIC REVIEW DRAFT ENVIRONMENTAL IMPACT REPORT**

SCH No. 2020059008

September 2020

Prepared for:  
**Alameda County Planning Department**  
224 West Winton Avenue  
Hayward, CA 94544

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Public Review Draft  
Environmental Impact Report  
SCH No. 2020059008

*Prepared for:*

**Alameda County Planning Department**  
224 West Winton Avenue  
Hayward, CA 94544

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September 2020



# TABLE OF CONTENTS

---

<b><u>Section</u></b>	<b><u>Page</u></b>
EXECUTIVE SUMMARY .....	ES-1
ES.1 Introduction .....	ES-1
ES.2 Environmental Procedures .....	ES-1
ES.3 EIR Format.....	ES-2
ES.4 Type and Purpose of this EIR .....	ES-3
ES.5 Project Location .....	ES-3
ES.6 Project Summary.....	ES-3
ES.7 Summary of Alternatives to the Project .....	ES-4
ES.7.1 No Project Alternative.....	ES-4
ES.7.2 Resource Management Avoidance Alternative .....	ES-4
ES.7.3 Reduced Footprint Alternative.....	ES-5
ES.8 Issues to be Resolved .....	ES-5
ES.9 Areas of Controversy .....	ES-5
ES.10 Significant Impacts and Mitigation Measures .....	ES-6
 1.0 INTRODUCTION.....	 1-1
1.1 Project Background.....	1-1
1.2 Scope and Organization of the EIR .....	1-2
1.3 Environmental Review Process.....	1-3
1.3.1 Notice of Preparation.....	1-3
1.3.2 Draft EIR .....	1-4
1.3.3 Public Notice/Public Review of Draft EIR .....	1-4
1.3.4 Final EIR.....	1-4
1.3.5 Notice of Determination .....	1-5
1.3.6 Mitigation Monitoring and Reporting Program .....	1-5
 2.0 PROJECT LOCATION AND SETTING.....	 2-1
2.1 Project Location .....	2-1
2.2 Project Parcels .....	2-1
2.3 Project Setting and Surrounding Land Uses .....	2-2
2.4 General Plan and Zoning Designations .....	2-2
2.4.1 General Plan.....	2-2
2.4.2 Zoning.....	2-3
2.5 References .....	2-4
 3.0 PROJECT DESCRIPTION.....	 3-1
3.1 Project Overview.....	3-1
3.2 Project Need .....	3-1
3.3 Project Objectives .....	3-2

## TABLE OF CONTENTS (cont.)

---

<b><u>Section</u></b>	<b><u>Page</u></b>
3.4	Project Components ..... 3-2
3.4.1	Parcel Subdivision ..... 3-3
3.4.2	Solar Photovoltaic System..... 3-3
3.4.3	Project Substation and Generation Intertie Line ..... 3-3
3.4.4	Energy Storage ..... 3-4
3.4.5	Support Facilities..... 3-4
3.4.6	Concomitant Agricultural Uses..... 3-5
3.5	Project Construction ..... 3-6
3.5.1	Facility Construction and Installation..... 3-6
3.5.2	Water Use and Supply During Construction ..... 3-6
3.5.3	Construction Workforce, Equipment, and Trip Generation..... 3-7
3.5.4	Hazardous Materials and Waste Management ..... 3-8
3.5.5	Storm Water Management and Erosion Control ..... 3-8
3.5.6	Construction Schedule ..... 3-9
3.6	Operation and Maintenance..... 3-9
3.6.1	Operation and Maintenance Workforce and Equipment ..... 3-10
3.6.2	Vegetation and Agricultural Management ..... 3-10
3.6.3	Water and Wastewater ..... 3-11
3.6.4	Hazards and Hazardous Materials..... 3-11
3.7	Decommissioning and Site Reclamation..... 3-11
3.7.1	Decommissioning of Solar Facilities ..... 3-11
3.7.2	Water Use and Supply During Decommissioning..... 3-12
3.7.3	Decommissioning Schedule ..... 3-12
3.7.4	Decommissioning Workforce, Equipment, and Trip Generation..... 3-12
3.7.5	Site Reclamation ..... 3-13
3.8	Applicant-Proposed Measures..... 3-13
3.8.1	Decommissioning Security ..... 3-13
3.8.2	Stormwater Management Plan..... 3-14
3.8.3	Agricultural Management Plan ..... 3-14
3.8.4	Trash Cleanup..... 3-14
3.8.5	Construction Waste Recycling..... 3-14
3.8.6	Dust Suppression..... 3-15
3.8.7	Fire Protection and Coordination..... 3-15
3.8.8	Hazardous Materials Management..... 3-15
3.8.9	Community Engagement and Communication ..... 3-15
3.9	Required Permits and Approvals ..... 3-15
3.9.1	County of Alameda..... 3-15
3.9.2	Other Agency Required Approvals and Intended Uses of the EIR ..... 3-16

## TABLE OF CONTENTS (cont.)

---

<b><u>Section</u></b>	<b><u>Page</u></b>
4.0 Environmental Impact Analysis.....	4-1
4.1 Aesthetics.....	4.1-1
4.1.1 Environmental Setting.....	4.1-1
4.1.2 Significance Thresholds.....	4.1-10
4.1.3 Impact Analysis .....	4.1-11
4.1.4 Cumulative Impacts.....	4.1-25
4.1.5 References.....	4.1-26
4.2 Agriculture and Forestry Resources.....	4.2-1
4.2.1 Environmental Setting.....	4.2-1
4.2.2 Significance Thresholds.....	4.2-6
4.2.3 Impact Analysis .....	4.2-6
4.2.4 Cumulative Impacts.....	4.2-11
4.2.5 References.....	4.2-12
4.3 Air Quality .....	4.3-1
4.3.1 Environmental Setting.....	4.3-1
4.3.2 Significance Thresholds.....	4.3-13
4.3.3 Impact Analysis .....	4.3-14
4.3.4 Cumulative Impacts.....	4.3-22
4.3.5 References.....	4.3-23
4.4 Biological Resources .....	4.4-1
4.4.1 Regulatory Framework.....	4.4-1
4.4.2 Methods .....	4.4-11
4.4.3 Results: Environmental Setting .....	4.4-17
4.4.4 Results: Evaluation of Biological Resources .....	4.4-25
4.4.5 Significance Thresholds.....	4.4-49
4.4.6 Impact Analysis .....	4.4-49
4.4.7 Cumulative Impacts.....	4.4-72
4.4.8 References.....	4.4-74
4.5 Cultural and Tribal Cultural Resources .....	4.5-1
4.5.1 Environmental Setting.....	4.5-1
4.5.2 Significance Thresholds.....	4.5-21
4.5.3 Impact Analysis .....	4.5-22
4.5.4 Cumulative Impacts.....	4.5-26
4.5.5 References.....	4.5-27
4.6 Energy .....	4.6-1
4.6.1 Environmental Setting.....	4.6-1
4.6.2 Significance Thresholds.....	4.6-4
4.6.3 Impact Analysis .....	4.6-5
4.6.4 Cumulative Impacts.....	4.6-8
4.6.5 References.....	4.6-9

## TABLE OF CONTENTS (cont.)

---

<b><u>Section</u></b>	<b><u>Page</u></b>
4.7	Geology, Soils, Mineral Resources, and Paleontological Resources.....4.7-1
4.7.1	Environmental Setting.....4.7-1
4.7.2	Significance Thresholds.....4.7-12
4.7.3	Impact Analysis .....4.7-12
4.7.4	Cumulative Impacts.....4.7-17
4.7.5	References.....4.7-18
4.8	Greenhouse Gas Emissions .....4.8-1
4.8.1	Environmental Setting.....4.8-1
4.8.2	Significance Thresholds.....4.8-11
4.8.3	Impact Analysis .....4.8-12
4.8.4	Cumulative Impacts.....4.8-14
4.8.5	References.....4.8-15
4.9	Hazards and Hazardous Materials .....4.9-1
4.9.1	Environmental Setting.....4.9-1
4.9.2	Significance Thresholds.....4.9-9
4.9.3	Impact Analysis .....4.9-9
4.9.4	Cumulative Impacts.....4.9-17
4.9.5	References.....4.9-18
4.10	Hydrology and Water Quality .....4.10-1
4.10.1	Environmental Setting.....4.10-1
4.10.2	Significance Thresholds.....4.10-9
4.10.3	Impact Analysis .....4.10-9
4.10.4	Cumulative Impacts.....4.10-18
4.10.5	References.....4.10-20
4.11	Land Use and Planning.....4.11-1
4.11.1	Environmental Setting.....4.11-1
4.11.2	Significance Thresholds.....4.11-5
4.11.3	Impact Analysis .....4.11-6
4.11.4	Cumulative Impacts.....4.11-12
4.11.5	References.....4.11-13
4.12	Noise .....4.12-1
4.12.1	Environmental Setting.....4.12-1
4.12.2	Significance Thresholds.....4.12-8
4.12.3	Impact Analysis .....4.12-9
4.12.4	Cumulative Impacts.....4.12-15
4.12.5	References.....4.12-18
4.13	Population and Housing.....4.13-1
4.13.1	Environmental Setting.....4.13-1
4.13.2	Significance Thresholds.....4.13-2
4.13.3	Impact Analysis .....4.13-2
4.13.4	Cumulative Impacts.....4.13-3
4.13.5	References.....4.13-4

## TABLE OF CONTENTS (cont.)

---

<b><u>Section</u></b>	<b><u>Page</u></b>
4.14 Public Services.....	4.14-1
4.14.1 Environmental Setting.....	4.14-1
4.14.2 Significance Thresholds.....	4.14-2
4.14.3 Impact Analysis .....	4.14-3
4.14.4 Cumulative Impacts.....	4.14-4
4.14.5 References.....	4.14-5
4.15 Recreation.....	4.15-1
4.15.1 Environmental Setting.....	4.15-1
4.15.2 Significance Thresholds.....	4.15-3
4.15.3 Impact Analysis .....	4.15-3
4.15.4 Cumulative Impacts.....	4.15-4
4.15.5 References.....	4.15-5
4.16 Transportation .....	4.16-1
4.16.1 Environmental Setting.....	4.16-1
4.16.2 Significance Thresholds.....	4.16-11
4.16.3 Impact Analysis .....	4.16-11
4.16.4 Cumulative Impacts.....	4.16-18
4.16.5 References.....	4.16-20
4.17 Utilities and Service Systems .....	4.17-1
4.17.1 Environmental Setting.....	4.17-1
4.17.2 Significance Thresholds.....	4.17-4
4.17.3 Impact Analysis .....	4.17-5
4.17.4 Cumulative Impacts.....	4.17-11
4.17.5 References.....	4.17-13
4.18 Wildfire .....	4.18-1
4.18.1 Environmental Setting.....	4.18-1
4.18.2 Significance Thresholds.....	4.18-5
4.18.3 Impact Analysis .....	4.18-5
4.18.4 Cumulative Impacts.....	4.18-8
4.18.5 References.....	4.18-9
5.0 PROJECT ALTERNATIVES .....	5-1
5.1 Rationale for Alternative Selection.....	5-1
5.2 Project Objectives and Significant Impacts.....	5-2
5.3 Alternatives Considered but Rejected as Infeasible .....	5-2
5.3.1 Alternative Location: Formerly Proposed Solar Development Sites and Other Large-Scale Sites.....	5-2
5.3.2 Alternative Location: East Bay Community Energy Solar Sites .....	5-3

## TABLE OF CONTENTS (cont.)

---

<b><u>Section</u></b>	<b><u>Page</u></b>
5.4 Alternatives Analysis .....	5-4
5.4.1 No Project Alternative: No Development .....	5-4
5.4.2 Resource Management Avoidance Alternative .....	5-5
5.4.3 Reduced Footprint Alternative.....	5-5
5.4.4 Assumptions and Methodology .....	5-5
5.5 Comparative Impact Analysis.....	5-6
5.5.1 No Project Alternative: No Development .....	5-6
5.5.2 Resource Management Avoidance Alternative .....	5-13
5.3.3 Reduced Footprint Alternative.....	5-19
5.6 Environmentally Superior Alternative .....	5-25
5.7 References .....	5-26
6.0 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES .....	6-1
6.1 Land Use Changes that Commit Future Generations .....	6-1
6.2 Irreversible Damage from Environmental Accidents.....	6-1
6.3 Large Commitment of Non-Renewable Resources.....	6-2
7.0 GROWTH INDUCEMENT.....	7-1
8.0 SIGNIFICANT UNAVOIDABLE IMPACTS .....	8-1
8.1 Background .....	8-1
8.2 Project Significant and Unavoidable Impacts .....	8-1
9.0 LIST OF PREPARERS .....	9-1

### LIST OF APPENDICES

A	Notice of Preparation and Public Comments
B	Mitigation Monitoring and Reporting Program
C	Project Site Plans
D	Air Quality, Energy, and Greenhouse Gas Technical Report
E	Biological Resources Technical Report
F	Cultural Resources Assessment
G	Water Supply Assessment and Hydrology Study
H	Acoustical Analysis Report
I	Transportation Impact Study

## TABLE OF CONTENTS (cont.)

---

### LIST OF FIGURES

<b><u>No.</u></b>	<b><u>Title</u></b>	<b><u>Follows Page</u></b>
2-1	Regional Location .....	2-2
2-2	Aerial Map .....	2-2
2-3	Land Use Designation and Zoning Map .....	2-4
3-1	Site Plan .....	3-4
4-1	Cumulative Projects.....	4-4
4.1-1	Scenic Routes and Scenic Vistas Near the Project Site.....	4.1-2
4.1-2	Key Observation Point Locations.....	4.1-10
4.1-3	KOP A – Pre-Project North Manning Road .....	4.1-10
4.1-4	KOP A – Post-Project North Manning Road.....	4.1-10
4.1-5	KOP B – Pre-Project Los Vaqueros Watershed .....	4.1-10
4.1-6	KOP B – Post-Project Los Vaqueros Watershed .....	4.1-10
4.1-7	KOP C – Pre-Project Bel Roma Road .....	4.1-10
4.1-8	KOP C – Post-Project Bel Roma Road .....	4.1-10
4.1-9	KOP D – Pre-Project May School Road and North Livermore Avenue .....	4.1-10
4.1-10	KOP D – Post-Project May School Road and North Livermore Avenue.....	4.1-10
4.2-1	Agricultural Resources Map.....	4.2-6
4.7-1	Soils Map .....	4.7-12
4.10-1	FEMA Flood Map .....	4.10-16
4.12-1	Receptor Locations .....	4.12-4
4.18-1	CAL FIRE Fire Hazard Severity Zone Map.....	4.18-4
5-1	Site Plan: Resource Management Avoidance Alternative .....	5-6
5-2	Site Plan: Reduced Footprint Alternative .....	5-6

### LIST OF TABLES

<b><u>No.</u></b>	<b><u>Title</u></b>	<b><u>Page</u></b>
3.4-1	Construction Equipment.....	3-8
3.5-1	Proposed Operations and Maintenance Equipment.....	3-10
4-1	Cumulative Projects in the North Livermore Area .....	4-3
4.1-1	Consistency With Alameda County Scenic Route Element .....	4-13
4.1-2	Summary of Change In Visual Quality .....	4.1-17
4.1-3	Consistency With Open Space Element Principles .....	4.1-18
4.1-4	Consistency With ECAP Policies.....	4.1-18
4.3-1	Summary of Common Sources and Human Health Effects of Criteria Air Pollutants .....	4.3-2
4.3-2	Ambient Air Quality Standards .....	4.3-4
4.3-3	San Francisco Bay Area Air Basin Attainment Status.....	4.3-5
4.3-4	Air Quality Monitoring Data .....	4.3-9
4.3-5	Anticipated Construction Schedule .....	4.3-11



## TABLE OF CONTENTS (cont.)

---

### LIST OF TABLES (cont.)

<b><u>No.</u></b>	<b><u>Title</u></b>	<b><u>Page</u></b>
4.3-6	Construction Equipment Assumptions .....	4.3-11
4.3-7	Daily Construction Trips.....	4.3-12
4.3-8	Operational Off-Road Equipment.....	4.3-13
4.3-9	BAAQMD Significance Thresholds .....	4.3-14
4.3-10	Unmitigated Maximum Daily Construction Emissions .....	4.3-15
4.3-11	Mitigated Maximum Daily Construction Emissions.....	4.3-16
4.3-12	Operational Emissions .....	4.3-17
4.4-1	Biological Surveys Conducted for the Proposed Project .....	4.4-15
4.4-2	Special-Status Species with the Potential to Occur on the Project Site .....	4.4-23
4.5-1	Previous Studies Conducted Within 0.5 Mile of the Project Area.....	4.5-15
4.6-1	Construction Energy Use .....	4.6-5
4.6-2	Operational Net Energy Use .....	4.6-6
4.7-1	Project Site Soils .....	4.7-11
4.8-1	Global Warming Potentials and Atmospheric Lifetimes.....	4.8-3
4.8-2	California State Greenhouse Gas Emissions by Sector .....	4.8-9
4.8-3	San Francisco Bay Area GHG Emissions by Sector .....	4.8-9
4.8-4	Operational GHG Emissions.....	4.8-12
4.8-5	2023 Net GHG Emissions .....	4.8-13
4.11-1	Consistency With ECAP Policies Related to Land Use .....	4.11-7
4.12-1	Alameda County Exterior Noise Standards.....	4.12-3
4.12-2	Construction Traffic Noise .....	4.12-10
4.12-3	Operational Substation Noise.....	4.12-11
4.12-4	Operational Inverter Station and Energy Storage Noise .....	4.12-12
4.12-5	Operational Traffic Noise.....	4.12-13
4.12-6	Cumulative Construction Traffic Noise .....	4.12-16
4.12-7	Cumulative Operational Traffic Noise .....	4.12-17
4.16-1	Existing Conditions: Peak Hour Intersection Level of Service Results .....	4.16-8
4.16-2	Existing Conditions: Peak Hour Intersection Queue Analysis Results .....	4.16-9
4.16-3	Worker Trips by Construction Phase .....	4.16-12
4.16-4	Truck Haul Trips by Construction Phase .....	4.16-13
4.16-5	Total Project Trips by Construction Phase.....	4.16-13
4.16-6	Project Construction VMT .....	4.16-16
5-1	Comparison of Project Alternatives.....	5-6

## ACRONYMS AND ABBREVIATIONS

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a-Si	amorphous silicon
AAM	Annual Arithmetic Mean
AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC	Alternating Current
ACE	Altamont Commuter Express
ACFD	Alameda County Fire Department
ACHP	Advisory Council on Historic Preservation
ACMC	Alameda County Municipal Code
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AF	Acre-feet
AFY	Acre-feet per year
AMP	Agricultural Management Plan
amsl	above mean sea level
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
APN	Assessors Parcel Number
APS	Alternative Planning Strategy
AR4	Fourth Assessment Report
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCMM	Basic Construction Mitigation Measure
BMP	Best Management Practice
BTU	British Thermal Units
°C	Celsius
c-Si	crystalline silicon
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAD	Computer Aided Design
CAFE	Corporate Average Fuel Economy
CAISO	California Independent System Operator
Cal-IPC	California Invasive Plant Council
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBIA	California Building Industry Association

## ACRONYMS AND ABBREVIATIONS (cont.)

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CBSC	California Building Standards Code
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CdTe	cadmium telluride
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH <sub>4</sub>	Methane
CHL	California Historic Landmark
CMA	Congestion Management Agency
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
County	Alameda County
CPSF	Clean Power San Francisco
CPUC	California Public Utilities Commission
CRA	Cultural Resources Assessment
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CTC	County Transportation Commission
CTS	California tiger salamander
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWPP	Community Wildfire Protection Plan
dB	decibel
dBA	decibel with A-weighting
DC	Direct Current
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources

## ACRONYMS AND ABBREVIATIONS (cont.)

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EACCS	East Alameda County Conservation Strategy
EBCE	East Bay Community Energy
ECAP	East County Area Plan
ECCC	East Contra Costa County
EDR	Environmental Data Resources
EIR	Environmental Impact Report
EO	Executive Order
EOP	Emergency Operations Plan
°F	Fahrenheit
FAA	Federal Aviation Administration
FAR	floor-area-ratio
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWh	gigawatt hours
GWP	global warming potential
H <sub>2</sub> S	Hydrogen sulfide
HABS	Historical American Buildings Survey
HCD	Housing and Community Development
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbon
HMBP	Hazardous Materials Business Plan
HP	horsepower
HVAC	Heating, ventilation, and air conditioning
I-580	Interstate-580
IBC	International Building Code
IPCC	United Nations Intergovernmental Panel on Climate Change
KOP	Key Observation Point
kV	kilovolt
kVA	kilovolt-amps

## ACRONYMS AND ABBREVIATIONS (cont.)

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LAVTA	Livermore Amador Valley Transit Authority
LCFS	Low Carbon Fuel Standard
LID	Low Impact Development
LOS	Level of Service
LPA	Large Parcel Agriculture
LRA	Local Responsibility Area
LSE	Load Serving Entities
MBTA	Migratory Bird Treaty Act
MBtu	million British Thermal Unit
MCA	Mitigation Credit Agreement
Mg/L	milligrams per liter
MLD	Most Likely Descendant
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
Mpa	micro-Pascals
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MT	metric tons
MTC	Metropolitan Transportation Commission
MW	Megawatt
MWh	Megawatt hour
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NCCP	Natural Community Conservation Plan
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO <sub>2</sub>	Nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NO <sub>x</sub>	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System

## ACRONYMS AND ABBREVIATIONS (cont.)

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NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSLU	Noise-sensitive land use
NWIC	Northwest Information Center
NWPR	Navigable Waters Protection Rule
O&M	Operation and Maintenance
O <sub>3</sub>	Ozone
OEHA	Office of Environmental Health Hazard Assessment
OHWM	Ordinary High Water Mark
OSHA	The California Division of Occupational Safety and Health
OWTS	On-site Wastewater Treatment System
Pb	Lead
PFC	Perfluorocarbon
PG&E	Pacific Gas & Electric
PM	Particulate Matter
PM <sub>10</sub>	Coarse PM, 10 micrometers or less in diameter
PM <sub>2.5</sub>	Fine PM, 2.5 micrometers or less in diameter
PPB	Parts Per Billion
PPM	Parts Per Million
PPV	peak particle velocity
PRC	Public Resources Code
PV	Photovoltaic
RA	Resource Adequacy
RAMP	Regional Advance Mitigation Planning
RCA	Regional Conservation Assessment
RCIS	Regional Conservation Investment Strategy
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RHNA	Regional Housing Needs Assessment
RM	Resource Management
ROG	reactive organic gas
ROW	Right-of-Way
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SAR	Second Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill

## ACRONYMS AND ABBREVIATIONS (cont.)

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SCS	Sustainable Communities Strategy
SEF	Solar Electric Facility
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur dioxide
SF <sub>6</sub>	Sulfur Hexafluoride
SGMA	Sustainable Groundwater Management Act
SMARA	Surface Mining and Reclamation Act of 1975
SPL	sound pressure level
SRA	State Responsibility Area
SSC	Species of Special Concern
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TCR	Tribal Cultural Resource
TDM	Transportation Demand Management
TDS	Total Dissolved Solids
TIS	Transportation Impact Study
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
UNFCCC	United Nations Framework Convention on Climate Change
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VdB	velocity decibels
VMT	vehicle miles traveled
VOC	volatile organic compounds
WM	Water Management
WOTUS	Waters of the United States
WQC	Water Quality Certification



# EXECUTIVE SUMMARY

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## ES.1 INTRODUCTION

This summary presents an overview of the proposed Aramis Solar Energy Generation and Storage Project, herein referred to as “project” or “proposed project” This section also summarizes the alternatives to the proposed project, identifies issues to be resolved, areas of controversy, and conclusions of the analysis contained in Sections 4.1 through 4.18, of this Draft Environmental Impact Report (Draft EIR). For a complete description of the proposed project, please see Section 3.0, Project Description, of this Draft EIR. For a discussion of Project Alternatives, please see Section 5.0, Project Alternatives.

This Draft EIR addresses the environmental effects associated with the project. The California Environmental Quality Act (CEQA) requires that local government agencies, prior to taking action on projects over which they have discretionary approval authority, consider environmental impacts of such projects. An EIR is a public document designed to provide the public, local, and State governmental agency decision-makers with an analysis of a project’s potential environmental impacts to support informed decision-making.

This Draft EIR has been prepared pursuant to the requirements of CEQA and the State CEQA Guidelines to determine if project approval could have a significant impact on the environment. The County of Alameda, as the Lead Agency, has reviewed and revised as necessary submitted drafts, technical studies, and reports to reflect its own independent judgment, including reliance on applicable County technical personnel and review of all technical reports. Information for this Draft EIR was obtained from on-site field observations; discussions with affected agencies; analysis of adopted plans and policies; review of available studies, reports, data, and similar literature in the public domain; and specialized environmental assessments (e.g., air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology, noise, transportation, and water supply).

## ES.2 ENVIRONMENTAL PROCEDURES

This Draft EIR has been prepared to assess the environmental effects associated with implementation of the proposed project, as well as anticipated future discretionary actions and approvals. The main objectives of this document as established by CEQA Section 15002(a) are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

An EIR is the most comprehensive form of environmental documentation identified in the CEQA statute and in the CEQA Guidelines. It provides the information needed to assess the environmental consequences of a proposed project, to the extent feasible. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts. An EIR is also one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Prior to approving a proposed project, the lead agency must consider the information contained in the EIR, determine whether the EIR was properly prepared in accordance with the State CEQA Guidelines, determine that it reflects the independent judgment of the lead agency, adopt findings concerning the project's significant environmental impacts, if any, and alternatives, and adopt a Statement of Overriding Considerations if the proposed project would result in significant impacts that cannot be avoided.

## ES.3 EIR FORMAT

This Draft EIR is organized into the following chapters:

- **Executive Summary:** Consistent with Section 15123 of the State CEQA Guidelines, this section provides a brief summary of the proposed project and identifies environmental impacts and mitigation measures in a summary matrix.
- **Section 1.0 – Introduction:** This section presents an overview of the overall project background, describes the intended use of the EIR (State CEQA Guidelines Section 15124(d)), as well as the environmental review process.
- **Section 2.0 – Project Location and Setting:** This section includes a description of the physical environmental **conditions** in the vicinity of the project site as they existed at the time the NOP was published, and which have been updated based on current conditions during preparation of this EIR, consistent with Section 15125 of the State CEQA Guidelines.
- **Section 3.0 – Project Description:** This section provides a detailed description of the proposed project **characteristics** and objectives as well as the required discretionary approvals consistent with Section 15124 of the State CEQA Guidelines.
- **Section 4.0 – Environmental Impact Analysis:** This section contains a comprehensive analysis of impacts to each environmental factor evaluated in this EIR, the appropriate, feasible measures to minimize or mitigate those impacts consistent with Section 15126.4 of the State CEQA Guidelines, and evaluates **cumulative** impacts resulting from the combination of the proposed project together with other projects causing related impacts consistent with Section 15130 of the State CEQA Guidelines.
- **Section 5.0 – Project Alternatives:** Consistent with Section 15126.6 of the State CEQA Guidelines, this section evaluates a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Alternatives other than the proposed project evaluated in this document include: (1) the No Project Alternative in which the proposed project would not be implemented; (2) Resource Management Avoidance Alternative in which 385 acres would be developed with the solar

facility, a 25-acre reduction compared with the proposed project; and (3) Reduced Footprint Alternative in which 359 acres would be developed with the solar facility, a 51-acre reduction compared with the proposed project.

- **Section 6.0 – Significant Irreversible Environmental Changes:** Consistent with Section 15126.2(d) of the State CEQA **Guidelines**, this section outlines the significant irreversible changes anticipated to occur as a result of the project.
- **Section 7.0 – Growth Inducement:** Consistent with Section 15126.2(e) of the State CEQA Guidelines, this section **describes** potential growth-inducing impacts associated with the proposed project.
- **Section 8.0 – Significant and Unavoidable Impacts:** Consistent with Section 15126.2(c) of the State CEQA Guidelines, this section describes any significant impacts identified, including those which can be mitigated but not reduced to a level of insignificance.
- **Section 9.0 – List of Preparers:** This section lists all authors and agencies that assisted in the preparation of the **report** by name, title, and company or agency affiliation.

## ES.4 TYPE AND PURPOSE OF THIS EIR

This Draft EIR has been prepared in accordance with the State CEQA Guidelines and County of Alameda as the Lead Agency. This Draft EIR assesses potential environmental consequences of implementing the proposed project and identifies mitigation measures and alternatives to the proposed project that would avoid or reduce significant impacts where necessary. This Draft EIR is intended to inform County decision makers, other responsible agencies, and the general public as to the nature of the proposed project’s potential environmental impacts.

## ES.5 PROJECT LOCATION

The 410-acre project site (development area only) is located in the unincorporated North Livermore area of Alameda County, approximately 2.25 miles north of the Livermore city limits and I-580. The project site is comprised of portions of four privately-owned parcels – Assessor’s Parcel Numbers (APNs) 903-0006-001-02, 903-0007-002-01, 903-0006-003-07, and 902-0001-005-00. The project site consists of four noncontiguous development areas that are split into the following sections: the northern section, measuring approximately 103 acres; the central section, measuring approximately 269 acres; the southeastern section, measuring approximately 23 acres; and the southwestern section, measuring approximately 15 acres. The project site is bound by Manning Road to the north, North Livermore Avenue to the east, and a private driveway to the south. The project site is within Sections 16 and 17 of Township 02 South, Range 02 East and unsurveyed land of the Las Positas Land Grant, Mount Diablo Base and Meridian. The project site is located within the “Tassajara, CA” and “Livermore, CA” USGS 7.5-minute quadrangles.

## ES.6 PROJECT SUMMARY

The proposed project is proposed by IP Aramis, LLC (a subsidiary of Intersect Power, LLC). The project applicant has applied to the Alameda County Community Development Agency for a Conditional Use Permit (CUP) to construct, operate, and maintain a solar photovoltaic (PV) and

electric storage facility for at least 50 years and a Parcel Map Subdivision of one of the four project parcels proposed for development of the solar facility (APN 903-0006-001-02) to modify the eastern boundary of a legal parcel of the proposed solar facility and to create a distinct parcel that would not be part of the project. The solar facility would generate 100 megawatts (MW) of PV power on approximately 410 acres of privately-owned land in unincorporated Alameda County in the North Livermore area. The project would provide solar power to utility customers by interconnecting to the regional electrical grid at Pacific Gas and Electric Company's (PG&E) existing Cayetano 230 kilovolt (kV) substation located adjacent to the project site. The project would serve East Bay Community Energy (EBCE), Clean Power San Francisco (CPSF), and/or PG&E customers by providing local generation capacity under a long-term contract.

The principle components of the proposed project are listed below. A detailed description of the project including figures is included in Section 3.0, Project Description:

- Parcel Map Subdivision; legally separate 150 acres of steeply sloped land apart of APN 903-0006-001-02 from the real property affiliated with the proposed project;
- Construction of a solar PV facility;
- Construction of a project substation and generation intertie line connection to the existing PG&E Cayetano substation. The project substation would occupy an approximately 5,000 square-foot area;
- Construction of a battery energy storage system. A 5-acre portion of the site would accommodate a battery storage system to the west of the existing PG&E Cayetano substation;
- Construction of a 400 square-foot operations and maintenance (O&M) building; and
- Grading and associated activities for the construction and installation of support facilities including, but not limited to, underground and overhead distribution lines, access and internal driveways, fencing, water storage tanks, and stormwater detention basins.

## **ES.7 SUMMARY OF ALTERNATIVES TO THE PROJECT**

### **ES.7.1 No Project Alternative**

Consistent with Section 15126.6(e)(2) of the CEQA Guidelines, under the No Project Alternative, the property would remain in its existing condition and the existing layout would remain unchanged.

### **ES.7.2 Resource Management Avoidance Alternative**

Under the Reduced Footprint Alternative, 359 acres would be developed for the solar facility, a reduction of 51 acres compared to the proposed project. The same parcels would be developed, however, the footprint would be reduced by not developing the northern portion of the northern section of the project site (22 acres) that is designated for RM by the ECAP and locating the solar PV modules and internal access roads outside of the lands designated for WM within the central section of

the project site (21 acres). Similar to the proposed project, the Reduced Footprint Alternative would include an approximately 5,000-sf project substation in the same 0.9-acre dedicated area, battery storage system on a 5-acre portion of the site, and a 400-sf O&M building.

### **ES.7.3 Reduced Footprint Alternative**

Under the Reduced Footprint Alternative, 359 acres would be developed for the solar facility, a reduction of 51 acres compared to the proposed project. The same parcels would be developed, however, the footprint would be reduced by not developing the northern portion of the northern section of the project site (22 acres) that is designated for RM by the ECAP and locating the solar PV modules and internal access roads outside of the lands designated for WM within the central section of the project site (21 acres). Similar to the proposed project, the Reduced Footprint Alternative would include an approximately 5,000-sf project substation in the same 0.9-acre dedicated area, battery storage system on a 5-acre portion of the site, and a 400-square-foot O&M building.

## **ES.8 ISSUES TO BE RESOLVED**

Section 15123(b)(3) of the CEQA Guidelines require that an EIR Identify issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed project, the major issues to be resolved include decisions by the County of Alameda, as Lead Agency, related to:

- Whether this Draft EIR adequately describes the environmental impacts of the proposed project.
- Whether the project is compatible with the character of the existing area.
- Whether the identified mitigation measures should be adopted or modified.
- Whether there are other mitigation measures that should be applied to the proposed project besides those identified in the Draft EIR.
- Whether there are any alternatives to the proposed project that would substantially lessen any of the significant impacts of the proposed project and achieve most of the basic objectives.

## **ES.9 AREAS OF CONTROVERSY**

The County of Alameda issued a Notice of Preparation (NOP) for the Draft EIR on May 8, 2020 and held a virtual public scoping meeting on Thursday May 28, 2020 to receive agency and public comments. The scoping period for this Draft EIR started on May 8, 2020 and ended on June 8, 2020, during which time responsible agencies and interested members of the public were invited to submit comments as to the scope and content of the Draft EIR. The comments received focused primarily on aesthetics, agricultural resources, biological resources, groundwater resources, and traffic. Comments received during the public scoping meeting are included in Appendix A of this Draft EIR.

To the extent that these issues have environmental impacts and to the extent that analysis is required under CEQA, they are addressed in Sections 4.0 through 8.0 of this Draft EIR.

## **ES.10    SIGNIFICANT IMPACTS AND MITIGATION MEASURES**

Under CEQA, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.

The proposed project has the potential to generate significant environmental impacts in a few areas. Table ES-1 summarizes the conclusions of the environmental analysis contained in this Draft EIR and presents a summary of impacts and mitigation measures identified. It is organized to correspond with the environmental issues discussed in Sections 4.1 through 4.18. The table is arranged in four columns: 1) environmental impacts, 2) significance prior to mitigation, 3) mitigation measures, and 4) significance after mitigation. For a complete description of potential impacts, please refer to the specific discussions in Sections 4.1 through 4.18.

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
<b>Aesthetics</b>			
AES-1: The proposed project would have a substantial adverse effect on a scenic vista.	Potentially significant	AES-1: Long-term Landscape Maintenance. To ensure the long-term effectiveness of the proposed landscaping, the project applicant shall ensure that the proposed landscaping is adequately irrigated to establish the long-term viability of the buffer and maintained throughout the life of the project. Should any of the proposed landscape plantings not survive the initial planting or expire at any time during the life of the project, the applicant shall provide replacement plantings consistent with the initial planting to screen the solar facility within one year of plant failure.	Significant and unavoidable
AES-2: The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway.	Less than significant	N/A	N/A
AES-3: The proposed project would degrade the existing visual character or quality of public views (public views are those that are experienced from publicly accessible vantage point) of the site and its surroundings resulting in a significant aesthetic impact.	Potentially significant	See impact AES-1 for MM AES-1	Significant and unavoidable
AES-4: The proposed project would not expose people on- or off-site to substantial light or glare which would adversely affect day or nighttime views in the area.	Less than significant	N/A	N/A
AES-5: The proposed project would contribute to a significant cumulative impact on aesthetic resources.	Potentially significant	See impact AES-1 for MM AES-1	Significant and unavoidable
<b>Agriculture and Forestry Resources</b>			
AG-1: The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	Less than significant	N/A	N/A



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
AG-2: The proposed project would not conflict with existing zoning for agricultural use or a Williamson Act Contract.	Less than significant	N/A	N/A
AG-3: The proposed project would not conflict with existing zoning for or cause rezoning of forest land, timberland, or timberland zoned for Timber Production.	No Impact	N/A	N/A
AG-4: The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.	No Impact	N/A	N/A
AG-5: The proposed project would not result in changes to the existing environment which, due to their location or nature, would result in conversion of agricultural lands to non-agricultural use or forest land to non-forest land.	Less than significant	N/A	N/A
AG-6: The proposed project would not contribute to a significant cumulative impact with respect to agricultural or forestry resources.	Less than significant	N/A	N/A
<b>Air Quality</b>			
AQ-1: The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.	Less than significant	N/A	N/A
AQ-2: The proposed project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.	Potentially significant	<p>AQ-1: Basic Construction Mitigation Measures. Prior to issuance of any Grading Permit, the County shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with the BAAQMD CEQA Air Quality Guidelines, the following basic construction mitigation measures shall be implemented for all project construction activity:</p> <ul style="list-style-type: none"> <li>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas and unpaved access roads) shall be watered two times per day.</li> </ul>	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<ul style="list-style-type: none"> <li>• All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>• All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li> <li>• All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>• All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>• Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> <li>• All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li> </ul> <p>A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		AQ-2: USEPA Tier 4 Final Emissions Standards. Prior to issuance of any Grading Permit, the County shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, all diesel-powered off-road equipment with 50 or more horsepower be certified to meet the USEPA Tier 4 Final emissions standards, or be retrofitted with CARB verified diesel exhaust emissions reduction devices that reduce emissions of both NO <sub>x</sub> and PM to USEPA Tier 4 Final emissions standards.	
AQ-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations.	Less than significant	N/A	N/A
AQ-4: The proposed project would not result in substantial emissions of odors adversely affecting a substantial number of people.	Less than significant	N/A	N/A
AQ-5: The proposed project would not contribute to a cumulatively considerable impact on regional air quality.	Potentially significant	See Impact AQ-1 for MM AQ-1 and MM AQ-2	Less than significant
<b>Biological Resources</b>			
BIO-1: The proposed project may result in a substantial adverse effect, either directly or through habitat modifications, on 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.	Potentially significant	<p>BIO-1: General Mitigation Measures</p> <p>BIO-1a: Prior to the issuance of grading or building permits, and for the duration of construction activities, the project proponent/operator shall demonstrate that it has in place a Construction Worker Environmental Awareness Training and Education Program for all new construction workers at the project site. All construction workers shall attend the Program prior to participating in construction activities. Any employee responsible for the operations and maintenance or decommissioning of the proposed project facilities shall also attend the Environmental Awareness Training and Education Program prior to starting work on the project.</p> <p>The Program will be developed and presented by biologist meeting the qualifications of an authorized biologist as defined by</p>	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>USFWS or designee. The training may be presented in video form. The Program shall include:</p> <ul style="list-style-type: none"> <li>• Information on the life history of the American badger, burrowing owl, Swainson’s hawk and other raptors, desert kit fox as well as other wildlife and plant species that may be encountered during construction activities, legal protection status of each species (including all nesting birds);</li> <li>• A description of CRLF, CTS and its habitat, the avoidance and minimization measures that are being implemented to conserve the CRLF and CTS as they relate to the project, and the boundaries within which work may occur;</li> <li>• A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the previously referenced people and anyone else who may enter the project site;</li> <li>• The definition of “take” under the Federal Endangered Species Act and the California Endangered Species Act;</li> <li>• Measures the project proponent/operator is implementing to protect the species; and</li> <li>• Specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act or California Endangered Species Act.</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>The worker environmental awareness training material will be kept on-site for the duration of operations and all personnel will be instructed on the importance of CRLF and CTS, how to identify these amphibians, and what to do if CRLF or CTS is found on the facility.</p> <p>BIO-1b: Environmental tailboard trainings shall take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.</p> <p>BIO-1c: Contracts with contractors, construction management firms, and subcontractors shall obligate all contractors to comply with these mitigation measures.</p> <p>BIO1d: The following shall not be allowed at or near work sites: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets.</p> <p>BIO-1e: Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.</p> <p>BIO-1f: Off-road vehicle travel shall be minimized.</p> <p>BIO-1g: Vehicles will not exceed a speed of 15 mph on unpaved roads within natural land cover types or during off-road travel.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-1h: Vehicles or equipment shall not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.</p> <p>BIO-1i: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.</p> <p>BIO-1j: To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation shall be either rice straw or weed-free straw.</p> <p>BIO-1k: Pipes, culverts, and similar materials greater than 4 inches in diameter shall be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials shall be inspected each morning for the presence of animals prior to being moved.</p> <p>BIO-1l: Erosion control measures shall be implemented to reduce sedimentation in wetlands and drainages adjacent to the site that could be occupied by special-status animal species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.</p> <p>BIO-1m: Stockpiling of material shall occur such that direct effects to special-status species are avoided.</p> <p>BIO-1n: Grading shall be restricted to the minimum area necessary.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-1a: Prior to ground disturbing activities adjacent to sensitive habitats, project construction boundaries and access areas shall be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.</p>	
		<p>BIO-2: California Tiger Salamander and California Red-Legged Frog.</p> <p>BIO-2a: If construction commences during the wet season and active dispersal period for these species (between approximately October 16 and May 14, depending on the precipitation year), preconstruction surveys for CRLF and CTS shall be conducted in the project site approximately two weeks prior to the initiation of construction and decommissioning activities to ensure that CRLF and CTS are not actively using the project site or adjacent areas as a dispersal corridor. Preconstruction surveys shall be conducted by a qualified biologist familiar with all life stages of the amphibians and shall cover all aquatic habitats on and immediately adjacent to the project site (Cayetano Creek and its tributaries) that are suitable for CRLF and CTS dispersal.</p> <p>BIO-2b: If any life stage of CRLF and/or CTS (e.g., egg, egg mass, larvae, tadpole, juvenile, or adult) is detected within the project site during any surveys or monitoring for the project during construction or decommissioning, USFWS and CDFW shall be notified within 48 hours. The biologist shall monitor the CRLF or CTS to make sure the amphibian is not harmed and that it leaves the site on its own and does not return. Handling of listed species without a take permit pursuant to the FESA is not allowed.</p> <p>BIO-2c: Activities associated with construction and decommissioning conducted within 200 feet of on-site drainages shall be limited to a period outside of the active season for CRLF and CTS (approximately May 15 to October 15, depending on the precipitation year). This construction window is during the dry</p>	



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>season in which creek levels are lower to dry, providing limited aquatic dispersal habitat for CRLF. The dry season is defined generally as that time between April 15th and the first qualifying rain event on or after October 15th defined as precipitation of more than one half of an inch for 24 hours. Any extension of the work window outside of the May 15 to October 15 timeframe due to abnormally dry conditions would require coordination with the USFWS.</p> <p>BIO-2d: Construction and decommissioning activities within 200 feet of on-site drainages shall be restricted to daylight hours to avoid CRLF and CTS that may be present in the project site during the time they are most active – between dusk and dawn. Construction and decommissioning activities shall cease one half hour before sunset and will not begin prior to one half hour before sunrise.</p> <p>BIO-2e: Construction and decommissioning activities and clearing within the project site shall be confined to the minimal area necessary to facilitate construction activities. To ensure that construction equipment and personnel do not affect sensitive habitat outside of designated work areas, orange barrier fencing shall be erected to clearly define the habitat to be avoided. This will delineate the ESA on the project. The integrity and effectiveness of ESA fencing and erosion control measures shall be inspected daily. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective BMPs.</p> <p>BIO-2f: To prevent CRLF and CTS from moving through the project site during construction and decommissioning, temporary exclusion fencing shall be placed along the boundary of the project site by October 15<sup>th</sup> of the year prior to commencement of construction and decommissioning. This will allow any CRLF or CTS potentially using the project site for upland refugia to leave the project site to access breeding habitat, but not return. The</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>fence will be made of a material that does not allow amphibians to pass through, with one-way exit holes, and the bottom will be buried to a depth of two inches so that frogs cannot crawl under the fence. To avoid entanglement of amphibians and other wildlife, the use of plastic monofilament netting is prohibited. Exclusion fencing shall be removed within 72 hours of the completion of work.</p> <p>BIO-2g: A biologist meeting the qualifications of an authorized biologist as defined by USFWS or designee shall survey the project site immediately prior to installation of temporary exclusion fencing to ensure that this species is not present within the site. Once the temporary exclusion fencing is installed, the work area within the exclusion fence shall be surveyed again immediately prior to the onset of construction activities. If listed species are found in the project site during preconstruction surveys, construction activities shall not start within a 100-foot radius until the species has left the area of its own volition. Handling of CRLF or CTS without a take permit pursuant to the FESA is not allowed.</p> <p>BIO-2h: A qualified biological monitor shall be present daily during initial construction and decommissioning activities including but not limited to equipment mobilization, site clearing, vegetation removal, and grading/ground disturbance to verify that no CRLF or CTS enter the project site during construction or are harmed. Daily monitoring can be reduced to weekly inspections at the discretion of the biological monitor once site grading has been completed and no habitat/refugia is present for CRLF or CTS on the site.</p> <ul style="list-style-type: none"> <li>Any mammal burrows providing potential refugia for CRLF or CTS shall be scoped to search for these animals. If CRLF or CTS are found, the burrow shall be flagged and avoided by a suitable buffer as determined by the biological monitor.</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<ul style="list-style-type: none"> <li>• If CRLF or CTS are found during construction or decommissioning, work shall immediately stop within 100 feet and the listed amphibian will be allowed to move out of harm's way on its own accord. The biological monitor shall monitor the CRLF or CTS to make sure the amphibian is not harmed and that it leaves the site on its own accord. Handling of listed species without a take permit pursuant to the FESA is not allowed. Sightings of special-status species will be reported to CNDDB.</li> <li>• Prior to the start of daily construction and decommissioning activities during initial ground disturbance, the biological monitor shall inspect the perimeter fence to ensure that it is neither ripped nor has holes and that the base is still buried. The fenced area shall also be inspected to ensure no amphibians are trapped. If listed amphibians are found inside or outside of the fence, work will immediately stop, and the animal will be allowed to leave the project site on its own accord. Any listed species shall be closely monitored until they move away from the construction area.</li> <li>• A permitted biologist shall be contracted to trap and move CRLF and CTS to nearby suitable habitat if they are found inside the project area and do not leave the project site of their own accord.</li> </ul> <p>BIO-2i: To ensure that amphibian diseases are not conveyed between work sites by the USFWS approved biologist or biological monitor, the fieldwork code of practice developed by the Declining Amphibian Population Task Force shall be followed at all times.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-2j: Standard construction BMPs shall be implemented throughout construction and decommissioning, in order to avoid and minimize adverse effects to the water quality within the project site. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from the project site. The integrity and effectiveness of the BMPs shall be inspected on a daily basis by the resident engineer or site foreman. Corrective actions and repairs shall be carried out immediately.</p> <p>BIO-2k: Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials should not be allowed to enter into streams or other waters. A plan for the emergency clean-up of any spills of fuel or other materials should be available when construction equipment is in use.</p> <p>BIO-2l: Equipment shall be re-fueled and serviced at designated construction staging areas. All construction material and fill shall be stored and contained in a designated area that is located away from channel areas to prevent transport of materials into adjacent streams. The preferred distance is 100 feet from the wetted width of a stream. In addition, a silt fence shall be installed to collect any discharge, and adequate materials should be available for spill clean-up and during storm events.</p> <p>BIO-2m: Construction vehicles and equipment shall be monitored and maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Leaking vehicles and equipment shall be removed from the site.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-2n: Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall be located outside of the 100-year flood zone, have an impermeable membrane between the ground and the hazardous material, and shall be bermed to prevent the discharge of pollutants to ground water and runoff water. The bermed area shall at a minimum have the capacity to store the volume of material placed in it.</p> <p>BIO-2o: All disturbed soils shall undergo erosion control treatment prior to October 15 and/or immediately after construction is terminated. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from project sites. Erosion control blankets shall be installed on any disturbed soils steeper than a 2:1 slope or steeper.</p> <p>BIO-2p: During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.</p> <p>BIO-2q: To prevent inadvertent entrapment of animals during construction, all excavated, steep walled holes or trenches more than one foot deep shall be covered at the close of each working day with plywood or other suitable material or provided with one or more escape ramps constructed of earth fill or wooden planks. At the beginning of each working day and before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist, or an on-site designee identified by the USFWS approved biologist, will immediately place escape ramps or other appropriate structures to allow the animal to escape, or USFWS will be contacted for guidance and notified of the incident. All</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>holes and trenches more than one foot deep shall be filled or securely covered prior to October 15.</p> <p>BIO-2r: No monofilament plastic will be used for erosion control.</p>	
		<p>BIO-3: Burrowing Owl</p> <p>BIO-3a: If feasible, construction-related ground disturbance activities shall begin outside of the burrowing owl nesting season (February 1 through August 31) and during construction the site shall be maintained in a manner that is inhospitable to burrowing owl such as keeping the site free of vegetation, ground squirrel control (the use of poison baits or other substances that could be potentially harmful to San Joaquin kit fox shall not be allowed), and maintaining regular site disturbance by construction equipment and personnel. This will discourage burrowing owl from occupying the project site. If feasible, decommissioning-related ground disturbing activities shall begin outside of the burrowing owl nesting season (February 1 through August 31).</p> <p>BIO-3b: No more than 14 days prior to initiation of ground disturbing activities associated with project construction or decommissioning, a qualified biologist shall conduct a pre-construction survey of the project site and surrounding areas to a distance of 150 meters in accordance with the methods outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012) or most recently adopted guidance. The first pre-construction survey will cover all areas within 150 meters of the portion of the site in which construction/ decommissioning is scheduled to start. Surveys will be phased based on the construction/ decommissioning schedule such that the surveys are conducted no more than 14 days ahead of the start of ground disturbance in new areas. If construction/ decommissioning activities in portions of the site cease for a period of 14 days, those portions of the site will be resurveyed for burrowing owls prior to the resumption of construction/decommissioning activities. If no occupied breeding</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>or wintering owl burrows are identified, no further mitigation will be required. If occupied burrows are identified on the site or within 150 meters, one of the following actions shall be taken: (1) permanent avoidance of the burrow or (2) establishment of a temporary avoidance buffer followed by passive relocation and compensatory mitigation for loss of habitat in conjunction with the measures below:</p> <ul style="list-style-type: none"> <li>• If an occupied wintering burrow is discovered during pre-construction surveys, a 50-meter buffer area shall be established around the burrow until the owl leaves on its own (if the burrow is more than 50 meters offsite and/or more than 50 meters from the work area, no buffer is necessary). Ground-disturbing work conducted during the nonbreeding (winter) season (September 1 to January 31) can proceed near the occupied burrow so long as the work occurs no closer than 50 meters to the burrow, and the burrow is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist. If the 50-meter buffer cannot be maintained for the duration of occupancy by the owl, owls may be excluded from an occupied wintering burrow in accordance with the conditions of the project's <i>Burrowing Owl Exclusion Plan</i>, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls.</li> <li>• If an occupied nesting burrow is discovered during pre-construction surveys, an avoidance buffer of 200 meters shall be established around the burrow location and maintained until a qualified biologist has determined that the nest has fledged or is no longer active (a 200-meter avoidance buffer is appropriate for low-intensity impacts near nesting burrows during breeding season [CDFW 2012]). No project activities shall take place within the 200-meter buffer</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>during the time in which it is in place. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist.</p> <ul style="list-style-type: none"> <li>• If an occupied burrow cannot be avoided, and the burrow is not actively in use as a nest, a 200-meter buffer shall be established until the burrowing owls can be excluded from burrows in accordance with the project's <i>Burrowing Owl Exclusion Plan</i>, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls. The <i>Burrowing Owl Exclusion Plan</i> is based on the recommendations made in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or most recently adopted guidance and shall include the following information for each proposed passive relocation: <ul style="list-style-type: none"> <li>○ Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species;</li> <li>○ Type of scope to be used and appropriate timing of scoping;</li> <li>○ Occupancy factors to look for and what shall guide determination of vacancy and excavation timing;</li> <li>○ Methods for burrow excavation;</li> <li>○ Removal of other potential owl burrow surrogates or refugia on-site;</li> <li>○ Methods for photographic documentation of the excavation and closure of the burrow; and</li> <li>○ Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take. Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals.</li> </ul> </li> </ul>	



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-3c: If an occupied burrow is identified off-site within 150 meters and passive exclusion is deemed necessary to protect the owls, burrowing owls may be excluded from burrows if permission is granted by the land owner and in accordance with the project's Burrowing Owl Exclusion Plan, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls. If burrowing owls cannot be excluded from an off-site burrow and it is not feasible to maintain an avoidance buffer as stated above, coordination will be conducted with CDFW to determine appropriate measures to minimize impacts to off-site burrowing owls. Such measures could include, but are not limited to: (1) installation of barriers between the construction or decommissioning area and the occupied burrows to block noise and views of construction or decommissioning equipment and personnel, and (2) regular monitoring by a qualified biologist to determine if construction or decommissioning activities are resulting in disturbance of the owls that could lead to nest abandonment or harm to adult owls or their young. If such disturbance was occurring, the biological monitor would have the authority to halt construction or decommissioning activities until further modifications could be made to avoid disturbance of the owls.</p> <p>BIO-3d: If burrowing owl pairs are passively relocated, compensatory mitigation for lost wintering/breeding habitat shall be provided either through dedication of 6 acres of suitable habitat (per pair of relocated owls) at an off-site location in accordance with the conditions of the project's Burrowing Owl Exclusion Plan or through purchase of credits at a CDFW-approved mitigation bank in the region. No compensatory mitigation is required for passive relocation or eviction of transient, unpaired owls.</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>BIO-3e: If permanent avoidance buffers are established, such areas shall be managed for the duration of the project to preserve current values as foraging habitat for burrowing owl. Management shall include: (1) exclusion of all project activities throughout the construction, operation, and decommissioning phases, including staging, parking, driving, or dumping; (2) vegetation management by grazing or mowing to preserve open, low-growing vegetation; (3) fencing to discourage human incursion; (4) signage identifying the area as a biologically sensitive area managed for burrowing owl, and; (5) a worker education and awareness program for all personnel working on the site including contractors and sub-contractors.</p>	
		<p>BIO-4: American Badger. A qualified biologist shall conduct a preconstruction survey for American badger no more than 14 days prior to the beginning of ground disturbance related to construction and decommissioning activities, or any other project activity likely to impact American Badger (such as staging, mowing, vegetation clearing), to determine if there are any American badger dens on the project site. If there are no American badger dens on the project site, no further mitigation is necessary. If American badger dens are located within the work area and cannot be avoided, a qualified biologist will determine if the dens are occupied. If unoccupied, the dens will be collapsed under the supervision of the biologist. If occupied, the biologist will determine if it is a natal/pupping den or a solitary badger den. Dens of solitary badger may be collapsed under the supervision of the biologist once the animal has vacated the den. Natal/pupping dens will be avoided by establishment of an exclusion zone around the den determined by the qualified biologist until the young are old enough to leave the den and survive on their own.</p>	
		<p>BIO-5: San Joaquin Kit Fox</p> <p>BIO-5a: A qualified biologist shall conduct a preconstruction survey no more than 14 days prior to the beginning of ground</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>disturbance and/or construction/decommissioning activities, or any other project activity likely to impact San Joaquin kit fox, to determine if potential San Joaquin kit fox dens are present in or within 500 feet of the project site (inaccessible areas outside of the project site can be surveyed using binoculars or spotting scopes from public roads). The surveys shall be conducted in all areas of suitable habitat for San Joaquin kit fox. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to disturbance of any particular portion of the site. If potential dens are observed and avoidance of the dens is determined to be feasible, the following minimum buffer distances shall be established prior to construction/decommissioning activities (consistent with USFWS 2011):</p> <ul style="list-style-type: none"> <li>• Potential den: 50 feet</li> <li>• Atypical den: 50 feet</li> <li>• Known den: 100 feet</li> <li>• Natal/pupping den: at least 500 feet – <b><u>USFWS must be contacted.</u></b> <ul style="list-style-type: none"> <li>○ Buffer establishment shall follow the <i>USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance</i> (USFWS 2011) under “Exclusion Zones.”</li> <li>○ If San Joaquin kit fox or occupied San Joaquin kit fox dens are observed on the site, USFWS must be contacted.</li> </ul> </li> </ul> <p>BIO-5b: If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox:</p> <ul style="list-style-type: none"> <li>• If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>a shovel to prevent foxes from re-using them during construction.</p> <ul style="list-style-type: none"> <li>If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program may be implemented with prior concurrence from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction with prior concurrence from USFWS.</li> </ul> <p>BIO-5c: In addition, the following avoidance and minimization measures for San Joaquin kit fox shall be implemented during construction/decommissioning of the project (USFWS 2011):</p> <ol style="list-style-type: none"> <li>Project-related vehicles shall observe a daytime speed limit of 20 mph and a nighttime speed limit of 10 mph throughout the project site, except on County roads, state and federal highways. Additionally, vehicles shall not exceed a speed limit of 15 mph on unpaved roads within natural land cover types or during off-road travel. Off-road traffic shall be prohibited outside of designated project areas.</li> <li>To prevent inadvertent entrapment of kit foxes or other animals during the construction or decommissioning phases of the project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks should be installed. Before such holes or trenches are filled, they should be thoroughly</li> </ol>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted as noted under measure I. referenced below.</p> <p>c. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.</p> <p>d. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.</p> <p>e. No firearms shall be allowed on the project site.</p> <p>f. No pets, such as dogs or cats, shall be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.</p> <p>g. Use of rodenticides, herbicides, poison baits, or other substances potentially harmful to San Joaquin kit fox shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. Use of such compounds should observe label and other restrictions mandated by the EPA,</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>CDFA, and other State and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.</p> <p>h. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program required by BIO-1a and their name and telephone number shall be provided to the Service.</p> <p>i. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, CDFW, and revegetation experts.</p> <p>j. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox should immediately report the incident to their representative. This representative should contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or the wildlife biologist at</p>	

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		<p>(530) 934-9309. The USFWS should be contacted at Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825, (916) 414-6620 or (916) 414-6600.</p> <p>k. The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.</p> <p>l. New sightings of kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS at the address listed under measure l.</p> <p>m. Fencing of the project site, with the exception of the project substation and energy storage areas, shall incorporate wildlife-friendly fencing design. Fencing plans may use one of several potential designs that would allow kit foxes to pass through the fence while still providing for project security and exclusion of other unwanted species (i.e., domestic dogs and coyotes). Raised fences or fences with entry/exit points of at least 6 inches in diameter spaced along the bottom of the fence to allow species such as San Joaquin kit fox access into and through the project site would be appropriate designs.</p>	
		<p>BIO-6: Special-Status Birds and other Nesting Migratory Birds and Raptors</p> <p>BIO-6a: If project (construction/decommissioning) ground-disturbing or vegetation clearing, and grubbing activities commence during the avian breeding season (February 1 through August 31), a qualified biologist shall conduct a pre-construction</p>	

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		<p>nesting bird survey no more than 7 days prior to initiation of project activities. The survey area shall include suitable raptor nesting habitat within 300 feet of the project boundary (inaccessible areas outside of the project site can be surveyed from the site or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure is required:</p> <ul style="list-style-type: none"> <li>• A suitable buffer (e.g., 660 feet for golden eagle, 300 feet for common raptors; 100 feet for passerines) shall be established by a qualified biologist around active nests and no construction/decommissioning activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.</li> </ul> <p>BIO-6b: Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be used on the project site, the poles shall be capped immediately after installation to avoid entrapment of birds.</p>	
		<p>BIO-7: Avian Effects During Operations of the Solar Facility</p> <p>BIO-7a: Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light</p>	



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. This will prevent impacts to bird species nesting and foraging in riparian areas in Cayetano Creek and other sensitive habitats adjacent to the site.</p> <p>BIO-7b: Rodenticides will not be used at the project site. Rodents will be controlled by encouraging raptor foraging. If additional rodent control is required to minimize impacts on adjacent agricultural operations, non-chemical methods will be employed.</p> <p>BIO-7c: During operations, trash – including microtrash that can be harmful to birds and other wildlife – will be regularly removed from the project site to avoid impacts to birds using the project site. The area of trash cleanup will include both the project site within the fence lines, in addition to focused trash pickup along the fence on the interior and exterior sides of the fence.</p> <p>BIO-7d: The project shall be designed to underground electrical wiring to the maximum extent feasible. In particular, guy wires will be avoided to the maximum extent feasible without compromising public safety.</p> <p>BIO-7e: In compliance with the Avian Power Line Interaction Committee's (APLIC) guidance, Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012), transmission lines and all electrical components shall be designed, installed, and maintained in accordance with APLIC (2012) guidance to reduce the likelihood of large bird electrocutions and collisions.</p> <p>BIO-7f: The Applicant shall implement the following measures to reduce the risk of bird collisions with PV panels.</p> <ul style="list-style-type: none"> <li>• A qualified biologist shall prepare an Avian Monitoring Plan to assess and monitor the potential for avian collisions with solar panels on the site. The Plan will include monitoring for</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>levels of avian activity as well as avian mortality in treated and untreated (control) portions of the solar facility to determine if avian mortality is occurring and if there is any apparent difference in avian mortality between treated and untreated panels. The Plan shall also include methods to install visual deterrents or cues to encourage bird avoidance of the Project site. Implementation of the Plan will provide quantitative data on the effectiveness of the avian deterrent in terms of overall bird use and large-bird mortality in treated portions of the project versus an untreated control.</p> <ul style="list-style-type: none"> <li>• Within 30 days after project commissioning, avian deterrent materials shall be installed in a total of four 50-acre blocks to achieve coverage of a total of 200 acres within the Solar Facility on a 3-month trial basis to evaluate potential avian collision issues. These deterrents shall be made of a material that is both reflective and highly visible, such that the material reflects ambient light and is stimulated by air movement. The effect of installation will create the visual impression of continuous and varied movement, which has been shown as an avian deterrent in agricultural applications. Examples of the types of material that could be used include plastic compact discs and reflective tape.</li> <li>• Upon installation of deterrent measures, avian monitoring shall occur once per week for a total of 12 consecutive weeks; this will be repeated for the first three consecutive years of operation. During each monitoring event, bird abundance in each block (4 treatment blocks and one untreated control block) will be quantified using a point count method and the number, species, and behavior of birds observed within each block will be recorded. Behaviors will be recorded for each species and will reflect the modal (or typical) behavior observed for all individuals of the species, not for each individual bird. The observer will also record temperature,</li> </ul>	

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		<p>average wind speed, and percent cloud cover at the start of each observation period.</p> <ul style="list-style-type: none"> <li>• Mortality of large birds in each block will be assessed by surveying the block for carcasses of large birds (crow-sized and larger). During the surveys, the location and species of each carcass will be recorded using a handheld GPS receiver, a photograph will be taken of the carcass, and the cause of mortality will be noted if apparent. Carcasses will not be collected or preserved.</li> <li>• Overall bird abundance, species diversity, and large-bird mortality will be compared among all blocks, and between the control block and the treatment blocks combined. Analysis may include t-Test comparisons of means for overall abundance and large-bird mortality; however, statistical power may be low depending on the overall level of bird activity at the site.</li> <li>• Facility operator or agent will provide a brief analysis of the effects of the deterrent measures on panel performance and the feasibility of maintaining avian deterrents for inclusion in the analysis.</li> <li>• Following the initial 3-month period and based on the results of the Plan, visual deterrents will either be discontinued if there is no significant difference between avian mortality between the treatment and control blocks, adjusted to reduce performance issues and reexamined on a continuing 3-month basis, or if adjustments are not deemed necessary to improve panel performance, deployed on the remainder of the site and maintained for the life of the project or until determined infeasible (based on the definition of “feasible” in</li> </ul>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>CEQA Guidelines §15364) or ineffective by the Project owner in consultation with CDFW and the County.</p> <p>BIO-7g: Panels shall include, if feasible, a light-colored, UV-reflective, or otherwise non polarizing outline, frame, grid, or border, which has been shown to substantially reduce panel attractiveness to aquatic insects (Horvath 2010) and may reduce avian mortality by avoiding collisions with panel faces (NFL 2014).</p> <p>BIO-7h: Dryland pasture will be established on the site and used for grazing livestock (sheep) between and under the solar panels throughout the year, pursuant to an Agricultural Management Plan. Portions of the site in and around the solar panels would be maintained as dryland pasture containing a combination of grassland species and non-invasive forbs and would be maintained for grazing for the duration of the life of the solar facility. The mixture of grassland and native forbs, managed by targeted sheep grazing, is expected to provide high value and consistently available habitat conditions for small mammal prey species (voles, pocket gophers, deer mice and house mice) preferred by raptors in the region.</p> <p>BIO-7i: The Agricultural Management Plan shall include grazing management methods to ensure that the vegetation composition and structure provides a combination of areas with lower vegetation heights and density to provide accessibility to raptors, and areas with denser, taller vegetation to attract and maintain prey on the site. Management conditions will include ensuring that the vegetation cover is not reduced to the extent that vegetation would not naturally regenerate; there are openings in the vegetation to allow foraging access for raptors; and there are areas where the vegetation would be allowed to grow taller. In general, vegetation heights below the panels should be allowed to be higher to provide cover for prey species (12 to 18 inches), and</p>	

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		the vegetation heights between the panels should be maintained at a suitable height to provide foraging accessibility (<12 inches).	
BIO-2: The proposed project may result in a substantial adverse effect on a sensitive natural community.	Potentially significant	<p>BIO-8: Jurisdictional Waters</p> <p>BIO-8a: The project shall be designed to avoid impacts to jurisdictional waters on and adjacent to the site. If jurisdictional waters cannot be avoided, prior to the start of construction, the project applicant shall secure any required aquatic resources permits for impacts to jurisdictional waters of the State from the San Francisco Bay RWQCB and CDFW, and shall comply with all conditions of such permits including providing compensatory mitigation as required to achieve no net loss of wetlands or other waters.</p> <p>BIO-8b: For those waters of the State and CDFW jurisdictional areas that are not avoided by project construction, compensatory mitigation shall be provided. As approved by the San Francisco Bay RWQCB and CDFW, the project applicant may purchase mitigation credits from an approved mitigation bank at a minimum 1:1 ratio or implement another method of mitigation satisfactory to the San Francisco Bay RWQCB and CDFW.</p> <p>BIO-8c: Impacts shall also be minimized by the use of Best Management Practices (BMPs) to protect preserved waters of the U.S./State adjacent to the site and to ensure that water quality standards are not compromised in preserved wetlands and other waters within the watershed. These practices can include installing orange construction fencing buffers, straw waddles to keep fill from entering preserved/avoided wetlands and other waters, and other protective measures.</p>	Less than significant
BIO-3: The proposed project may result in a substantial adverse effect on State or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) or other waters of the U.S. and State	Potentially significant	See MM BIO-8	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
through direct removal, filling, hydrological interruption, or other means.			
BIO-4: The proposed project may interfere substantially with the movement of native resident wildlife species or with established native resident or migratory wildlife corridors.	Potentially significant	See MM BIO-2 and BIO-5	Less than significant
BIO-5: The proposed project may conflict with local policies or ordinances protecting biological resources.	Potentially significant	See MM BIO-1 through BIO-7	Less than significant
BIO-6: The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, other approved local, regional, or State habitat conservation plan.	Less than significant	N/A	N/A
BIO-7: The proposed project may contribute to a significant cumulative impact to biological resources.	Potentially significant	See Impact BIO-1 for mitigation measures BIO-1 through BIO-7 See Impact BIO-2 for MM BIO-8	Less than significant
<b>Cultural and Tribal Cultural Resources</b>			
CUL-1: The proposed project may cause a substantial change in the significance of a historical resource.	Potentially significant	CUL-1: Prior to project construction, the project applicant would be required to retain an Architectural Historian who meets the Secretary of Interior's Professional Qualification Standards to complete photographic documentation of the historical resources located at 4400 North Livermore Avenue. The photographic documentation shall adhere to the standards and guidelines for Historical American Buildings Survey (HABS) documentation, as outlined in the updated June 2015 HABS Guidelines set by the Heritage Documentation Program instituted by the National Parks Service.	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
CUL-2: The proposed project may cause a substantial change in the significance of a unique archaeological resource.	Potentially significant	CUL-2: Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained in the protection of cultural resources, the recognition of buried cultural remains, and the notification procedures to be followed upon the discovery of archaeological materials, including Native American burials. The training should be presented by an archaeologist who meets the Secretary of Interior's Standards for Prehistoric and Historic Archaeology and should include recognition of both prehistoric and historic resources. Personnel should be instructed that unauthorized collection or disturbance of artifacts or other cultural materials is illegal, and that violators will be subject to prosecution under the appropriate state and federal laws. Supervisors should also be briefed on the consequences of intentional or inadvertent damage to cultural resources.	Less than significant
		CUL-3: In the event that cultural or tribal cultural resources are exposed during ground-disturbing activities, construction activities (e.g., grading, grubbing, or vegetation clearing) shall be halted in the immediate vicinity of the discovery. An archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards shall then be retained to evaluate the find's significance under CEQA. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted and shall be discussed in consultation with the County.	
CUL-3: Implementation of the proposed project may result in disturbance of human remains, including those interred outside of formal cemeteries.	Potentially significant	CUL-4: Discovery of Human Remains. If discovery of human remains occurs during ground-disturbing activities or construction activities (e.g., grading, grubbing, or vegetation clearing), the specific procedures outlined by the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, must be followed:  1. All excavation activities within 60 feet of the remains will immediately stop, and the area will be protected with	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>flagging or by posting a monitor or construction worker to ensure that no additional disturbance occurs.</p> <p>2. The project owner or their authorized representative will contact the County Coroner.</p> <p>3. The coroner will have two working days to examine the remains after being notified in accordance with HSC 7050.5. If the coroner determines that the remains are Native American and are not subject to the coroner's authority, the coroner will notify NAHC of the discovery within 24 hours.</p> <p>4. NAHC will immediately notify the Most Likely Descendant (MLD), who will have 48 hours after being granted access to the location of the remains to inspect them and make recommendations for their treatment. Work will be suspended in the area of the find until the City approves the proposed treatment of human remains.</p>	
CUL-4: The proposed project could result in a substantial adverse change to a tribal cultural resource as defined in Public Resources Code Section 502.1 (k).	Potentially significant	See Impact CUL-2 for MM CUL-3	Less than significant
CUL-5: The proposed project could potentially cause a substantial adverse change of a tribal cultural resource pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.	Potentially significant	See Impact CUL-2 for MM CUL-3	Less than significant
CUL-6: The proposed project would not contribute to a significant cumulative impact to cultural or tribal cultural resources.	Potentially significant	<p>See Impact CUL-1 for MM CUL-1</p> <p>See Impact CUL-2 for MM CUL-2 and MM CUL-3</p> <p>See Impact CUL-3 for MM CUL-4</p>	Less than significant



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
<b>Energy</b>			
ENE-1: The proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.	Less than significant	N/A	N/A
ENE-2: The proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.	No Impact	N/A	N/A
ENE-3: The proposed project would not contribute to significant cumulative impacts on regional energy supplies and sources.	No Impact	N/A	N/A
<b>Geology and Soils, Mineral Resources, and Paleontological Resources</b>			
GEO-1: The proposed project may directly or indirectly cause potential substantial adverse effects involving rupture of known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction or landslides.	Potentially significant	GEO-1: Site-Specific Geotechnical Investigation. Prior to issuance of a grading permit, the project applicant shall retain a geotechnical firm with local expertise in geotechnical investigation and prepare a site-specific geotechnical report. The report shall be prepared by a licensed geotechnical engineer or engineering geologist and be submitted to the County building department for approval prior to the issuance of a grading permit. This report shall be based on data collected from subsurface exploration, laboratory testing of samples and surface mapping, and address the potential for surface fault rupture, ground shaking, slope failure, expansive soils, and unstable cut or fill slopes and make recommendations based on those findings. The project applicant shall implement the recommendations identified in the site-specific geotechnical report.	Less than significant
GEO-2: The proposed project would not result in substantial soil erosion or loss of topsoil.	Less than significant	N/A	N/A
GEO-3: The proposed project would not be located on a geologic unit or soils that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	Less than significant	N/A	N/A

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
GEO-4: The proposed project may be located on expansive soil, creating loss of life or property if the site is located on expansive soils.	Potentially significant	See Impact GEO-1 for MM GEO-1	Less than significant
GEO-5: The proposed project would not have soils that are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.	Less than significant	N/A	N/A
GEO-6: The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	No Impact	N/A	N/A
GEO-7: The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	No Impact	N/A	N/A
GEO-8: The proposed may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially significant	GEO-2: Avoid and Minimize Impacts to Paleontological Resources. In the event a paleontological or other geologically sensitive resources (such as fossils or fossil formations) are identified during any phase of project construction, all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at the County of Alameda who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, the County shall implement those measures which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code Section 21083.2.	Less than significant
GEO-9: The proposed project would not contribute to significant cumulative impacts with respect to geology, soils, mineral resources, or paleontological resources.	Potentially significant	See Impact GEO-1 for MM GEO-1 See Impact GEO-8 for MM GEO-2	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
<b>Greenhouse Gas Emissions</b>			
GHG-1: The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant	N/A	N/A
GHG-2: The proposed project would not conflict with applicable plans, policies, and regulations related to GHG emissions reductions.	Less than significant	N/A	N/A
GHG-3: The proposed project would not contribute to a significant cumulative impact to regional and State GHG emissions.	Less than significant	N/A	N/A
<b>Hazards and Hazardous Materials</b>			
HAZ-1: The proposed project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.	Less than significant	N/A	N/A
HAZ-2: The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less than significant	N/A	N/A
HAZ-3: The proposed project would not emit hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	No Impact	N/A	N/A
HAZ-4: The proposed project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the California Government Code and, as a result, would not	No Impact	N/A	N/A

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
create a significant hazard to the public or the environment.			
HAZ-5: The proposed project, which is not within an airport land use plan or within two miles of a public airport or public use airport, would not result in a safety hazard or excessive noise for people residing or working in the project area.	Less than significant	N/A	N/A
HAZ-6: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than significant	N/A	N/A
HAZ-7: The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	Less than significant	N/A	N/A
HAZ-8: The proposed project would not contribute to a significant cumulative impact with respect to hazards and hazardous substances.	Less than significant	N/A	N/A
<b>Hydrology and Water Quality</b>			
HYD-1: The proposed project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Potentially significant	HYD-1: Stormwater Quality Protection. The project applicant shall file an NOI to comply with the Construction General Permit with the San Francisco Bay RWQCB prior to each phase of construction and project decommissioning. Individual SWPPPs shall be prepared for each NOI (project construction and project decommissioning) and shall detail the treatment measures and BMPs to control pollutants that shall be implemented and complied with during the construction and post-construction phases of the project. The SWPPP(s) required for decommissioning will specify BMPs to be implemented during that final project phase. The SWPPPs are subject to approval by the San Francisco Bay RWQCB, which makes the final determination on which BMPs are required for the project. The	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		construction contracts for each project phase and for the decommissioning phase will include the requirement to implement the BMPs in accordance with the SWPPPs, and proper implementation of the specified BMPs is subject to inspection by the San Francisco Bay RWQCB staff. Example BMPs may include practices such as: designation of restricted-entry zones, sediment tracking control measures (e.g., crushed stone or riffle metal plate at construction entrance), truck washdown areas, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, provision mulching for soil stabilization during construction, and provision for revegetation upon completion of construction within a given area. The SWPPPs will also prescribe treatment measures to trap sediment once it has been mobilized, such as straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and siltation or sediment ponds.	
HYD-2: The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than significant	N/A	N/A
HYD-3: The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site, (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or	Potentially significant	See Impact HYD-1 for MM HYD-1	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows.			
HYD-4: The proposed project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	Less than significant	N/A	N/A
HYD-5: The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than significant	N/A	N/A
HYD-6: The proposed project would not contribute to a significant cumulative impact with respect to hydrology and water quality resources.	Less than significant	N/A	N/A
<b>Land Use and Planning</b>			
LUP-1: The proposed project would not physically divide an established community.	No Impact	N/A	N/A
LUP-2: The proposed project would not conflict with any land use plan, policy, or regulation.	Potentially significant	No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.	Significant and unavoidable
LUP-3: The proposed project would not contribute to a significant cumulative impact with respect to land use and planning.	Potentially significant	No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.	Significant and unavoidable
<b>Noise</b>			
NOI-1: The proposed project could result in a temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the County Noise Ordinance	Potentially significant	<p>NOI-1: Construction Hourly Limits. Prior to issuance of any project Grading Permit or Building Permit, the County shall confirm that the Grading Plan, Building Plans, and construction specifications stipulate that the following construction noise mitigation measures shall be implemented for all project construction activity:</p> <ul style="list-style-type: none"> <li>Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours</li> </ul>	Less than significant

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
		<p>between 7:00 a.m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays, Sundays, and County recognized public holidays; and</p> <ul style="list-style-type: none"> <li>Post a publicly visible sign at the primary project construction entrance listing the permitted construction days and hours, complaint procedures, and who to notify in the event of a problem. The sign shall also include a listing of telephone numbers to be used during regular construction hours and off-hours to contact both the County and the construction contractor regarding noise complaints.</li> <li>If construction activities occur outside of the specified hours, noise levels shall be subject to the limits listed in Table 6.60.040A of the Alameda County Noise Control Ordinance.</li> </ul>	
NOI-2: The proposed project would not result in the generation of excessive groundborne vibration levels.	Less than significant	N/A	N/A
NOI-3: The proposed project would not expose people residing or working in the project area to excessive noise levels from public use airports or private airstrips.	Less than significant	N/A	N/A
NOI-4: The proposed project would not contribute to a significant cumulative impact on ambient noise levels in the County	Potentially significant	See Impact NOI-1 for MM NOI-1	Less than significant
<b>Population and Housing</b>			
POP-1: The proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly.	Less than significant	N/A	N/A
POP-2: The proposed project would not displace substantial numbers of existing	Less than significant	N/A	N/A

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
people or housing, necessitating the construction of housing elsewhere.			
POP-3: The proposed project would not result in a significant cumulative impact with respect to population and housing.	Less than significant	N/A	N/A
<b>Public Services</b>			
PS-1: The proposed project would not result in the need for new or physically altered governmental facilities.	Less than significant	N/A	N/A
PS-2: The proposed project would not result in a significant cumulative impact with respect to public services.	Less than significant	N/A	N/A
<b>Recreation</b>			
REC-1: The proposed project would not increase the use of existing neighborhood and regional parks resulting in substantial physical deterioration.	No Impact	N/A	N/A
REC-2: The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities, resulting in an adverse physical impact on the environment.	No Impact	N/A	N/A
REC-3: The proposed project would not contribute to a significant cumulative impact with respect to recreational resources.	Less than significant	N/A	N/A
<b>Transportation</b>			
TRA-1: The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system including transit, roadway, bicycle, and pedestrian facilities.	Less than significant	N/A	N/A
TRA-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	Less than significant	N/A	N/A



Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
TRA-3: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less than significant	N/A	N/A
TRA-4: The proposed project would not result in inadequate emergency access.	Less than significant	N/A	N/A
TRA-5: The proposed project would not contribute to a significant cumulative impacts with respect to transportation.	Less than significant	N/A	N/A
<b>Utilities and Service Systems</b>			
UTIL-1: The proposed project would not have a significant impact on water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. However, the project may require or result in the construction of new water, wastewater treatment or storm water drainage, or electric power of which may result in a significant impact.	Potentially significant	See Impact BIO-1 for MM BIO-7e	Less than significant
UTIL-2: The proposed project would not have a significant impact on water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less than significant	N/A	N/A
UTIL-3: The proposed project would result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	No Impact	N/A	N/A

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
UTIL-4: The proposed project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Less than significant	N/A	N/A
UTIL-5: The proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	Less than significant	N/A	N/A
UTIL-6: The proposed project would not contribute to a significant impact related to utilities and service systems.	Potentially significant	See impact BIO-1 for MM BIO-7e	Less than significant
<b>Wildfire</b>			
FIRE-1: The proposed project would be located in a State Responsibility Area but would not impair an adopted emergency response plan or emergency evacuation plan.	No Impact	N/A	N/A
FIRE-2: The proposed project would be located in a State Responsibility Area but would exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire.	Less than significant	N/A	N/A
FIRE-3: The proposed project would be located in a State Responsibility Area but would not require the installation or maintenance of associated infrastructure that may exacerbate fire risks.	Less than significant	N/A	N/A
FIRE-4: The proposed project would be located in a State Responsibility Area but would not expose people or structures to significant risks including downstream or downslope landslides or flooding as a result of runoff, post-fire slope instability or drainage changes.	Less than significant	N/A	N/A

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance with Mitigation
FIRE-5: The proposed project would be located in a State Responsibility Area but would not contribute to a significant cumulative impact with respect to wildfire.	Less than significant	N/A	N/A

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# 1.0 INTRODUCTION

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Pursuant to Section 21080(a) of the California Environmental Quality Act (CEQA) and Section 15378(a) of the State CEQA Guidelines, the Aramis Solar Energy Generation and Storage Project is considered a “Project” subject to environmental review because its approval is “an action [involving the issuance to a person of a permit by a public agency], which has the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment.” This Draft Environmental Impact Report (EIR) provides an assessment of the potential environmental impacts that may result from implementation of the Aramis Solar Energy Generation and Storage Project, herein referred to as “project” or “proposed project.”. Additionally, this Draft EIR identifies mitigation measures and alternatives to the proposed project that would avoid or reduce potentially significant impacts. This Draft EIR compares the development of the proposed project with the existing baseline condition and cumulatively when combined with other nearby projects, described in detail in Section 4.0, Environmental Impact Analysis. The County of Alameda (County) is the Lead Agency for the proposed project. This Draft EIR is intended to inform the County’s decision-makers, responsible and trustee agencies, and the public-at-large of the nature of the proposed project and its potential effect on the environment.

## 1.1 PROJECT BACKGROUND

The applicant for the proposed project is IP Aramis, LLC (a subsidiary of Intersect Power, LLC). The County will consider this Draft EIR when making its discretionary actions on the proposed project including a Conditional Use Permit (CUP; PLN2018-00117) to construct, operate, and maintain a solar photovoltaic (PV) and electric storage facility for at least 50 years and a Parcel Map Subdivision of one of the four project parcels proposed for development of the solar facility. The subdivision would affect Assessor’s Parcel Number (APN) 903-0006-001-02 by modifying its eastern boundary to create a distinct parcel that would not be part of the proposed project. The solar facility would generate 100 megawatts (MW) of PV power on approximately 410 acres of privately-owned land in unincorporated Alameda County in the North Livermore area. Section 3.0, Project Description, provides a detailed description of the proposed project, the project objectives, and the project’s required discretionary actions. The project would provide solar power to utility customers by interconnecting to the regional electrical grid at Pacific Gas and Electric Company’s (PG&E) existing Cayetano 230 kilovolt (kV) substation located adjacent and interior to the project site. The project would serve East Bay Community Energy (EBCE), Clean Power San Francisco (CPSF), and/or PG&E customers by providing local generation capacity under a long-term contract.

California Public Utilities Commission (CPUC) General Order No. 131-D establishes that local jurisdictions are preempted from regulating electric power line projects, distribution lines, substations, or other electric facilities constructed by public utilities subject to the CPUC’s jurisdiction. The existing Cayetano substation is owned and operated by PG&E and is subject to CPUC jurisdiction. As such, the County does not have discretionary permit authority over the substation or the interconnection to the substation as planned under the proposed project. In addition to project interconnection facilities within the Cayetano substation, the CPUC may rule that the connection line between the project substation and the Cayetano substation and/or some interconnection components within the project substation would fall under General Order No. 131-D and would be the responsibility of PG&E, or joint responsibility between the project and PG&E. Any required upgrades to the existing Cayetano substation would be determined

and constructed by PG&E under the jurisdiction of CPUC. The CPUC may rely on this document to fulfill its CEQA review obligations for any substation or interconnection facility improvements under its jurisdiction that are necessary to serve the project.

## 1.2 SCOPE AND ORGANIZATION OF THE EIR

Sections 15120 through 15132 of the State CEQA Guidelines present the required content for Draft and Final EIRs. An EIR must include a brief summary of the proposed action and its consequences, a description of the proposed project, a description of the environmental setting, an environmental impact analysis, mitigation measures proposed to minimize potentially significant effects, alternatives to the proposed project, significant irreversible environmental changes, limitations on the discussion of the impact, effects found not to be significant, organizations and persons consulted, and cumulative impacts.

In accordance with CEQA, this Draft EIR: (1) identifies the potential significant effects of the proposed project on the environment and indicates the manner in which those significant effects can be mitigated or avoided; (2) identifies any unavoidable adverse impacts that cannot be mitigated; and (3) analyzes reasonable alternatives to the proposed project. Although the EIR does not control the final decision on the proposed project, the Lead Agency must consider the information in the EIR and respond to each significant effect identified in the EIR.

As the CEQA Lead Agency, the County identified the following issues areas to be analyzed in detail in this Draft EIR:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Geology, Soils, Mineral Resources, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems
- Wildfire

This Draft EIR is organized in the following sections:

- **Executive Summary:** Consistent with Section 15123 of the State CEQA Guidelines, this section provides a brief summary of the proposed project and identifies environmental impacts and mitigation measures in a summary matrix.
- **Section 1.0 – Introduction:** This section presents an overview of the project background, describes the intended use of the EIR (State CEQA Guidelines Section 15124(d)), as well as the environmental review process.
- **Section 2.0 – Project Location and Setting:** This section includes a description of the physical environmental conditions in the vicinity of the project site as they existed at the time the Notice of

Preparation (NOP) was published, and which have been updated based on current conditions during preparation of this Draft EIR, consistent with Section 15125 of the State CEQA Guidelines.

- **Section 3.0 – Project Description:** This section provides a detailed description of the proposed project characteristics and objectives as well as the required discretionary approvals consistent with Section 15124 of the State CEQA Guidelines.
- **Section 4.0 – Environmental Impact Analysis:** This section contains a comprehensive analysis of the potential impacts to each environmental factor evaluated in this Draft EIR, feasible measures that could minimize or mitigate those impacts consistent with Section 15126.4 of the State CEQA Guidelines, and cumulative impacts resulting from the combination of the proposed project together with other projects causing related impacts consistent with Section 15130 of the State CEQA Guidelines.
- **Section 5.0 – Project Alternatives:** Consistent with Section 15126.6 of the State CEQA Guidelines, this section evaluates a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Alternatives other than the proposed project evaluated in this document include: (1) the No Project Alternative in which the proposed project would not be implemented; (2) Resource Management Avoidance Alternative in which 385 acres would be developed with the solar facility, a 25-acre reduction compared with the proposed project; and (3) Reduced Footprint Alternative in which 359 acres would be developed with the solar facility, a 51-acre reduction compared with the proposed project.
- **Section 6.0 – Significant Irreversible Environmental Changes:** Consistent with Section 15126.2(d) of the State CEQA Guidelines, this section outlines the significant irreversible changes anticipated to occur as a result of the proposed project.
- **Section 7.0 – Growth Inducement:** Consistent with Section 15126.2(e) of the State CEQA Guidelines, this section describes potential growth-inducing impacts associated with the proposed project.
- **Section 8.0 – Significant and Unavoidable Impacts:** Consistent with Section 15126.2(c) of the State CEQA Guidelines, this section describes any significant impacts identified, including those which can be mitigated but not reduced to a level of insignificance.
- **Section 9.0 – List of Preparers:** This section lists all authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation.

## **1.3 ENVIRONMENTAL REVIEW PROCESS**

The preparation, review, and certification process for the EIR involves the following steps:

### **1.3.1 Notice of Preparation**

After deciding that an EIR is required, the Lead Agency (County of Alameda) must file an NOP soliciting input on the scope of the EIR with the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (State CEQA Guidelines Section 15082; Public Resources Code [PRC] Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP for

this EIR was circulated for a 30-day agency and public review period that started on May 8, 2020 and ended on June 8, 2020. A virtual public hearing to receive comments on the scope of the EIR was held on Thursday, May 28, 2020, at 1:30 p.m. at a regular meeting of the Alameda County East County Board of Zoning Adjustments. The NOP and scoping process solicited comments from identified responsible and trustee agencies, as well as interested parties regarding the scope of the Draft EIR. Appendix A of this Draft EIR includes the NOP and comments received in response to its circulation.

### **1.3.2 Draft EIR**

The Draft EIR must contain information required by State CEQA Guidelines Sections 15122 through 15131, including: a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing, and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes.

### **1.3.3 Public Notice/Public Review of Draft EIR**

The principal objectives of CEQA require that: (1) the environmental review process provides for public participation; and (2) the EIR serves as an informational document to inform members of the general public, responsible and trustee agencies, and the decision-makers of the physical impacts associated with a proposed project.

Upon completion of the Draft EIR, the Lead Agency must file a Notice of Completion (NOC) with the State Clearinghouse and prepare a public Notice of Availability (NOA) of a Draft EIR. The NOA must be posted in the County Clerk's office for 30 days (PRC Section 21092), and the Lead Agency must send a copy of the NOA to anyone who has requested it (State CEQA Guidelines Section 15087). Additionally, a public NOA of a Draft EIR must be provided through at least one of the following procedures: a) publication in a newspaper of local circulation; b) posting on and off the project site; or c) direct mailing to owners and occupants of contiguous properties. The Lead Agency must solicit input from other agencies and the public and respond in writing to all comments received (PRC Sections 21104 and 21253).

This Draft EIR will be available for review by the public and interested parties, agencies, and organizations for a 45-day comment period beginning on September 18, 2020 and ending November 2, 2020. During the comment period, the public is invited to submit written or email comments on the Draft EIR to the Alameda County Planning Department.

Written comments on this Draft EIR should be submitted to:

Andrew Young, Senior Planner  
County of Alameda, Planning Department  
224 W. Winton Avenue, Room 111  
Hayward, CA 94544  
Email: [Andrew.young@acgov.org](mailto:Andrew.young@acgov.org)

### **1.3.4 Final EIR**

Following the conclusion of the 45-day public review period for the Draft EIR, the County will review all comments received and prepare written responses to comments on environmental issues. A Final EIR



will then be prepared, which contains all of the comments received, responses to comments raising environmental issues, and any changes to the Draft EIR (if necessary). The Final EIR will then be presented to the Board of Zoning Adjustments for certification. All agencies, organizations, and individuals who commented on the Draft EIR will be notified of the availability of the Final EIR and the date of the public hearing before the Board of Zoning Adjustments.

Responses to comments submitted on the Draft EIR by public agencies will be provided to those agencies at least 10 days prior to certification of the EIR. Public input is encouraged at all public hearings before the County. The Board of Zoning Adjustments will also make findings regarding each significant environmental impact of the proposed project as identified in the Final EIR. For each significant impact of the project identified in the EIR, the Lead Agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (State CEQA Guidelines Section 15091). If an agency approves a project with unavoidable significant environmental impacts, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.

The Final EIR will need to be certified by the County as having been prepared in compliance with CEQA prior to deciding to approve or deny the proposed project. After the Board of Zoning Adjustments certifies the Final EIR, it may then consider whether to approve the Aramis Solar Energy Generation and Storage Project. The Board of Zoning Adjustments will adopt and make conditions of project approval all feasible mitigation measures identified in the EIR.

### **1.3.5 Notice of Determination**

The Lead Agency must file a Notice of Determination (NOD) after deciding to approve a project for which an EIR is prepared (State CEQA Guidelines Section 15094). A local agency must file the NOD with the County Clerk within 5 working days after approval of the project by the lead agency. If the project requires discretionary approval from any state agency, then the local lead agency shall also file a copy of the NOD with the State Clearinghouse within 5 working days after project approval. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30-day statute of limitations on CEQA legal challenges (PRC Section 21167[c]).

### **1.3.6 Mitigation Monitoring and Reporting Program**

PRC Section 21081.6 requires that the Lead Agency adopt a mitigation monitoring and reporting program (MMRP) for any project for which it has adopted mitigation measures. The MMRP is intended to ensure compliance with the adopted mitigation measures during project implementation (including construction and operation). The MMRP for the proposed project is included as Appendix B to this Draft EIR.

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## 2.0 PROJECT LOCATION AND SETTING

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### 2.1 PROJECT LOCATION

The 410-acre project site (development area only) is located in the unincorporated North Livermore area of Alameda County, approximately 2.25 miles north of the Livermore city limits and I-580. The project site is comprised of portions of four privately-owned parcels – APNs 903-0006-001-02, 903-0007-002-01, 903-0006-003-07, and 902-0001-005-00. The majority of the project site is west of North Livermore Avenue, north of its intersection with May School Road, but also include two parcels north of Manning Road and the terminus of North Livermore Avenue, and extends approximately 0.4 mile south of May School Road to a private driveway that forms the southern site boundary. The development area extends approximately 3,800 feet west along Manning Road, while further to the south, extends approximately 1,900 feet west of North Livermore Avenue to Cayetano Creek. The western project development area boundary south of Manning Road generally follows the natural topography along the base of the hills, and in part Cayetano Creek. The two project parcels north of Manning Road extend approximately 0.5-mile north of Manning Road and are roughly centered on the alignment of North Livermore Avenue. For the purposes of this Draft EIR, the development area is described as four noncontiguous development areas that are split into the following sections: the northern section, measuring approximately 103 acres; the central section, measuring approximately 269 acres; the southeastern section, measuring approximately 23 acres; and the southwestern section, measuring approximately 15 acres. The project site is within Sections 16 and 17 of Township 02 South, Range 02 East and unsurveyed land of the Las Positas Land Grant, Mount Diablo Base and Meridian. The project site is located within the “Tassajara, CA” and “Livermore, CA” USGS 7.5-minute quadrangles. Refer to Figure 2-1 for the project’s location in the region and Figure 2-2 for an aerial image of the project site.

### 2.2 PROJECT PARCELS

The principal parcel (536 acres) bears the address of 1815 Manning Road (APN 903-0006-001-02) and lies directly west of North Livermore Avenue and south of Manning Road where these roads terminate at an L-intersection with each other. Approximately 269 acres of this parcel is proposed for project development (central section); an estimated 150 acres to the northwest is moderately to steeply sloped and is proposed to be subdivided to legally separate it from the real property affiliated with the proposed project development. Another estimated 81 acres of this parcel is not suitable for development of proposed project uses and is therefore not included in the overall project development area. To the south of this parcel is the roughly 101-acre Stanley Ranch located at 4400 North Livermore Avenue (APN 903-0006-003-07), of which 38 acres would be developed as part of the proposed project (southwestern and southeastern sections). The remainder of the Stanley Ranch would continue to be used for intensive crop production, residential use by the Stanley family, and other agricultural operations and structures. The Stanley property is currently under Williamson Act contract, which is further discussed in Section 4.2, Agriculture and Forestry Resources, of this Draft EIR.

Directly north and across Manning Road from the principal parcel (central section of the project site) is an approximately 50-acre parcel (APN 903-0007-002-01) with no designated address that borders Manning Road for approximately 800 feet west from North Livermore Avenue. The fourth parcel (APN 902-0001-005-00), also with no address, is approximately 60 acres in area and lies approximately

800 feet north and east of the terminus of North Livermore Avenue at Manning Road (and east of the 50-acre parcel with no frontage along any County road). Development is proposed on approximately 103 acres of these two parcels combined (northern section of the project site). The total project development area or 'footprint' is therefore approximately 410 acres, including all of the project parcels except for the northwestern 150-acre portion of the large parcel that will be separated by the proposed subdivision, the 81-acre portion that is unsuited for development, and the majority of the Stanley Ranch property that is not planned for project use.

## **2.3 PROJECT SETTING AND SURROUNDING LAND USES**

The area in which the project is located is characterized by relatively flat topography surrounded by low hills of the South Coastal Range to the west, north, and east. Local roadways transect the area, and Cayetano Creek is a natural, ephemeral hydrological feature that trends north to south through the project area. Interstate-580 (I-580) is an east-west trending major transportation route approximately 2.2 miles south of the project site. A rural residential neighborhood of 5-acre lots is approximately 0.2 mile east of the project site, and rural residences on parcels of between 5 and 40 acres are scattered throughout the unincorporated North Livermore area. Estate-type homes are on some of the parcels, especially to the north and in Contra Costa County, the boundary of which is approximately 0.25 mile north of the project site. Suburban tract homes in the Springtown area of incorporated Livermore are approximately 1.5 miles to the southeast. Brushy Peak (1,702 feet above mean sea level [amsl]) in the Brushy Peak Regional Preserve is approximately 3.75 miles east of the project site.

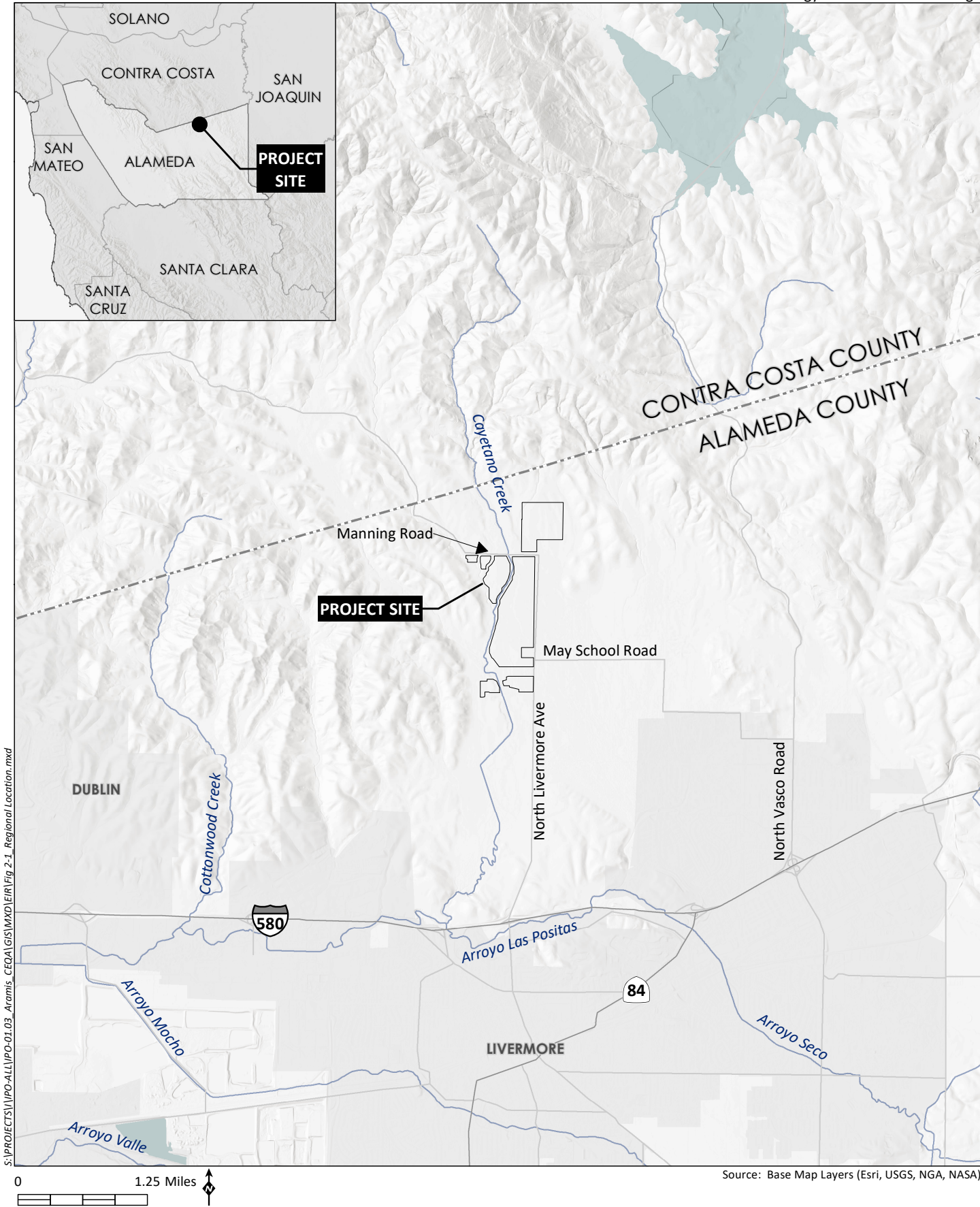
The project site is located in a rural agricultural area of the County. It lies at an elevation of roughly 500 to 700 feet amsl and is generally undeveloped, with the exception of a concrete slab foundation of an unknown former structure (likely a residence that was demolished or destroyed at some unknown time) recently occupied by a camping trailer approximately 400 feet south of the Morgan Territory Road intersection with Manning Road. The site is currently used for oat and hay cultivation and cattle grazing. A review of aerial photographs and landowner interviews indicate that the property has been harvested and grazed by cattle for many decades. Cayetano Creek bisects the central section of the project area from north to south, which in part forms the Federal Emergency Management Agency (FEMA)-defined and regulated floodplain, which the project development area has avoided.

Land uses north, south, east of the northern section, and west of the project site include row crop cultivation, cattle grazing, rural residential housing, agricultural outbuildings, small-scale ground-mounted solar systems, and open space. An approximately 59-acre solar PV facility is proposed by SunWalker Energy, Livermore Community Solar Farm, east of the central section of the project site and northeast of the intersection of North Livermore Avenue and May School Road. The existing PG&E Cayetano substation is located west of the terminus of May School Road at North Livermore Avenue. The project site surrounds the existing substation to the north, west, and south. Refer to Figure 2-2 for an aerial image of the project site and surrounding land uses.

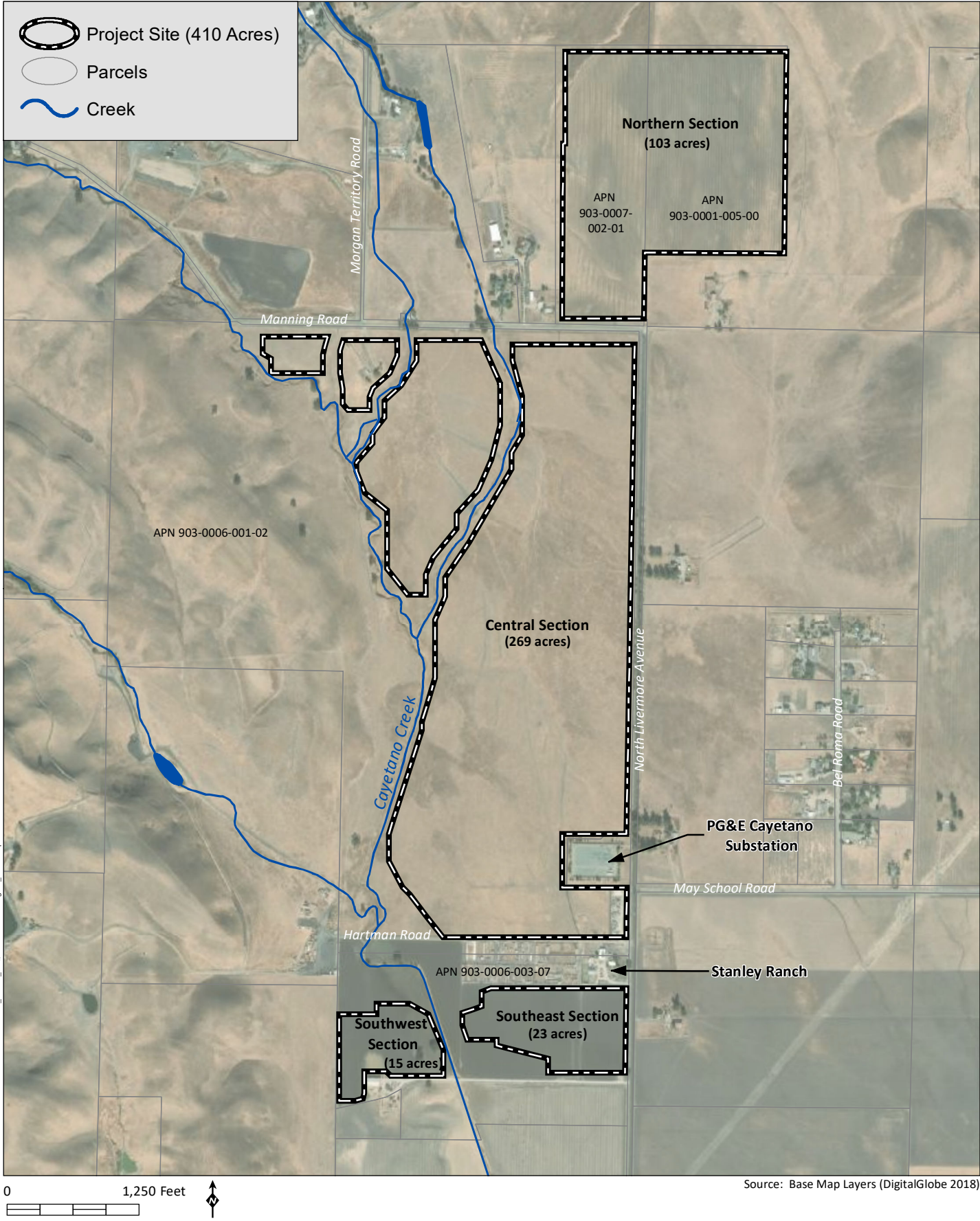
## **2.4 GENERAL PLAN AND ZONING DESIGNATIONS**

### **2.4.1 General Plan**

The project site is located in unincorporated Alameda County within the Alameda County East County Area Plan (ECAP), as adopted in 1996 and amended in 2000 by the Measure D initiative, also known as the *Save Agriculture and Open Space Lands Initiative*. The ECAP Planning Area encompasses 418 square







miles in eastern Alameda County and includes the cities of Dublin, Livermore, Pleasanton, a portion of Hayward, and surrounding unincorporated areas. The ECAP, which applies only to unincorporated areas of the County, includes policies that address development limitations, landscaping, grading, storm drainage, and flood control, which are intended to preserve the rural character of County land outside of the Urban Growth Boundary.

Approximately 367 acres of the project site are designated as Large Parcel Agricultural (LPA), 22 acres are designated as Resource Management (RM), and 21 acres are designated as Water Management (WM) under the ECAP (see Figure 2-3). The LPA designation applies to 81 acres in the southernmost portion of the northern section, the majority of the central section outside of the areas designated for WM along Cayetano Creek, the western portion of the southwestern section outside of the areas designated for WM along the eastern boundary of that section, and the entirety of the southeastern section of the project site. The RM designation applies to the northern portion of the northern section, extending approximately 650 feet south of the northern property line. The portion of the project site designated as WM is comprised of a 400-foot side corridor along Cayetano Creek where it bisects the central section of the project site.

A voter initiative, Measure D, passed in 2000, amended the definitions of LPA, RM, and WM designated lands to limit residential and non-residential floor area within these designations, and except for infrastructure as provided under Policy 13 of the ECAP, requires all buildings to be located in development envelopes of no more than two acres unless necessary for agricultural uses. Policy 13 prohibits the County from developing new infrastructure that exceeds the need for development allowed by Measure D that would be growth-inducing or otherwise result in more capacity than necessary for public services and utilities. Among the allowed uses in the LPA land use designation besides agricultural and residential uses are “public and quasi-public uses, solid waste landfills and related waste management facilities, quarries, windfarms and related facilities, utility corridors, and similar uses compatible with agriculture.” The RM designation “permits agricultural uses, recreational uses, habitat protection, watershed management, public and quasi-public uses, areas typically unsuitable for human occupation due to public health and safety hazards such as earthquake faults, floodways, unstable soils, or areas containing wildlife habitat and other environmentally sensitive features, secondary residential units, active sand and gravel and other quarries, reclaimed quarry lakes, and similar and compatible uses. This designation is intended mainly for land designated for long-term preservation as open space but may include low intensity agriculture, grazing, and very low density residential use.” The WM designation specifies that it provides for sand and gravel quarries, reclaimed quarry lakes, watershed lands, arroyos, and similar compatible uses (Alameda County 2000).

## **2.4.2 Zoning**

The project site is located entirely within land that is zoned as Agricultural (“A” District), pursuant to the Alameda County Municipal Code (ACMC) (see Figure 2-3; ACOA 2020). Surrounding properties are also almost entirely zoned as Agricultural, except for two parcels at the north end of Bel Roma Road that are designated R-1-BE (Single Family Residential, 5-acre minimum building site area). According to Section 17.06.030 of the ACMC, the uses permitted within the areas zoned for Agricultural include the following: single-family dwelling, secondary family dwelling, crop, vine or tree farm, truck garden, plant nursery, greenhouse, apiary, aviary, hatchery, horticulture, raising or keeping of poultry, fowl, rabbits, sheep or goats or similar animals, grazing, breeding or training of horses or cattle, winery or olive oil mill, fish hatcheries, and public or private hiking trails. Per ACMC Section 17.06.040, conditional uses may also include privately owned wind-electric generators. Alameda County made findings in 2008 pursuant to

Sections 17.54.050 and 17.54.060 (Determination of Use) of the Alameda County General Ordinance Code regarding district classifications of uses not listed within the ordinance. The Alameda County Planning Commission made findings that a solar electric facility would not be contrary to the specific intent clauses or performance standards established for the Agricultural District and could be permitted under a CUP. The County reiterated these findings to confirm the conditional permissibility of similar solar uses under the Agricultural District for the GreenVolts project, approved in 2008, and the Altamont Solar Energy Project, approved in 2011 (ECBZA 2008 and 2011).

## **2.5 REFERENCES**

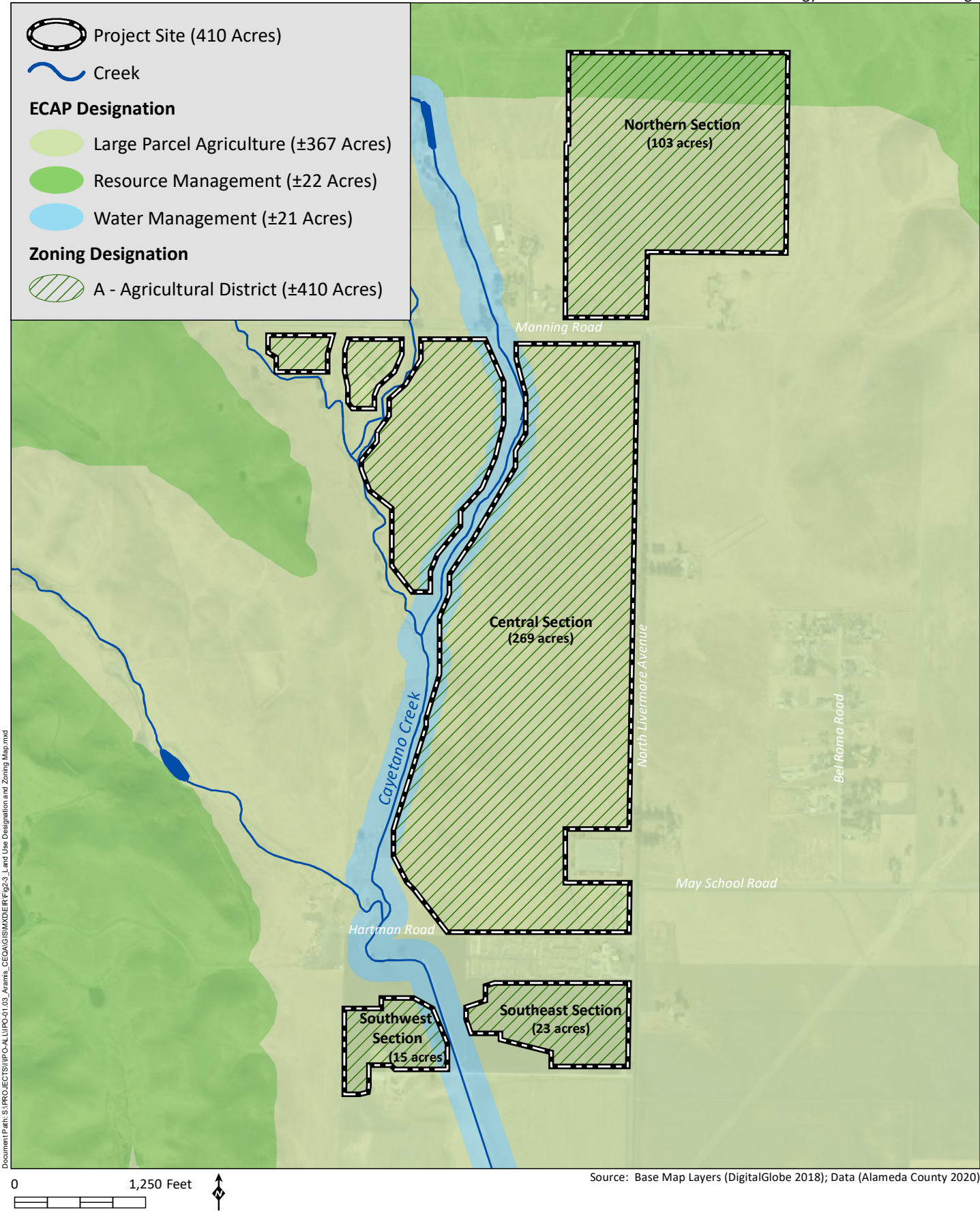
Alameda County. 2000. East County Area Plan. Adopted May 1994. Modified by passage of Measure D, effective December 22, 2000. Oakland, CA.

Alameda County Office of Assessor (ACOA). 2020. Parcel Viewer. Accessed on June 16, 2020 at [https://www.acgov.org/assessor/resources/parcel\\_viewer.htm](https://www.acgov.org/assessor/resources/parcel_viewer.htm).

Alameda East County Board of Zoning Adjustments (ECBZA). 2008. Minutes of Meeting for the East County Board of Zoning Adjustments, June 16, 2008.

2011. Minutes of Meeting for the East County Board of Zoning Adjustments, December 15, 2011.





## **3.0 PROJECT DESCRIPTION**

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This section describes the proposed project, including the project site and surrounding land uses, major project characteristics, project objectives, and discretionary actions needed for approval.

### **3.1 PROJECT OVERVIEW**

The Aramis Solar Energy Generation and Storage Project (proposed project) is proposed by IP Aramis, LLC (a subsidiary of Intersect Power, LLC). The project applicant has applied to the Alameda County Community Development Agency for a CUP to construct, operate, and maintain a solar PV and electric storage facility for at least 50 years and a Parcel Map Subdivision of one of the four project parcels proposed for development of the solar facility (APN 903-0006-001-02) to modify the eastern boundary of a legal parcel of the proposed solar facility and to create a distinct parcel that would not be part of the project. The County has proposed that the CUP would expire after 35 years and require renewal for subsequent terms. The solar facility would generate 100 MW of PV power on approximately 410 acres of privately-owned land in unincorporated Alameda County in the North Livermore area. Refer to Figure 2-1 for the project's location in the region and Figure 2-2 for an aerial image of the project site. The site is comprised of large portions of four privately-owned parcels in the unincorporated North Livermore area of Alameda County, approximately 2.25 miles north of the Livermore city limits and Interstate I-580. The project would provide solar power to utility customers by interconnecting to the regional electrical grid at PG&E's existing Cayetano 230 kV substation located adjacent to the project site. The project would serve EBCE, CPSF, and/or PG&E customers by providing local generation capacity under proposed long-term contracts.

### **3.2 PROJECT NEED**

The Bay Area's Load Serving Entities (LSE) require affordable, local renewable energy generation and storage capabilities to meet their obligations as regulated energy service providers and the needs of their Bay Area customers.

The CPUC adopted a Resource Adequacy (RA) policy framework (Public Utilities Code Section 380) in 2004 in order to ensure the reliability of electric service in California. The RA obligations are applicable to all LSEs within the CPUC's jurisdiction, including investor-owned utilities, energy service providers, and community choice aggregators. The Commission's RA program guides resource procurement and promotes infrastructure investment by requiring that LSEs procure capacity so that adequate power supply is available to the California Independent System Operator (CAISO) when and where it is needed. The RA program helps to prevent blackouts during extreme weather conditions and other unusual load and grid events by ensuring there is adequate generation and storage capacity to meet demand both would ensure LSEs meet their mandated RA obligations to contribute toward grid stability.

All California LSEs are required to procure a portion of system-wide RA resources and local RA resources. Given that the Bay Area is a densely populated urban area, it is very difficult for Bay Area LSEs to obtain adequate local RA capacity to meet their statutory obligations through distributed generation resources. Their purchases of renewable power from large solar and/or storage projects in the Central Valley or Southern California count only toward their system-wide RA obligations and do not contribute toward their local RA requirements.

### 3.3 PROJECT OBJECTIVES

The project applicant has identified the following objectives for the project:

- Assist California residents in meeting their renewable energy generation goals under Senate Bill 100, requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045;
- Create up to 400 living-wage, all union construction jobs and up to four permanent jobs in the San Francisco Bay Area;
- Minimize environmental impacts associated with renewable energy development by siting a renewable energy facility on disturbed lands, in proximity to a high-voltage substation with available capacity to facilitate grid interconnection;
- Dedicate land to accommodate a potential future public hiking trail, in the event the County decides to construct a public trail on the project site;
- Deploy industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, including making use of single-axis tracking technology and 4-hour battery storage duration technology to provide local resource adequacy capabilities to the Bay Area;
- Achieve economies of scale to generate, store, and transmit up to 100 MW affordable, local, wholesale solar electricity to Bay Area residents;
- Help Bay Area Community Choice Aggregators in fulfilling their local renewable energy procurement goals.

### 3.4 PROJECT COMPONENTS

The proposed project includes a utility-scale solar energy generation and battery energy storage system and a parcel subdivision. The solar facility would be comprised of the PV modules and associated energy collection system; project substation; battery energy storage system; and a generation intertie (gen-tie) line to connect to the existing PG&E Cayetano substation.

The project applicant has designed the facility so that all structures would be located outside of high flow areas and the 100-year floodplain of Cayetano Creek as determined through hydrologic modeling and a minimum of 50 feet from the banks of Cayetano Creek or its tributaries. The dedication of an easement to Alameda County (or the Livermore Area Recreation and Park District, which manages open space and trail development in conjunction with the East Bay Regional Parks District) is proposed along Cayetano Creek in the project area, outside of the development footprint of the solar facility, for their potential use to construct a public hiking trail in the future, if desired. The construction of a public hiking trail along Cayetano Creek is not proposed as part of this project.

### **3.4.1 Parcel Subdivision**

APN 903-0006-001-02 is a 536-acre parcel. Approximately 150 acres of the parcel are steeply sloped, and this area is proposed to be subdivided to legally separate it from the real property affiliated with the proposed project development.

### **3.4.2 Solar Photovoltaic System**

The individual PV modules would be arranged in rows onto a single-axis tracker racking system, which would in turn be affixed to steel piles. Each row (or array) would track the sun during the day, from east to west, to optimize power generation of the facility. The arrays would be connected by low-voltage underground or above-ground electrical wiring to a central inverter station or to string inverters located throughout the facility, where the electricity would be converted from direct current (DC) to alternating current (AC). The system would then step up the voltage of the electricity to a medium-voltage of 34.5 kV (or lower suitable voltage) to match the collection system voltage. The power output from the inverter station would be conveyed to the on-site substation via collection cables. The northern section of the project site (north of Manning Road) would be electrically connected to the central section via medium-voltage distribution lines. Medium-voltage lines would be buried for a majority of their length, but would emerge above-ground and be mounted on up to two overhead wooden utility poles on either side of Manning Road and up to 10 additional wooden poles to cross Cayetano Creek and its tributaries, to cross an access driveway, and if an overhead connection to the PG&E Cayetano substation is required. An encroachment permit would be obtained for the crossing of Manning Road, as necessary.

The maximum height of modules would be approximately 8 feet in their stow position. The average height of the electrical poles would be 50 feet and the maximum height would be up to 100 feet for poles adjacent to the PG&E Cayetano substation.

### **3.4.3 Project Substation and Generation Intertie Line**

The project substation would provide the necessary circuit breakers, switches, protection relays, and other necessary equipment to reliably and safely protect both the project's and PG&E's electrical infrastructure. The substation would step up the MV collected energy to the interconnection voltage via one or more step up transformers. The project substation would meter and convey the energy pursuant to the Interconnection Agreement and Power Purchase Agreement(s) with the utility and offtaker(s), respectively, through PG&E's Cayetano substation by way of a power gen-tie line.

The project substation would occupy an approximately 5,000-square-foot area in a 0.9-acre dedicated area located on the west side of the PG&E Cayetano substation, allowing the gen-tie to be short and overhead with a possibility of underground construction as well. The project substation would be set back from North Livermore Avenue by at least 250 feet. Overhead lines would be constructed on either tubular steel poles or wood H-frames and may be constructed to be single-circuit or double-circuit. The heights of the overhead poles could vary from 30 to 100 feet, depending on the entry angle required by PG&E.

#### **3.4.3.1 Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

CPUC General Order No. 131-D establishes that local jurisdictions are preempted from regulating electric power line projects, distribution lines, substations, or other electric facilities constructed by

public utilities subject to the CPUC's jurisdiction. The existing Cayetano substation is owned and operated by PG&E and is subject to CPUC jurisdiction. As such, the County does not have discretionary permit authority over the substation or the interconnection to the substation as planned under the proposed project. In addition to project interconnection facilities within the Cayetano substation, the CPUC may rule that the connection line between the project substation and the Cayetano substation and/or some interconnection components within the project substation would fall under General Order No. 131-D and would be the responsibility of PG&E, or joint responsibility between the project and PG&E. These facilities under existing or potential CPUC jurisdiction are referred to in this document as "interconnection facilities." Any required upgrades to the existing Cayetano substation would be determined and constructed by PG&E under the jurisdiction of the CPUC. The CPUC may rely on this document to fulfill its CEQA review obligations for any substation or interconnection facility improvements under its jurisdiction that are necessary to serve the project.

### **3.4.4 Energy Storage**

A 5-acre portion of the site would accommodate a battery energy storage system to the west of the PG&E Cayetano substation (see Figure 3-1). The on-site battery energy storage system could deploy lithium-ion, vanadium redox, iron flow, or zinc hybrid batteries and be designed to accept between 75 and 100 MW of system charging, and subsequently dispatch stored electricity during times of peak demand. The system would either be housed in electrical containers or in up to four 100-foot by 180-foot buildings. Various sizes and numbers of electrical enclosures would be used depending on the final battery vendor selected. Up to 50 large electrical enclosures or up to 1,000 small electrical enclosures would be clustered to make up the battery energy storage system. Battery buildings or containers would have foundations with a cumulative floor area of 3 acres or less. Low-voltage wiring from battery enclosures would be underground and converted as a bi-directional inverter station and transformed at the shared transformer.

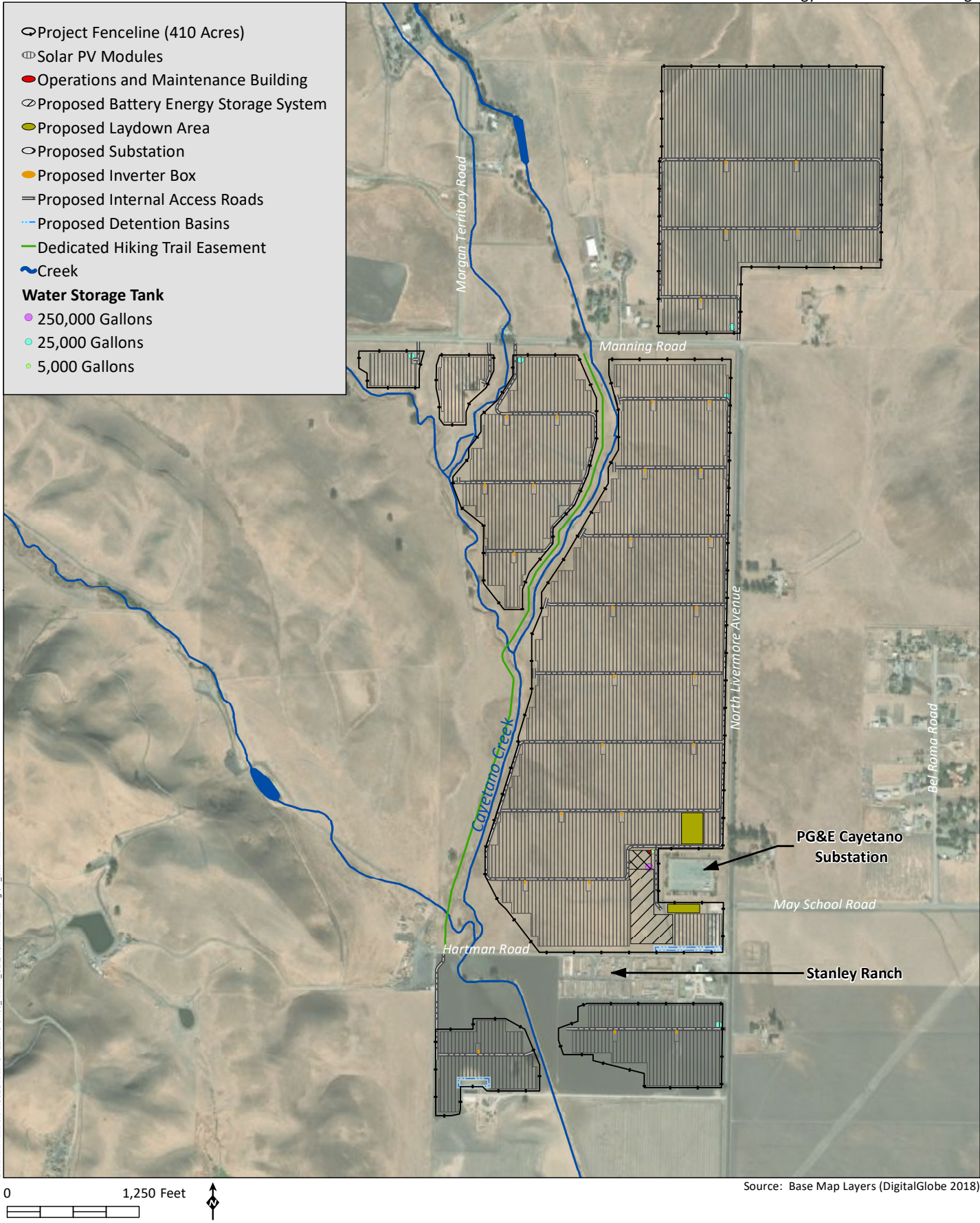
Each battery unit would be constantly monitored by a battery management system to ensure safe operations. The battery management system monitors individual cell temperature, voltage, current, charge and discharge parameters, and other metrics to ensure health and safety of the batteries. The system is designed to address individual or multiple failures as a multi-level safety system and to respond with shutdown of affected cells or power connections and to activate a fire suppression system if necessary. See Section 4.9, Hazards and Hazardous Materials, for more information on the multi-level safety system.

### **3.4.5 Support Facilities**

#### **Operation and Maintenance Building and Electrical Controls**

An onsite operations and maintenance (O&M) building would be located adjacent to the north side of the proposed project substation and would accommodate up to four permanent operation and maintenance staff (see Figure 3-1). The building would be approximately 400 square feet in size (approximately 20 feet by 20 feet and 15 feet high at its tallest point). The building would be plumbed. Water for the O&M building would be stored in a tank and filled on an as-needed basis. Wastewater would be held in a septic tank system and removed routinely. No septic leach system is planned for on-site wastewater treatment.





A meteorological station would collect site-specific weather data. A fiber optic telecommunications line required by the interconnecting utility would be integrated with the power gen-tie line. An electrical control enclosure would be included on site for the operations electrician to monitor and manage the system.

### **Project Entrances and Internal Driveways**

Access to the project site would be provided via all-weather, rocked driveway aprons at four access points along Manning Road, two access points along North Livermore Avenue, and one access point along Hartman Road as shown on the site plan (see Figure 3-1).

Internal access roads and narrower pathways within the fence line would provide access for routine maintenance of the system. The primary internal access roads are shown on the site plan (see Figure 3-1) and would be designed by a licensed civil engineer to ensure all-weather access by emergency response vehicles, including large fire apparatus. Pending final geotechnical and hydrological evaluations, the primary access roads would be designed to be 16 feet wide and constructed with up to 8 inches of aggregate base or simply compacted soil if soil stability conditions allow. Banked corners and periodic three-point turnaround locations would ensure that large fire trucks may navigate the site safely. The narrower, inter-array pathways would be constructed of compacted dirt and be accessible by smaller maintenance vehicles.

### **Fences, Lighting, Signage**

The project components would be enclosed by security fencing. The proposed fencing would be 7 feet high with wood posts and 4 square-inch wire mesh. The fence would be set back from the property line at least 50 feet. Locked gates at the project entrances would control ingress/egress.

Shielded, downward-directed security lighting would be located at the control enclosure and O&M building, to be used for any nighttime emergency repairs or emergency events. Night lighting would not be required except during scheduled maintenance periods and emergency repairs.

Signage would be limited to what is required by the interconnecting utility and County and would conform to County guidelines.

### **Detention Basins**

The proposed project would include the construction of two stormwater detention basins to prevent the discharge of off-site stormwater runoff and to protect downstream properties. A narrow, linear stormwater detention basin totaling approximately 0.4-acre in size is proposed in the southeastern corner of the central section of the project site along Hartman Road and terminating at North Livermore Avenue. An additional, approximately 0.5-acre stormwater detention basin is proposed along the southern boundary of the southwestern section of the project site (see Figure 3-1).

### **3.4.6 Concomitant Agricultural Uses**

The project applicant plans to maintain a majority of the site in limited agricultural operation for the duration of the life of the solar facility, consistent with the existing Williamson Act contract for the Stanley property (APN 903-0006-003-07). Solar facilities have a minimal development footprint, which allows for concomitant sheep grazing. Because the solar panels (modules) are installed on a system of

racks, the ground below the modules remains undeveloped. Additional areas within the project site include grassy areas between the rows and undeveloped portions of the site that will remain as open space for the life of the project. The undeveloped areas would be available for sheep grazing and may be intermittently grazed or left fallow. Pollinator-friendly plant species would be used in landscaping and seed mixes to promote honeybee forage.

The potential for an alternative dual-use solar installation referred to as agrivoltaics was considered for this project site. Agrivoltaics is a PV array that is raised high enough above ground level and spaced in such a way that some crops can still grow around and beneath the panels. However, limited access to irrigation water to support an agrivoltaic operation rendered the option as infeasible.

## **3.5 PROJECT CONSTRUCTION**

### **3.5.1 Facility Construction and Installation**

The duration of project construction would be approximately 9 months. Project construction activities would consist of site preparation, installation of interconnection facilities and battery storage system, cable installation, pile and skid installation, tracker and module installation, and lastly, site cleanup. Project construction would be completed in four phases, including Phase 1 site preparation (30 work days), Phase 2 photovoltaic installation (150 work days), Phase 3 electrical, battery storage system, and gen-tie installation (75 work days), and Phase 4 general construction operations, site clean-up and restoration (175 work days). Phase 4 would span the entire construction duration and be overlapped by Phases 1, 2, and 3. It is anticipated that the construction of Phases 2, and 3 would overlap. All construction staging areas would be located within the development footprint of the solar facility.

Limited excavation activities would be associated with trenching or boring for utilities, building structure foundations, and installing footings where required for structural safety. Most excavation activities would be less than 6 feet in depth; however, some excavations, such as those for the installation of electricity collector poles and dead-end structures, may reach depths of approximately 20 feet depending on site-specific soil conditions. All excavated material would be retained and utilized on the project site (no export of excavated material).

### **3.5.2 Water Use and Supply During Construction**

During construction, it is anticipated that up to 50,000 gallons of water would be used daily and that a total of up to 42-acre-feet would be used for construction purposes and dust suppression (including truck wheel washing). Water for dust suppression during construction would be obtained via on-site groundwater wells in the Livermore Valley Groundwater Basin and/or water purchased from an off-site water purveyor and trucked to the project site. Water would be applied for dust suppression by up to 13 water trucks operating throughout the project site.

Potable water would be delivered by a water delivery service or would be brought to the site by workers. Portable restrooms would be used for the duration of project construction and would be removed upon completion of construction.



### 3.5.3 Construction Workforce, Equipment, and Trip Generation

The total number of daily construction workers would vary depending on the specific phases and their overlap. During construction, a maximum of 375 construction workers would be on site during the peak work period. Each construction worker is assumed to make four daily trips to or from the project site: two daily commute trips and two daily midday trips. Construction worker commute trips would average approximately 28.8 miles and midday trips would average approximately 4.6 miles. The anticipated maximum number of all construction worker vehicle one-way trips per day is:

- 400 worker vehicle trips per day for Phase 1, site preparation;
- 1,000 worker vehicle trips per day for Phase 2, PV panel system installation;
- 500 worker vehicles trips per day for Phase 3, installation of inverters and connection; and
- Zero additional worker vehicle trips per day for Phase 4, general construction operations, site clean-up and restoration (Phase 4 activities overlaps with Phases 1, 2, and 3 and would be completed by available work force already on-site for the other phases).

This would result in a maximum of 1,500 construction worker vehicle one-way trips to the site per day.

Haul trucks would deliver construction materials and remove refuse material from the site throughout each construction workday. The total number of haul truck trips generated by the project construction activities site would vary depending on the construction phase and any overlap. The anticipated maximum number of haul truck one-way trips per day is:

- 46 haul truck trips per day for Phase 1, site preparation;
- 52 haul truck trips per day for Phase 2, PV panel system installation;
- 10 haul truck trips per day for Phase 3, installation of inverters and connection; and
- 59 haul truck trips per day for Phase 4, general construction operations, site clean-up, and restoration.

The maximum daily one-way haul truck trips would be approximately 121 during the overlap of Phases 2, 3, and 4. Although some construction material would be sourced locally, to be conservative, all project construction haul trips were assumed to be to and from the Port of Oakland, approximately 34.1 miles each way. In addition, up to 30 water truck trips per day would be required at approximately 4.6 miles per trip.

Table 3.4-1 below provides a list of the off-road construction equipment anticipated used during project construction as well as the number of units, daily use, and duration.

**Table 3.4-1  
CONSTRUCTION EQUIPMENT**

<b>Equipment</b>	<b>Units</b>	<b>Daily Use (hours)</b>
Bulldozer	20	7 hours
Grader	15	7 hours
Roller/compactor	8	7 hours
Water Buffalo	1	7 hours
Water Truck	15	4 hours
Trencher/Cable Layer	1	7 hours
Loader	2	7 hours
Skid Steer	4	7 hours
Crane	2	2 hours
Forklift	50	7 hours
Backhoe	1	7 hours
Pile Driver	4	7 hours
Aerial Lift	2	4 hours
Welder	10	4 hours

### **3.5.4 Hazardous Materials and Waste Management**

Construction of the project would involve the use of hazardous materials, such as fuels and greases, to fuel and service construction equipment. Such substances may be stored in temporary aboveground storage tanks or sheds located on the project site. The fuels stored on-site would be in a locked container within a fenced and secure staging area. A Hazardous Materials Business Plan (HMBP) would be developed prior to construction. Trucks and construction vehicles would be serviced at off-site facilities. The use, storage, transport, and disposal of hazardous materials used in construction of the facility would be carried out in accordance with federal, state, and County regulations. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 355 of the Code of Federal Regulations [CFR]) would be produced, used, stored, transported, or disposed of as a result of project construction. Material Safety Data Sheets for all applicable materials present on-site would be made readily available to on-site personnel.

Construction materials would be sorted on-site throughout construction and transported to appropriate waste management facilities. Recyclable materials would be separated from non-recyclable items and stored until they could be transported to a designated recycling facility. It is anticipated that at least 20 percent of construction waste would be recyclable, and at least 50 percent of those materials would be recycled. Wooden construction waste (such as wood from wood pallets) would be sold, recycled, or chipped and spread on the project site for weed control as appropriate. Other compostable materials, such as vegetation, might also be composted off-site. Non-hazardous construction materials that cannot be reused or recycled would likely be disposed of at municipal County landfills. Hazardous waste and electrical waste would be transported to a hazardous waste handling facility (e.g., electronic-waste recycling). All contractors and workers would be educated about waste sorting, appropriate recycling storage areas, and how to reduce landfill waste.

### **3.5.5 Storm Water Management and Erosion Control**

Construction activities would result in ground disturbance, and soil stabilization and storm water management would be required to prevent erosion and sedimentation. As construction of the project

would result in disturbance of an area greater than one acre, the applicant would be required to enroll for coverage under the Storm Water Construction General Permit for the National Pollution Discharge Elimination System (NPDES) program. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared by a qualified preparer, and Best Management Practices (BMPs) would be implemented during construction. Typical BMPs include: diversion of runoff from disturbed areas, protective measures for sensitive areas, temporary soil stabilization measures, storm water runoff quality control measures, concrete waste management, watering for dust control, and installation of perimeter silt fences, as needed.

At the conclusion of construction, operational phase BMPs would be installed to ensure long-term avoidance and minimization of stormwater runoff and sedimentation in Cayetano Creek or its tributaries.

### **3.5.6 Construction Schedule**

Construction of the solar facility would commence as early as October 2021 or as late as February 2022 depending on final construction plans and building permit requirements. Construction would last for approximately 9 months. Construction of the various project components discussed above could occur simultaneously, sequentially, or some combination thereof.

Construction equipment would operate between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, for up to a maximum of eight hours per piece of equipment, daily. Weekend construction work is not expected to be required, but may occur on occasion, depending on schedule considerations. All construction work, including any weekend work, would comply with the policies and requirements established in the Noise Element of the County General Plan.

## **3.6 OPERATION AND MAINTENANCE**

Upon commissioning, the project would enter the operation phase. The project would passively generate power during daylight hours seven days per week, 365 days per year. The facility would be tested, maintained, and inspected daily by either onsite or remotely dispatched staff of approximately four technicians. The battery energy storage system would store and dispatch power during both daylight and non-daylight hours as required by grid operators year-round.

Operational activities at the project site would include:

- Solar module washing;
- Vegetation, weed, and pest management;
- Agricultural use of the site (sheep grazing and beekeeping);
- Security;
- Responding to automated electronic alerts based on monitored data, including actual versus expected tolerances for system output and other key performance metrics;
- Occasional equipment repair and replacement; and

- Communicating with customers, transmission system operators, and other entities involved in facility operations.

### 3.6.1 Operation and Maintenance Workforce and Equipment

While daily monitoring of the site would occur remotely, up to four permanent staff could be on the site at a time for ongoing facility maintenance and repairs. Up to 12 workers could be on site once annually for module washing. The personnel and time required for emergency maintenance would vary in accordance with the necessary response.

Most of the operational labor force is expected to be based in the cities of Oakland, San Leandro, Hayward, Fremont, and Tracy. Equipment to be used during operation and maintenance of the project is identified in Table 3.5-1.

**Table 3.5-1  
PROPOSED OPERATIONS AND MAINTENANCE EQUIPMENT**

Equipment	Units	Estimated Usage	Estimated Usage	Estimated Usage
		Hours per Day	Days per Week	Total Days
All-Terrain Vehicles	2	4	5	30
Kubota Tractors	2	8	5	5
Honda Portable Generators	1	2	2	5
Portable Water Trailers with Pump	2	10	5	3
Ford F150s (Routine O&M)	1	4	5	60
Ford F150s (Water Wash Trucks)	2	10	5	3

Note: For one quarterly maintenance period.  
O&M = operations and maintenance

### 3.6.2 Vegetation and Agricultural Management

The project operations would promote continued agricultural use of the project site, promote wool production, promote honeybee forage vegetation and control invasive weeds, promote pollination services and honey production, maintain soil capability and minimize agricultural water use, and manage onsite fuel load of vegetation.

The vegetative cover would generally be kept low to prevent shading of solar panels, to minimize and manage buildup of combustible fuel loads which could otherwise result in a fire hazard, and to facilitate emergency and maintenance vehicle access. This would be accomplished by using low-growing species on the site and maintaining vegetation with grazing during the growing season and could include mechanical methods such as mowing, trimming, and hoeing. Grazing would occur from January until the end of the growing season in May, at which time the sheep would be removed from the site. During the grazing season, the grazing may be controlled by enclosing the sheep in temporary enclosures within the targeted grazing area and would be moved progressively throughout the site. The proposed program for concomitant agricultural land uses during operation of the solar facility would be outlined in an Agricultural Management Plan prepared for the project. The Plan would be implemented to sustain agricultural operations throughout the project site for the life of the project. The project operator would work with commercial bee keepers and sheep operators to both ensure the project is developed for

viable sheep and bee operations and to provide for routine, periodic access to the project site when forage conditions are favorable.

### **3.6.3 Water and Wastewater**

During the project's 50-year O&M period, water demands include annual washing of the solar PV panels to clean accumulated dust and debris to maintain efficiency, potential wastewater associated with water treatment, potential on-site emergency fire suppression storage water, operation of the project's O&M building, and water provided in on-site troughs for sheep grazing. The panels would be washed with only water. The use of soap or detergent for panel washing would not be necessary and it is not proposed for this project. It is conservatively estimated that up to 12.85 acre-feet per year (AFY) of water would be needed for project operation. Water for project operation would be obtained via on-site groundwater wells in the Livermore Valley Groundwater Basin and/or water purchased from an off-site water purveyor and trucked to the project site.

A total of seven (7) water storage tanks would be installed on-site for fire suppression for the battery storage system, use for O&M activities, and to maintain the proposed landscaping and vegetation. The fire suppression water storage tank for the battery storage system would hold up to 250,000 gallons of water and be located west of the PG&E Cayetano substation. The water storage tank would not exceed 15 feet in height and would be a complementary color to the hillsides in the background. One, 5,000-gallon water storage tank would be installed on-site near the O&M building and would be filled quarterly. Five, 25,000-gallon water storage tanks would be installed on-site near the proposed landscape corridors along North Livermore Avenue and Manning Road and would be filled quarterly to provide irrigation water for the proposed vegetation and landscaping.

### **3.6.4 Hazards and Hazardous Materials**

Limited quantities of hazardous materials would be used and stored at the solar facility for operation and maintenance. Materials may include oils, lubricants, paint, solvents, degreasers, fire suppressants, dust palliatives, and transformer oil. The transformers proposed to be located at the project substations would use oil as an insulating fluid. As required for routine maintenance of the transformers, the oil would be replaced and disposed of in accordance with applicable regulations. Other materials would be stored in the O&M building. The concrete floor of the O&M building and the concrete foundations of the equipment pads and buildings would prevent against contamination from accidental spills. An HMBP would be prepared and implemented for the storage and transport of hazardous materials during operation of the facility. Hazardous material waste generated during operation would be minimal, but all such wastes would be collected by authorized contractors and disposed of or recycled at facilities approved to accept hazardous waste.

## **3.7 DECOMMISSIONING AND SITE RECLAMATION**

### **3.7.1 Decommissioning of Solar Facilities**

The solar facility is anticipated to have an operating life of at least 50 years. Once the operating life of the facility is over, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Project decommissioning would occur in accordance with the expiration of the CUP and would involve the removal of above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a

Decommissioning Plan. Equipment would be repurposed off-site, recycled, or disposed of in a landfill as appropriate. Financial security to implement decommissioning in the event of applicant default is addressed separately below.

After the operating life of the solar facility is complete, the battery storage system would be decommissioned along with the rest of the solar facility. Batteries may be disposed of as hazardous waste, or recycled, depending on available technology. The suite of batteries that could be used contain a variety of valuable metals, and recycling of these batteries is expected to become increasingly commonplace with the increased use of batteries in consumer goods and electric vehicles. Some batteries may have the capacity at the end of the operating life of the project to be reused. The chemical components of flow batteries may either be disposed of as hazardous waste (i.e., neutralization of the liquid within the battery), or they may comprise valuable elements which would also be recycled or reused.

Decommissioning activities would involve exposure and disturbance of soils; therefore, measures for erosion and sediment control would be implemented in accordance with a separate SWPPP that would be required for decommissioning.

### **3.7.2 Water Use and Supply During Decommissioning**

Water would be required for dust control during decommissioning activities. Because it is anticipated that decommissioning activities would be similar to or less than construction, the water use for decommissioning is assumed to be similar; therefore, during decommissioning, it is anticipated that up to 50,000 gallons of water would be used daily and that a total of up to 42-acre-feet would be used for construction purposes and dust suppression (including truck wheel washing). Water for dust suppression during decommissioning would be obtained via on-site groundwater wells in the Livermore Valley Groundwater Basin and/or water purchased from an off-site water purveyor and trucked to the project site.

Potable water would be delivered by a water delivery service or would be brought to the site by workers. Portable restrooms would be used for the duration of construction and would be removed upon completion of construction.

### **3.7.3 Decommissioning Schedule**

As previously mentioned, the solar facility is anticipated to operate for at least 50 years. Decommissioning would take approximately 6 months, and it would occur in three phases: Phase 1 would involve shutting down the systems and removing hazardous materials and wiring; Phase 2 would include removing the PV modules, inverters, substation(s), switching station, and battery storage system; Phase 3 would include removing site fencing and driveways and the final soils reclamation process.

### **3.7.4 Decommissioning Workforce, Equipment, and Trip Generation**

Approximately 200 workers may be on the site at a time for decommissioning activities. Decommissioning would involve the use of heavy equipment similar to that used for construction. Appropriate hazardous materials control and erosion control measures (including obtaining a NPDES permit and implementing a SWPPP) would be used throughout the decommissioning process. It is

anticipated that such controls would be substantially similar to those implemented during construction, although the intensity of activities would be much lower. Trips generated by decommissioning include worker vehicle trips, water truck trips and construction truck trips. Decommissioning would generate approximately 400 average daily worker trips and 40 average daily construction truck trips.

Decommissioning would involve the use of heavy equipment and personnel similar to what was used for construction.

### **3.7.5 Site Reclamation**

All driveways and other areas compacted during original construction or by equipment used for decommissioning would be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Low areas would be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, locally-sourced topsoil would be placed to a depth and density consistent with adjacent properties. Locally-sourced compost would be applied to the topsoil, and the entire site would be tilled to further loosen the soil and blend in the compost. If requested by the landowner, an appropriate seed mixture would be broadcast or drilled across the site, and a weed-free mulch would be applied to stabilize the soil and retain moisture for seedling germination and establishment.

A Decommissioning Plan would be prepared and submitted to the County that discusses steps required for restoring the site to pre-project conditions to the extent feasible and would include an estimate for reclamation costs.

## **3.8 APPLICANT-PROPOSED MEASURES**

The project applicant, IP Aramis, LLC, proposes to carry out the following measures.

### **3.8.1 Decommissioning Security**

In order to ensure that the County or other public agency is not burdened with the cost to remove equipment and debris from the project site in the event of default by the applicant to operate, maintain, and eventually decommission the facility, however, unlikely such bankruptcy may be, the project applicant will post a decommissioning security bond to Alameda County based on the following stipulations.

- Prior to issuance of Building Permits, the project owner will submit to the County a Decommissioning Plan, and a Reclamation Cost Estimate to cover the work in the Decommissioning Plan, the latter prepared by a licensed engineer, and provide to the County a financial security to cover the total amount of the Reclamation Cost Estimate.
- The Decommissioning Plan shall include the requirement to remove all aboveground infrastructure except for landscaping, irrigation equipment, and well pumps and equipment. The Decommissioning Plan shall also include the requirement to remove below-ground infrastructure to a depth of 4 feet. Finally, the Decommissioning Plan shall include the requirement to amend soils with compost and, if not substantially vegetated, stabilize them to manage dust.

- The decommissioning security shall be issued by a creditworthy financial institution or be provided in cash.
- The decommissioning security shall be returned to the project owner upon verification by the County that the site has been decommissioned.

### **3.8.2 Stormwater Management Plan**

Prior to issuance of Building Permits, the project owner will submit to the County pre- and post-construction site drainage calculations prepared by a qualified hydrologist or civil engineer and supported by a 2-dimensional hydrologic model to understand whether the project would generate increased runoff. If an increase in runoff is projected, then sizing and location of additional appropriate detention basins or other stormwater best management practices will be recommended to mitigate any projected increase in offsite runoff and to protect downstream properties against adverse impacts.

A SWPPP will be prepared by qualified engineer, and the approved stormwater management practices in the SWPPP will be carried out by on-site construction and operations personnel to ensure that off-site stormwater sedimentation would not occur.

### **3.8.3 Agricultural Management Plan**

Project operations will adhere to a County-approved Agricultural Management Plan (AMP) to ensure consistency of the facility with adjacent agricultural land uses. The AMP would fulfill the following project objectives:

- Promote continued agricultural use of the project site
- Promote wool production
- Promote honey-bee forage vegetation and control invasive weeds
- Promote pollination services and honey production
- Maintain soil capability and minimize agricultural water use
- Manage onsite fuel load of vegetation

The project owner will work with commercial beekeepers and sheep operators to both ensure the project is developed for viable sheep and bee operations and to provide for routine, periodic access to the project site when forage conditions are favorable.

### **3.8.4 Trash Cleanup**

The construction site will generally be maintained free of debris, and when debris is generated, it will be stored in an orderly condition in designated laydown areas. Trash will be removed from the site and County road frontages that border the project site on a routine schedule to maintain community aesthetics. All trash and construction debris will be removed from the site at the conclusion of construction.

### **3.8.5 Construction Waste Recycling**

In accordance with California law, 50 percent of recyclable construction waste will be recycled. A larger component of construction waste will be recycled if feasible.



### **3.8.6 Dust Suppression**

Dust would be contained on site by regular dampening of soils, and by laying a gravel or aggregate road base and spraying environmentally friendly soil binders where necessary.

### **3.8.7 Fire Protection and Coordination**

Prior to construction, the project team would coordinate with the Alameda County Fire Department to ensure firefighter access and training in an emergency. On-site vegetation would be managed to minimize fire risk. Emergency fire kits would be kept on site during construction and operation.

### **3.8.8 Hazardous Materials Management**

Hazardous materials used during construction and operation would be limited to de minimis levels of fuels and lubricants. All fuels and lubricants would be contained and labeled in tanks or sealed containers and would not be removed.

### **3.8.9 Community Engagement and Communication**

Site signage would include contact information for any community complaints. Complaints would be addressed within 72 hours of receipt.

## **3.9 REQUIRED PERMITS AND APPROVALS**

A listing and brief description of the permits and approvals that may be required to implement the proposed project is provided below. Additional permits and approvals may also be required. This environmental document is intended to address the environmental impacts associated with all of the following decision actions and approvals:

### **3.9.1 COUNTY OF ALAMEDA**

The County of Alameda has the following discretionary powers related to the proposed project:

- **Conditional Use Permit.** The project applicant is seeking a CUP from Alameda County to construct, operate, and maintain a solar PV and electric storage facility for at least 50 years.
- **Parcel Map Subdivision.** The project applicant is seeking County approval of a subdivision of APN 903-0006-001-02 to modify the eastern boundary of the legal parcel of the proposed solar facility and to create a distinct parcel that would not be part of the project.
- **Adoption and certification of the environmental document.** The East County Board of Zoning Adjustments has authority to determine if the environmental document is adequate under CEQA.
- **Approval of project.** The East County Board of Zoning Adjustments will consider approval of the project.

Other local approvals that may be required:

- Grading permits;
- Encroachment permits;
- OWTS permit;
- Building permits; and
- Other County approvals as necessary to develop the project.

### **3.9.2 OTHER AGENCY REQUIRED APPROVALS AND INTENDED USES OF THE EIR**

- **San Francisco Bay Regional Water Quality Control Board (RWQCB):** A NPDES General Permit to Discharge Storm Water Associated with Construction Activity (Construction General Permit) would be required for construction of the proposed project. If jurisdictional waters cannot be avoided, then prior to the start of construction, the project applicant shall secure any required aquatic resources permits for impacts to jurisdictional waters of the State from the San Francisco Bay RWQCB.
- **California Department of Fish and Wildlife (CDFW):** If jurisdictional waters cannot be avoided, then prior to the start of construction, the project applicant shall secure any required aquatic resources permits for impacts to jurisdictional waters of the State from CDFW.
- **California Public Utilities Commission:** If any of the project interconnection facilities (gen-tie line or substation) are required to be owned in part by PG&E, the CPUC would have jurisdiction over approval of those portions of the project and may rely on this EIR to fulfill its CEQA review obligations of any substation or interconnection facility improvements under its jurisdiction that are necessary to serve the project.

## 4.0 ENVIRONMENTAL IMPACT ANALYSIS

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### SECTION ORGANIZATION

This section of the Draft EIR is made up of 18 subsections which evaluate the direct, indirect, and cumulative environmental impacts anticipated from approval and implementation of the proposed project. The following sections describe the format of the environmental analysis, the thresholds of significance, and the methodology of the cumulative impact analysis.

### FORMAT OF ENVIRONMENTAL ANALYSIS

In accordance with Appendix F, Energy Conservation, and Appendix G, Environmental Checklist, of the State CEQA Guidelines, as amended following Assembly Bill 52 (Tribal Cultural Resources) and the California Supreme Court's decision in California Building Industry Association (CBIA) v. Bay Area Air Quality Management District (BAAQMD), 62 Cal. 4th 369 (No. S 213478), the potential environmental impacts of the proposed project are analyzed for potential significant impacts in the following 18 environmental issue areas, which are organized with the listed abbreviations:

- Aesthetics (AES)
- Agriculture and Forestry Resources (AG)
- Air Quality (AQ)
- Biological Resources (BIO)
- Cultural and Tribal Cultural Resources (CUL)
- Energy (ENE)
- Geology, Soils, Mineral Resources, and Paleontology (GEO)
- Greenhouse Gas Emissions (GHG)
- Hazards and Hazardous Materials (HAZ)
- Hydrology and Water Quality (HYD)
- Land Use and Planning (LUP)
- Noise (NOI)
- Population and Housing (POP)
- Public Services (PS)
- Recreation (REC)
- Transportation (TRA)
- Utilities and Service Systems (UTIL)
- Wildfire (FIRE)

Each subchapter is organized into the following sections:

- **Environmental Setting** offers a description of the existing environmental conditions, providing a baseline against which the potential impacts of the proposed project can be compared, and an overview of federal, State, and local laws and regulations relevant to each environmental issue.
- **Impact Discussion** gives an overview of the potential impacts of the proposed project and explains why impacts are found to be significant or less than significant prior to mitigation. It explains the quantitative or qualitative standards, performance levels, or criteria used to evaluate the existing setting with and without the proposed project to determine whether the impact is significant. These thresholds are based primarily on the CEQA Guidelines. This subsection also includes a discussion of cumulative impacts related to the proposed project. Impacts and mitigation measures are numbered consecutively within each topical analysis and begin with an acronym or abbreviated reference to the impact section.

## THRESHOLDS OF SIGNIFICANCE

Significance criteria are identified before the impact discussion subsection, under the subsection, “Thresholds of Significance.” For each impact identified, a level of significance is determined using the following classifications:

- *Potentially Significant* impacts include a description of the circumstances where an established or defined threshold would be exceeded.
- *Less than significant* impacts include effects that are noticeable, but do not exceed established or defined thresholds, or can be mitigated below such thresholds.
- *No impact* describes circumstances where there is no adverse impact on the environment.

For each impact identified as being significant, the EIR identifies mitigation measures to reduce, eliminate, or avoid the adverse impact. If one or more mitigation measure(s) would reduce the impact to a less than significant level successfully, this is stated in the EIR. *Significant and unavoidable* impacts are described where mitigation measures would not diminish these impacts to less than significant levels.

## CUMULATIVE IMPACT ANALYSIS

State CEQA Guidelines Section 15130 requires an EIR to discuss the cumulative impacts of a project when the project’s incremental impact is “cumulatively considerable.” Used in this context, cumulatively considerable means that the incremental impacts of an individual project are considerable when viewed in connection with the impacts of past projects, the impacts of other current projects, and the impact of probable future projects.

Where the incremental impact of a project is not “cumulatively considerable,” a Lead Agency need not consider that impact significant but must briefly describe its basis for concluding that the incremental impact is not cumulatively considerable. Where the cumulative impact caused by the project’s incremental impact and the impacts of other reasonably foreseeable projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant.

The cumulative impact discussions in subchapters 4.1 through 4.18 explain the geographic scope of the area affected by each cumulative impact (e.g., immediate project site area, North Livermore area, air or groundwater basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, the pertinent geographic study area is the area from which the new development can be publicly viewed and may contribute to a significant cumulative visual impact. In assessing macro-scale air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative impact.

State CEQA Guidelines Section 15130 permits two different methodologies for completion of the cumulative impact analysis:

- The ‘list’ approach permits the use of a list of past, present, and probable future projects producing related or cumulative impacts, including projects both within and outside the County; or
- The ‘projections’ approach allows the use of a summary of projections contained in an adopted plan or related planning document, such as a regional transportation plan, or in an EIR prepared for such a plan. The projections may be supplemented with additional information such as regional modeling.

This analysis is based on a combination of the list and plan/projections approaches, using the land use designations of the ECAP in combination with known other relevant projects in the area. The primary ECAP land use designation in the project area is Large Parcel Agriculture, which allows low intensity agriculture and grazing (special provisions allow for more intensive agricultural use in the North Livermore area), related permissible uses, and residential and residential accessory uses. The dominant land uses are rural residential uses, electrical transmission substation and infrastructure, agriculture, and cattle grazing. The houses within the agricultural area surrounding the proposed project site are permissible large lot, rural residential uses. As shown in Table 4-1, the County of Alameda has identified two pending projects in the North Livermore area at the time that the NOP for this Draft EIR was issued for consideration in the cumulative analysis. See Figure 4-1 for the locations of the two pending projects considered in the cumulative analysis in relation to the proposed project.

**Table 4-1**  
**CUMULATIVE PROJECTS IN THE NORTH LIVERMORE AREA**

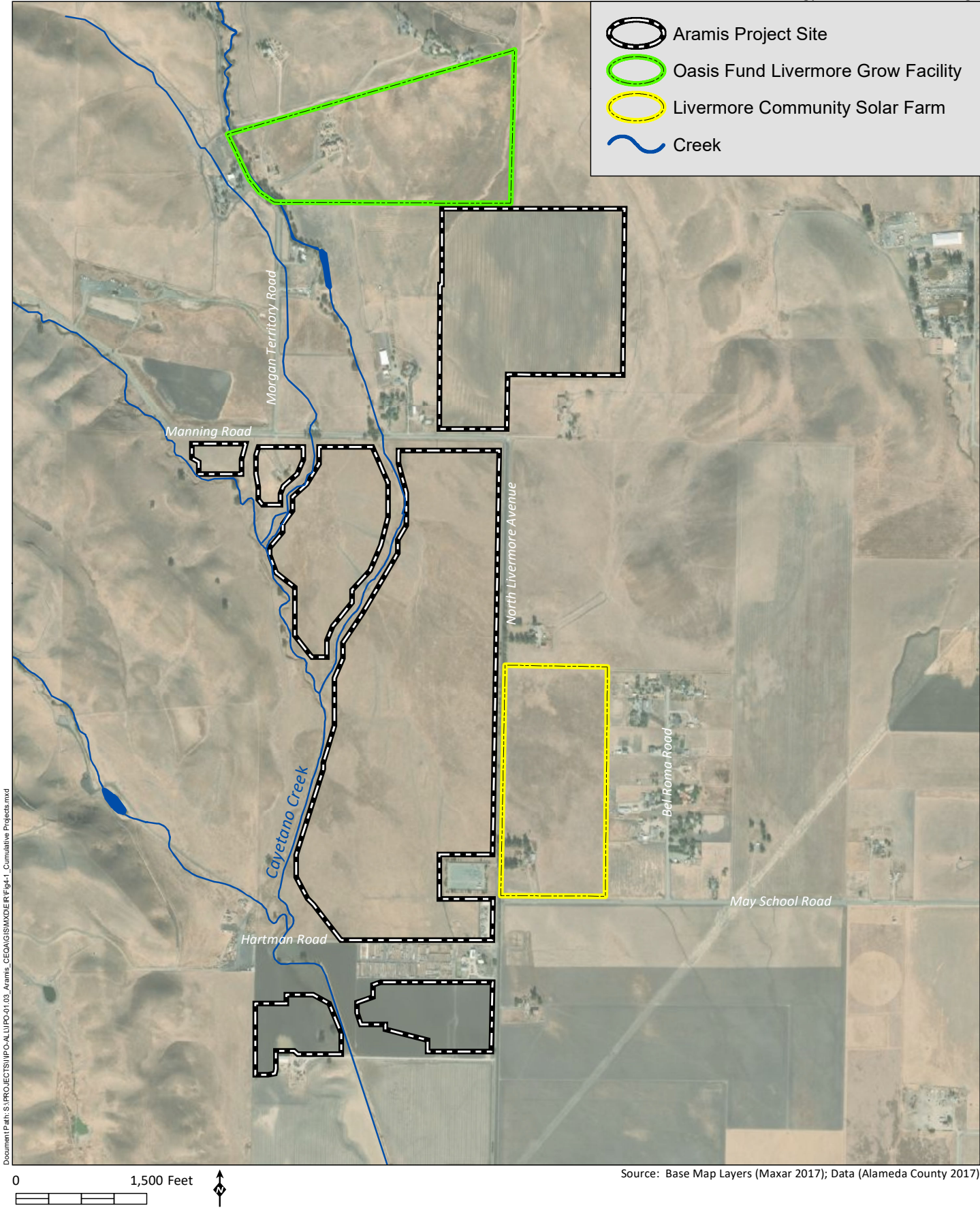
Project Name/Location	Approximate Distance from Project	Project Type	Project Size	Status
Livermore Community Solar Farm/ North Livermore Road	75 feet east of central section	PV Solar Array	59 acres	Pending certification of EIR
Oasis Fund Livermore Grow Facility (Oasis Fund)/ 7033 Morgan Territory Road	Parcel adjacent to the north of the northern section	Cannabis Cultivation	Less than 1 acre	Pending project approval

Source: Alameda County

The following provides a summary of the basis for the cumulative impact analysis for each impact area:

- **Aesthetics:** The cumulative setting for the visual analysis includes areas from which the proposed project could be publicly viewed and the impacts of the proposed project together with other cumulative development projects in the North Livermore area.
- **Agriculture and Forestry Resources:** The cumulative setting for agriculture and forestry resources addresses the impacts of the proposed project and developments in the North Livermore area, including the Livermore Community Solar Farm and the Oasis Fund Livermore Grow Facility. Cumulative impacts would occur when a series of projects or developments leads to a loss of agricultural resources, which occurs when agricultural lands are converted to non-agricultural uses.

- **Air Quality:** The cumulative air quality setting is the San Francisco Bay Area Air Basin and its anticipated growth.
- **Biological Resources:** The geographic scope of the cumulative analysis for biological resources is the area surrounding the proposed project site, including the effects of the Livermore Community Solar Farm and Oasis Fund Livermore Grow Facility projects.
- **Cultural and Tribal Cultural Resources:** Cumulative impacts to cultural resources occur when a series of actions, including the proposed and cumulative projects, leads to the loss of a substantial type of archaeological, historic, or tribal cultural site, building, or resource.
- **Energy:** The cumulative setting for energy include the electricity and natural gas supplies and facilities in PG&E's service area.
- **Geology, Soils, Mineral Resources, and Paleontological Resources:** The cumulative analysis for geology, soils, mineral resources, and paleontological resources impacts is generally site-specific and depends on past, present, and future uses and existing soil and conditions.
- **Greenhouse Gas Emissions:** Greenhouse gas (GHG) emissions are inherently a cumulative concern, in that the significance of GHG emissions is determined based on whether such emissions would have a cumulatively considerable impact on global climate change. Although the geographic scope of cumulative impacts related to GHG emissions is global, this analysis focuses on the State, the region, and the proposed project's direct and/or indirect generation or offset of GHG emissions.
- **Hazards and Hazardous Materials:** The cumulative setting for hazards and hazardous materials impacts is generally site-specific and depends on past, present, and future uses and existing soil, sediment, and conditions.
- **Hydrology and Water Quality:** The cumulative analysis for hydrology and water quality considers the impacts of the proposed project when combined with other projects in the North Livermore area.
- **Land Use and Planning:** The cumulative analysis for land use and planning considers the impacts of the proposed project when considered along with other pending projects in the North Livermore area.
- **Noise:** The analysis of potential cumulative noise impacts attributable to construction and stationary sources considers the proposed project along with the cumulative projects in the North Livermore area due to the localized nature of noise impacts. The analysis of cumulative traffic noise levels is based on cumulative traffic conditions.
- **Population and Housing:** The cumulative setting for population and housing considers the impacts of the proposed project along with other pending projects in the North Livermore area of the proposed project site.
- **Public Services:** The cumulative setting for public services considers the impacts of the proposed project when considered along with other pending projects in the North Livermore area.



- **Recreation:** The cumulative setting for recreation considers the impacts of the proposed project when considered along with other pending projects in the North Livermore area.
- **Transportation:** The cumulative analysis for traffic and circulation addresses other cumulative projects within the vicinity of the proposed project site, including the Livermore Community Solar Farm and Oasis Fund projects.
- **Utilities and Service Systems:** Cumulative impacts are considered in the context of the growth from the proposed project combined with the estimated growth in the service areas of each utility's service area.
- **Wildfire:** The area considered for cumulative impacts related to wildfire are the State Responsibility Area (SRA) and Wildland-Urban Interface to the north, east, and west of the subject property.



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## **4.1 AESTHETICS**

This section describes the regulatory framework and existing conditions on the subject property related to aesthetics, evaluates the potential aesthetic impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.1.1 ENVIRONMENTAL SETTING**

#### **4.1.1.1 Regulatory Framework**

This section summarizes key federal, State, and local regulations related to aesthetics concerning the proposed project.

#### **Federal Regulations**

##### **National Scenic Byways Program**

The National Scenic Byways program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was established under the Intermodal Surface Transportation Efficiency Act of 1991 and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities.

#### **State Regulations**

##### **California Scenic Highway Program**

In 1963, the State Legislature established the California Scenic Highway Program through Senate Bill 1467. It is managed by the Caltrans Landscape Architecture Division. The intent of the program is to establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the State highway system which, together with adjacent scenic corridors, require special conservation treatment. Scenic corridors consist of land that is visible from, adjacent to, and outside of the highway right-of-way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. Under the significance criteria established by CEQA, projects are evaluated for visibility from State scenic highways.

##### **California Building Code**

The State of California provides a minimum standard for building design and outdoor lighting standards through Title 24 of the California Code of Regulations. The California Building Code is located in Part 2 of Title 24. The California Building Code is updated every three years, and the current 2016 California Building Code went into effect in January 2017. It is generally adopted on a jurisdiction by jurisdiction basis, subject to further modification based on local conditions. The California Building Code has been adopted for use by Alameda County pursuant to the ACMC Chapter 15.08.

## Local Regulations

### Alameda County General Plan

#### *Scenic Route Element*

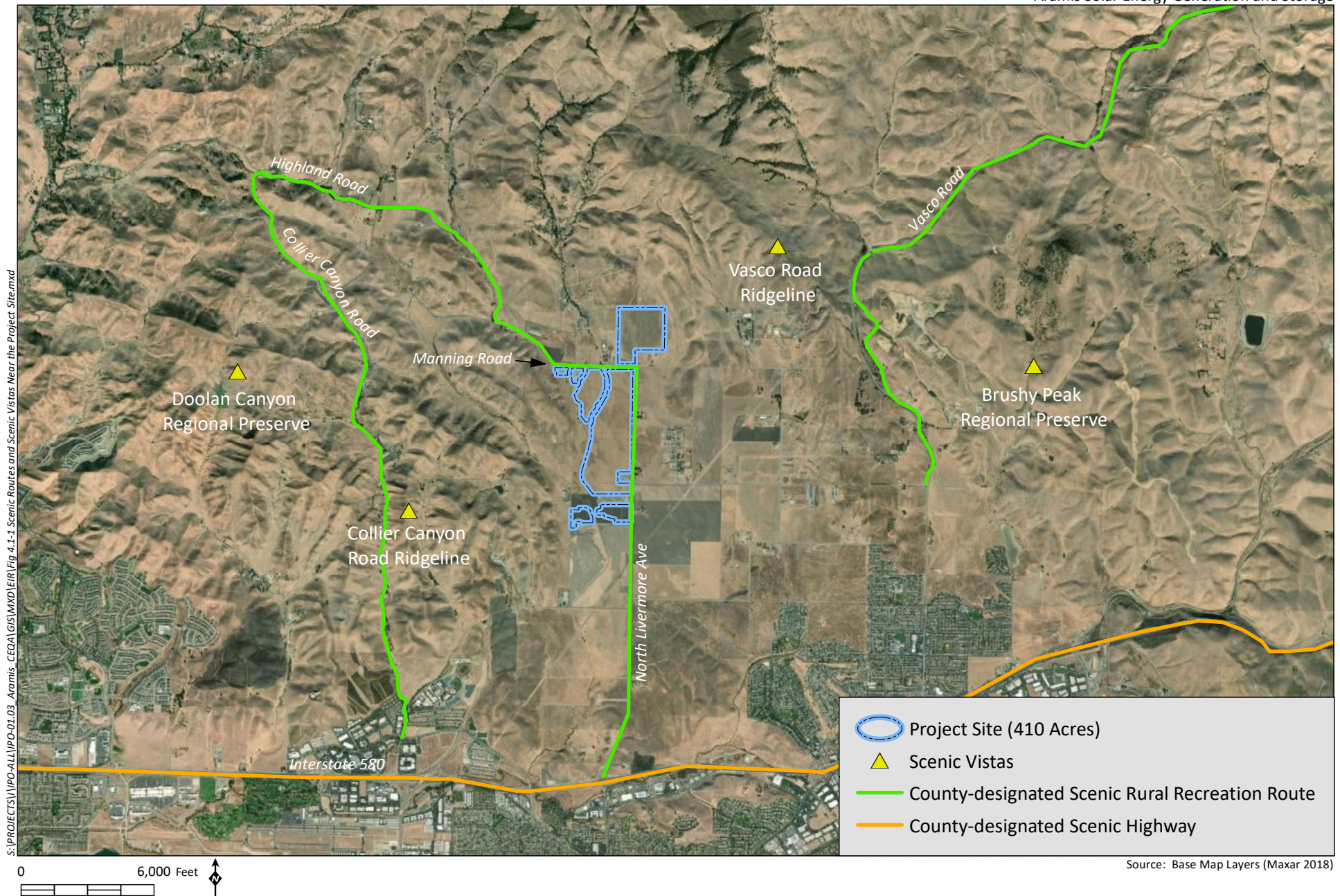
The Scenic Route Element of the Alameda County General Plan (1966, Amended 1994) provides a continuous, County-wide scenic route system and is intended to serve as a guide for local jurisdictions for development of city-scale scenic route systems and as a guide for development to protect and enhance the scenic values along designated scenic routes (Alameda County 1966).

The Scenic Route Element identifies scenic freeways and expressways as traversing or connecting areas of major scenic, recreational, or cultural attractions, and as distinct from two other major types of scenic routes (scenic thoroughfares and rural-recreation routes). Scenic routes are defined to consist of three elements: the right-of-way, the scenic corridor, and areas extending beyond the corridor. The corridor is defined as those properties, along and up to 1,000 feet beyond the right-of way, that either (1) should be acquired for protection, or (2) for which development controls should be applied to preserve and enhance nearby views or maintain unobstructed distant views along the route in rural areas with high scenic qualities. More specifically, scenic corridors are defined as those areas where “development controls should be applied to preserve and enhance scenic qualities, restrict unsightly use of land, control height of structures, and provide site design and architectural guidance along the entire scenic corridor” (Alameda County 1966). For the areas extending beyond scenic corridors (i.e., beyond 1,000 feet from the right-of-way), the Scenic Route Element also requires basic development controls: in the undeveloped parts of the County, project review should address grading, removal of vegetation, streambeds, landscaping, utility and communication towers, poles and lines, and outdoor advertising signs or structures.

Interstate-580 (I-580), located approximately 2.2 miles south of the project site, is the nearest State-designated scenic route to the project area and it is also categorized as one of the County’s Scenic Freeways and Expressways. The project site is not visible from I-580 as roadside berms and natural hills obstruct views of the site. Most of the other roads and highways near the project area are categorized as Scenic Rural-Recreation Routes (or as mapped Major Rural Roads); these are listed below (Alameda County 1966, Amended 1994):

- North Livermore Avenue
- Beck Road (presently Morgan Territory Road)
- Highland Road
- Manning Road
- Route 84 Freeway (proposed location shown in 1966 Scenic Route Element)
- Vasco Road
- Collier Canyon Road
- I-580

The project site is located adjacent to the scenic routes of North Livermore Avenue and Manning Road. The project site is not visible from Morgan Territory Road (formerly Beck Road) as natural hills obstruct views of the site. Scenic resources are shown in Figure 4.1-1.





The Scenic Route Element provides the following principles for Scenic Route Corridors that are applicable to the proposed project. For reference in the subsequent discussions, each principle is identified by a code (e.g., SRE-Corr-1).

*Provide for Normal Uses of Land and Protect Against Unsightly Features:* In both urban and rural areas, normally permitted uses of land should be allowed in scenic corridors, except that panoramic views and vistas should be preserved and enhanced through supplementing normal zoning regulations with special height, area, and side yard regulations; through providing architectural and site design review; through prohibition and removal of billboards, signs not relevant to the main use of the property, obtrusive signs, automobile wrecking and junk yards, and similar unsightly development or use of land. Design and location of all signs should be regulated to prevent conglomerations of unsightly signs along roadsides. (SRE-Corr-1).

*Locate Transmission Towers and Lines Outside of Scenic Route Corridors When Feasible:* New overhead transmission towers and lines should not be located within scenic corridors when it is feasible to locate them elsewhere. (SRE-Corr-2).

*Underground Utility Distribution Lines When Feasible; Make Overhead Lines Inconspicuous:* New, relocated, or existing utility distribution lines should be placed underground whenever feasible. When it is not feasible to place lines underground, they should be located so as to be inconspicuous from the scenic route. Poles of an improved design should be used wherever possible. Combined or adjacent rights-of-way and common poles should be used wherever feasible. (SRE-Corr-3).

*Use Landscaping to Increase Scenic Qualities of Scenic Route Corridors:* Landscaping should be designed and maintained in scenic route corridors to provide added visual interest, to frame scenic views, and to screen unsightly views. (SRE-Corr-5).

*Control Tree Removal:* No mature trees should be removed without permission of the local jurisdiction as a means of preserving the scenic quality of the County. (SRE-Corr/Rem-5).

*Control Alteration of Streambeds and Bodies of Water:* Alteration of streambeds or bodies of water and adjacent vegetation should be permitted only with approval of the local jurisdiction, as a means of preserving the natural scenic quality of the stream courses, bodies of water, vegetation and wildlife in the County. Development along edges of streams, canals, reservoirs, and other bodies of water should be designed and treated so as to result in naturalistic, architectural, or sculptural forms. (SRE-Corr/Rem-6).

*Preserve and Enhance Natural Scenic Qualities in Areas Beyond the Scenic Corridor:* Views from scenic routes will comprise essentially all of the remainder of the County beyond the limits of the scenic corridor: the corridor is intended to establish a framework for the observation of the views beyond. Therefore, in all areas in the County extending beyond the scenic route corridors, scenic qualities should be preserved through retaining the general character of natural slopes and natural formations, and through preservation and enhancement of water areas, watercourses, vegetation and wildlife habitats. Development of lands adjacent to scenic route corridors should not obstruct views of scenic areas and development should be visually compatible with the natural scenic qualities. (SRE-Beyond Corr-1).

*Provide for Normal Uses of Land but Limit Overhead Utilities and Outdoor Advertising Structures:* In both developed and undeveloped areas, outdoor advertising structures, utility and communication towers, poles, and wires should be located only where they will not detract from significant scenic views. All

other structures and use of land should be permitted as specified in the local zoning ordinance as supplemented by special height regulations. (SRE-Beyond Corr-2).

Lastly, the Scenic Route Element establishes development standards that are applicable to the project.

Alteration to natural or artificial land contours should not be permitted without a grading permit issued by the local jurisdiction as a means of preserving and enhancing the natural topography and vegetation in developable areas. Mass grading should not be permitted. The following criteria should be applied in the review of grading permits in developable areas:

- As a means of preserving natural ridge skylines within the county, no major ridgeline should be altered to the extent that an artificial ridgeline results;
- Access roads should be located and designed to keep grading to a minimum;
- Natural ground contours in slope areas over 10 percent should not be altered more than 5 percent overall, except in such slope areas where large stands of mature vegetation, scenic natural formations or natural watercourses exist, where grading should be limited so as to preserve the natural features;
- Any contour altered by grading should be restored by means of land sculpturing in such a manner as to minimize run-off and erosion problems, and should be planted with low maintenance, fire resistant plant materials that are compatible with the existing environment.

#### *Open Space Element*

The following principles from the Open Space Element of the General Plan are applicable to the proposed project (Alameda County 1994):

*Include Natural Ridgelines and Slope Areas:* Natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left as open space to eliminate mass grading.

*Consolidate and Locate Utility Lines to Avoid Scenic Areas:* Wherever feasible, power and pipe utility lines should be consolidated to prevent further severance of open space lands. Utility lines and aqueducts in open space areas should be located so as to avoid areas of outstanding beauty.

*Natural Resources within Open Space Areas Should be Permanently Protected:* Within open space areas, either publicly or privately owned, removal of mature trees should not be permitted without the permission of the local authority. Alteration of streambeds or bodies of water and adjacent vegetation should be permitted only as a means of erosion-control or flood control, as permitted by the adopted plans of regional or local jurisdictions, and in such a manner as to enhance water courses, scenic shorelines, and wetlands within the county.

#### **East County Area Plan**

The project site falls within the ECAP. The following goals and policies of the ECAP are applicable to the proposed project (Alameda County 2000).

### *Sensitive Viewsheds*

Goal: To preserve unique visual resources and protect sensitive viewsheds.

- **Policy 105:** The County shall preserve the following major visually-sensitive ridgelines largely in open space use:
  1. The ridgelines of Pleasanton, Main, and Sunol Ridges west of Pleasanton;
  2. The ridgelines of Schafer, Shell, Skyline, Oak and Divide Ridges west of Dublin and the ridgelines above Doolan Canyon east of Dublin;
  3. The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore;
  4. The ridgelines above the vineyards south of Livermore; and
  5. The ridgelines above Happy Valley south of Pleasanton.
- **Policy 106:** Structures may not be located on ridgelines or hilltops or where they will project above a ridgeline or hilltop as viewed from public roads, trails, parks and other public viewpoints unless there is no other site on the parcel for the structure or on a contiguous parcel in common ownership on or subsequent to the date this ordinance becomes effective. New parcels may not be created that have no building site other than a ridgeline or hilltop, or that would cause a structure to protrude above a ridgeline or hilltop, unless there is no other possible configuration.
- **Policy 107:** The County shall permit no structure (e.g., housing unit, barn, or other building with four walls) that projects above a visually-sensitive major ridgeline.
- **Policy 108:** To the extent possible, including by clustering if necessary, structures shall be located on that part of a parcel or on contiguous parcels in common ownership on or subsequent to the date this ordinance becomes effective, where the development is least visible to persons on public roads, trails, parks and other public viewpoints. This policy does not apply to agricultural structures to the extent it is necessary for agricultural purposes that they be located in more visible areas.
- **Policy 113:** The County shall review development proposed adjacent to or near public parklands to ensure that views from parks and trails are maintained.
- **Policy 114:** The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.
- **Policy 115:** In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.

- **Policy 116:** To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints.
- **Policy 117:** The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.
- **Policy 118:** The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.
- **Policy 119:** The County shall require that access roads be sited and designed to minimize grading.
- **Policy 120:** The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.

#### *Streets and Highways*

Goal: To complete County-planned street and highway improvements which are attractively designed to integrate pedestrian and vehicle use.

- **Policy 198:** The County shall allow reductions in roadways widths in areas of complex topography, sensitive resources, or scenic value.

#### *Scenic Highways*

Goal: To complete County-planned street and highway improvements which are attractively designed to integrate pedestrian and vehicle use.

- **Policy 215:** The County shall manage development and conservation of land within East County scenic highway corridors to maintain and enhance scenic values.

### **4.1.1.2 Methodology**

Because scenic corridors along North Livermore Avenue and Manning Road are a key part of this analysis and because roadways are a publicly accessible location for the local viewshed, the aesthetic analysis generally utilized terminology and steps outlined in the publication, *Guidelines for the Visual Impact Assessment of Highway Projects* (U.S. Department of Transportation 2015).

The steps outlined below were followed to assess visual impacts:

1. Establish the study area
2. Examine visual quality



3. Analyze impacts on visual quality
4. Define mitigation and enhancement measures

To analyze the aesthetic impact of the proposed project, pre- and post-project photo simulations of the proposed project were generated to ascertain the types of visible changes that may be experienced, particularly differences in form, line, and color. Key Observation Points (KOPs) A, B, C, and D were selected by the County to represent views of motorists, cyclists, local residents, and hikers/outdoor recreationists and are described in detail in Section 4.1.1.3, Existing Conditions. For each threshold described in Section 4.1.2, Significance Thresholds, each KOP is analyzed by comparing the pre-project views with the post-project views in the photo simulations.

#### **4.1.1.3 Existing Conditions**

##### **Visual Character and Quality**

Visual character, visual quality, form, line, texture, and other terms are used throughout this discussion to assess the visual impacts of the proposed project. These terms, as defined by the U.S. Department of Transportation, are briefly described below.

**Visual Character:** The description of the visible attributes of a scene or object typically using artistic terms such as form, line, color, and texture.

**Visual Quality:** What viewers like and dislike about visual resources that compose the visual character of a particular scene. Different viewers may evaluate specific visual resources differently based on their interests in natural harmony, cultural order, and project coherence. Neighbors and travelers may, in particular, have different opinions on what they like and dislike about a scene. The rating for visual quality is described below:

- High – Views are perceived to be harmonious, orderly, or coherent and desirable visual resources are a dominant component of the view
- Moderately High – Views may be perceived as largely harmonious, orderly, or coherent. Undesirable visual resources may be present but are few in number. Desirable visual resources are generally present and may be a dominant component of the view
- Moderate – Views may be perceived as fairly harmonious, orderly, or coherent. Undesirable visual resources may be present but do not dominate the view. Desirable visual resources may also be present
- Low – Views may be perceived as inharmonious, disorderly, or incoherent and undesirable visual resources are generally present.

**Natural Harmony:** What viewer likes and dislikes about the natural environment. The viewer labels the visual resources of the natural environment as being either harmonious or inharmonious. Harmony is considered desirable; disharmony is undesirable.

**Cultural Order:** What a viewer likes and dislikes about the cultural environment. The viewer labels the visual resources of the cultural environment as being either orderly or disorderly. Orderly is considered desirable; disorderly is undesirable.

**Viewer Sensitivity:** The degree to which viewers are sensitive to changes in the visual character of visual resources. It is the consequence of two factors, viewer exposure and viewer awareness.

**Viewer Exposure:** Viewer exposure is a measure of proximity (the distance between viewer and the visual resource being viewed), extent (the number of viewers viewing), and duration (how long a time visual resources are viewed). The greater the exposure, the more viewers will be concerned about visual impacts.

**Viewer Awareness:** Viewer awareness is a measure of attention (level of observation based on routine and familiarity), focus (level of concentration), and protection (legal and social constraints on the use of visual resource). The greater the attention, the more viewers will be concerned about visual impacts.

**Form:** The unified mass or shape of an object that often has an edge or outline and can be defined by surrounding space. For example, a high-rise building would have a highly regular, rectangular form, whereas a hill would have an organic, mounded form.

**Line:** Perceived when there is a change in form, color, or texture, and where the eye generally follows this pathway because of the visual contrast. For example, a city's high-rises can be seen silhouetted against the blue sky and be seen as a skyline, a river can have a curvilinear line as it passes through a landscape, or a hedgerow can create a line where it is seen rising up against a flat agricultural field.

**Texture:** The perceived coarseness of a surface that is created by the light and shadow relationship over the surface of an object. For example, a rough surface texture (e.g., a rocky mountainside) would have many facets resulting in a number of areas in light and shadow, and gradual gradations between light and shadow.

**Project Coherence:** What the viewer likes and dislikes about the project environment. The viewer labels the visual resources of the project environment as being either coherent or incoherent. Coherent is considered desirable; incoherent is undesirable.

## **Regional Visual Character**

The East County Area is visually comprised of developed, medium-sized cities, generally adjacent to the I-580 and I-680 corridor, such as Livermore, Dublin, and Pleasanton, and undeveloped, open space lands. Approximately 2 miles to the south, 1.4 miles to the southeast, and 1.4 miles to the southwest of the project site are developed areas of Livermore, characterized by I-580, suburban residential neighborhoods, shopping centers, and other retail/commercial buildings. Outside of the cities, scenery includes undulating, mounded ridgelines characteristic of the Coast Ranges and grassland landcover with interspersed oaks or patches of oak woodlands. Rural residences, such as those north of Livermore, are also interspersed.

## **Local Visual Character**

North Livermore Avenue and Manning Road provide views of undulating ridgelines with grassland landcover, oak tree clusters, trees along North Livermore Avenue, and riparian trees and shrubs along

Cayetano Creek and its tributaries. Rural residences, ranches, and electrical utility infrastructure are interspersed along these roads, and views of barns, agricultural outbuildings, and rustic fencing are common.

### **Existing Viewer Sensitivity, Viewer Groups, Viewer Exposure, and Viewer Awareness**

The viewer groups in the project vicinity are residents, cyclists, motorists, and recreationists. For residents, viewer sensitivity is high due to their long-term, constant presence in the area and the moderate to high visual quality of the surrounding scenery. It is also presumed that all of these viewer groups were drawn to the project area, in part, because of the viewshed, although motorists/cyclists may travel the project area's roadways solely to reach a destination and generally experience the scenery in the short-term. For the purpose of this analysis, it is assumed motorist/cyclist sensitivity is moderately high because of the designation of North Livermore Avenue and Manning Road as scenic corridors.

### **Key Observation Points**

Four KOPs were identified and analyzed for the proposed project. KOPs A, B, C, and D (Figure 4.1-2), were selected to display the visual results of the proposed project as viewed from primary viewer groups potentially affected. Existing and simulated conditions for these KOPs are shown in Figures 4.1-3 to 4.1-10). Descriptions of the pre-project conditions of the KOPs follow.

#### **KOP A: North Manning Road**

KOP A, located on Manning Road, represents the views of motorists and cyclists traveling the corridor. This view is towards the north with asphalt paving and barbed-wire fencing with wood posts in the foreground, a large expanse of agricultural grassland in the middleground, and a clear view of ridgelines in the background interspersed with dark green trees on the hillside. This view is dominated by grasslands of a light color and unobstructed views of the hills and sky. Man-made visual elements include the roadway and fencing. Overall, the elements in this view—expanses of grassland, undisturbed ridgelines—are comprised of complementary colors, textures, and elements that create a harmonious landscape with few visual encroachments. The visual character is rural with very few man-made visual encroachments. KOP A and the views it represents is of high visual quality.

#### **KOP B: Los Vaqueros Watershed**

KOP B, located approximately 1,600 feet north of the project site boundary, represents the view of recreationists in the Los Vaqueros Watershed. The view is towards the southwest and the foreground is comprised of a dirt road and golden grasslands, the middleground is comprised of yellow to brown grasses with a few trees on undulating topography, and the background is comprised of yellow to brown hillsides and ridgelines. Development from this view is somewhat apparent, however, it is difficult to discern individual buildings or uses due to distance. The visual character is rural with few encroachments related to development at a distance; the view is moderately vivid. KOP B and the views it represents is of moderately-high visual quality.

**KOP C: Bel Roma Road**

KOP C, located approximately 2,000 feet east of the project site boundary, represents the view from Bel Roma Road and nearby residences. The view is towards the west and the foreground is comprised of flat topography with some light-yellow grasses. The middleground is comprised of dark green trees, utility poles, a barn, and a few small structures, likely related to ranch activities and the background is comprised of grass-covered hills and a largely unobstructed ridgeline. Existing trees towards the middle of this view partially obstruct the ridgeline. Man-made visual elements consist of utility poles and interspersed barn and ranch structures. The visual character is rural with several encroachments related to agricultural uses; the view is moderate in vividness and harmony and orderliness are moderate due to several visual encroachments from various structures. KOP C and the views it represents is of moderate visual quality.

**KOP D: May School Road and North Livermore Avenue**

KOP D, located at May School Road and North Livermore Avenue, represents the view of motorists, cyclists, and nearby rural residences. The view is towards the northwest and landcover in the foreground consists of the asphalt roadway, roadside ruderal vegetation, roadside trees, and utility poles. Landcover in the middleground consists of agricultural grassland behind barbed-wire fencing adjacent to the roadway and the background is a view of a hilly ridgeline with grassland and trees as the landcover; visual blockage by the utility poles and lines is minor from this viewpoint. The visual character is rural/agricultural with some man-made visual encroachments; the view has moderately high vividness and is generally harmonious. KOP D and the views it represents is of moderately-high visual quality.

**Planting and Landscaping Plan**

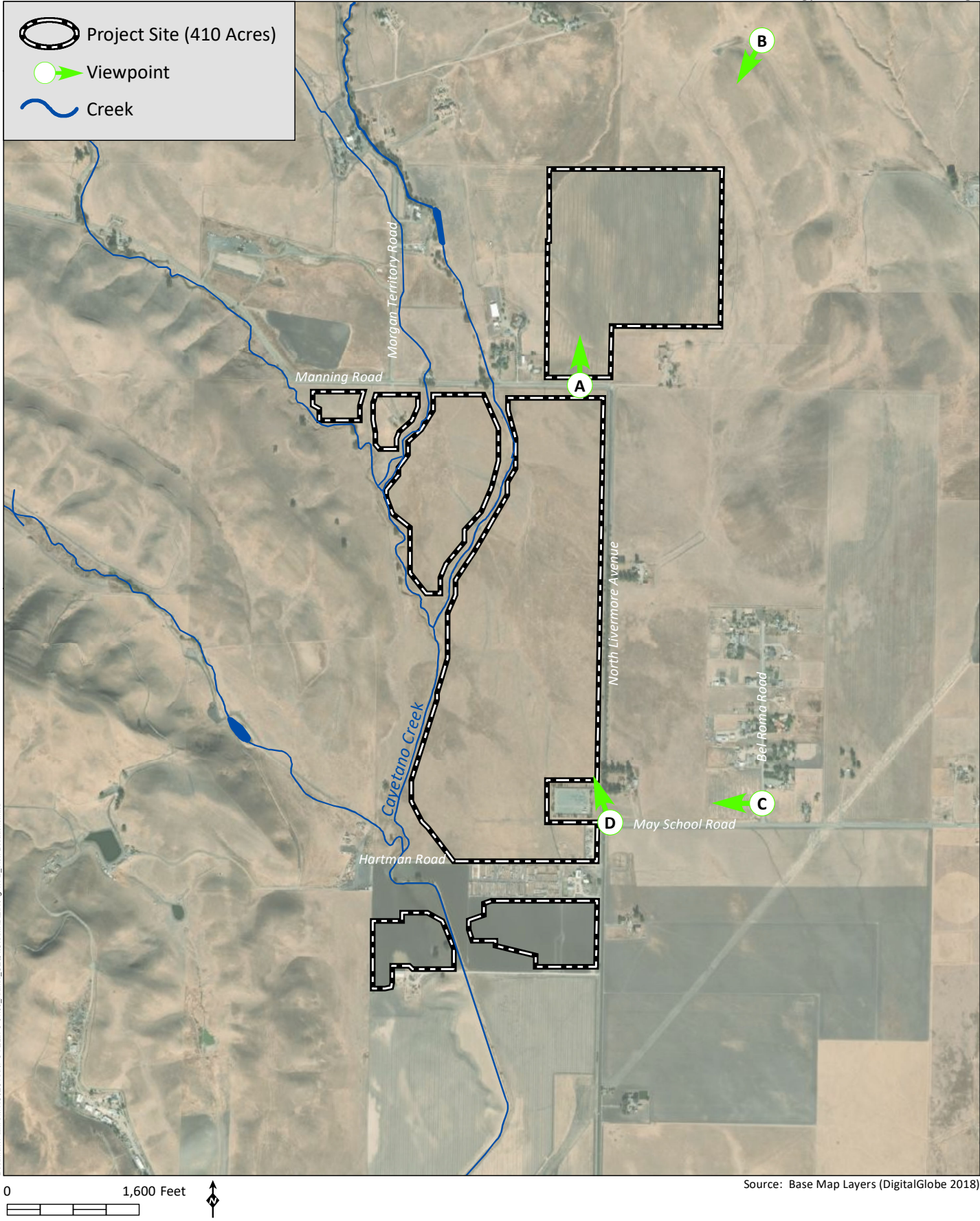
Planting and maintenance of honeybee forage would be included as part of the proposed project, and plants would be placed in locations that would be visible from public vantage points from North Livermore Avenue and North Manning Road. Pollinator-friendly plant species would be used in landscaping along with seed mixes to promote honeybee forage.

In addition to the honeybee forage planting plan, the proposed project would include a landscape buffer to provide visual interest, frame scenic views, and screen less than desirable views in compliance with the Countywide Scenic Route Element. The landscape buffer is proposed along the public street frontages that border the project site, specifically on the west side of North Livermore Avenue and north and south sides of North Manning Road. The planting area would be established between the County road rights-of-way and project fence line and would include a mixture of evergreen and deciduous shrubs and trees of varying heights. The proposed landscaping would include planting of between 2 to 3 rows of shrubs offset to screen views of the site with trees interspersed primarily along Manning Road. All plants included in the landscaping plan would be drought tolerant and climate appropriate. The perimeter fencing proposed to enclose the project site would be 5 feet high with wood posts and 4 square-inch wire mesh.

**4.1.2 SIGNIFICANCE THRESHOLDS**

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant aesthetic impacts if the project would:

1. Have a substantial adverse effect on a scenic vista;







**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA

PRE-PROJECT MID DAY VIEW  
NORTH FROM  
MANNING RD NORTH



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA

PRE-PROJECT MID-DAY VIEW  
LOOKING SOUTHWEST FROM  
LOS VAQUEROS WATERSHED



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA

SIMULATED MID-DAY VIEW  
LOOKING SOUTHWEST FROM  
LOS VAQUEROS WATERSHED



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA

PRE-PROJECT MID-DAY VIEW  
LOOKING WEST FROM  
BEL ROMA ROAD



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA

PRE-PROJECT MID-DAY VIEW LOOKING  
NORTHWEST FROM MAY SCHOOL RD &  
LIVERMORE AVENUE INTERSECTION



Source: Urban Arena 2020





**ARAMIS SOLAR**  
ALAMEDA COUNTY, CALIFORNIA



Source: Urban Arena 2020

2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings; and
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

### **4.1.3 IMPACT ANALYSIS**

#### **AES-1 The proposed project would have a substantial adverse effect on a scenic vista.**

Scenic corridors can be defined as an area of landscape viewed as a single entity that includes the field of vision visible from a specific point, or a series of points along a linear transportation route. As discussed in Section 4.1.1.1, North Livermore Avenue and Manning Road are adjacent to the project site and are considered County-designated scenic corridors. Scenic vistas are generally interpreted as long-range views of a specific scenic feature (e.g., open space lands, mountain ridges, and bay or ocean views). The ECAP Polices 105 and 112 designate major visually-sensitive ridgelines and prominent visual features within the County, some of which can be seen from the project site. For the purposes of this analysis, the long-range views of Doolan Canyon to the northwest, the ridgelines above Vasco Road and Brushy Peak to the east, ridgelines above the vineyards south of the City of Livermore to the south, and the ridgelines above Collier Canyon Road, are considered scenic vistas. Long-range views of the scenic vistas would be impacted by the proposed project if the project were to block or obstruct these views.

As discussed in Section 3.0, Project Description, the proposed solar facility would be comprised of the PV modules and associated energy collection system; project substation; battery energy storage system; and a gen-tie line to connect to the existing PG&E Cayetano substation. The individual PV modules would be arranged in rows onto a single-axis tracker racking system, which would in turn be affixed to steel piles. Each row (or array) would track the sun during the day, from east to west, to optimize power generation of the facility. The arrays would be connected by low-voltage underground or above-ground electrical wiring to a central inverter station or to string inverters located throughout the facility, where the electricity would be converted from direct current to alternating current. Medium-voltage lines would be buried for a majority of their length, but would emerge and be mounted on up to two overhead wooden utility poles on either side of Manning Avenue and up to 10 additional wooden poles to cross Cayetano Creek and its tributaries, to cross an access driveway, and where a connection to the substation must be overhead. The maximum height of modules would be approximately 8 feet in their stow position. The average height of the electrical poles would be 50 feet and the maximum height would be up to 100 feet for poles adjacent to the PG&E Cayetano substation. As noted above in Section 4.1.1.3, Existing Conditions, the perimeter fencing proposed to enclose the project site would be 7 feet high with wood posts and 4 square-inch wire mesh.

Due to the scale of the project, the solar arrays would be the most visible components of the proposed project upon completion. As shown in Figures 4.1-6 and 4.1-8, long-range views to the surrounding ridgelines from KOP B and KOP C would be unimpeded from the public right-of-way. However, long-range views to the surrounding ridgelines from KOP A and KOP D (Figures 4.1-4 and 4.1-10) would be slightly impeded by the solar facility and proposed landscape screening from the public rights-of-way

along North Livermore Avenue and Manning Road. The area surrounding the site includes man-made alterations such as fencing and roadways. Implementation of the proposed project would add new manmade elements to this view. Although landscape screening is proposed as part of the project and would dominate the views from public rights-of-way when mature, the solar arrays would be visible in the middleground of views from all four KOPs. Additionally, the scenic vista consisting of the hills and mountain ridgeline view in the background would remain visible but slightly impeded the proposed project which would result in a substantial adverse effect on a scenic vista.

Implementation of Mitigation Measure (MM) AES-1 would ensure long-term maintenance of the proposed landscape buffer and reduce the severity of the significant aesthetic impact. However, even with implementation of MM AES-1, the proposed project's impact to the scenic vistas in the project area would be significant and unavoidable.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The proposed project substation would be located on the west side of, and adjacent to, the PG&E Cayetano substation, allowing the gen-tie connection to be short and overhead with a possibility of underground construction as well. If an overhead connection is required, the heights of the overhead poles could vary from 30 to 100 feet, depending on the entry angle required by PG&E. Views of the project substation and gen-tie line connection from public vantage points along North Livermore Avenue and Manning Road would be obstructed by the existing PG&E Cayetano substation and proposed landscape screening. Therefore, construction of project interconnection facilities completed by PG&E would not result in a substantial adverse effect on a scenic vista, and impacts would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

##### **MM AES-1: Long-term Landscape Maintenance**

To ensure the long-term effectiveness of the proposed landscaping, the project applicant shall ensure that the proposed landscaping is adequately irrigated to establish the long-term viability of the buffer and maintained throughout the life of the project. Should any of the proposed landscape plantings not survive the initial planting or expire at any time during the life of the project, the applicant shall provide replacement plantings consistent with the initial planting to screen the solar facility within one year of plant failure.

**Significance with Mitigation:** Significant and unavoidable impact.

No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

#### **AES-2    The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.**

As described in Section 4.1.1.3, Existing Conditions, the proposed project is not located within a State designated scenic highway; and therefore, scenic highways would not be impacted. However, the project site is located on both North Livermore Avenue and Manning Road, which are County-

designated Scenic Rural-Recreation Routes. Tables 4.1-1 summarizes the Alameda County Scenic Route Element principles applicable to the proposed project and addresses the project's consistency with those principles.

**Table 4.1-1**  
**CONSISTENCY WITH ALAMEDA COUNTY SCENIC ROUTE ELEMENT**

Scenic Route Element Principles	Proposed Project Consistency	Discussion
Provide for Normal Uses of Land and Protect Against Unsightly Features. (SRE-Corr-1)	Consistent	<p>Agricultural land uses would continue with onsite sheep grazing. Planting and maintenance of honeybee forage would be included as part of the proposed project and would be planted in locations that can be viewed from public vantage points from North Livermore Avenue and North Manning Road. Pollinator-friendly plant species would be used in landscaping and seed mixes to promote honeybee forage.</p> <p>In addition to the honeybee forage planting plan, the proposed project includes a landscape buffer to provide visual interest, frame scenic views, and screen less than desirable views. The landscape buffer is proposed along the public street frontages of the project boundaries, specifically on the west side of North Livermore Avenue and north and south sides of North Manning Road. The planting area would be established between the County road rights-of-way and project fence line and would include a mix of low shrubs and trees.</p>
Locate Transmission Towers and Lines Outside of Scenic Route Corridors When Feasible. (SRE-Corr-2)	Consistent	<p>Medium-voltage lines would be buried for a majority of their length but would emerge and be mounted on up to two overhead wooden utility poles on either side of Manning Avenue and up to 10 additional wooden poles to cross Cayetano Creek and its tributaries, to cross an access driveway, and where a connection to the existing PG&amp;E Cayetano substation must be overhead. Utility lines would be underground to the maximum extent feasible.</p>
Underground Utility Distribution Lines When Feasible. (SRE-Corr-3)	Consistent	See above.



**Table 4.1-1 (cont.)**  
**CONSISTENCY WITH ALAMEDA COUNTY SCENIC ROUTE ELEMENT**

Scenic Route Element Principles	Proposed Project Consistency	Discussion
Use Landscaping to Increase Scenic Qualities of Scenic Route Corridors. (SRE-Corr-5)	Consistent	<p>Planting and maintenance of honeybee forage would be included as part of the proposed project, and plants would be placed in locations that are visible from public vantage points from North Livermore Avenue and North Manning Road.</p> <p>In addition to the honeybee forage planting plan, the proposed project includes a landscape buffer to provide visual interest, frame scenic views, and screen unsightly views. The landscape buffer is proposed along the public street frontages of the project boundaries, specifically on the west side of North Livermore Avenue and north and south sides of North Manning Road. The planting area would be established between the County road rights-of-way and project fence line and would include a mix of low shrubs and trees.</p>
Control Alteration of Streambeds and Bodies of Water. (SRE-Corr/Rem-6)	Consistent	The proposed project would avoid watercourses and maintain a minimum 50-foot buffer from creek banks.
Preserve and Enhance Natural Scenic Qualities in Areas Beyond the Scenic Corridor. (SRE-Beyond Corr-1)	Consistent	<p>The proposed solar PV modules would encroach on the scenic corridor (within 1,000 feet from the right-of-way [ROW]). Natural watercourses and slopes would be avoided. Views of scenic ridgelines would not be blocked. Pollinator-friendly plant species would be used in landscaping and seed mixes to promote honeybee forage.</p> <p>In addition to the honeybee forage planting plan, the proposed project includes a landscape buffer to provide visual interest, frame scenic views, and screen unsightly views. The landscape buffer is proposed along the public street frontages of the project boundaries, specifically on the west side of North Livermore Avenue and north and south sides of North Manning Road. The planting area would be established between the County road rights-of-way and project fence line and would include a mix of low shrubs and trees.</p>
Provide for Normal Uses of Land but Limit Overhead Utilities and Outdoor Advertising Structures. (SRE-Beyond Corr-2)	Consistent	See above regarding overhead utilities and undergrounding to the maximum extent feasible. No outdoor advertising structures are proposed.

**Table 4.1-1 (cont.)**  
**CONSISTENCY WITH ALAMEDA COUNTY SCENIC ROUTE ELEMENT**

Scenic Route Element Principles	Proposed Project Consistency	Discussion
<p>SRE Development Standards:  The following criteria should be applied in the review of grading permits in developable areas:</p> <ul style="list-style-type: none"> <li>• As a means of preserving natural ridge skylines within the county, no major ridgeline should be altered to the extent that an artificial ridgeline results.</li> <li>• Access roads should be located and designed to keep grading to a minimum.</li> <li>• Natural ground contours in slope areas over 10 percent should not be altered more than 5 percent overall, except in such slope areas where large stands of mature vegetation, scenic natural formations or natural watercourses exist, where grading should be limited so as to preserve the natural features.</li> <li>• Any contour altered by grading should be restored by means of land sculpturing in such a manner as to minimize run-off and erosion problems, and should be planted with low maintenance, fire resistant plant materials that are compatible with the existing environment.</li> </ul>	Consistent	<p>Ridgelines would not be impacted.</p> <p>Internal access roads would be constructed along the perimeter of the development areas and between modules at relatively flat slopes.</p> <p>No major alteration or contouring is needed for the project.</p>

As discussed above in Table 4.1-1, the proposed project incorporates design features that would be consistent with the principles set forth in the Alameda County Scenic Route Element. In addition, the view of the solar facility would be screened by the proposed landscape buffer along both North Livermore Avenue and Manning Road. Furthermore, there are no notable trees, rock outcroppings, or historical buildings on the project site that would be affected, and the proposed project would not alter long-range views to the ridgelines or other natural features. Therefore, impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The proposed project substation would be located along North Livermore Avenue, which is a County-designated Scenic Rural-Recreation Route. If a short overhead connection between the project substation and the Cayetano substation is required, then the heights of the overhead poles could vary from 30 to 100 feet, depending on the entry angle required by PG&E. Views of the project substation and gen-tie line connection from public vantage points along North Livermore Avenue and Manning Road would be obstructed by the existing PG&E Cayetano substation and proposed landscape screening. The project interconnection facility area does not contain trees, rock outcroppings, or historic buildings. Therefore, construction of project interconnection facilities completed by PG&E would not substantially

damage scenic resources along a State scenic highway or County designated Scenic Rural-Recreation Route, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**AES-3    The proposed project would degrade the existing visual character or quality of public views (public views are those that are experienced from publicly accessible vantage point) of the site and its surroundings resulting in a significant aesthetic impact.**

To assess the project's impact on the existing visual character and quality of public views of the site and its surroundings, post-project simulations of the KOPs are discussed in detail below. The proposed project's impact on visual quality is also summarized in Table 4.1-2 below.

**Key Observation Point Analysis**

*KOP A: North Manning Road*

At KOP A, the proposed project would result in a lower visual quality than the existing setting. The lower visual quality is attributed to the expanse of solar PV modules in the middleground, which would encroach into the rural setting resulting in contrasts in form, line, and texture. The dark, rectangular shape and hard outline of each module contrasts with the light-colored natural grassland land cover and undulating ridgelines in the background. Although the proposed project includes landscaping along Manning Road to screen views of the solar facility and the ridgeline would still be visible in the background post-project, the visual character of the project site would be altered and the solar facility would still be visible in the middleground which would reduce the visual quality from high to moderately-high visual quality.

*KOP B: Los Vaqueros Watershed*

At KOP B, the proposed project would result in a slightly lower visual quality than the existing view. At this viewpoint, each module is not easily discernable, however, the rectangular form and line (outline) of the facility is visible and would contrast with undulating ridgelines and natural shapes of scattered oak woodlands in the viewshed. With the proposed project, the ridgeline would remain intact in the background but the middleground view could produce a "lake effect", meaning the view at this distance would resemble a large water body. Although the visual quality would be slightly reduced, the visual quality would still be moderately-high at this location.

*KOP C: Bel Roma Road*

At KOP C, the proposed project would result in a slightly lower visual quality than the existing view. The dark solar PV modules at this viewpoint are not easily discernable due to the low view angle and existence of large trees and several agricultural structures in the viewshed that interrupt the view. Under the proposed project, the ridgeline would remain intact and a dominant part of the overall view, but a slight reduction in the visual quality would be attributed to the expanse of solar PV modules in the middleground, which would add to the visual encroachment of the rural setting due to contrasts in form, line, and texture. Although the visual quality would be reduced, the change would be slight and visual quality would still be moderate.

*KOP D: May School Road and North Livermore Avenue*

At KOP D, the proposed project would result in a lower visual quality than the existing view. The solar PV modules would be a noticeable man-made feature in the middleground due to their dark color, rectangular forms, and smooth surface texture; this would contrast with the setting, which consists of light-colored grassland vegetation, and rural/agricultural activities. Although the proposed project includes landscaping along North Livermore Avenue to screen views of the solar facility and would not affect the view of the hillsides or ridgeline in the background, the visual character of the project site would be altered and the solar facility would still be visible in the middleground which would reduce the visual quality from moderately-high to moderate.

**Table 4.1-2  
SUMMARY OF CHANGE IN VISUAL QUALITY**

KOP	Scenic Route Element – Element Seen in Viewpoint	Viewers	Viewer Sensitivity	Existing Visual Quality	Visual Quality with Project	Change
A – North Manning Road	<ul style="list-style-type: none"> <li>• Right-of-Way</li> <li>• Scenic corridor</li> <li>• Areas extending beyond the corridor</li> </ul>	Motorists, cyclists	Moderate	High	Moderately-High	Reduced visual quality
B - Los Vaqueros Watershed	<ul style="list-style-type: none"> <li>• Areas extending beyond the corridor</li> </ul>	Recreationists	High	Moderately-High	Moderately-High	Slightly reduced visual quality
C – Bel Roma Road	<ul style="list-style-type: none"> <li>• Areas extending beyond the corridor</li> </ul>	Residents, motorists	Residents – High  Motorists – Moderately High	Moderate	Moderate	Slightly reduced visual quality
D – May School Road and North Livermore Avenue	<ul style="list-style-type: none"> <li>• Right-of-Way</li> <li>• Scenic corridor</li> <li>• Areas extending beyond the corridor</li> </ul>	Residents, motorists, cyclists	Residents – High  Motorists – Moderately High	Moderately-High	Moderate	Reduced visual quality

### Consistency with Aesthetic Policies

Tables 4.1-3 and 4.1-4 summarize the Alameda County Open Space Element and ECAP principles and policies applicable to the proposed project and addresses the project’s consistency with these principles and policies.

**Table 4.1-3  
CONSISTENCY WITH OPEN SPACE ELEMENT PRINCIPLES**

Open Space Element Principles	Proposed Project Consistency	Discussion
<i>Include Natural Ridgelines and Slope Areas.</i> Natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left as open space to eliminate mass grading.	Consistent	No impacts to natural ridgelines or slopes in excess of twenty-five percent grade would take place.
<i>Consolidate and Locate Utility Lines to Avoid Scenic Areas.</i> Wherever feasible, power and pipe utility lines should be consolidated to prevent further severance of open space lands. Utility lines and aqueducts in open space areas should be located so as to avoid areas of outstanding beauty.	Consistent	Overhead utility lines and poles would be installed to cross over Manning Road, Cayetano Creek and its tributaries, an access driveway, and where a connection to the existing PG&E substation must be overhead. The utility lines would be consolidated to the maximum extent feasible. Collocation/location of the solar facility would allow for a short tie-in to the existing PG&E Cayetano substation.
<i>Natural Resources within Open Space Areas Should be Permanently Protected.</i> Within open space areas, either publicly or privately owned, removal of mature trees should not be permitted without the permission of the local authority. Alteration of streambeds or bodies of water and adjacent vegetation should be permitted only as a means of erosion-control or flood control, as permitted by the adopted plans of regional or local jurisdictions, and in such a manner as to enhance water courses, scenic shorelines, and wetlands within the county	Consistent	Mature trees along North Livermore Avenue would not be removed as part of the proposed project. The proposed project is designed to avoid the floodplain of Cayetano Creek and its tributaries.

**Table 4.1-4  
CONSISTENCY WITH ECAP POLICIES**

ECAP Policies	Proposed Project Consistency	Discussion
<p>Policy 105: The County shall preserve the following major visually-sensitive ridgelines largely in open space use:</p> <ol style="list-style-type: none"> <li>1. The ridgelines of Pleasanton, Main, and Sunol Ridges west of Pleasanton;</li> <li>2. The ridgelines of Schafer, Shell, Skyline, Oak and Divide Ridges west of Dublin and the ridgelines above Doolan Canyon east of Dublin;</li> <li>3. The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore;</li> <li>4. The ridgelines above the vineyards south of Livermore;</li> <li>5. The ridgelines above Happy Valley south of Pleasanton.</li> </ol>	Mostly consistent	<p>Proposed project would slightly impede views of the Doolan Canyon Ridgelines from North Livermore Avenue and Manning Road.</p> <ol style="list-style-type: none"> <li>1. The ridgelines of Main and Sunol Ridges west of Pleasanton are 10 miles west of the project site. The project would have no impact on views of these ridgelines.</li> <li>2. The ridgelines of Schafer, Shell, skyline, Oak and divide Ridges west of Dublin are 10 miles east of the project site. The project site is 2.5 miles east of the ridgelines above Doolan Canyon. The project would slightly impede views of Doolan Canyon ridgelines from KOP A and KOP D.</li> <li>3. The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore are located at least 1 mile away from the project. The project would have no impact on views of these ridgelines.</li> <li>4. The ridgelines above the ridgelines of south Livermore are approximately 5.5 miles to the south of the project site. The project would have no impact on views of these ridgelines.</li> <li>5. The ridgelines above Happy Valley south of Pleasanton are approximately 8 miles away. The project would have no impact on views of these ridgelines.</li> </ol>
<p>Policy 106: Structures may not be located on ridgelines or hilltops or where they will project above a ridgeline or hilltop as viewed from public roads, trails, parks and other public viewpoints unless there is no other site on the parcel for the structure or on a contiguous parcel in common ownership on or subsequent to the date this ordinance becomes effective. New parcels may not be created that have no building site other than a ridgeline or hilltop, or that would cause a structure to protrude above a ridgeline or hilltop, unless there is no other possible configuration.</p>	Consistent	<p>The project does not propose structures on ridgelines or hilltops or where they would project above a ridgeline or hilltop as viewed from public roads, trails, parks, and other viewpoints.</p> <p>Solar PV modules would be a maximum height of 8 feet and overhead utility lines would be a maximum height of 100 feet (average of 50 feet). From the nearest public road (North Livermore Avenue, Manning Road), trail (Los Vaqueros Reservoir and Watershed), park, and other public viewpoints, the panels and overhead utility poles would not extend above visible ridgelines.</p>

**Table 4.1-4 (cont.)**  
**CONSISTENCY WITH ECAP POLICIES**

ECAP Policies	Proposed Project Consistency	Discussion
Policy 107: The County shall permit no structure (e.g., housing unit, barn, or other building with four walls) that projects above a visually-sensitive major ridgeline.	Consistent	The proposed project does not propose structures (housing unit, barn, or other building with four walls) that project above a visually-sensitive or major ridgeline. Although buildings would be constructed for maintenance and energy storage, they would be constructed adjacent to the existing PG&E Cayetano substation that is located away from sensitive viewers such that it would not project above a ridgeline.
Policy 108: To the extent possible, including by clustering if necessary, structures shall be located on that part of a parcel or on contiguous parcels in common ownership on or subsequent to the date this ordinance becomes effective, where the development is least visible to persons on public roads, trails, parks and other public viewpoints. This policy does not apply to agricultural structures to the extent it is necessary for agricultural purposes that they be located in more visible areas.	Consistent	The proposed project is located near the existing PG&E Cayetano substation and proposed Livermore Community Solar Farm project at 4871 North Livermore Avenue, which consists of a 59-acre solar PV facility on a 72-acre parcel.
Policy 113: The County shall review development proposed adjacent to or near public parklands to ensure that views from parks and trails are maintained.	Consistent	County review and approval of the project would be required to construct the project. This includes review of environmental studies and this Draft EIR.
Policy 114: The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.	Consistent	<p>Planting and maintenance of honeybee forage would be included as part of the proposed project and would be planted in locations that can be viewed from public vantage points from North Livermore Avenue and North Manning Road. Pollinator-friendly plant species would be used in landscaping and seed mixes to promote honeybee forage.</p> <p>In addition to the honeybee forage planting plan, the proposed project includes a landscape buffer to provide visual interest, frame scenic views, and screen unsightly views. The landscape buffer is proposed along the public street frontages of the project boundaries, specifically on the west side of North Livermore Avenue and north and south sides of North Manning Road. The planting area would be established between the County road rights-of-way and project fence line and would include a mix of low shrubs and trees.</p>

**Table 4.1-4 (cont.)**  
**CONSISTENCY WITH ECAP POLICIES**

ECAP Policies	Proposed Project Consistency	Discussion
Policy 115: In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.	Consistent	See above regarding proposed honeybee forage and landscaping plan. Shielded, downward directional security lighting would be located at the control enclosure and O&M building for emergency repairs. Night lighting would not be required except during scheduled maintenance periods and emergency repairs.
Policy 116: To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public view points.	Consistent	Proposed project would minimize grading and natural topography would generally be followed. Access roads would largely be along the perimeter of the development areas and between modules.
Policy 117: The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.	Consistent	Due to the relatively flat project site, minimal grading is needed. Cut and fill would not be necessary.
Policy 118: The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.	Consistent	Large stands of vegetation, scenic natural formations, or natural watercourses would be avoided.
Policy 119: The County shall require that access roads be sited and designed to minimize grading.	Consistent	Access roads would be located on flat or low slopes requiring minimal grading.



**Table 4.1-4 (cont.)**  
**CONSISTENCY WITH ECAP POLICIES**

ECAP Policies	Proposed Project Consistency	Discussion
Policy 120: The County shall require that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.	Consistent	Underground lines would be placed where feasible, however, above ground overhead lines would be required as follows:  Medium-voltage lines would be mounted on 1) two wooden poles crossing Manning Avenue and 2) up to ten wooden poles crossing Cayetano Creek, its tributaries, an access driveway, and to connect to the PG&E Cayetano substation (if required).
Streets and Highways		
Policy 198: The County shall allow reductions in roadway widths in areas of complex topography, sensitive resources, or scenic value.	Consistent	Access roads would be consistent with County standards.
Scenic Highways		
Policy 215: The County shall manage development and conservation of land within East County scenic highway corridors to maintain and enhance scenic values.	Consistent	County review and approval is required to construct the proposed project.

### Summary

As shown in Figures 4.1-4, 4.1-6, 4.1-8 and 4.1-10, views of the surrounding ridgelines at KOPs A and D would be slightly impeded. As described in the summary of each KOP above, residents, motorists, cyclists, and recreationists would see a change in the view along County-designated scenic corridors. The proposed project would slightly reduce but not degrade the visual quality at KOPs B and C but would degrade the visual quality at KOP A from high to moderately-high and from moderately-high to moderate at KOP D which is a significant impact.

The proposed project has been designed to minimize aesthetic impacts to the County-designated scenic corridors that border the project site to the maximum extent feasible and is consistent with the Alameda County Open Space Element and ECAP principles and policies. The proposed landscaping plan is consistent with ECAP policies 114 and 115 and would provide visual interest, frame scenic views of the ridgelines in the background, and screen less than desirable views of the solar PV arrays and associated infrastructure. The proposed project would include planting and maintenance of honeybee forage foliage that would be strategically planted in locations that can be viewed from public vantage points from North Livermore Avenue and North Manning Road to minimize the contrasting post-project views. Additionally, the proposed project includes a landscape buffer on the west side of North Livermore Avenue and north and south sides of North Manning Road that would include a mixture of evergreen and deciduous shrubs and trees of varying heights. The proposed landscaping would include planting of between 2 to 3 rows of shrubs offset to screen views of the site with trees interspersed primarily along Manning Road.

Implementation of Mitigation Measure (MM) AES-1 would ensure long-term maintenance of the proposed landscape buffer and reduce the severity of the significant aesthetic impact. However, even with implementation of MM AES-1, the proposed project's impact to the existing visual character and quality of public views in the project area would be significant and unavoidable.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project substation would be located along North Livermore Avenue adjacent to the west of existing Cayetano substation. The potential PG&E responsibility for the interconnection facility, including the gen-tie line and portions of the project substation would not alter the above analysis of the visual character and quality of public views. The installation and maintenance of the landscape buffer required by MM AES-1 would not be under CPUC jurisdiction or PG&E's responsibility, and MM AES-1 would not apply to construction of project interconnection facilities completed by PG&E. Therefore, construction of project interconnection facilities completed by PG&E would not substantially degrade, the existing visual character or quality of public views of the site and its surroundings, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact AES-1 for MM AES-1.

**Significance with Mitigation:** Significant and unavoidable.

No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

#### **AES-4      The proposed project would not expose people on- or off-site to substantial light or glare which would adversely affect day or nighttime views in the area.**

##### **Construction**

Construction of the proposed project would require the temporary presence of large equipment such as bulldozers, graders, rollers/compactors, water trucks, cranes, forklifts, and backhoes. It is possible that brief instances of glare could occur from reflective surfaces on these pieces of equipment, but the equipment types are typical of construction sites. Based on the temporary nature of construction and use of standard construction equipment, construction of the proposed project would not expose people to substantial light or glare, and impacts would be less than significant.

##### **Operations**

The proposed project would include shielded, downward directional security lighting located at the control enclosure and O&M building for emergency repairs. Night lighting would not be required except during scheduled maintenance periods and emergency repairs.

Solar PV modules are designed to absorb as much sunlight as possible and to reflect as little sunlight as possible to maximize electricity generation. Accordingly, the iridescent blue panels would be textured with indentations to reduce the amount of sunlight that is reflected off the surface and would be coated

with anti-reflective materials that maximize light absorption and reduce glare as much as possible. With the addition of the anti-reflective coating or treatment, the reflectivity can be reduced to less than four percent of incoming sunlight (EERE 2013). Therefore, the proposed project would have a less than significant impact on light or glare.

Section 4.4, Biological Resources, requires the implementation of MM BIO-7f to deter avian collisions with the solar facility which requires the installation of avian deterrent materials within 30 days of project commissioning that are made of a material that is both reflective and highly visible, such that the material reflects ambient light and is stimulated by air movement. The avian deterrent materials would be installed in a total of four 50-acre blocks covering 200 acres of the project site. The effect of installation of the avian deterrent material would create the visual impression of continuous and varied movement, which has been shown as an avian deterrent in agricultural applications. Implementation of MM BIO-7f would introduce a new source of glare during the daytime as the reflective tape moves in the wind. However, the installation of reflective material to deter avian use of a site is common practice, particularly in the agricultural industry, and impacts would not create a substantial source of glare that would result in significant adverse effects.

### **Glare and Aviation Activities**

The proposed project is located approximately 3.2 miles northeast of the Livermore Municipal Airport runways. The Federal Aviation Administration (FAA) *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (2018) indicates that glare or reflectivity is, in general, a potential issue from solar facilities on airports. Out of the various solar technologies (solar photovoltaic systems, concentrated solar power [parabolic troughs and heliostats], solar thermal hot water, and transpired solar collectors), solar photovoltaic systems are the most compatible with airports (FAA 2018). Solar photovoltaic systems, such as those proposed by the project, are designed to absorb sunlight rather than reflect it (a parabolic trough or heliostat would reflect), thus minimizing potential impacts from glare. Since the solar panels would have low reflective intensity and would be covered with anti-reflective coating, any resulting glare effects would not be disruptive to aircraft operations in the area, and impacts would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction of interconnection facilities under CPUC jurisdiction could result brief instances of glare that could occur from reflective surfaces on construction equipment, but the equipment types are typical of construction sites. Based on the temporary nature of construction and use of standard equipment, construction of the interconnection facilities would not expose people to substantial light or glare. The project interconnection facilities under CPUC jurisdiction would not include solar panels or other structures resulting in glare. Operation of interconnection facilities under CPUC jurisdiction and PG&E responsibility may include shielded, downward directional security lighting for emergency repairs. Night lighting would not be required except during scheduled maintenance periods and emergency repairs. Therefore, construction and operation of interconnection facilities under CPUC jurisdiction would not expose people substantial light or glare, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant.

#### **4.1.4 CUMULATIVE IMPACTS**

##### **AES-5      The proposed project would contribute to a significant cumulative impact on aesthetic resources.**

This analysis of cumulative impacts to aesthetic resources is based on the effects of the proposed project in combination with proposed projects in the North Livermore area which include the Livermore Community Solar Farm and Oasis Fund projects. The proposed project site is used for oat and hay cultivation, seasonally grazed by cattle, and generally undeveloped except for an existing foundation pad in the northwest corner of the central section of the project site. The surrounding area is characterized by row crop cultivation, cattle grazing, rural residential housing, agricultural outbuildings, small-scale ground-mounted solar systems, and open space.

The proposed 59-acre Livermore Community Solar Farm, located east of the project site across North Livermore Avenue (a County-designated Scenic and Rural Residential route), would be built on a site that is currently vacant and used for seasonal livestock grazing. The proposed Livermore Community Solar Farm project would not block views of the ridgelines from public rights-of-way and includes a 5-foot wide landscape buffer that would partially screen the solar arrays from adjacent roadways. The Draft EIR prepared for the project concluded that implementation of the proposed project would have the potential to alter but not degrade the existing visual character or quality of the site and its surroundings. The proposed landscaped berm would help to soften the view of the facility with the addition of plantings that are compatible with the rural character and natural landscape of the area, and the long-term preservation of the landscape berm as required in the proposed mitigation measure would ensure the visual compatibility with the adjoining land uses and reduce impacts to a less than significant level.

The Oasis Fund project proposes a less than one-acre cannabis cultivation operation located adjacent to the north of the northern section of the proposed project and can be accessed via Morgan Territory Road. The proposed Oasis Fund project would not obstruct a scenic vista and is not located along a State scenic highway or County-designated scenic corridor.

As discussed in Impact AES-3, the proposed project would include planting and maintenance of honeybee forage foliage and includes a landscape buffer along the project site boundaries that border the County-designated scenic corridors. The proposed landscaping would include planting evergreen and deciduous shrubs and trees offset and of varying heights to screen views of the project site without impeding views of the hilly ridgelines in the background. However, even with implementation of MM AES-1, the proposed project would degrade the visual character of the project area and slightly impede views of scenic vistas which would contribute to a cumulatively considerable aesthetic impact when combined with the Livermore Community Solar Farm project that also proposes a landscape buffer to screen views of a solar facility.

Although the proposed solar facilities may someday be decommissioned and all project features would be removed from the sites, it is anticipated that the proposed project, combined with the Livermore Community Solar Farm and Oasis Fund projects, would be simultaneously operational for many years. Therefore, the proposed project would contribute to a cumulatively considerable aesthetic impact from public vantage points in the surrounding project area.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction would be within the scope of the above cumulative analysis of aesthetic resources above. Views of the potential interconnection facilities under PG&E responsibility, including the gen-tie line and portions of the project substation, would be obstructed by the existing PG&E Cayetano substation and proposed landscape buffer. The installation and maintenance of the landscape buffer required by MM AES-1 would not be under CPUC jurisdiction or PG&E's responsibility, and MM AES-1 would not apply to construction of project interconnection facilities completed by PG&E. The CEQA documents prepared for the Livermore Community Solar Farm and Oasis Fund projects concluded that aesthetic impacts for those projects would result in less-than-significant impacts. Therefore, construction of project interconnection facilities completed by PG&E, in combination with the other projects, would not contribute to a cumulatively considerable impact.

**Significance without Mitigation:** Potentially significant impact.

See Impact AES-1 for MM AES-1 for the proposed project.

MM AES-3 from the Livermore Community Solar Farm project: In order to ensure the long-term effectiveness of the proposed landscaped berm, the Project applicant shall ensure that the proposed landscape berm is adequately irrigated to establish the long-term viability of the buffer and maintained throughout the life of the Project. Should any of the proposed landscape plantings not survive the initial planting or expire at any time during the life of the Project, the applicant shall provide replacement plantings, ranging from 8 to 15 feet in height upon maturity, within 5 years of planting, to screen the proposed solar arrays.

**Significance with Mitigation:** Significant and unavoidable impact.

No feasible mitigation measures have been identified to reduce the cumulative impact to a less-than-significant level.

**4.1.5 REFERENCES**

Alameda County. 1966. Scenic Route Element of the General Plan. May. Reprinted June 1974, Amended May 5, 1994.

1994. Open Space Element of the General Plan: County of Alameda, State of California.

2000. East County Area Plan. Adopted May 1994. Modified by passage of Measure D, effective December 22, 2000. Oakland, CA.

Federal Aviation Administration. 2018. Technical Guidance for Evaluating Selected Solar Technologies on Airports. April 2018.

U.S. Department of Energy, Energy Efficiency and Renewable Energy (EERE). 2013. Solar Photovoltaic Cell Basics. Available at: <https://www.energy.gov/eere/solar/articles/solar-photovoltaic-cell-basics>.

U.S. Department of Transportation. 2015. Guidelines for the Visual Impact Assessment of Highway Projects. Available at: [https://www.environment.fhwa.dot.gov/env\\_topics/other\\_topics/VIA\\_Guidelines\\_for\\_Highway\\_Projects.aspx](https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx)

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## **4.2 AGRICULTURE AND FORESTRY RESOURCES**

This section describes the environmental setting and regulatory framework for agriculture and forestry resources and analyzes the potential impacts on agriculture and forestry resources that would result from implementation of the project. The potential effects on agriculture and forestry resources were evaluated according to Appendix G of the State CEQA Guidelines to determine their level of significance.

### **4.2.1 ENVIRONMENTAL SETTING**

#### **4.2.1.1 Regulatory Framework**

##### **Federal Regulations**

There are no federal regulations pertaining to agricultural resources that apply to the proposed project. There are no forestry resources or timberland on the site, therefore no regulations associated with forestry apply.

##### **State Regulations**

###### **California Department of Conservation, Division of Land Resource Protection**

California Public Resources Code Section 21060.1 defines agricultural land for the purposes of assessing environmental impacts using the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). The Department of Conservation applies the Natural Resources Conservation Service (NRCS) soil classifications to identify designated agricultural lands. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and monitor the conversion of these lands. Pursuant to the FMMP, designated agricultural lands are included in Important Farmland Maps used in planning for California's agricultural land resources.

###### **California Land Conservation Act (Williamson Act)**

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Section 51200-51297.4, and is applicable to specific land parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments.

The Williamson Act program is administered by the Department of Conservation in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a minimum 10-year period within which no conversion out of agricultural use is permitted. Each year, the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. Participation in the Williamson Act program is dependent on County adoption and implementation of the program and is voluntary for landowners.



## **Farmland Mapping and Monitoring Program**

The California Department of Conservation's FMMP, administered by the Division of Land Resource Conservation, is responsible for mapping and monitoring Important Farmlands for most of the State's agricultural areas. The FMMP updates its farmland maps every two years based on information from local agencies. FMMP maps show five categories of agricultural lands and three categories of nonagricultural lands, that are described in the following subsections.

### *Agricultural Lands*

Following are descriptions of the farmland mapping categories used by the FMMP. The minimum mapping unit for all agricultural land categories is 10 acres, except for Grazing Land where the minimum mapping unit is 40 acres.

Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. They are often referred to collectively as important farmland. Grazing Land may also qualify as important farmland where grazing is a key component of the local economy.

- Prime Farmland is defined by the State as farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Farmland of Statewide Importance is defined as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as steeper slopes or less ability to store soil moisture than Prime Farmland. For land to be designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date.
- Unique Farmland is considered to consist of lower-quality soils but nonetheless is used for production of the State's leading agricultural crops. Unique Farmland is usually irrigated but may include non-irrigated orchards or vineyards in some climatic zones. To qualify for this designation, land must have been used for crops at some time during the 4 years prior to the mapping date.
- Farmland of Local Importance is land identified as important to the local agricultural economy by each county's board of supervisors and a local advisory committee.
- Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

### *Nonagricultural lands*

Following are descriptions of the nonagricultural land mapping categories used by the FMMP. Mapping units for nonagricultural lands vary, as described below.

- Urban and Built-Up Lands consist of land occupied by structures with a building density of at least 1 structure to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes.
- Other Land is land not included in any other mapping category. Examples include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.

## **Local Regulations**

### **East County Area Plan**

The ECAP contains goals, policies, and programs related to agriculture resources (Alameda County 2000). In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D; effective date, December 22, 2000). The Initiative amended portions of the County General Plan, including the ECAP. The Initiative added policies pertaining specifically to the North Livermore area to allow for more intensive agricultural uses in this area with the goal to permit and encourage cultivated agriculture and to preclude urbanization in the North Livermore area without unduly impairing the open and natural qualities of the area. The Urban Growth Boundary was redrawn to remove North Livermore from urban development, and North Livermore, west of Dagnino Road, is delineated as an Intensive Agriculture area with the potential for 20-acre enhanced agricultural parcels upon demonstration of available water (among other requirements).

The following are ECAP policies that are applicable to the proposed project.

- **Policy 1:** The County shall identify and maintain a County Urban Growth Boundary that divides areas inside the Boundary, next to existing cities, generally suitable for urban development from areas outside suitable for long-term protection of natural resources, agriculture, public health and safety, and buffers between communities.
- **Policy 52:** The County shall preserve open space areas for the protection of natural resources (e.g., agriculture, windpower, and mineral extraction), protection of sensitive viewsheds (see definition in Table 1 of ECAP), preservation of biological resources, and the physical separation between neighboring communities (see Figure 4 of ECAP).
- **Policy 54:** The County shall approve only open space, recreational, agricultural, limited infrastructure public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, jails, etc.) and other similar and compatible uses outside the Urban Growth Boundary.

- **Policy 56:** The County shall require all new development to dedicate or acquire land for open space and/or pay equivalent in-lieu fees which shall be committed to open space land acquisition and management and shall encourage the cities to impose similar open space requirements on development in incorporated areas.
- **Policy 73:** The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan. The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable, pasture, and grazing land feasible.
- **Policy 78:** In areas designated Large Parcel Agriculture, the County shall permit agricultural processing facilities (for example wineries, olive presses) and limited agricultural support service uses that primarily support Alameda County agriculture, are not detrimental to existing or potential agricultural uses, demonstrate an adequate and reliable water supply, and comply with the other policies and programs of the Measure D Initiative (Initiative).
- **Policy 79:** The County shall require any proposal for agricultural support service uses within areas designated "Large Parcel Agriculture" or "Resource Management" to meet, at a minimum, the following criteria:
  - The project will not require the extension of public sewer or water.
  - The project will not detract from agricultural production on-site or in the area.
  - The project will not create a concentration of commercial uses in the area.
- **Policy 82:** In areas designated Large Parcel Agricultural, the County shall permit limited agriculture enhancing commercial uses that primarily support the area's agricultural production, are not detrimental to existing or potential agricultural use, demonstrate an adequate and reliable water supply, and comply with other policies and programs of the Initiative.
- **Policy 85:** The County shall utilize provisions of the Williamson Act and other appropriate economic incentives to support agricultural uses.
- **Policy 86:** The County shall not approve cancellation of Williamson Act contracts within or outside the County Urban Growth Boundary except where findings can be made in accordance with state law, and the cancellation is consistent with the Initiative. In no case shall contracts outside the Urban Growth Boundary be canceled for purposes inconsistent with agricultural or public facility uses. Prior to cancelling any contract inside the County Urban Growth Boundary, the Board of Supervisors shall specifically find that there is insufficient non-contract land available within the Boundary to satisfy state-mandated housing requirements. In making this finding, the County shall consider land that can be made available through reuse and rezoning of non-contract land.

- **Policy 93:** The County shall seek to stimulate agricultural investment and enhance the economic viability of existing or potential rural agricultural uses.
- **Policy 96:** In areas outside the County Urban Growth Boundary designated Large Parcel Agriculture, Resource Management or Water Management Lands, the number of parcels that may be created, the residential units permitted on each parcel, the size of the development envelope, the maximum floor areas and floor area ratios, and the uses permitted by the plan on February 1, 2000, or by the Initiative, whichever is less, may be increased.
- **Policy 98:** The County shall require Site Development Review for all proposed buildings, except accessory uses related to agricultural production (see definition in Table 1 of ECAP), in the "A-100" (Agriculture – 100-acre minimum parcel size), "A-160" (Agriculture – 160-acre minimum parcel size), or "A-320" (Agriculture – 320-acre minimum parcel size) Districts.

### **Alameda County Municipal Code**

#### *Right to Farm*

Alameda County's "Right-to-Farm" ordinance is defined in Chapter 6.28 of the Municipal Code. This ordinance is designed to promote public health, safety and welfare, and to support and encourage continued agricultural operations in the county. The Right-to-Farm ordinance protects farmland by requiring disclosure to purchasers and users of property next to or near agricultural operations of the inherent potential problems associated with living near actively farmed land (Alameda County 2020).

#### **4.2.1.2 Existing Conditions**

The project site consists primarily of non-native grassland, and there are no native or naturalized vegetation communities in the site outside of patches of isolated oak trees and seasonal freshwater marsh vegetation in Cayetano Creek and its tributaries. The project site contains 367 acres that are designated as Large Parcel Agriculture, 22 acres that are designated as Resource Management and 21 acres that are designated as Water Management by the ECAP (Alameda County 2000). In addition, the project site is located entirely within land that is zoned Agricultural, pursuant to the Alameda County Municipal Code (see Figure 2-3).

The California Department of Conservation's FMMP map shows that the entire project site is designated as Grazing Land, which is designated to land primarily used for livestock grazing (CDC 2020). The project site has been historically dry farmed and utilized for oat and hay cultivation and cattle grazing.

The southeastern and southwestern portions of the proposed project, totaling 38 acres, are located on Assessor's Parcel Number 903-0006-003-07 which is currently under Williamson Act contract. The property owners of this parcel, Leland Stanley and Mary Stanley entered into a Land Conservation Agreement on February 23, 1971. See Figure 4.2-1 for the agricultural resources map that depicts the FMMP designation of the project site and the project parcel that is currently in Williamson Act contract.

## 4.2.2 SIGNIFICANCE THRESHOLDS

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact to agriculture and forestry resources if the project would:

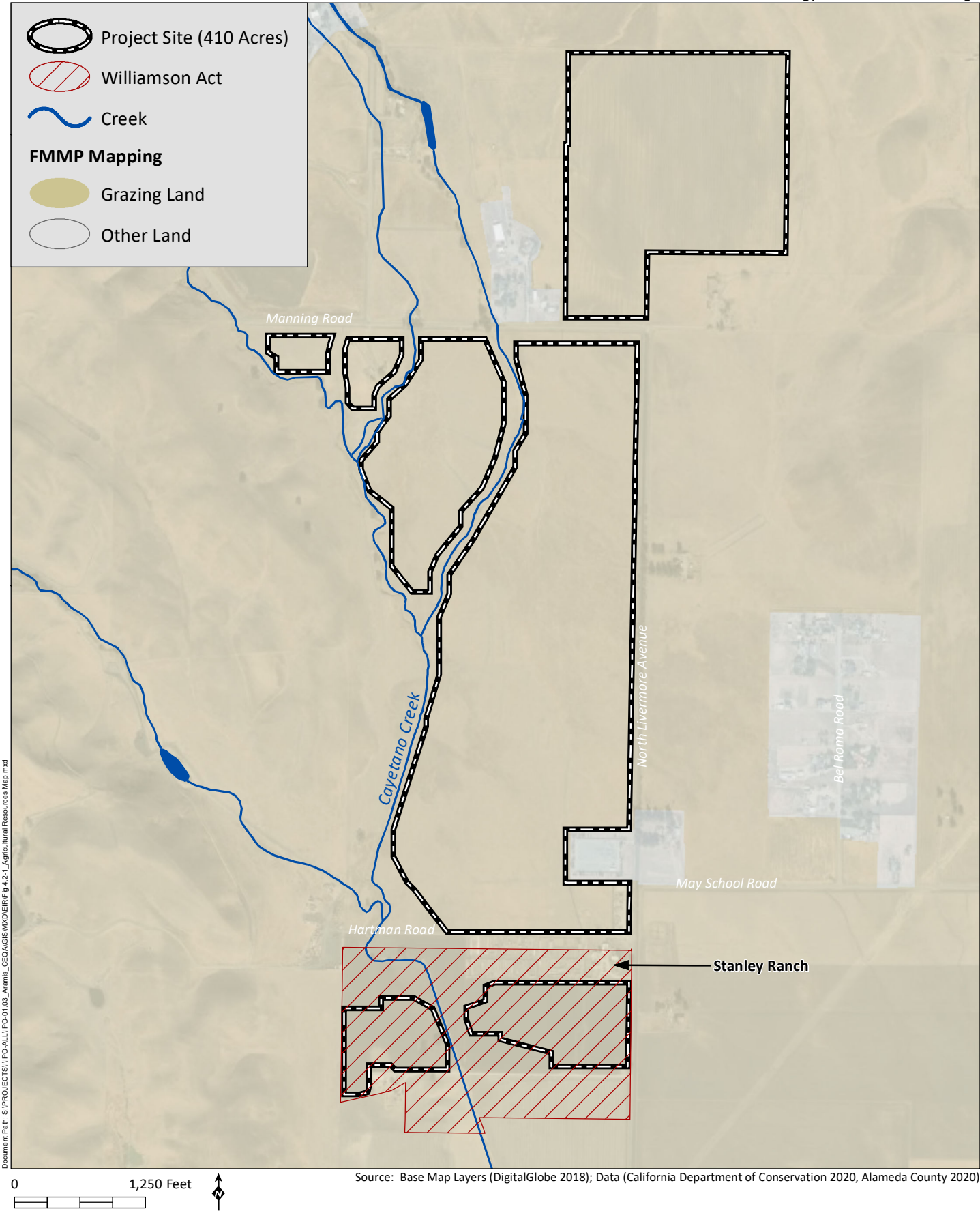
1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
4. Result in the loss of forest land or conversion of forest land to non-forest use; or
5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

## 4.2.3 IMPACT ANALYSIS

### **AG-1      The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.**

The project site does not contain areas designated as Prime Farmland, Unique Farmlands, or Farmland of Statewide Importance pursuant to the FMMP. The entire project site is designated as Grazing Land under the FMMP (see Figure 4.2-1). The proposed project would construct, operate, and maintain a solar PV and energy storage facility for at least 50 years on-site. Throughout project operation, the project site would remain in agricultural use through sheep grazing and planting and maintaining honeybee forage. As discussed in the Section 3.6.2, Vegetation and Agricultural Management, the majority of the project site would be grazed by sheep from January until the end of the growing season in May, at which time the sheep would be removed from the site. Solar facilities have a minimal development footprint as a total of approximately 6.1 acres of impervious surfaces would be constructed for the some of the proposed access roads internal to the project site and for the foundations of the project substation, battery storage system, O&M building, and inverter pads, which is approximately 1.5 percent of the entire project site. Because the solar panels (modules) are installed on a system of racks, the ground below the modules remains undeveloped and allows for concomitant sheep grazing.

Additionally, the solar facility is anticipated to have an operating life of at least 50 years. Once the operating life of the facility is over, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Project decommissioning would occur in accordance with the termination or expiration of the CUP and would involve the removal of above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a Decommissioning Plan. Equipment would be repurposed off-site, recycled, or



disposed of in a landfill as appropriate. All driveways and other areas compacted during original construction or by equipment used for decommissioning would be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Low areas would be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, locally-sourced topsoil would be placed to a depth and density consistent with adjacent properties. Locally-sourced compost would be applied to the topsoil, and the entire site would be tilled to further loosen the soil and blend in the compost. If requested by the landowner, an appropriate seed mixture would be broadcast or drilled across the site, and a weed-free mulch would be applied to stabilize the soil and retain moisture for seedling germination and establishment.

A Decommissioning Plan would be prepared and submitted to the County that discusses steps required for restoring the site to pre-project conditions to the extent feasible and would include an estimate for reclamation costs.

Therefore, because the proposed project is not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, would maintain grazing activities, and would be restored to pre-project conditions upon decommissioning to the extent feasible, the project would have a less than significant impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would not be located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and would be restored to pre-project conditions upon decommissioning to the extent feasible. Therefore, construction and operation of project interconnection facilities by PG&E would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **AG-2            The proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract.**

As discussed above in Section 4.2.1.2, Existing Conditions, approximately 367 acres of the project site are designated as Large Parcel Agriculture, and the entire project site is zoned “A” - Agriculture.

Within the Large Parcel Agriculture land use designation, utility-scale solar energy facilities are considered comparable to “windfarms and related facilities, utility corridors, and similar uses compatible with agriculture.” The proposed project, inclusive of primarily solar arrays, vegetation, compacted dirt and graveled access roads, and activities including equipment maintenance, sheep grazing, and honeybee foraging, would be consistent with this land use designation.

The Agriculture zone district established by the APMC (Section 17.06) establishes permitted and conditionally permitted uses. The intent of the district is: “to promote implementation of general plan land use proposals for agricultural and other non-urban uses, to conserve and protect existing agricultural uses, and to provide space for and encourage such uses in places where more intensive development is not desirable or necessary.” Among conditionally permitted uses are “privately owned wind-electric generators.”

Although the ACMC does not have provisions specifically permitting utility-scale solar projects, Section 17.54.050 of the ACMC provides a procedure for “uses not listed,” stating that “whenever there is doubt as to the district classification of a use not listed in any part of this title, the planning department may refer the matter to the planning commission for action pursuant to Section 17.54.060. The referral shall include a detailed description of the proposed use.” Section 17.54.060 directs the planning commission to:

“... make such investigations as are necessary to compare the nature and characteristics of the use in question with those of the listed uses in the various districts. If the use is found to be, in all essentials pertinent to the intent of this title of the same character as a permitted use in any district or districts, or of the same character as a conditional use in any district or districts, the commission shall so determine and the order shall be final, unless a notice of appeal is filed pursuant to Section 17.54.670 within ten days after the date of such an order. The person requesting the determination shall be notified forthwith and the final determination shall become a permanent public record.”

Alameda County made findings in 2008 pursuant to Sections 17.54.050 and 17.54.060 (Determination of Use) of the ACMC regarding district classifications of uses not listed within the ordinance. The Alameda County Planning Commission made findings that a solar electric facility would not be contrary to the specific intent clauses or performance standards established for the Agricultural District and could be permitted under a conditional use permit. The County reiterated these findings to confirm the conditional permissibility of similar solar uses under the Agriculture zone district for the GreenVolts project, approved in 2008, and the Altamont Solar Energy Project, approved in 2011 (ECBZA 2008 and 2011). As discussed in a September 13, 2012 memorandum regarding draft solar policies for the ECAP, County Counsel determined that “solar facilities are consistent with ECAP policies. Solar facilities constitute quasi-public uses consistent with ‘windfarms and related facilities, utility corridors and similar uses compatible with agriculture’ which are allowed on parcels designated Large Parcel Agriculture” (Alameda County 2012).

Operation of the proposed project would promote continued agricultural use of the project site through sheep grazing and planting and maintaining honeybee forage. As discussed under impact AG-1, the majority of the project site would be grazed by sheep from January until the end of the growing season in May. The project operator would work with commercial beekeepers to promote pollination services in the surrounding area and honey production on-site. Pollinator-friendly species would be used in landscaping and seed mixes to promote honeybee forage.

The proposed program for concomitant agricultural land uses during operation of the solar facility would be outlined in an AMP prepared for the project as discussed in Section 3.8.3, Agricultural Management Plan. The Plan would be implemented to sustain agricultural operations on lands designated as grazing land and to address grazing operations throughout the project site for the duration of the life of the project.

As noted above in Section 4.2.1.2, Existing Conditions, 38 acres of the 410-acre site are in Williamson Act contract. The County's Williamson Act Uniform Rules and Procedures provide for agricultural use as the primary use of contracted lands. In addition to that primary use, certain incidental uses have been determined by the County Board of Supervisors to be compatible with agriculture.



Under the County's Uniform Rules, electric utility facilities are deemed to be compatible uses, absent an express finding to the contrary. More generally, compatible non-agricultural uses, such as solar panels that do not qualify as buildings, are allowed on contracted land, and may be located outside of the two-acre building envelope, provided they are "...cumulatively restricted to no more than 10 percent of the contracted property, or 10 acres, whichever is less so that the remaining land may be devoted to agriculture." The subject parcel that is currently in Williamson Act contract is approximately 101 acres. The areas within the subject parcel to be developed with the proposed solar facility total 38 acres, and the non-agricultural uses would include the areas for the solar modules, inverter pads, a water detention basin, and internal access roads that amount to approximately 2.60 acres which is less than 3 percent of the contracted property. The remainder of the parcel would continue to be devoted to agriculture, while also in dual use for the solar facilities.

According to the County's Williamson Act Uniform Rules and Procedures, to support a viable agricultural land preserve, non-prime land must be at least 40 acres in area. Non-prime land is considered to be devoted to commercial agricultural production when it yields "some" substantiated gross annual revenue, and at least 60 percent of the property must be used for commercial agriculture. With approximately 99.4 acres of the 101-acre parcel (approximately 98 percent) remaining available to support a viable agricultural land preserve, the project is consistent with the County's Williamson Act Uniform Rules and Procedures.

Therefore, the proposed project would not conflict with an existing Williamson Act contract or agricultural zoning, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities, as a part of the project's intended use as a solar facility, would not conflict with the site's agricultural zoning, as described above. The project interconnection facilities would not be located within the 38 acres of the project site in a Williamson Act contract. Therefore, construction and operation of project interconnection facilities by PG&E would not conflict with an existing Williamson Act contract or agricultural zoning, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **AG-3            The proposed project would not conflict with existing zoning for or cause rezoning of forest land, timberland, or timberland zoned for Timber Production.**

Lands within the project site do not meet the PRC Section 12220(g) definition of forest land as land that can support ten percent native tree cover of any species under natural conditions, PRC Section 4526 definition of timberland as land available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest product or Government Code 51104(g) definition of land devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. Therefore, the proposed project would not result in the loss or conversion of forest land to non-forest use, and no impact would occur.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The land that would be used for the project interconnection facilities does not meet the PRC Section 12220(g) definition of forest land, as described above. Therefore, construction and operation of project interconnection facilities by PG&E would not result in the loss or conversion of forest land to non-forest use, and no impact would occur.

**Significance without Mitigation:** No impact.

**AG-4            The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.**

As discussed under impact AG-3, the land within the project site does not meet requirements to be defined as forest land. Therefore, the proposed project would not result in the loss of forest land, and no impact would occur.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed under impact AG-3, the lands that would be used for the project interconnection facilities do not meet the definition of forest land. Therefore, construction and operation of project interconnection facilities by PG&E would not result in the loss of forest land, and no impact would occur.

**Significance without Mitigation:** No impact.

**AG-5            The proposed project would not result in changes in the existing environment which, due to their location or nature, would result in conversion of agricultural lands to non-agricultural use or forest land to non-forest land.**

As discussed above under impact AG-3, lands within the project site do not meet the definitions of forest land. Therefore, the proposed project would not result in changes to the existing environment which would result in conversion of forest lands to non-forest land.

The proposed project site is zoned Agricultural pursuant to the ACMC. As discussed above, in conformance with County policies 78 and 82, the proposed project would maintain a majority of the site in limited agricultural operation for the duration of the life of the solar facility. The majority of the site would be grazed by sheep from January until the end of growing season in May. The sheep would be able to graze in the rows between the solar modules and ground below the rotating modules along with other undeveloped land. Additionally, the project operator would work with commercial beekeepers to promote pollination services on-site and in the surrounding area along with honey production.

The solar facility is anticipated to have an operating life of at least 50 years. Once the operating life of the facility is over, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Once the site is decommissioned, it would be reclaimed through a County-approved decommissioning plan to pre-project conditions, allowing for the site to be rededicated to agricultural use if desired. Therefore, the proposed project would not result in changes to the existing environment that would result in the

permanent conversion of agricultural land to non-agricultural use, and impacts would be less than significant impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above under impact AG-3, lands that would be used for the project interconnection facilities do not meet the definitions of forest land. As discussed under impact AG-2, in conformance with County policies 78 and 82, the proposed project would maintain most of the site in limited agricultural operation for the duration of the life of the solar facility. Once the operating life of the solar facility is over, the project interconnection facilities would be either be maintained for use with the repowered solar facility or decommissioned and the interconnection facility areas outside of the Cayetano substation reclaimed to pre-project conditions. Therefore, construction and operation of project interconnection facilities by PG&E would not result in changes to the existing environment that would result in the permanent conversion of agricultural land to non-agricultural use, and impacts would be less than significant impact.

**Significance without Mitigation:** Less than significant impact.

### **4.2.4 CUMULATIVE IMPACTS**

#### **AG-6           The proposed project would not contribute to a significant cumulative impact with respect to agricultural or forestry resources.**

The geographic scope for cumulative agricultural and forest resource impacts is the North Livermore area. Cumulative impacts would occur when a series of projects or developments leads to a loss of agricultural or forestry resources, which occurs when agricultural lands are converted to non-agricultural uses or forest land to non-forest land. This occurs in newly urbanized areas where development encroaches into agricultural or forestry areas through general plan and zoning amendments leading to the long-term conversion of agricultural or forest lands.

As discussed under Impact AG-3 above, lands within and surrounding the project site, including the proposed nearby projects, do not meet the PRC Section 12220(g) definition of forest land as land that can support ten percent native tree cover of any species under natural conditions, PRC Section 4526 definition of timberland as land available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest product or Government Code 51104(g) definition of land devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. Therefore, the proposed project in combination with the other nearby projects would not contribute to a significant cumulative loss or conversion of forest land to non-forest use and is not discussed further.

The analysis of cumulative impacts to agricultural lands is based on impacts of the proposed project along with development in the surrounding area, which includes the Livermore Community Solar Farm, a proposed PV facility to be constructed directly east of the proposed project, and the Oasis Fund project, a cannabis cultivation operation.

As discussed above, the proposed project would not involve the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, conflict with existing agricultural zoning or Williamson Act contract, or involve other changes that would result in the

conversion of farmland to non-agricultural use. The Livermore Community Solar Farm and the Oasis Fund project are similarly not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Livermore Community Solar Farm would also implement concomitant agricultural activities with the solar development, and the Oasis Fund project is a proposed agricultural operation. Therefore, the proposed project would not contribute to a significant cumulative impact, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the proposed project, including the project interconnection facilities, would not involve the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, conflict with existing agricultural zoning or Williamson Act contract, or involve other changes that would result in the conversion of farmland to non-agricultural use. Construction and operation of project interconnection facilities by PG&E in combination with the cumulative projects, as described above, would not result in a cumulatively considerable impact with respect to agricultural or forestry resources, and the cumulative impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.2.5 REFERENCES**

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## 4.3 AIR QUALITY

This section describes the regulatory framework and existing conditions related to air quality in the vicinity of the proposed project, evaluates the potential air quality impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific air quality evaluation was completed as part of the Air Quality, Energy, and Greenhouse Gas Technical Report for the Aramis Solar Energy Generation and Storage Project, included as Appendix D to this Draft EIR (HELIX 2020). The results of the air quality evaluation are summarized below.

### 4.3.1 ENVIRONMENTAL SETTING

The project site is located within the San Francisco Bay Area Air Basin (SFBAAB). Air quality in the SFBAAB is regulated by the U.S. Environmental Protection Agency (USEPA) at the federal level, by the California Air Resources Board (CARB) at the State level, and by the BAAQMD at the regional level.

#### 4.3.1.1 Air Pollutant Descriptors and Terminology

Criteria pollutants are defined by State and federal law as a risk to the health and welfare of the general public. In general, criteria air pollutants include the following compounds:

- Ozone (O<sub>3</sub>)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO<sub>2</sub>)
- Particulate matter (PM), which is further subdivided:
  - Coarse PM, 10 micrometers or less in diameter (PM<sub>10</sub>)
  - Fine PM, 2.5 micrometers or less in diameter (PM<sub>2.5</sub>)
- Sulfur dioxide (SO<sub>2</sub>)
- Lead (Pb)

Criteria pollutants can be emitted directly from sources (primary pollutants; e.g., CO, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead), or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere (secondary pollutants; e.g., ozone, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>). PM<sub>10</sub> and PM<sub>2.5</sub> can be both primary and secondary pollutants. The principal precursor pollutants of concern are reactive organic gases ([ROGs] also known as volatile organic compounds [VOCs])<sup>1</sup> and nitrogen oxides (NO<sub>x</sub>).

The descriptions of sources and general health effects for each of the criteria air pollutants are shown in Table 4.3-1, *Summary of Common Sources and Human Health Effects of Criteria Air Pollutants*, based on information provided by the California Air Pollution Control Officers Association ([CAPCOA] 2018). Specific adverse health effects on individuals or population groups induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables such as cumulative

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<sup>1</sup> CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

concentrations, local meteorology and atmospheric conditions, and the number and characteristics of exposed individuals (e.g., age, gender). Criteria pollutant precursors (ROG and NO<sub>x</sub>) affect air quality on a regional scale, typically after significant delay and distance from the pollutant source emissions. Health effects related to ozone and NO<sub>2</sub> are, therefore, the product of emissions generated by numerous sources throughout a region. Emissions of criteria pollutants from vehicles traveling to or from the project site (mobile emissions) are distributed nonuniformly in location and time throughout the region, wherever the vehicles may travel. As such, specific health effects from these criteria pollutant emissions cannot be meaningfully correlated to the incremental contribution from the project.

**Table 4.3-1**  
**SUMMARY OF COMMON SOURCES AND HUMAN HEALTH EFFECTS OF CRITERIA AIR POLLUTANTS**

Pollutant	Major Man-Made Sources	Human Health Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO <sub>2</sub> )	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to climate change and nutrient overloading, which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O <sub>3</sub> )	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrogen oxides (NO <sub>x</sub> ) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	Produced by power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and other sources.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO <sub>2</sub> )	A colorless, nonflammable gas formed when fuel containing sulfur is burned, when gasoline is extracted from oil, or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid, which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CAPCOA 2018

### **4.3.1.2 Toxic Air Contaminants**

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs may be carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe, and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is referred to as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is less than 2.5 microns in diameter (CARB 2018a). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a notable effect on California's population—it is estimated that about 70 percent of total known cancer risk related to air toxics in California is attributable to DPM (CARB 2018a).

### **4.3.1.3 Regulatory Framework**

#### **Federal Regulations**

##### **Clean Air Act**

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to the health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants, which are introduced above. Table 4.3-2, Ambient Air Quality Standards, shows the federal and State ambient air quality standards (AAQS) for these pollutants.

**Table 4.3-2**  
**AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	Federal Standards
			Primary <sup>1</sup>	Secondary <sup>2</sup>
O <sub>3</sub>	1 Hour	0.09 ppm (180 µg/m³)	–	–
	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	Same as Primary
PM <sub>10</sub>	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	AAM	20 µg/m³	–	Same as Primary
PM <sub>2.5</sub>	24 Hour	–	35 µg/m³	Same as Primary
	AAM	12 µg/m³	12.0 µg/m³	15.0 µg/m³
CO	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	–
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)	–	–
NO <sub>2</sub>	1 Hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
	AAM	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
SO <sub>2</sub>	1 Hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m³)
	24 Hour	0.04 ppm (105 µg/m³)	–	–
Lead	30-day Avg.	1.5 µg/m³	–	–
	Calendar Quarter	–	1.5 µg/m³	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m³	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)		

Source: CARB 2016

- <sup>1</sup> National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.
- <sup>2</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- <sup>3</sup> O<sub>3</sub>: ozone; ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter; PM<sub>10</sub>: large particulate matter; AAM: Annual Arithmetic Mean; PM<sub>2.5</sub>: fine particulate matter; CO: carbon monoxide; mg/m<sup>3</sup>: milligrams per cubic meter; NO<sub>2</sub> nitrogen dioxide; SO<sub>2</sub>: sulfur dioxide; km: kilometer; –: No Standard.



The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. Areas that do not meet the NAAQS for a particular pollutant are considered to be “nonattainment areas” for that pollutant. The area air quality attainment status of the SFBAAB, including Alameda County, is shown in Table 4.3-3, San Francisco Bay Area Air Basin Attainment Status. The SFBAAB is currently in nonattainment for federal and State ozone and PM<sub>2.5</sub> standards. The SFBAAB is in State nonattainment for PM<sub>10</sub> standards. Concentrations of all other pollutants meet State and federal standards.

**Table 4.3-3**  
**SAN FRANCISCO BAY AREA AIR BASIN ATTAINMENT STATUS**

<b>Pollutant</b>	<b>State of California Attainment Status</b>	<b>Federal Attainment Status</b>
Ozone (1-hour)	Nonattainment	No Federal Standard
Ozone (8-hour)	Nonattainment	Nonattainment (marginal)
Suspended Particulate Matter (PM <sub>10</sub> )	Nonattainment	Attainment/Unclassified
Fine Particulate Matter (PM <sub>2.5</sub> )	Nonattainment	Nonattainment (moderate)
Carbon Monoxide (CO)	Attainment	Attainment/Unclassified
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment	Attainment/Unclassified
Lead	Attainment	Attainment/Unclassified
Sulfur Dioxide (SO <sub>2</sub> )	Attainment	Attainment/Unclassified
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

Sources: BAAQMD 2017a; CARB 2018b.

## State Regulations

### California Clean Air Act

CARB has established the more stringent California Ambient Air Quality Standards (CAAQS) for the seven criteria air pollutants listed above through the California CAA of 1988, and has also established CAAQS for additional pollutants, including sulfates, hydrogen sulfide (H<sub>2</sub>S), vinyl chloride and visibility-reducing particles (see Table 4.3-2). Areas that do not meet the CAAQS for a particular pollutant are considered to be “nonattainment areas” for that pollutant. The SFBAAB is currently classified as a nonattainment area under the CAAQS for ozone (1-hour and 8-hour), PM<sub>10</sub>, and PM<sub>2.5</sub> (BAAQMD 2017a). The current State attainment status for the SFBAAB is provided in Table 4.3-3.

CARB is the State regulatory agency with the authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The BAAQMD is responsible for developing and implementing the rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, developing of air quality management plans, and adopting and enforcing air pollution regulations within the SFBAAB.

### State Implementation Plan

The CAA requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs

are comprehensive plans that describe how an area will attain the NAAQS. The 1990 amendments to the CAA set deadlines for attainment based on the severity of an area's air pollution problem.

SIPs are not single documents—they are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting), district rules, State regulations and federal controls. Many of California's SIPs rely on a core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards the SIP revisions to the USEPA for approval and publication in the Federal Register. The CFR Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items that are included in the California SIP (CARB 2009). At any one time, several California submittals are pending USEPA approval.

### **California Energy Code**

The California Code of Regulations, Title 24, Part 6 is the California Energy Efficiency Standards for Residential and Nonresidential Buildings (also known as the California Energy Code). Future buildings associated with implementation of the project would be required to be designed to meet applicable the Title 24 energy efficiency standards in effect at the time of construction, including (but not limited to): insulation of conditioned spaced; lighting energy efficiency; appliance energy efficiency; and plumbing fixture water efficiency.

### **Toxic Air Contaminants**

The Health and Safety Code (§39655, subd. (a)) defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the CAA (42 United States Code Sec. 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

## **Regional Regulations**

### **Bay Area Air Quality Management District**

#### *2017 Clean Air Plan*

The BAAQMD is responsible for preparing plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The BAAQMD adopted the 2017 Clean Air Plan, Spare the Air Cool the Climate, in April 2017. The plan addresses nonattainment of the federal 1-hour and State 1-hour and 8-hour ozone standards in the SFBAAB, as well as nonattainment of federal and State PM standards. The 2017 Clean Air Plan establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving California and national air quality standards. The plan's pollutant control strategies are based on the

latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and vehicle miles traveled (VMT) projections for the region. The 2017 Clean Air Plan defines a control strategy that the BAAQMD and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas emissions to protect the climate. In addition to updating the previously prepared ozone plan, the 2017 Clean Air Plan also serves as a multipollutant plan to protect public health and the climate. In its dual role as an update to the State ozone plan and a multipollutant plan, the 2017 Clean Air Plan addresses four categories of pollutants (BAAQMD 2017b):

- Ground-level ozone and its key precursors, ROG and NO<sub>x</sub>
- Particulate matter: primary PM<sub>2.5</sub>, as well as precursors to secondary PM<sub>2.5</sub>
- Air toxics (e.g., TACs)
- Greenhouse Gasses (GHGs)

The 2017 Clean Air Plan includes local guidance for the SIP, which includes the framework for air quality basins to achieve attainment of the State and federal ambient air quality standards.

### Regulations and Rules

The following BAAQMD regulations and rules would be applicable to the project:

Regulation 6, Rule 6, *Prohibition of Trackout*: limits the quantity of fugitive dust in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of large construction sites (more than 1 acre).

Regulation 8, Rule 3, *Architectural Coatings*: limits the VOC content of architectural coatings (e.g., paint) manufactured, sold, supplied, or applied in the SFBAAB.

#### 4.3.1.4 Existing Conditions

The project site is located in a rural agricultural area of the County. The project site lies at an elevation of roughly 500 to 700 feet amsl and is undeveloped. The site is currently used for oat and hay cultivation and cattle grazing. Land uses surrounding the project site include row crop cultivation, cattle grazing, electric utilities, rural residential housing, agricultural outbuildings, small-scale ground-mounted solar systems, and open space associated with Cayetano Creek. The existing PG&E Cayetano substation is located west of the terminus of May School Road at North Livermore Avenue. The project site surrounds the substation to the north, west, and south. An approximately 59-acre solar PV facility is proposed by SunWalker Energy, east of project site and northeast of the intersection of North Livermore Avenue and May School Road.

### Climate/Meteorology

The project site is located within the Livermore Valley climatological subregion of the SFBAAB. The SFBAAB comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. During the

summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high-pressure cell centered over the northeastern Pacific Ocean, called the Pacific high, which keeps most storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow on shore out of the north/northwest. The steady northwesterly flow induces upwelling of cold water from below. This upwelling produces a band of cold water off the California coast. When air approaches the California coast, already cool and moisture-laden from its long journey over the Pacific, it is further cooled as it crosses this bank of cold water. This cooling often produces condensation, resulting in a high incidence of fog and stratus clouds along the Northern California coast in the summer. During the winter, the Pacific high generally weakens and shifts southward, winds tend to flow offshore, upwelling ceases and storms occur.

Temperature inversion layers (inversions; layers of warmer air over colder air) affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). The highest air pollutant concentrations in the SFBAAB generally occur during inversions. There are two types of inversions that occur regularly in the SFBAAB. The frequent occurrence of elevated inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. Elevated inversions are caused by subsiding air from the subtropical high-pressure zone, and from the cool marine air layer that is drawn into the SFBAAB by the heated low-pressure region in the Central Valley. The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. Mixing depths under these conditions can be as shallow as 50 to 100 meters, particularly in rural areas.

The Livermore Valley climatological subregion is a sheltered inland valley near the eastern border of SFBAAB. The western side of the valley is bordered by 1,000 to 1,500-foot-high hills with two gaps connecting the valley to the central SFBAAB, the Hayward Pass and Niles Canyon. The eastern side of the valley also is bordered by 1,000- to 1,500-foot-high hills with one major passage to the San Joaquin Valley called the Altamont Pass and several secondary passages. To the north lie the Black Hills and Mount Diablo. A northwest-to-southeast channel connects the Diablo Valley to the Livermore Valley. The south side of the Livermore Valley is bordered by mountains approximately 3,000 to 3,500 feet high. Air pollution potential is high in the Livermore Valley, especially for photochemical pollutants (e.g., ozone) in the summer and fall—high temperatures increase the potential for ozone to build up. The Livermore Valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley (BAAQMD 2017c).

The predominant wind direction in the vicinity of the project site is from the west and the average wind speed is approximately 8 miles per hour (mph; IEM 2019). The annual average maximum temperature at the project site is approximately 72 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 47°F. Total precipitation in the vicinity of the project site averages approximately 14 inches annually. Precipitation occurs mostly during the winter and is relatively infrequent during the summer (WRCC 2016).

## Existing Air Quality

The BAAQMD operates a network of ambient air monitoring stations throughout the SFBAAB. The air quality monitoring station closest to the project site is the Livermore 793 Rincon Avenue Station, approximately 3.2 miles south of the project site. There are no monitoring stations in Alameda County with data for PM<sub>10</sub>, SO<sub>2</sub> or Lead concentrations. The ambient pollutant concentrations collected at the stations during the last 3 available years (2016 through 2018) are shown in Table 4.3-4, Air Quality Monitoring Data. The data indicates: exceedance of the State 1-hour and State/federal 8-hour ozone standards on multiple days in 2016 through 2018; and exceedance of the federal PM<sub>2.5</sub> standard on multiple days in 2017 and 2018. Data for NO<sub>2</sub> showed no exceedances from 2016 through 2018.

**Table 4.3-4**  
**AIR QUALITY MONITORING DATA**

<b>Pollutant Standard</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<i>Ozone (O<sub>3</sub>) – Livermore 793 Rincon Avenue Station</i>			
Maximum 1-hour concentration (ppm)	0.102	0.109	0.099
Days above 1-hour State standard (0.09 ppm)	2	5	2
Maximum 8-hour concentration (ppm)	0.085	0.086	0.078
Days above 8-hour State standard (0.070 ppm)	6	6	3
Days above 8-hour federal standard (0.070 ppm)	4	6	3
<i>Fine Particulate Matter (PM<sub>2.5</sub>) – Livermore 793 Rincon Avenue Station</i>			
Maximum 24-hour concentration (µg/m <sup>3</sup> )	22.3	41.5	172.6
Estimated Days above federal standard (35 µg/m <sup>3</sup> )	0.0	2.0	14.4
<i>Nitrogen Dioxide (NO<sub>2</sub>) – Livermore 793 Rincon Avenue Station</i>			
Maximum 1-hour concentration (ppm)	41.3	45.4	56.4
Days above State 1-hour standard (180 ppb)	0	0	0

Source: CARB 2020a.

ppb = parts per billion; ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter.

## Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptors to the project site are rural single-family homes located:

- North of Manning Road, approximately 80 feet west of the project site;
- Northeast of Manning Road, approximately 600 feet south of the project site;
- East of North Livermore Avenue, approximately 300 feet east of the project site;
- West of North Livermore Avenue, approximately 180 feet south of the project site; and
- East of North Livermore Avenue, approximately 240 feet east of the project site;

There are no schools, hospitals, or daycare facilities within 1 mile of the project site.

#### 4.3.1.5 Methodology

Criteria pollutant and precursor emissions for the project remediation and construction activities, and long-term operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model was developed for the CAPCOA in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates emissions of CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and the ozone precursors ROG<sub>s</sub> and NO<sub>x</sub>. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, D, and E (CAPCOA 2017). The input data and subsequent construction and operation emission estimates for the project are discussed below. CalEEMod output files for the project are included in Appendix D to this Draft EIR.

#### Construction Emissions

Construction emissions were estimated based on the timeline provided by the project applicant, which assumes construction would begin in January 2022 and would be completed by September 2022, for a total construction period of approximately nine months. The quantity, duration, and intensity of construction activity influence the amount of construction emissions and related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Project construction would be completed in four phases: Phase 1 site preparation (30 days), Phase 2 photovoltaic installation (150 days), Phase 3 electrical and gen-tie installation (75 days), and Phase 4 general construction operations, site clean-up and restoration (175 days). Phases 2 and 3 would occur concurrently and Phase 4 would span the entire construction duration (concurrent with Phases 1, 2 and 3). Phase 3 includes building construction and architectural coatings for the O&M and energy storage buildings. All earth-moving, cut and fill activities, and excavation of soil, were assumed to be balanced on site (i.e., no import or export of soil). The construction schedule assumed in the modeling is shown in Table 4.3-5, Anticipated Construction Schedule.

**Table 4.3-5  
ANTICIPATED CONSTRUCTION SCHEDULE**

Construction Activity	Construction Period		
	Start	End	Number of Working Days
Phase 1 Site Preparation	1/1/2022	2/11/2022	30
Phase 2 Photovoltaic Installation	2/12/2022	9/9/2022	150
Phase 3 Electrical and Gen-Tie Installation	5/28/2022	9/9/2022	75
Phase 4 General Construction Operations, Site Clean-up and Restoration	1/8/2022	9/9/2022	175

Source: Intersect Power 2020.

Construction would require the use of heavy off-road equipment. Construction equipment assumptions were based on equipment estimates from the project applicant (Intersect Power 2020). Table 4.3-6, Construction Equipment Assumptions, presents a summary of the assumed equipment that would be involved in each stage of construction. Because some off-road equipment is not included in the CalEEMod equipment selection lists, the pile drivers were modeled as bore/drill rigs. Bore/drill rigs were selected in CalEEMod as a conservative proxy (having similar or higher emissions) for pile drivers because the default horsepower and load factor (fraction of time the engine is producing high power) for a bore/drill rig in CalEEMod is more representative of typical pile drivers than the other options in CalEEMod. Similar to bore/drill rigs, pile drivers (particularly vibratory pile drivers) operate at a higher load factor compared to other typical heavy off-road equipment. The horsepower (HP) and load factor for each equipment type was modeled using CalEEMod default values.

**Table 4.3-6  
CONSTRUCTION EQUIPMENT ASSUMPTIONS**

Equipment	Horsepower	Number	Hours/Day
Bulldozer	212	20	7
Grader	187	15	7
Roller/Compactor	80	8	7
Portable Water Trailers with Pump	84	1	7
Trencher	78	1	7
Frontend Loader	203	2	7
Skid Steer Loader	65	4	7
Crane	231	2	2
Forklift	100	50	7
Backhoe	97	1	7
Pile Driver	221	4	7
Aerial Lift	63	2	4
Welder	46	10	4

Source: Intersect Power 2020; CalEEMod.

## Construction On-Road Trips

Worker commute trips and truck trips hauling material to and from the project site were modeled based on the analysis in the Transportation Impact Study (TIS) prepared for the project (CHS 2020). Workers were assumed to commute individually each day 28.8 miles each way. In addition, each worker was assumed to travel off-site once per day, 4.6 miles. Construction material would be hauled on trucks to

the site assuming each truck trip would be 34.1 miles (from/to the Port of Oakland). Phase 4 was assumed to be completed by workers on-site from the other phases and would not generate new worker trips. Project construction would require approximately 50,000 gallons of water per day (Intersect Power 2020). Because the source of the water was not known at the time of this analysis, 30 one-way trips per day were assumed in the modeling to haul water for dust control from Livermore, (approximately 4.6 miles each way). The estimated project construction trips and miles are shown in Table 4.3-7, Daily Construction Trips.

**Table 4.3-7  
DAILY CONSTRUCTION TRIPS**

Phase and Type	One-Way Trips	One-Way Distance
Phase 1		
Worker Commute Trips	200	28.8
Worker Midday Trips	200	4.6
Truck Haul Trips	46	34.1
Phase 2		
Worker Commute Trips	500	28.8
Worker Midday Trips	500	4.6
Truck Haul Trips	52	34.1
Phase 3		
Worker Commute Trips	250	28.8
Worker Midday Trips	250	4.6
Truck Haul Trips	10	34.1
Phase 4		
Truck Haul Trips	59	34.1
Water Truck Trips	30	4.6

Source: CHS 2020.

The material hauled to the project site would be delivered to the final use location on the project site or would be transferred from a staging area on the project site by a flatbed truck. To account for trucks traveling on unpaved roads while delivering material within the project site, 0.5 mile of each one-way trip was assumed to be on unpaved roads. Although it was assumed that all of the BAAQMD Basic Construction Mitigation Measure's (BCMMS) would be implemented to control fugitive dust on unpaved roads, to model the most conservative fugitive dust estimates, the only BCMMS included in the modeling were limiting vehicle speed to 15 mph and watering unpaved roads to maintain a minimum of 12 percent moisture content were taken into consideration (BAAQMD 2017c).

## Operation Emissions

While daily monitoring of the site would occur remotely, up to four permanent staff could be on the site at a time for ongoing facility maintenance and repairs. Up to 12 workers could be on-site once annually for module washing. To model the most conservative (highest) daily operational emissions, 12 workers were assumed be onsite each day with the same trip and distance assumptions as use for construction workers: two commute trips per employee per day (approximately 28.8 miles per trip) and two off-site trips per employee per day (approximately 4.6 miles per trip). To account for the use of highway vehicles (e.g., pickups) to transport workers around the project site, 0.5 mile of unpaved road was assumed for each trip.



The project would require approximately 5 acre-feet (1,629,255 gallons) of water annually for provisioning the O&M building, panel washing, and livestock drinking water. Water would either be obtained via an on-site well or from an off-site water purveyor and trucked to the site. To be conservative, the modeling assumes two loads of water (3,000 to 4,000 gallons per load) would be trucked to the project site from Livermore (approximately 4.6 miles) each workday. To account for the water truck trips and the use of pickups for O&M activities, the modeled fleet mix for the project operational trips was set to 60 percent autos, 25 percent light duty trucks, and 15 percent heavy duty trucks.

The project O&M activities would require the use of off-road vehicles, as shown in Table 4.3-8, Operational Off-Road Equipment. The size and engine type of the anticipated off-road equipment was not known at the time of this analysis. Therefore, to be conservative (highest emissions), all off-road equipment was assumed to be diesel-powered. CalEEMod default horsepower and load factors were used in the modeling. The modeling assumes the CalEEMod default use of consumer products (cleansers, aerosols, solvents) and architectural coatings (painting for maintenance).

**Table 4.3-8  
OPERATIONAL OFF-ROAD EQUIPMENT**

Equipment	Units	Horsepower	Estimated Usage	Estimated Usage
			Hours per Day	Days per Year
All-Terrain Vehicles	2	88	4	20
Small Tractors	2	97	8	120
Portable Generators	1	84	2	12
Portable Water Trailers with Pump	2	84	10	20

### 4.3.2 SIGNIFICANCE THRESHOLDS

The impact analysis provided below is based on the application of the following State CEQA Guidelines Appendix G thresholds of significance, which indicate that a project would have a significant air quality impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; and
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The BAAQMD has adopted thresholds that lead agencies can use to determine the significance of a development project's short-term construction and long-term operational pollutant emissions. The BAAQMD's 2017 thresholds of significance for criteria pollutant and precursors are shown in Table 4.3-9, *BAAQMD Significance Thresholds* (BAAQMD 2017c). Refer to Section 4.8, Greenhouse Gas Emissions, for a discussion of GHG emissions. For construction fugitive dust, rather than a numeric threshold BAAQMD

recommends that lead agencies consider projects that implement the BCMMs to have a less than significant impact related to fugitive dust (BAAQMD 2017c). The lead agency has chosen to rely on BAAQMD's significance thresholds for determining impacts on air quality because the thresholds are supported by substantial evidence.

**Table 4.3-9  
BAAQMD SIGNIFICANCE THRESHOLDS**

Pollutant	Construction	Operation	Operation
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
Reactive Organic Gasses (ROG)	54	54	10
Nitrogen Oxides (NO <sub>x</sub> )	54	54	10
Particulate Matter Exhaust (PM <sub>10</sub> )	82	82	15
Fine Particulate Matter Exhaust (PM <sub>2.5</sub> )	54	54	10
PM <sub>10</sub> and PM <sub>2.5</sub> Fugitive Dust	BCMMs <sup>1</sup>	none	none
Local Carbon Monoxide (CO)	none	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Sulfur Oxides (SO <sub>x</sub> )	none	none	none

Source: BAAQMD 2017c.

ppm = part per million; BCMMs = Basic Construction Mitigation Measures.

<sup>1</sup> For construction fugitive dust, rather than a numeric threshold BAAQMD recommends that lead agencies consider projects that implement the Basic Construction Mitigation Measures to have a less than significant impact related to fugitive dust.

### 4.3.3 IMPACT ANALYSIS

#### AQ-1 The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.

Consistency with the air quality plan is determined by whether the project would hinder implementation of control measures identified in the air quality plan or would result in growth of population or employment that is not accounted for in local and regional planning. The BAAQMD's 2017 Clean Air Plan is the applicable air quality plan for the SFBAAB and the County, adopted on April 19, 2017 (BAAQMD 2017b).

The project would not result in population growth in the County, and the anticipated 4 to 12 O&M workers would represent an inconsequential growth in County employment and would not exceed the employment growth accounted for in the County General Plan and the ECAP.

The Clean Air Plan contains control measures that identify actions to be taken by the air district, local government agencies, and private enterprises to reduce stationary and mobile sources of criteria pollutants and ozone precursors, TACs, and GHG emissions in the SFBAAB. As discussed under Impact AQ-2, the project would not contribute to a cumulatively considerable impact to any criteria air pollutant and therefore project emissions would not impede the air district from reducing significant air pollutants in the air basin. In addition, as a PV electricity generation and energy storage facility, the project would be consistent with the Energy Control Measure EN1, *Decarbonize Electricity Production*, which strives to maximize the amount of renewable energy contributing to the production of electricity within the SFBAAB as well as electricity imported into the region (BAAQMD 2017b). None of the other control measures in the 2017 Clean Air Plan would be directly applicable to the project. Therefore, the

project would not conflict with or obstruct implementation of the 2017 Clean Air Plan, and the impact would be less than significant.

### Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction

The intensity of construction and maintenance of interconnection facilities under CPUC jurisdiction would not be greater than that analyzed above and would not exceed the employment growth accounted for in the County General Plan and ECAP or conflict with any control measures in the 2017 Clean Air Plan. Therefore, the construction and operation of project interconnection facilities by PG&E would not conflict with or obstruct implementation of the 2017 Clean Air Plan, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

## AQ-2      **The proposed project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.**

### Construction

The project's temporary construction emissions were estimated using CalEEMod as described in the methodology description, above. The results of the modeling of the project's construction emissions of criteria pollutants and ozone precursors are shown in Table 4.3-10, Unmitigated Maximum Daily Construction Emissions. The data are presented as the maximum anticipated daily emissions for comparison with the BAAQMD thresholds. The complete CalEEMod output is provided in Appendix D to this Draft EIR.

**Table 4.3-10  
UNMITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS**

Construction Activity	Pollutant Emissions (pounds per day)							
	ROG	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>x</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>
Phase 1 Site Preparation	11.4	119.0	77.5	0.2	15.1	4.3	2.4	4.0
Phase 2 Photovoltaic Installation	12.3	89.5	108.0	0.3	16.7	3.5	3.8	3.2
Phase 3 Electrical and Gen-Tie Installation	29.8	96.2	93.7	0.2	10.2	4.2	2.1	3.9
Phase 4 General Construction Operations, Site Clean-up and Restoration	1.2	13.3	16.6	<0.1	0.4	0.5	<0.1	0.5
Concurrent Phases 1 and 4	12.6	132.3	94.1	0.2	15.5	4.8	2.5	4.5
Concurrent Phases 2, 3 and 4	43.3	199.0	218.3	0.5	27.2	8.3	5.9	7.6
<b>Maximum Daily Emissions</b>	<b>43.3</b>	<b>199.0</b>	<b>218.3</b>	<b>0.5</b>	<b>27.2</b>	<b>8.3</b>	<b>5.9</b>	<b>7.6</b>
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>none</i>	<i>none</i>	<i>BCMMs</i>	<i>84</i>	<i>BCMMs</i>	<i>54</i>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix D).

<sup>1</sup> The maximum daily emissions of CO would occur during summer. The maximum of all other pollutants would occur during winter.

For construction fugitive dust, rather than a numeric threshold BAAQMD recommends that lead agencies consider projects that implement the BCMMS to have a less than significant impact related to fugitive dust (BAAQMD 2017c). The County does not have a uniformly applied development policy or standard (e.g., ordinance or General Plan policy) that requires implementation of the BAAQMD's recommended BCMMS. Therefore, MM AQ-1 requires implementation of the BCMMS for control of fugitive dust during construction.

As shown in Table 4.3-10, the construction period maximum emissions of NO<sub>x</sub> would be 199 pounds per day during concurrent phases 2, 3, and 4 construction activity. This would exceed the BAAQMD emissions threshold for NO<sub>x</sub> of 54 pounds per day and the impact would be potentially significant impact.

MM AQ-1 requires implementation of BAAQMD's BCMMS. MM AQ-2 requires all diesel-powered off-road equipment with 50 or more HP to be USEPA Tier-4 certified or be retrofitted with CARB-approved diesel emissions reduction devices meeting Tier 4 standards. The project's construction emissions of criteria pollutants and precursors, with implementation of mitigation measures AQ-1 and AQ-2, are shown in Table 4.3-11, Mitigated Maximum Daily Construction Emissions.

**Table 4.3-11**  
**MITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS**

Construction Activity	Pollutant Emissions (pounds per day)							
	ROG	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>x</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>
Phase 1 Site Preparation	3.9	10.8	101.3	0.2	9.5	0.3	1.8	0.3
Phase 2 Photovoltaic Installation	7.2	15.8	123.2	0.3	14.5	0.5	3.6	0.5
Phase 3 Electrical and Gen-Tie Installation	23.6	14.7	109.3	0.2	8.1	0.4	1.9	0.4
Phase 4 General Construction Operations, Site Clean-up and Restoration	0.3	1.6	19.5	<0.0	0.1	<0.1	<0.1	<0.1
Concurrent Phases 1 and 4	4.3	12.4	120.8	0.2	9.6	0.4	1.8	0.4
Concurrent Phases 2, 3 and 4	31.2	32.1	252.1	0.5	22.7	1.0	5.4	0.9
<b>Maximum Daily Emissions</b>	<b>31.2</b>	<b>32.1</b>	<b>252.1</b>	<b>0.5</b>	<b>22.7</b>	<b>1.0</b>	<b>5.4</b>	<b>0.9</b>
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>none</i>	<i>none</i>	<i>BCMMs</i>	<i>84</i>	<i>BCMMs</i>	<i>54</i>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix D).

<sup>1</sup> The maximum daily emissions of CO would occur during summer. The maximum of all other pollutants would occur during winter.

As shown in Table 4.3-11, with implementation of mitigation measures AQ-1 and AQ-2, all project construction emissions of criteria pollutants and precursors would be less than the BAAQMD thresholds. Therefore, the project's construction activities would not result in a cumulatively considerable net increase of criteria pollutants that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, and the impact would be less than significant with mitigation incorporated.

## Operation

The project's long-term average daily and maximum annual operational emissions were estimated using CalEEMod as described in the methodology description, above. The results of the modeling of the project's operational emissions of criteria pollutants and precursors are shown in Table 4.3-12, Operational Emissions. The data are presented as the maximum anticipated daily emissions and maximum annual emissions for comparison with the BAAQMD thresholds. The complete CalEEMod output is provided in Appendix D to this Draft EIR.

**Table 4.3-12  
OPERATIONAL EMISSIONS**

Source Category	Pollutant Emissions							
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>
<b>Average Daily Emissions (pounds per day)</b>								
Area	1.8	<0.1	<0.1	<0.1	-	<0.1	-	<0.1
Mobile	<0.1	1.1	1.1	<0.1	10.3	<0.1	1.1	<0.1
Off-Road	1.4	12.2	16.6	<0.1	-	0.6	-	0.6
<b>Average Daily Total<sup>1</sup></b>	<b>3.2</b>	<b>13.3</b>	<b>17.9</b>	<b>&lt;0.1</b>	<b>10.3</b>	<b>0.6</b>	<b>1.1</b>	<b>0.6</b>
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>none</i>	<i>none</i>	<i>none</i>	<i>84</i>	<i>none</i>	<i>54</i>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Maximum annual Emissions (tons per year)</b>								
Area	0.3	<0.1	<0.1	<0.1	-	<0.1	-	<0.1
Mobile	<0.1	0.1	0.2	<0.1	1.3	<0.1	0.1	<0.1
Off-Road	<0.1	0.2	0.2	<0.1	-	<0.1	-	<0.1
<b>Maximum Annual Total<sup>1</sup></b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>&lt;0.1</b>	<b>1.3</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>&lt;0.1</b>
<i>BAAQMD Thresholds</i>	<i>10</i>	<i>10</i>	<i>none</i>	<i>none</i>	<i>none</i>	<i>15</i>	<i>none</i>	<i>10</i>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix D)

<sup>1</sup> Total may not sum due to rounding.

As shown in Table 4.3-12, all project long-term operational emissions of criteria pollutants and precursors would be less than the BAAQMD thresholds. Therefore, the project's operational activities would not result in a cumulatively considerable net increase of criteria pollutants that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, and the impact would be less than significant.

## Decommissioning

The solar facility is anticipated to have an operating life of at least 50 years. Once the operating life of the facility is over, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Project decommissioning would occur in accordance with the termination or expiration of the CUP and would involve the removal of above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a Decommissioning Plan. Equipment would be repurposed off-site, recycled, or disposed of in a landfill as appropriate.

Decommissioning is anticipated to take approximately six months to complete and would occur in 2073 or later. Decommissioning would be completed in three phases: Phase 1 would involve shutting down

the systems and removing hazardous materials and wiring; Phase 2 would include removing the PV modules, inverters, substation(s), switching station, and energy storage system; Phase 3 would include removing site fencing and driveways and the final soils reclamation process. Decommissioning and reclamation activities are anticipated to require approximately 200 workers, generating 800 maximum daily worker trips and 40 daily truck trips.

Current California emissions modeling programs and data (i.e., CalEEMod, EMFAC2017, OFFROAD2017) do not estimate emissions beyond the year 2050. However, because it is anticipated that the intensity of project decommissioning and reclamation activities would be similar to or less than construction activities, the off-road equipment and water use for decommissioning are assumed to be similar or less than that required for project constructions. In addition, in accordance with current CARB regulations, in 50 plus years (2073 or later), all diesel-powered off-road equipment with 25 or more HP used in construction fleets would be required to meet USEPA Tier 4 standards or better (CARB 2020b). Therefore, due to the shorter duration and equal or lesser intensity of activity compared to project construction, emissions of criteria pollutant and precursors from decommissioning and reclamation activities would be less than the mitigated emissions calculated for project construction. As discussed above, the project's mitigated construction emissions would not exceed the BAAQMD thresholds. Therefore, the project's decommissioning and reclamation activities would not result in a cumulatively considerable net increase of criteria pollutants that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction could result in changes in construction schedule and maintenance operations for those facilities if PG&E is assigned responsibility. However, the intensity of construction and maintenance activity would not be greater than that analyzed and would require similar equipment and crew sizes. Therefore, emissions of criteria pollutants and ozone producers during construction of project interconnection facilities completed by PG&E would be potentially significant. MM AQ-1, to require the BAAQMD BCMMs, and MM AQ-2, to require the use of Tier-4 engines for all off-road equipment with 50 or more horsepower, would reduce the impact to less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **MM AQ-1: Basic Construction Mitigation Measures**

Prior to issuance of any Grading Permit, the County shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with the BAAQMD CEQA Air Quality Guidelines, the following basic construction mitigation measures shall be implemented for all project construction activity:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

#### **MM AQ-2: USEPA Tier 4 Final Emissions Standards**

Prior to issuance of any Grading Permit, the County shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, all diesel-powered off-road equipment with 50 or more horsepower be certified to meet the USEPA Tier 4 Final emissions standards, or be retrofitted with CARB verified diesel exhaust emissions reduction devices that reduce emissions of both NO<sub>x</sub> and PM to USEPA Tier 4 Final emissions standards.

**Significance with Mitigation:** Less than significant impact.

#### **AQ-3      The proposed project would not expose sensitive receptors to substantial pollutant concentrations.**

Impacts to sensitive receptors are typically analyzed for CO hot spots and exposure to TACs. An analysis of the project's potential to expose sensitive receptors to these pollutants is provided below.

#### **Construction**

##### *Diesel Particulate Matter*

Implementation of the project would result in the use of heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment could generate DPM, which is a TAC. Generation of DPM from construction projects typically occurs in a localized area (e.g., near locations with multiple pieces of heavy construction equipment working in close proximity) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase

of construction, the construction-related emissions to which nearby receptors are exposed to would also vary throughout the construction period. During some equipment-intensive activities such as grading and excavation, construction-related emissions would be higher than other less equipment-intensive phases such as PV panel installation. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005). It is not anticipated that the use of heavy diesel power equipment would be concentrated within 500 feet of any existing sensitive receptors (rural single-family residences) for more than a few days duration.

The dose (of TAC) to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed amount of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from OEHHA) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015). The project site is approximately 410 acres and located in a rural area with few nearby sensitive receptors. The emissions of DPM on the project site are mostly associated with the use of heavy construction equipment. The locations of construction activity within the project site equipment would vary throughout the 9-month construction period. Concentrated use of heavy construction equipment would only occur in at any single location for a few weeks or less. The OEHHA Risk Assessment Guidelines recommend not evaluating cancer risk for short-term projects which last less than 2 months (OEHHA 2015). In addition, MM AQ-1 requires all off-road equipment with 50 or more HP to be Tier-4 certified. Tier-4 engines have diesel particulate filters which reduce emissions of DPM by 85 percent or better compared to non-certified engines.

In addition, as shown in Tables 4.3-11 and 4.3-12, USEPA Tier 4 Final certified engines (required by MM AQ-2 for all project construction equipment with 50 or more HP) would reduce Exhaust PM<sub>10</sub> emissions (approximately equivalent to DPM) by 85 percent. Considering this information, the highly dispersive nature of DPM, and the fact that any concentrated use of heavy construction equipment would occur at various locations throughout the project site only for short durations, construction of the project would not expose sensitive receptors to substantial DPM concentrations, and the impact would be less than significant.

#### *Carbon Monoxide*

Vehicle exhaust is the primary source of CO. In an urban setting, the highest CO concentrations are generally found in close proximity to congested intersections. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (e.g., congested intersection) increase. Project-generated traffic has the potential of contributing to localized “hotspots” of CO off-site. Because CO is a byproduct of incomplete combustion, exhaust emissions are worse when fossil-fueled vehicles are operated inefficiently, such as in stop-and-go traffic or through heavily congested intersections. Because CO disperses rapidly, hotspots are most likely to occur in areas with limited vertical mixing such as tunnels, long underpasses, or below-grade roadways. The BAAQMD CEQA guidelines provide that, if a project is consistent with the applicable congestion management plan and would not increase traffic volumes at intersections to more than 44,000 vehicles per hour for regular



intersections, or would not increase traffic volumes at intersections to more than 24,000 vehicles per hour for intersections with limited vertical mixing zones, the impacts from CO hotspots would be less than significant (BAAQMD 2017c).

The project TIS concluded that the highest project construction traffic-affected intersection would be the intersection of North Livermore Avenue and Eastbound Interstate 580, which would carry approximately 2,742 vehicles during the PM peak hour under the existing plus project conditions. This intersection traffic volume would not exceed the BAAQMD guideline of hourly intersection traffic volumes with more than 44,000 vehicles per hour, or 24,000 vehicles per hour for intersections with limited mixing zones. Traffic associated with long-term operation of the project would be up to 48 trips per day and would not result in any intersections traffic volume exceeding the BAAQMD CO hotspot screening guidelines. Therefore, Impacts related to CO hotspots would be less than significant.

### **Operation**

O&M activities could require the use of diesel-powered off-road equipment. As described in Section 4.3.1.5 above, up to seven pieces of off-road equipment could be used during maintenance and panel washing. However, only two small tractors are anticipated to be used on more than 20 days per year. Therefore, due to the limited use of diesel-powered off-road equipment and the fact that O&M activities would occur at various locations throughout the project site for short durations and would not be concentrated near sensitive receptors, operation of the project would not expose sensitive receptors to substantial DPM concentrations, and the impact would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of the construction and maintenance of the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would require similar equipment and crew sizes. Therefore, construction and/or operation of project interconnection facilities completed by PG&E would not expose sensitive receptors to substantial pollutant concentrations, including DPM and CO hotspots, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **AQ-4            The proposed project would not result in substantial emissions of odors adversely affecting a substantial number of people.**

Construction of the project would require the use of diesel-powered equipment. Diesel exhaust can be a temporary source of odors. Due to the temporary and intermittent nature of construction activities, and due to the dispersion of construction activities throughout the large project site (410 acres) and the distance of the closest sensitive receptor (80 feet), construction of the project would not result in emissions leading to odors that would adversely affect substantial numbers of people.

The BAAQMD CEQA Guidelines contain a table of odor screening distances for siting new land uses/operations that are typical sources of odors. The project would be a PV electricity generation facility, which is not considered to be a typical significant source of objectionable odors. The proposed program for concomitant agricultural land uses during project operation could include seasonal livestock grazing. Seasonal livestock grazing is not considered a typical source of objectionable odors in the BAAQMD CEQA guidelines. In additions, the majority of the project site is currently used for seasonal

livestock grazing and future concomitant agricultural land uses on the project site would not result substantially different odors than those generated by the existing land use. Therefore, operation of the project would not result in emissions leading to odors that would adversely affect substantial numbers of people, and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction would not result in changes in emissions of odors for those facilities if PG&E is assigned responsibility. Therefore, construction and/or operation of project interconnection facilities completed by PG&E would not result in emissions leading to odors that would adversely affect substantial numbers of people, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **4.3.4 CUMULATIVE IMPACTS**

#### **AQ-5 The proposed project would not contribute to a cumulatively considerable impact on regional air quality.**

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards in the SFBAAB. Instead, a project's individual emissions of criteria pollutants and precursors contribute to existing cumulatively significant adverse air quality impacts in the SFBAAB. In developing thresholds of significance for criteria pollutants and precursors, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts on the region's existing air quality conditions (BAAQMD 2017c). As discussed in impacts AQ-1 through AQ-4 above, implementation of MM AQ-1 and MM AQ-2 would reduce impacts related to emissions of air pollutants and consistency with the applicable air plan to a less than significant level. Therefore, the project's contribution to regional air quality would be less than cumulatively considerable, and the cumulative impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed in impacts AQ-1 through AQ-4 above, with implementation of MM AQ-1 and MM AQ-2, construction and operation of interconnection facilities under CPUC jurisdiction would not result in emissions of air pollutants that may have a significant impact on the environment, and the project would not conflict with or obstruct the applicable air plan. Therefore, the contribution to regional air quality from construction and operation of interconnection facilities under CPUC jurisdiction would be less than cumulatively considerable, and the cumulative impacts would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact AQ-2 for MM AQ-1 and MM AQ-2.

**Significance with Mitigation:** Less than significant impact.

### 4.3.5 REFERENCES

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## **4.4 BIOLOGICAL RESOURCES**

This section begins with descriptions of the federal, State, and local regulatory framework by which project effects may be deemed significant, and then describes existing biological resources on the project site and methods used to evaluate project impacts to biological resources. The project involves substantial changes to the site conditions that would adversely affect its habitat characteristics and, therefore, a broad range of environmental and species and habitat protection laws, policies, programs and regulations apply to the project. The section identifies the potential impacts to biological resources that could occur as a result of the implementation of the proposed project, and details mitigation measures needed to avoid or reduce the significant impacts.

### **4.4.1 REGULATORY FRAMEWORK**

#### **4.4.1.1 Federal Regulations**

##### **Federal Endangered Species Act**

The U.S. Fish and Wildlife Service (USFWS) enforces the provisions stipulated within the Federal Endangered Species Act of 1973 (FESA; 16 United States Code [USC] 1531 et seq.). Species identified as federally threatened or endangered (50 CFR 17.11, and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the study area and determine whether the proposed project will jeopardize the continued existence of or result in the destruction or adverse modification of critical habitat of such species (16 USC 1536 (a)[3], [4]). Other federal agencies designate species of concern (species that have the potential to become listed), which are evaluated during environmental review under the National Environmental Policy Act (NEPA) or CEQA although they are not otherwise protected under FESA.

##### **Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act (MBTA; 16 USC, Sec. 703, Supp. I, 1989) regulates and prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR §10.13. The MBTA protects whole birds, parts of birds, and bird eggs and nests and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the Department of the Interior in April 16, 2003 Migratory Bird Permit Memorandum. Nest starts (nests that are under construction and do not yet contain eggs) are not protected from destruction. This international treaty for the conservation and management of bird species that migrate through more than one country is enforced in the United States by the USFWS. Additionally, as discussed below, §3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. This provides CDFW with enforcement authority for project-related impacts that would result in the “take” of bird species protected under the MBTA. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). All native bird species that occur on the subject property are protected under the MBTA.

## **The Bald and Golden Eagle Protection Act**

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC 668–668c). It is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest, or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

## **Clean Water Act (33 USC 1252-1376)**

Any person, firm, or agency planning to alter or work in “waters of the U.S.,” (WOTUS) including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403).

On April 21, 2020, the USEPA and USACE published the Navigable Waters Protection Rule to define “Waters of the United States” in the Federal Register. On June 22, 2020 the Navigable Waters Protection Rule: Definition of “Waters of the United States” (NWPR) became effective in 49 states, including California, and in all US territories.

The NWPR regulates traditional navigable waters and perennial or intermittent tributary systems, and defines four categories of regulated waters including:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries to those waters;
- Certain lakes, ponds, and impoundments; and
- Wetlands adjacent to jurisdictional waters.

The NWPR also defines 12 categories of exempted aquatic resources:

- Waters not listed as WOTUS
- Groundwater
- Ephemeral features
- Diffuse stormwater run-off
- Ditches not identified as WOTUS
- Prior converted cropland
- Artificially irrigated areas
- Artificial lakes and ponds
- Water-filled depressions incidental to mining or construction activity
- Stormwater control features
- Groundwater recharge, water reuse, and wastewater recycling structures
- Waste treatment systems

With non-tidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction extends to the ordinary high-water mark (OHWM) – the line on the shore established by fluctuations of water and

indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined in 33 CFR Part 328 as:

“those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

Federal and State regulations pertaining to waters of the U.S., including wetlands, are discussed below.

- Clean Water Act (33 USC 1251-1376). The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters.
- Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of CWA. The RWQCB administers the certification program in California and may require State Water Quality Certification before other permits are issued.
- Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. This system is the National Pollutant Discharge Elimination System (NPDES) program, administered by the EPA, that has granted oversight authority in California to the State Water Board through its Regional Water Quality Control Boards.
- Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there is no practicable alternative that would have less adverse impacts.

#### **4.4.1.2 State Regulations**

##### **California Endangered Species Act**

The California Endangered Species Act (CESA), established under California Fish and Game Code §2050 et. seq., identifies measures to ensure that endangered species and their habitats are conserved, protected, restored, and enhanced. The CESA restricts the “take” of plant and wildlife species listed by the state as endangered or threatened, as well as candidates for listing. Section 86 of the Fish and Game Code defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Under §2081(b) of the Fish and Game Code, CDFW has the authority to issue permits for incidental take for otherwise lawful activities. Under this section, CDFW may authorize incidental take, but the take must be minimal, and permittees must fully mitigate project impacts. CDFW cannot issue permits for projects that would jeopardize the continued existence of state listed species. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

CDFW maintains lists of Candidate-Endangered Species and Candidate-Threatened Species. Candidate species and listed species are given equal protection under the law. CDFW also lists Species of Special Concern (SSC) based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. Designation of SSC is intended by the CDFW to be used as a management tool for consideration in future land use decisions; these species do not receive protection under the CESA or any section of the California Fish and Game Code, and do not necessarily meet State CEQA Guidelines §15380 criteria as rare, threatened, endangered, or of other public concern. The determination of significance for SSC must be made on a case-by-case basis. CDFW typically requests that CEQA lead agencies give consideration to minimization of impacts to SSC species when approving projects.

### **California Code of Regulations Title 14 and California Fish and Game Code**

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as “fully protected animals.” These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by these species. CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species in carrying out projects. However, Senate Bill 618 (2011) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

### **California Environmental Quality Act**

Under CEQA (1970, as amended PRC Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special status species (PRC Section 21001(c)). These “special-status” species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included State CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed in this study regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, and 2 are generally considered special-status species under CEQA.<sup>1</sup> The East Bay Chapter of the CNPS maintains a database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties. Plants from the database with a rank of “A” were considered special-status species under CEQA for the purpose of this report.

Although threatened and endangered species are protected by specific federal and state statutes, State CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of

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<sup>1</sup> The CNPS rare plant ranking system can be found online at <<http://www.cnps.org/cnps/rareplants/ranking.php>>



protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) of the State CEQA Guidelines allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

### **Nesting Birds (California Fish and Game Code Sections 3503, 3511, and 3800)**

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

### **California Native Plant Protection Act (California Fish and Game Code Sections 1900-1913)**

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use other than changing from one agricultural use to another, which allows CDFW to salvage listed plants that would otherwise be destroyed.

CNPS is a non-governmental conservation organization that has developed a list of plants of special concern in California. The following explains the designations for each plant species (CNPS 2020).

- Rank 1A – Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
- Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere
- Rank 2A – Plants Presumed Extirpated in California, but Common Elsewhere
- Rank 2B – Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
- Rank 3 – Plants About Which More Information is Needed- A Review List
- Rank 4 – Plants of Limited Distribution – A Watch List

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants with a Ranking of 1A through 2B may be considered to meet the definition of endangered, rare, or threatened species under Section 15380(d) of CEQA (see above), and impacts to these species may be considered “significant.”

In addition, CDFW recommends, and local governments may require, protection of species which are regionally significant, such as locally rare species, disjunct populations, essential nesting and roosting habitat for more common wildlife species, or plants with a CNPS Ranking of 3 and 4. For example, the East Bay Chapter of the CNPS maintains a database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties. The following information is taken from the East Bay Chapter of the CNPS website (<https://ebcnps.org/ebrare-plant-database/>). The ranking system is first based on how many regions a plant occurs in, then on several other criteria including size of populations, limited or threatened habitat, stressed or declining populations, small geographical range, range limits, and other population threats. In addition, ranks are based on how many specific sites a plant occurs in within a region. In most cases, plants occurring in five or fewer regions (A-ranked plants) also have very few specific sites or individual locations within those regions. In a few cases, however, plants occurring in only a few regions have several specific sites within some of those regions, and/or several individual locations within those specific sites. In those cases, a species is sometimes given a lower rank. In addition to the A-ranked species, a two-tiered Watch List of B and C ranked plants tracks local native species that are not currently considered rare or endangered in the East Bay but that could become so if certain conditions persist such as over-development, water diversions, excessive grazing, weed or insect invasions, etc. B ranked species occur in 6 to 9 regions in the two counties or are otherwise subject to threat, and C ranked species currently occur in 10 to 15 regions in the two counties but have potential threats. A-ranked plants from the database were considered special-status species under CEQA for the purpose of this report because they are considered rare or endangered in the East Bay. The ranking system taken from (<https://ebcnps.org/ebrare-plant-database/>) is defined below:

- \*A1x, \*A1 or \*A2: Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.
- A1: Species currently known from 2 or less regions in Alameda and Contra Costa Counties (but not rare statewide).
- A2: Species currently known from 3 to 5 regions in the two counties (but not rare statewide), or, if more regions, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.
- A1x: Species previously known from Alameda or Contra Costa Counties, but now believed to have been extirpated, and no longer occurring here.
- A?: Species that have been reported in the two-county area but identification is questionable and the species may not actually occur here.

## California Food and Agriculture Code Section 403

California Department of Food and Agriculture (CDFA) Code Section 403 directs the CDFA to prevent the introduction and spread of injurious pests including noxious weeds.

CDFA Code Section 7271 designates the CDFA as the lead department in noxious weed management responsible for implementing state laws concerning noxious weeds. Representing a statewide program, noxious weed management laws and regulations are enforced locally in cooperation with the County Agricultural Commissioner.

Under state law, noxious weeds include any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed (CDFA Code Section 5004).

## **Waters of the State**

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by section 401 of the Federal CWA. Although the Clean Water Act is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within WOTUS, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of administrative Law approved the Procedures on August 28, 2019, and the Procedures become effective May 28, 2020. The SWRCB circulated final implementation Guidance on the Procedures in April 2020.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

## California Fish and Game Code Section 1600

Under the California Fish and Game Code, the CDFW provides protection from “take” for a variety of species. The CDFW also protects streams, water bodies, and riparian corridors through the Streambed Alteration Agreement process under Section 1601 to 1606 of the California Fish and Game Code. The California Fish and Game Code stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying the CDFW, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement. CDFW’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover. Impacts to riparian vegetation are regulated through the Lake and Streambed Alteration program. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource.

## Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California’s statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals. Projects that do not require a federal permit may still require review and approval by the RWQCB. The RWQCB focuses on ensuring that projects do not adversely affect the “beneficial uses” associated with waters of the State. In most cases, the RWQCB requires the integration of water quality control measures into projects that will require discharge into waters of the State. For most construction projects, the RWQCB requires the use of construction and post-construction best management practices.

### 4.4.1.3 Local Regulations

#### Alameda County General Plan

Land use planning in the eastern portion of Alameda County is governed by the ECAP, which was adopted by the County in May 1994. In November 2000, the Alameda County electorate approved Measure D, the Save Agriculture and Open Space Lands Initiative, which amended portions of the County’s General Plan, including the ECAP (Alameda County 2000). The Open Space Element of the ECAP addresses sensitive lands and regionally significant open space, including biological resources.

ECAP includes the following policies specific to biological resources.

- **Policy 121:** The County shall secure open space lands, through acquisition of easements or fee title, specifically for the preservation and protection of indigenous vegetation and wildlife.
- **Policy 122:** The County shall encourage that wetland mitigation be consolidated in areas that are relatively large and adjacent to or otherwise connected to open space. To the extent

possible, these areas should be included in, adjacent to, or linked through open space corridors with lands designated as "Resource Management" that are managed specifically for the preservation and enhancement of biological resources.

- **Policy 123:** Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as "Resource Management" or on lands adjacent to or otherwise contiguous with these lands in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.
- **Policy 124:** The County shall encourage the maintenance of biological diversity in East County by including a variety of plant communities and animal habitats in areas designated for open space.
- **Policy 125:** The County shall encourage preservation of areas known to support special status species.
- **Policy 126:** The County shall encourage no net loss of riparian and seasonal wetlands.
- **Policy 127:** The County shall encourage the preservation of East County's oak woodland plant communities.
- **Policy 130:** The County shall preserve an open space corridor connecting the Bird's Beak Preserve with lands designated "Resource Management." This open space corridor shall vary in width between 50 and 150 feet.
- **Policy 132:** The County shall designate a zone of approximately 200 yards around the perimeter of the defined Bird's Beak Preserve in North Livermore as a Special Management Area. Within this zone, all proposed land uses and project designs shall be evaluated regarding their potential to effect the viability of the Springtown valley sink scrub habitat, and mitigation shall be incorporated into the approval of detailed development plans within this 200 yard zone to avoid the impact. Mitigation may take the form of clustering development to avoid sensitive areas, management practices, land swap with the Federal Communications Commission Monitoring Station, or other appropriate measures.

## **East Alameda County Conservation Strategy**

The East Alameda County Conservation Strategy (EACCS) is a collaborative effort between willing land-owners, local agencies and resources agencies for the preservation of endangered species and their habitat through conservation. The EACCS ensures that environmental review provides for assessment of areas in east Alameda County for their habitat conservation value and to establish guiding principles for conservation. The EACCS is intended to guide these agencies to work with willing landowners for long-term conservation stewardship that would offset and mitigate impacts from local land use, transportation and other infrastructure projects. All conservation on private lands is voluntary.

The EACCS study area encompasses the cities of Dublin, Livermore, and Pleasanton, and unincorporated Alameda County areas surrounding these cities, including the project site. The western boundary of the

EACCS study area follows the western edge of the Alameda Creek watershed, and the northern, southern, and eastern boundaries follow the Alameda County line with its adjacent counties. The EACCS study area includes the proposed project site (ICF 2010). Although participation in the EACCS by applicant is voluntary, Alameda County participates in the strategy and considers it to be the best available information when considering the impacts of a proposed project.

### **East Bay Regional Conservation Investment Strategy**

On September 22, 2016, the Governor signed Assembly Bill 2087 which created CDFW's Regional Conservation Investment Strategy (RCIS) pilot program (Program). The Program went into effect on January 1, 2017 and is administered by CDFW's Habitat Conservation Planning Branch in Sacramento. On July 21, 2017 the Governor signed Senate Bill 103 which makes two changes to Assembly Bill 2087: 1) it removes the January 1, 2020 "sunset" provision; and 2) it allows an RCIS to be exempt from the "cap" (i.e., the limit of eight RCISs that may be approved by CDFW) if a state water or transportation infrastructure agency requests approval of the RCIS.

The new Program encourages a voluntary, non-regulatory regional planning process intended to result in higher-quality conservation outcomes and includes an advance mitigation tool. The Program uses a science-based approach to identify conservation and enhancement opportunities that, if implemented, will help California's declining and vulnerable species by protecting, creating, restoring, and reconnecting habitat and may contribute to species recovery and adaptation to climate change and resiliency.

The Program consists of three components: regional conservation assessments (RCAs), RCISs, and mitigation credit agreements (MCAs).

An RCIS is a voluntary, non-regulatory, and non-binding conservation assessment that includes information and analyses relating to the conservation of focal species, their associated habitats, and the conservation status of the RCIS land base. Any public agency may develop an RCIS. An RCIS establishes biological goals and objectives at the species level and describes conservation actions and habitat enhancement actions that, if implemented, will contribute to those goals and objectives. Those actions will benefit the conservation of focal species, habitats, and other natural resources and they may be used as a basis to provide advance mitigation through the development of credits (see MCA section below) or to inform other conservation investments. Examples of potential RCIS conservation and habitat enhancement actions include, but are not limited to:

- Land acquisition and protection;
- Habitat creation & restoration;
- Restoration of creeks and rivers;
- Restoration of habitat on public land; and
- Installation of wildlife crossings and fish passage barrier removal.

The development of RCISs does not create, modify, or impose regulatory requirements or standards, regulate land use, establish land use designations, or affect the land use authority of a public agency. If approved by CDFW, an RCIS may be valid for up to 10 years. CDFW may extend the duration of an approved or amended RCIS for an additional 10 years provided the RCIS is updated to include new

scientific information and the RCIS continues to meet the Program’s requirements as outlined in Fish and Game Code (Chapter 9, Section 1850, et seq.).

The Coastal Conservancy is the East Bay RCIS project proponent and the East Bay RCIS area comprises all of Contra Costa and Alameda Counties. The East Bay RCIS presents conservation goals and objectives for the RCIS area. Incorporated into those goals and objectives are conservation priorities for land acquisition, restoration, and enhancement. These conservation priorities are intended to be used in multiple ways. First, conservation organizations can use these priorities to inform the work they do, ensuring that their efforts align with the goals in the RCIS. This alignment includes the pursuit of funding for land acquisition, restoration, and enhancement. Second, the conservation priorities presented in this RCIS can also inform project permitting and regulatory processes by providing project proponents, regulatory agencies, and those agencies with local land use authority information to identify priority conservation actions that can be used to meet project mitigation needs.

This East Bay RCIS was developed to complement other key planning efforts that overlap the RCIS area. Primarily, it builds on existing efforts to develop a Regional Advance Mitigation Planning (RAMP) for the Bay Area with a focus on transportation projects and utilizing the Conservation Lands Network data developed through a Bay Area Open Space Council planning effort. This RCIS was also developed to be consistent and coordinated with the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCC HCP/NCCP), addressing species and geographic locations that are not covered by that plan and including conservation actions that complement the ECCC HCP/NCCP’s conservation strategy. Additionally, the RCIS considers species recovery plans, city general plans, the EACCS, and other relevant plans and policies.

While the East Bay RCIS is a voluntary program, where possible, the project will protect and enhance habitat for common and special-status species while achieving the project objectives. In general, the project site was chosen because it provides relatively low quality habitat for wildlife and will sustain wildlife populations throughout the life of the project by maintaining vegetative cover and bee forage as well as wildlife corridors and allow for wildlife movement across the site.

## **4.4.2 METHODS**

Studies conducted in support of this biological resources evaluation for the proposed project included a database and literature review to determine regionally-occurring special-status species and habitats with the potential to occur on the site and immediate vicinity and numerous biological surveys to document habitat types and flora and fauna present on and adjacent to the site including biological reconnaissance surveys, focused botanical surveys, a California red-legged frog (CRLF; *Rana draytonii*) habitat assessment and protocol surveys, a burrowing owl (*Athene cunicularia*) habitat assessment and protocol surveys, and an assessment of wetlands and other waters of the U.S. and State. Biological surveys are summarized in Table 4.4-1.

### **4.4.2.1 Database and Literature Review**

The most current available lists of special-status species and sensitive natural communities known to occur and/or having the potential to occur in the project region were reviewed to determine their potential to occur on the project site or otherwise be affected by project-related activities on the project site.

For the purposes of this analysis, special-status species are defined as those species meeting one or more of the following criteria:

- Listed as Threatened or Endangered under FESA;
- Listed as Threatened or Endangered under CESA;
- Under review for listing under FESA or CESA (Candidate);
- “Fully Protected” under California Fish and Game Code Section 3511, 4700, 5050, or 5515;
- Included on the list of Species of Special Concern (SSC) by the California Department of Fish and Wildlife;
- Included on the Watch List of species that may qualify as SSC by the California Department of Fish and Wildlife;
- Having a California Rare Plant Rank (CRPR) of 1A (presumed extinct in California and rare elsewhere), 1B (rare in California and elsewhere), 2A (presumed extinct in California but more common elsewhere), 2B (rare in California but more common elsewhere), or 3 (more information needed); or
- Included on the East Bay Chapter of the CNPS Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties.

The following lists were reviewed and are included in Appendix B of the Biological Resources Technical Report (Appendix E):

- The Sacramento Fish and Wildlife Office list of threatened and endangered species that may occur in the project site and/or may be affected by the project (USFWS 2020a).
- The CNPS list of special-status plants documented in the *Tassajara* and *Livermore* 7.5-minute quads (CNPS 2020).
- East Bay Chapter of the CNPS database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties occurring within the Morgan Territory (Dmg) area (Lake 2020).
- The California Natural Diversity Database (CNDDB; CDFW 2020 list of special-status species documented in the *Tassajara* and *Livermore* 7.5-minute quads.
- The USFWS National Wetlands Inventory (USFWS 2020b) was reviewed to determine the presence of wetlands and water features in the project area.

Appendix C of the Biological Resources Technical Report (Appendix E) presents the general habitat requirements, status, the potential for the species to occur, and rationale for each regionally-occurring special-status species evaluated. Species determined to have no potential to occur in the project site or be otherwise affected by activities in the site were excluded from further evaluation. Species having the potential to occur in the project site and/or be affected by project activities were evaluated in detail in the Biological Resources Technical Report (Appendix E) and discussed in this section.



#### **4.4.2.2 Biological Surveys**

##### **Biological Reconnaissance Surveys**

Biological reconnaissance surveys were conducted at the project site by HELIX Principal Biologist Stephen Stringer, M.S., HELIX Senior Botanist/Biologist George Aldridge, Ph.D., and HELIX Senior Wildlife Biologist Patrick Martin. Mr. Stringer conducted biological reconnaissance surveys on December 6, 2017 and June 18, 2020. Dr. Aldridge and Patrick Martin conducted biological reconnaissance surveys of the project site on July 31 and August 1, 2018. Biological reconnaissance surveys included habitat mapping and a plant and wildlife inventories. Boundaries of biological habitats were primarily determined based on the composition of dominant plant species. Transects were walked of the entire site to gain 100 percent visual site coverage. Habitat types were documented and animal species (and sign) observed on site were documented. The biological reconnaissance surveys included searching for mammal burrows and dens of fossorial animals. Representative photos of the site are provided in Appendix E of the Biological Resources Technical Report (Appendix E).

##### **Botanical Surveys**

HELIX Principal Biologist Stephen Stringer, M.S. conducted botanical surveys on the site on March 15, and 29, April 23, and May 3, 2018. HELIX Senior Botanist/Biologist George Aldridge, Ph.D. conducted botanical surveys of the project site on July 31 and August 1, 2018. An additional botanical survey was conducted by Mr. Stringer on June 18, 2020. Botanical inventories were conducted in compliance with the *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFW 2000), and CNPS' botanical survey guidelines (CNPS 2001). Transects were walked of the entire site to gain 100 percent visual site coverage and then surveys were focused in areas that provided potential habitat for special-status plants. Habitat types were documented, and plant species observed on site were documented.

##### **California Red-Legged Frog Habitat Assessment and Protocol Surveys**

A habitat assessment and two full seasons of protocol surveys for CRLF were conducted by HELIX biologists. The report detailing these surveys is included as Appendix F to the Biological Resources Technical Report (Appendix E). The methods used for the CRLF site assessment and protocol surveys were derived from the *USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005). The site assessment included a review of available resources to provide an overview of the upland and aquatic habitats present within the project site and surrounding vicinity. The CDFW CNDDDB (CDFW 2020) and the *Recovery Plan for the California Red-legged Frog* (USFWS 2002) were reviewed for information regarding known existing and historic populations of CRLF in the project region.

The habitat assessment for CRLF was conducted by HELIX Principal Biologist Stephen Stringer, M.S. on December 6, 2017 and focused on aquatic habitats along ephemeral and intermittent streams. Three criteria were used to assess the likelihood of CRLF presence in or within the vicinity of the project site: (1) the location of the project site with respect to the current and historic range of CRLF, (2) the presence/absence of known records of CRLF within a one-mile radius of the project site, and (3) the habitat types occurring within the project site and within a one-mile radius.

All aquatic habitats on the project site were identified and assessed for the potential to support CRLF. Habitats were determined to meet the criteria for suitable CRLF breeding habitat if they met the criteria for aquatic habitat in the literature (USFWS 2002 and USFWS 2005). Such habitats include low-gradient freshwater bodies, including ponds, marshes, sag ponds, dune ponds, stock ponds, lagoons, seeps, springs, and backwaters within streams and creeks with still or slow moving fresh water deeper than 2.3 feet (0.7 meter) with dense, shrubby emergent or overhanging vegetation that provides egg deposition sites and cover for adult frogs and that persists for a minimum of 20 weeks following the breeding season (November through April).

Two full seasons of protocol surveys for CRLF were conducted in all suitable aquatic habitats on the site; once in 2018 and again in 2020. Protocol surveys in 2018 were conducted from January 30 to July 31, 2018 and protocol surveys in 2020 were conducted from February 6, 2020 to July 14, 2020. A total of eight surveys were conducted for CRLF at the project site during winter, spring and summer of 2018 and an additional eight surveys were conducted during the winter, spring and summer of 2020. The CRLF protocol surveys were conducted by HELIX Principal Biologist Stephen Stringer, M.S., HELIX Senior Botanist/Biologist George Aldridge, Ph.D., HELIX Senior Wildlife Biologist Patrick Martin (CRLF permitted biologist TE-778195-14), HELIX Biologist Stephanie McLaughlin, M.S., and HELIX Biologist Halie Goeman in addition to CRLF permitted biologists from Surf to Snow, Gretchen Padgett-Flohr, Ph.D. and Jennifer Gonterman (TE-006112-7). All suitable aquatic habitat identified during the site assessment as having the potential to support CRLF was surveyed during each survey event.

### **California Tiger Salamander Habitat Assessment**

A habitat assessment for California tiger salamander (CTS) was conducted concurrently with the habitat assessment for CRLF on December 6, 2017 and focused on a search for any potential breeding habitat for CTS on or adjacent to the site. Because there are no wetlands outside of drainages on or adjacent to the site, the habitat assessment focused on aquatic habitats along ephemeral and intermittent streams.

### **Burrowing Owl Protocol Surveys**

A habitat assessment and protocol surveys for burrowing owl were conducted in 2020. A habitat assessment of the site was conducted on February 6, 2020, and the site was determined to provide suitable breeding and foraging habitat for burrowing owl. Breeding season burrowing owl surveys were then conducted according to the guidelines prepared by CDFW in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). The Property was surveyed a total of four times during the burrowing owl breeding season by HELIX biologists with extensive experience at burrowing owl surveys. The burrowing owl protocol survey report is included as Appendix G of the Biological Resources Technical Report (Appendix E).

### **Assessment of Wetlands and Other Waters**

An assessment of potential wetlands and other waters of the U.S. and State on the project site was conducted on July 31 and August 1, 2018 by Dr. Aldridge and Patrick Martin. On February 6, 2020 an additional assessment of potential wetlands and other waters of the U.S. was completed by Mr. Martin and HELIX biologist Halie Goeman. The presence of wetlands and other waters were determined based on the USACE three parameter method described in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; USACE 2008). A total of 10 data points were taken in and

adjacent to the project site. Aquatic resources in the project site were also evaluated for their potential to qualify as waters of the State subject to RWQCB jurisdiction and/or CDFW jurisdiction. A map of aquatic resources and data point locations in the project site are mapped in Appendix A – Figure 5 and the wetland datasheets are provided in Appendix H of the Biological Resources Technical Report (Appendix E).

**Table 4.4-1**  
**BIOLOGICAL SURVEYS CONDUCTED FOR THE PROPOSED PROJECT**

<b>Survey Dates</b>	<b>Personnel</b>	<b>Tasks Performed</b>
December 6, 2017	Stephen Stringer, M.S.	Biological reconnaissance survey; CRLF and CTS habitat assessment
January 30, 2018	Gretchen Padgett-Flohr, Ph.D, Stephen Stringer, M.S. and Jennifer Gonterman	CRLF protocol survey (daytime)
January 31, 2018	Stephen Stringer, M.S.	CRLF protocol survey (daytime)
January 31, 2018	Stephen Stringer, M.S. and Jennifer Gonterman	CRLF protocol survey (nighttime)
March 15, 2018	Stephen Stringer, M.S. and Jennifer Gonterman	CRLF protocol survey (nighttime); botanical survey
March 29, 2018	Stephen Stringer, M.S. and Jennifer Gonterman	Botanical survey; CRLF protocol survey (nighttime)
April 23, 2018	Stephen Stringer, M.S. and Jennifer Gonterman	Botanical survey; CRLF protocol survey (nighttime)
May 3, 2018	Stephen Stringer, M.S. and Jennifer Gonterman	Botanical survey; CRLF protocol survey (nighttime)
July 31, 2018	George Aldridge, Ph.D. Patrick Martin	CRLF daytime and nighttime protocol survey; reconnaissance biological survey; wetland assessment; botanical survey
August 1, 2018	George Aldridge, Ph.D. Patrick Martin	Reconnaissance biological survey; wetland assessment; botanical survey
February 6, 2020	George Aldridge, Ph.D. Stephanie McLaughlin, M.S.	Burrowing owl habitat assessment
February 6, 2020	Patrick Martin Haile Goeman	CRLF protocol survey (daytime); wetland assessment
February 25, 2020	Patrick Martin Stephanie McLaughlin, M.S.	Burrowing owl survey
February 26, 2020	Patrick Martin Stephanie McLaughlin, M.S.	Burrowing owl survey
March 9, 2020	Patrick Martin Stephanie McLaughlin, M.S.	CRLF protocol survey (daytime and nighttime)
March 17, 2020	Patrick Martin Haile Goeman	CRLF protocol survey (nighttime)
April 6, 2020	Patrick Martin Haile Goeman	CRLF protocol survey (nighttime)
April 22/23, 2020	Stephanie McLaughlin, M.S. Haile Goeman	Burrowing owl survey
April 28, 2020	Patrick Martin	CRLF protocol survey (nighttime)

**Table 4.4-1 (cont.)  
BIOLOGICAL SURVEYS CONDUCTED FOR THE PROPOSED PROJECT**

<b>Survey Dates</b>	<b>Personnel</b>	<b>Tasks Performed</b>
May 21/22, 2020	Patrick Martin Stephanie McLaughlin, M.S.	Burrowing owl survey
June 17/18, 2020	Patrick Martin	Burrowing owl survey
June 18, 2020	Stephen Stringer	Botanical survey; general biological reconnaissance survey
July 14, 2020	Patrick Martin	CRLF protocol survey (daytime and nighttime)

### **4.4.2.3 Invasive Species**

Plant species observed in the project site during focused botanical surveys and other biological surveys were compared to the list of invasive plants in California maintained by the California Invasive Plant Council (Cal-IPC; Cal-IPC 2006) and the list of noxious weeds maintained by the CDFA (CDFA 2010). Several invasive and noxious weed species listed by Cal-IPC and CDFA occur in the project site, as would be expected due its highly disturbed nature.

CDFA List “C” species warrant state-endorsed holding action and eradication only when found in a nursery; actions to retard spread outside of nurseries is conducted at the discretion of the commissioner; and warrant rejection only when found in a crop seed for planting or at the discretion of the commissioner. In addition, the Cal-IPC categorizes plants as “high, moderate, or limited,” reflecting the level of each species’ negative ecological impact in California. Each plant on the list received an overall rating of high, moderate, or limited based on the following evaluation criteria:

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

### 4.4.3 RESULTS: ENVIRONMENTAL SETTING

#### 4.4.3.1 Existing Conditions

The following discussion is primarily based on the documents listed below and included in Appendix E of this Draft EIR:

- *Aramis Solar Energy Generation and Storage Project Biological Resources Technical Report*, prepared by HELIX Environmental Planning, Inc., (HELIX 2020a);
- *Aramis Solar Energy Generation and Storage Project Burrowing Owl Habitat Assessment and Survey Report*, prepared by HELIX Environmental Planning, Inc., (HELIX 2020b); and
- *Aramis Solar Energy Generation and Storage Project California Red-Legged Frog Site Assessment and Protocol Survey Report*, prepared by HELIX Environmental Planning, Inc., (HELIX 2020c).

#### Existing Land Use

The project site lies in a rural area of northern Alameda County and is surrounded primarily by undeveloped land supporting grazing, agricultural and rural residential uses. Los Vaqueros Reservoir lies 3 miles north and the city limits of Livermore and I-580 lie approximately 2.5 miles south of the project site. Other communities in the area include the community of Tassajara located an estimated 5 miles west of the project site and the City of Dublin, located southwest of the project site.

The project site is currently in use for cattle grazing and production of dryland grain crops. Dryland grain crop occurs in the northern parcel north of Manning Road and in the two southern parcels. The central parcel south of Manning Road is used for cattle grazing and exhibits evidence of prior agricultural use (e.g. disking/furrowing), likely production of feed for cattle such as hay crops. One or more travel trailers occupied by the caretaker(s) are typically present in the northern portion of the central parcel, accessed from a driveway from Manning Road. A review of aerial photographs (Google Earth 2020) and landowner interviews indicates that the project site has been in use for cattle grazing and production of dryland grain crops for nearly one hundred years.

#### Climate

The climate of Alameda County is Mediterranean, characterized by wet, cool winters and dry, hot summers. The nearest weather station is the Livermore Municipal Airport, located approximately 3.8 miles southwest of the project site in Alameda County. Mean daily maximum and minimum temperatures are 88 degrees and 57 degrees Fahrenheit in July, and 58 and 38 degrees Fahrenheit in January (NRCS 2020a). The mean annual precipitation is 14.0 inches, with nearly 100 percent occurring as rain from September through May. The weather station at the Livermore Municipal Airport received 11.3 inches of rainfall in the 2019/2020 rain season from (October to September) or about 81 percent of normal (NRCS 2020a). During the 2018/2019 rain year, the weather station received 13.7 inches of precipitation, which is nearly average. In the 2017/2018 rain year, the nearby weather station received 25.6 inches of precipitation, which is approximately 183 percent of normal (NRCS 2020a).

## Topography

Alameda County is in central California and spans the Coast Range. The County's boundaries are the San Francisco Bay on the west and Contra Costa County on the north, Santa Clara County to the south and San Joaquin County to the east. The eastern part of Alameda County in Livermore Valley is characterized by rolling foothills and annual grasslands. The project site is in a valley and is surrounded by peaks of the Coast Range reaching a height of approximately 2,200 feet.

## Soils

Soils in the project site are loamy to clay in five soil mapping units (NRCS 2020b) and a soil map is provided in Appendix A – Figure 6 of the Biological Resources Technical Report (Appendix E):

Clear Lake clay loam, drained, 0 to 2 percent slopes, is a poorly drained basin alluvium derived from igneous, metamorphic and sedimentary rock. Clear lake clay loam has a depth of greater than 80 inches to the restrictive layer and a depth of 36 to 72 inches to the water table. This soil is considered prime farmland if it is irrigated. Clear Lake clay loam is rated as a hydric soil (NRCS 2018).

Diablo clay, very deep, 3 to 15 percent slopes is a well-drained alluvium derived shale and siltstone. Diablo clay has a depth of greater than 80 inches to the water table and the restrictive layer. This soil is considered prime farmland of statewide importance. Diablo clay is rated as a hydric soil because of hydric inclusions (NRCS 2018).

Linne clay loam, 3 to 15 percent slopes is a well-drained residuum and is derived from shale and sandstone. Linne clay loam has a depth of greater than 80 inches to the water table and is described as having a paralithic bedrock restrictive layer at depths of 20–40 inches. This soil is nonsaline to very slightly saline and is considered farmland of statewide importance. Linne clay loam is rated as a hydric soil because of hydric inclusions (NRCS 2018).

Linne clay loam, 15 to 30 percent slopes, is a well-drained residuum and is derived from calcareous shale. Linne clay loam has a depth of greater than 80 inches to the water table and is described as having a paralithic bedrock restrictive layer at depths of 35–50 inches. This soil is not considered prime farmland. Linne clay loam is rated as a hydric soil because of hydric inclusions (NRCS 2018).

Linne clay loam, 30 to 45 percent slopes, eroded is a somewhat poorly drained alluvium derived from sedimentary rock. Solano loam has a depth of 36 to 48 inches to the water table and a depth of greater than 80 inches to the restrictive layer. This soil is strongly saline and is not considered prime farmland. Linne clay loam is rated as a hydric soil (NRCS 2018).

## Hydrology

The project site spans the Lower Arroyo Las Positas watershed (HUC12 180500040302) and the Upper Arroyo Las Positas watershed (HUC12 180500040203). Both watersheds are a part of the San Francisco Bay watershed (HUC8 18050004). The segment of Cayetano Creek adjacent to the project site is a natural stream that has been manipulated and impounded upstream and downstream, which has altered its flow regime. There are three branches of Cayetano Creek that pass through the project site (but are not included within the project site boundaries); the main stem flows intermittently while both

minor branches only flow very infrequently during heavy precipitation events. Cayetano Creek ultimately drains to Alameda Creek and the San Francisco Bay.

The project site is not irrigated and consists almost entirely of annual grassland or dry cropland, which consists mostly of annual grasses. This site has been cultivated to grow hay and/or graze cattle for nearly a century. Water that may collect in depressional upland areas is from precipitation, which ultimately drains to Cayetano Creek adjacent to the site. One unnamed ephemeral stream on the northern parcel north of Manning Road transitions to an upland swale, and water terminates in uplands. There are no natural or manmade water conveyance features that direct flows to or from the site; flows entering or leaving the site would be limited to sheet flow or other forms of overland flow.

#### **4.4.3.2 General Biological Resources**

##### **Vegetation Communities/Land Cover Types within the Project Site**

Five vegetation communities/land cover types are present in the project site: developed, annual grassland, dryland grain crop, upland swale, and ephemeral stream. A habitat map is provided in Appendix A – Figure 5 of the Biological Resources Technical Report (Appendix E).

##### **Developed**

Developed areas, which comprise 2.82 acres in the project site, consist of areas that are graveled or supported buildings with associated ornamental vegetation. There are two areas in the project site that are classified as developed. The first developed area, at 1815 Manning Road and about 400 feet from Manning Road, is a former and abandoned homestead that is presently used by the property caretaker using one or more travel trailers, in the northern portion of the central parcel with trees that include black locust (*Robinia pseudoacacia*) and Peruvian pepper trees (*Schinus molle*). The other developed area is in the southeastern corner of the central parcel and is a graveled staging area with equipment being used for a gas line installation through the region. These isolated areas are heavily disturbed and consist mostly of bare ground or landscaped vegetation. Landscaped vegetation may provide habitat for wildlife such as nesting birds.

##### **Annual Grassland**

Annual grassland, which totals 267.77 acres in the project site, comprises the majority of the land cover in the central parcel and includes primarily grazed fields and field margins. Agricultural operations observed within the annual grassland in the central parcel consist of cattle grazing, with cattle actively grazing the project site during many of the surveys. This annual grassland community appears to have been functioning for agricultural use for nearly a century based on historical aerial imagery (Google Earth 2020). Most of the annual grassland in the project site is dominated by wild oats (*Avena fatua*), soft brome (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*) and ripgut brome (*Bromus diandrus*). Other portions of the annual grassland community are dominated by a mix of Italian rye grass (*Festuca perennis*), black mustard (*Brassica nigra*), medusahead (*Elymus caput-medusae*) and soft brome. The annual grassland seems to lack a significant population of fossorial mammal species as evidenced by very few California ground squirrels (*Otospermophilus beecheyi*) observed during the survey. Burrowing mammals were detected in the annual grassland but were very rare compared to areas adjacent to the project site along Cayetano Creek and the dryland grain crop in the northern parcel north of Manning Road.

### **Dryland Grain Crop**

Dryland grain crop, which comprises 138.76 acres in the project site, occupies most of northern parcel on the project site north of Manning Road and the two southern parcels. This habitat is dominated by oats and other annual grasses and is harvested for hay production. During the survey on August 1, 2018, the cropland in the northern parcel was harvested, and hay bales were stacked on the project site. On February 6, 25 and 26, 2020 the southern parcels on the project site were tilled and planted with oats or some other dryland grain crop. The dryland grain crop is not irrigated and functions in a similar fashion to annual grasslands in the central parcel and provides habitat for fossorial wildlife such as California ground squirrel, which were abundant during the survey. This cropland appears to have been functioning for agricultural use for nearly a century based on historical aerial imagery (Google Earth 2020). This vegetation community is dominated by oats but also contains weedy non-crop species such as soft brome, Italian rye grass, pineapple weed (*Matricaria discoidea*), and other annual grasses and forbs.

### **Upland Swale**

An upland swale is a low area on the landscape that appears to briefly channel water during periods of precipitation. Upland swales support vegetation that is consistent with upland areas such as annual grassland and dryland grain cropland in the project site, although more hydrophytes were observed in this area than the surrounding communities. One upland swale is present on the northern parcel and comprises 0.39 acre in the project site. Vegetation in this community is dominated by wild oat and Italian ryegrass, but also supports burclover (*Medicago polymorpha*), yellow star-thistle and pineapple weed.

### **Ephemeral Stream**

An ephemeral stream is characterized as a feature with a bed and a bank that channels water from uplands and typically only flows during periods of precipitation. Ephemeral streams have a brief hydroperiod which is not supported by groundwater, and flow in the streams stops after precipitation events have ceased or shortly thereafter. Ephemeral streams typically do not support wetlands due to their brief hydroperiods, although they typically have an incised bank. In the project site, there is one ephemeral stream totaling 0.08 acre that crosses the northwest corner of the northern parcel (north of Manning Road), which transitions into an upland swale as it re-enters the site. This ephemeral stream terminates in uplands and is not a tributary to any other streams. The ephemeral stream in the project site supports vegetation consistent with vegetation described in the annual grassland and is dominated by weedy non-crop species such as soft brome, Italian rye grass, yellow star-thistle, dove weed, and other annual grasses and forbs.

## **Vegetation Communities/Land Cover Types Adjacent to the Project Site**

### **Intermittent Stream (Cayetano Creek and its Tributaries)**

Cayetano Creek lies on APN 903-0006-001-02 just beyond the western boundary of the project site and generally parallels the western project site boundary (see Appendix A - Figure 5 in the Biological Resources Technical Report in Appendix E). Three ephemeral tributaries to Cayetano Creek also occur on APN 903-0006-001-02 and empty into Cayetano Creek adjacent to the western boundary of the site. The project site was designed to avoid impacts to Cayetano Creek and its tributaries, splitting the central



parcel into 4 disjunct segments. Because these drainages are adjacent to the project site, they are discussed below.

The segment of Cayetano Creek adjacent to the site flows intermittently. Cayetano Creek was observed flowing during the biological surveys conducted during winter and spring. Groundwater supports some of the flow characteristics of Cayetano Creek, with water persisting after rain events. Sections of Cayetano Creek adjacent to the project site support wetlands in the stream channel that consist of broad-leaved cattail (*Typha latifolia*), California bulrush (*Schoenoplectus californicus*), tall flatsedge (*Cyperus eragrostis*), saltgrass (*Distichlis spicata*), and common spikerush (*Eleocharis macrostachya*). Most of Cayetano Creek adjacent to the project site does not support wetland vegetation, with most of the vegetation consistent with vegetation in the annual grassland vegetation community. Adjacent to the project site, Cayetano Creek does not appear to be altered, rerouted or otherwise heavily disturbed by agricultural practices. Water impoundments or diversions upstream may decrease the amount of water available in the stream, although impoundments upstream are few and small. Cattle trails are present in the stream and along its banks, and this stream does experience heavy grazing from cattle in most years. The banks of this stream are steeply incised with a narrow stream channel. The tributaries to Cayetano Creek adjacent to the project site are ephemeral and appear to only flow for a short duration during and immediately after significant storm events. These tributaries support vegetation consistent with vegetation described in the annual grassland and are dominated by weedy non-crop species such as soft brome, Italian rye grass, yellow star-thistle, dove weed, and other annual grasses and forbs.

## Invasive Species

A total of 16 non-native species included on CDFA's category C list and/or having a rating of "high" or "moderate" on the Cal-IPC list were identified on the project site. There are no species both rated as "high" for invasiveness and listed in category C, on the project site. Several species rated as "high" on the Cal-IPC list are present on the site including fennel (*Foeniculum vulgare*), yellow star-thistle (*Centaurea solstitialis*), perennial pepperweed (*Lepidium latifolium*), and medusa head (*Elymus caput-medusae*). Other more widespread invasive species, such as wild oats, ripgut brome and hare barley (*Hordeum murinum*), are rated "moderate" for invasiveness and not listed in category C. All of these species would be expected to occur on site as they are fairly common in the area on agricultural parcels and disturbed areas.

## Wildlife

The annual grassland and dryland grain crop fields, which comprise the vast majority of the site, provide relatively poor habitat for non-volant terrestrial wildlife, due to human presence, and agriculture uses including disking of the soil, planting and harvesting in the dryland grain crop fields and trampling and denuding of the vegetation by cattle. In general, resident wildlife on the site are limited to relatively common and disturbance-tolerant species such as California ground squirrel, Botta's pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), Audubon's cottontail (*Sylvilagus auduboni*), black-tailed jackrabbit (*Lepus californicus*), western fence lizard (*Sceloporus occidentalis*), and pacific gophersnake (*Pituophis catenifer catenifer*). A variety of resident birds were also observed on the site typical of agricultural habitats including black phoebe (*Sayornis nigricans*), American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), red-wing blackbird (*Agelaius phoeniceus*), loggerhead shrike (*Lanius ludovicianus*), and savanna sparrow (*Passerculus sandwichensis*).

The banks of Cayetano Creek adjacent to the site support some fossorial (burrowing) mammals such as California ground squirrel and Botta's pocket gopher, which provide forage for other fossorial predators such as long-tailed weasel (*Mustela frenata*) and American badger (*Taxidea taxus*). Most fossorial mammals on the project site were observed in the northern parcel, north of Manning Road. Areas outside of the project boundary on surrounding grazed hillslopes primarily east, west and north of the project site currently support higher numbers of fossorial mammals as observed during numerous biological surveys. Coyotes have also been detected hunting and pursuing California ground squirrel outside of the project boundary and are likely raiding the chicken farm adjacent to the project site as evidenced by depredated chickens along the project boundary. Small patches of seasonal freshwater emergent wetland vegetation in Cayetano Creek adjacent to the site provide habitat for amphibians such as Sierran treefrog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*). Mule deer (*Odocoileus hemionus*) have also been observed adjacent to the project site moving along Cayetano Creek.

The annual grassland and dryland grain crop habitats in the project site do provide foraging habitat for raptors such as red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), and barn owl (*Tyto alba*); although in general, higher quality foraging habitat is present in grasslands in the hills north, east and west of the site because the height of the vegetation as observed during biological surveys was generally much shorter in the surrounding grasslands than the grassland on site making prey more accessible. Foraging habitat is also present in the dryland grain crop for special-status non-raptor species such as tri-colored blackbird (*Agelaius tricolor*) and a variety of common bat species that could roost in trees or structures surrounding the site. Trees and shrubs on and adjacent to the project site also provide nesting habitat for raptors and other birds. Tree cavities in valley oak trees along Cayetano Creek adjacent to the site likely support a variety of cavity nesting birds such as American kestrel (*Falco sparverius*) and oak titmouse (*Baeolophus inornatus*). The majority of the raptors and other special-status birds that have potential foraging habitat on the site do not have suitable nesting habitat on the site and would not be expected to take up residence on the site. For these species, the site represents occasional foraging opportunities. Potential habitat on the site for special-status species, including foraging habitat for raptors, other special-status birds, and bats is discussed in detail in Sections 4.4.4.2, 4.4.4.3, and 4.4.4.4.

#### 4.4.3.3 Special Status Species

Based on species ranges and habitat affinities, a total of 15 regionally occurring special-status species (Table 4.4-2) are either known to occur or have the potential to occur in the project site. Special-status species observed on the project site were limited to avian species and included long-eared owl (*Asio otus*), golden eagle, white-tailed kite, Swainson's hawk, northern harrier, Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), and loggerhead shrike; however, no nesting locations of special-status birds were observed on the project site. Red-tailed hawk was observed building a nest on February 26, 2020 in a valley oak tree west of Cayetano Creek outside of the project site and one barn owl was observed in an oak tree cavity and was also likely nesting along the creek adjacent to the site. No other special-status plant or wildlife species were observed on the project site. However, burrowing owl was observed approximately 200 feet east of the northern parcel.

**Table 4.4-2**  
**SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE**

Scientific Name Common Name	Regulatory Status <sup>1</sup>	Status in the Project Site <sup>2</sup>	Suitable Habitat in the Project Site
<b>Amphibians</b>			
<i>Ambystoma californiense</i> California tiger salamander	FT/ST/--	Habitat present (dispersal and upland refugia)	There is no suitable breeding habitat in or immediately adjacent to the project site. The segment of Cayetano Creek and its tributaries adjacent to the site and the ephemeral stream on the project site do not provide breeding habitat for this species. Suitable ponds near the project site provide habitat and known records of breeding California tiger salamanders. California tiger salamander could occur moving through the project site and use Cayetano Creek and other ephemeral streams adjacent to the site as aquatic non-breeding habitat during periods of dispersal.
<i>Rana draytonii</i> California red-legged frog	FT/--/SSC	Habitat present (dispersal and upland refugia)	There is no suitable breeding habitat on the project site. The segment of Cayetano Creek and its tributaries adjacent to the site and the ephemeral stream in the project site do not provide breeding habitat for this species. Suitable ponds near the project site provide habitat and known records of breeding CRLF. CRLF could occur moving through the project site and use Cayetano Creek and other ephemeral streams adjacent to the site as aquatic non-breeding habitat during periods of dispersal.
<b>Birds</b>			
<i>Accipiter cooperi</i> Cooper's hawk	--/--/WL	Present (foraging)	The project site provides suitable foraging habitat for Cooper's hawk, but nesting habitat is absent from the site. Cooper's hawk was observed foraging over the site during biological surveys. This species is discussed under <i>Foraging Habitat for Special-Status Birds</i> .
<i>Agelaius tricolor</i> Tricolored blackbird	--/SC/--	Habitat present (foraging)	The project site and adjacent areas lack suitable breeding habitat for tricolored blackbird, but potential foraging habitat is present. Tricolored blackbird was not observed on the site during numerous biological surveys. This species is discussed under <i>Foraging Habitat for Special-Status Birds</i> .
<i>Ammodramus savannarum</i> Grasshopper sparrow	--/--/SSC	Habitat present (nesting and foraging)	The project site consists of open habitat with non-native annual grasses and forbs that could provide nesting habitat for this species.
<i>Asio otus</i> Long-eared owl	--/--/SSC	Present (foraging)	Long-eared owl was detected adjacent to the project site during night surveys for CRLF in Cayetano Creek. This species could use trees adjacent to the project site for nesting. There are no CNDDDB records for this species in Alameda County. This owl was observed foraging in the creek and perching on annual vegetation on the top of the bank outside of the project site.

**Table 4.4-2 (cont.)**  
**SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE**

Scientific Name Common Name	Regulatory Status <sup>1</sup>	Status in the Project Site <sup>2</sup>	Suitable Habitat in the Project Site
<i>Athene cunicularia</i> burrowing owl	--/--/SSC	Habitat present (nesting and foraging)	The project site provides foraging habitat and potential nesting/wintering habitat for burrowing owl. Mammal burrows are abundant in the northern parcel north of Manning Road, and burrowing owl pellets and feathers have been observed along the fence line of the northern parcel and along Cayetano Creek adjacent to the project site. On June 17, 2020 two juvenile burrowing owls were observed at a burrow approximately 200 feet east of the northern parcel and appeared to be recently fledged owls. A follow up survey conducted on July 14, 2020 documented four juvenile burrowing owls at this burrow.
<i>Aquila chrysaetos</i> golden eagle	--/--/FP	Present (foraging)	Golden eagles were routinely observed foraging over the project site during surveys in 2018 and 2020. Annual grassland and dryland grain crop with small mammal prey provide suitable foraging habitat. There are no suitable nest trees on the project site and no potential nests have been observed on the site.
<i>Buteo regalis</i> Ferruginous hawk	--/--/WL	Present (foraging)	The project site provides suitable foraging habitat for ferruginous hawk, but this species does not nest in California. Ferruginous hawk was observed foraging over the site during biological surveys. This species is discussed under <i>Foraging Habitat for Special-Status Birds</i> .
<i>Buteo swainsoni</i> Swainson's hawk	--/ST/--	Present (foraging)	The project site is outside of the nesting range of Swainson's hawk but provides some foraging opportunities. Swainson's hawk was observed foraging on the project site. This species is discussed under <i>Foraging Habitat for Special-Status Birds</i> .
<i>Circus cyaneus</i> northern harrier	--/--/SSC	Present (foraging); Habitat present (nesting)	Nesting habitat for northern harrier is present in the project site in annual grasslands and along Cayetano Creek adjacent to the site. Fields provide suitable foraging habitat. Both a male and female were observed on site during surveys in February and March 2020.
<i>Elanus leucurus</i> white-tailed kite	--/--/FP	Present (foraging)	Habitat is present for this species since potential nesting trees are adjacent to the project site, which is surrounded by annual grassland. Trees that could provide nesting habitat for this species are abundant near the project site and white-tailed kite was observed on site during surveys in 2020. There is one record of this species nesting within a 5-mile radius of the project site.
<i>Lanius ludovicianus</i> loggerhead shrike	--/--/SSC	Present (nesting and foraging)	Open habitat with perching sites along fences and some shrubs and small trees provides suitable nesting and foraging habitat for this species. This species was observed foraging in the project site during most surveys. On June 17, 2020 a pair of loggerhead shrikes were observed passing through the site and feeding recently fledged young.

**Table 4.4-2 (cont.)**  
**SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE**

Scientific Name Common Name	Regulatory Status <sup>1</sup>	Status in the Project Site <sup>2</sup>	Suitable Habitat in the Project Site
<b>Mammals</b>			
<i>Taxidea taxus</i> American badger	--/--/SSC	Habitat present (denning and foraging)	The site has potential habitat since fossorial prey is present in the northern parcel north of Manning Road, but scarce south of Manning Road. The surrounding grazed hills to the north of the northern parcel provide good habitat since there is a healthy population of California ground squirrel in the area outside of the project boundary. The nearest CNDDDB record is located approximately 4.5 miles west from the project site, which documents a mother badger with young (CDFW 2020). Badger burrows or badger excavations were not observed on the project site.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST/--	Habitat present (dispersal and foraging)	Marginal denning habitat is present for this species since friable soils are absent. Fossorial prey is present in dryland grain crop vegetation community. However, potential kit fox burrows or excavations were not observed during surveys. The project site is at the northwestern extent of this species' known range. There are several CNDDDB records for this species within a 5-mile radius of the project site, with the nearest located approximately 2.7 miles north of the project site. The record documents a natal den from 1989. Subsequent surveys using scent tracking dogs have not identified kit fox in Alameda County.

<sup>1</sup> Regulatory Status is FESA listing/CESA listing/Other state status. FE=Federal Endangered; FT = Federally Threatened; ST=State Threatened; FP=Fully Protected; SSC=Species of Special Concern; WL = Watch List.

<sup>2</sup> Status in the project site is based on results of studies discussed in Section 4.4.2.

#### **4.4.4 RESULTS: EVALUATION OF BIOLOGICAL RESOURCES**

##### **4.4.4.1 Special-status Species with the Potential to Occur in the Project Site**

##### **Special Status Plant Species**

No special-status plants were determined to have the potential to occur on the site due to lack of habitat and the disturbed nature of the site. No special-status plants were observed on the site during focused botanical surveys conducted during the blooming season of target special-status plants. Therefore, special-status plants are presumed absent from the site. No impacts to special-status plants would occur as a result of the proposed project.

##### **Special Status Animal Species**

Based on species ranges and habitat affinities, a total of 15 regionally occurring special-status species (Table 4.4-2) are either known to occur or have the potential to occur in the project site consisting of two special-status amphibians, 11 special-status birds, and two special-status mammals. Special-status species are evaluated in detail in the following sections. Species descriptions for special-status birds are taken from Shuford and Gardali (2008), or from other sources as noted.

## California Tiger Salamander

Federal status – Threatened

State status – Threatened

### *Species Description*

The historic range of California tiger salamander (*Ambystoma californiense*) (CTS) was endemic to the San Joaquin-Sacramento River Valleys, bordering foothills and coastal valleys in what was considered a contiguous distribution (USFWS 2017). Currently, the population extends from Petaluma in Sonoma County (Sonoma DPS), east to the Colusa and Yolo County line, with an isolated population near Gray Lodge Wildlife area north of the Sutter Buttes, and south through the Central Valley to Santa Barbara County (Santa Barbara DPS) (Jennings and Hayes 1994). Today the species is known to occur in about 23 counties and is found primarily in low elevation grassland-oak woodland plant communities of Central California (USFWS 2017).

CTS occupies a distinct habitat of both aquatic and terrestrial components that consist of aquatic breeding and non-breeding areas embedded within a matrix of habitats used for dispersal, or refugia. Breeding aquatic habitat consists typically of ephemeral freshwater bodies, such as ponds, vernal pools, constructed ponds and other stock ponds. Permanent bodies of water are occasionally used for breeding, but permanent water bodies must be free of potential predators to eggs and larva, such as fish and American bullfrog (*Lithobates catesbeianus*). Non-breeding habitat is located in uplands away from ponds, typically in mammal burrows, where CTS will spend most of their life (USFWS 2017).

A complex of upland habitat with burrowing mammals and breeding ponds are necessary habitat components required for this species to persist (USFWS 2017). During the onset of fall precipitation, CTS will emerge from their burrows and migrate to breeding habitat. Eggs are laid along the margins of ponds individually or in small clusters on vegetation or other debris (Jennings and Hayes 1994). The breeding season typically occurs from November through April (USFWS 2017) and is likely influenced by local precipitation and ambient temperature. Females typically lay eggs between December and early April. Larvae typically metamorphose in three to six months and juveniles begin to move out of the natal pond in late spring or early summer, and rarely overwinter (USFWS 2017). When juveniles leave their natal ponds, they distribute into uplands in search of suitable underground refugia, which typically consists of mammal burrows excavated by California ground squirrel and Botta's pocket gopher (USFWS 2017). Very little is known of CTS behavior while underground.

The project site is within the current and historic range of CTS according to the Recovery Plan for the California Tiger Salamander (*Ambystoma californiense*) (USFWS 2017). The Recovery Plan designated four Recovery Units within California. Within each Recovery Unit, specific management Units are identified for focused recovery efforts. The project site is located within the Central Valley Recovery Unit and the Concord/Livermore Management Area. The project site is not located within federally designated critical habitat.

### *Survey History*

No CTS were observed on or adjacent to the project site during any biological surveys, including two full seasons (16 surveys) of protocol surveys for CRLF, which were conducted by individuals with federal recovery permits for CTS (Stephen Stringer, Dr. Padgett-Flohr, Jennifer Gonterman, Patrick Martin) and

included searching all aquatic habitats, including ephemeral drainages, on and adjacent to the site. None of the streams in or adjacent to the project site, including Cayetano Creek and its tributaries adjacent to the central and southern parcels and the ephemeral drainage in the northern parcel, meet the habitat requirements for CTS breeding because they are too shallow (if they have water at all) and do not provide water of sufficient depth for a long enough duration to support larval development of CTS. CTS could potentially use these streams for dispersal between other more suitable habitats off-site.

There are no reported occurrences of CTS on the project site, although there are 35 CNDDDB records that document occurrences of CTS within 3.1 miles of the project site. Most of the CNDDDB records are recent and document breeding ponds or vernal pool complexes situated in annual grasslands that also provide upland habitat. The closest reported occurrence (Occurrence no. 238) of CTS to the project site is located adjacent to the southeastern portion of the project site and east of North Livermore Avenue and represents an observation of several adults during protocol surveys which were conducted in 1997 (CDFW 2020). Dublin Ranch Conservation Area east of the project site also has several breeding ponds (CDFW 2020). There are several other records near the project site with potential breeding habitat visible on aerial imagery (Google Earth 2020).

#### *Habitat Suitability*

The project site does not provide suitable breeding habitat for CTS and is not being used by CTS for breeding based on the results of 16 protocol surveys for CRLF within aquatic habitats on and adjacent to the site over two wet seasons. The project site provides potential dispersal habitat for CTS since the project site is within the current range of CTS and there are several records documenting their presence within a one-mile radius of the project site. Potential dispersal by CTS could occur on or adjacent to the site, primarily within and adjacent to Cayetano Creek and its tributaries, although no CTS were observed during protocol surveys for CRLF, several of which were conducted during light rain events to target amphibians moving through uplands. Upland refuge sites are scarce on the central parcel on the project site and are limited to cracks in the clay soil or in California ground squirrel burrows primarily located in the northern parcel north of Manning Road. Ground squirrel burrows are more abundant adjacent to the project site along Cayetano Creek and in the hills north of the northern parcel north of Manning Road.

#### *Potential for Adverse Effects*

The potential for adverse effects to CTS as a result of the proposed project are discussed in Section 4.4.6.

### **California Red-Legged Frog**

Federal status – Threatened

State status – Species of special concern

#### *Species Description*

The historic range of CRLF extends from Baja California, Mexico, north to the vicinity of Redding inland, and at least to Point Reyes, California coastally (Jennings and Hayes 1994). Today the species is known to occur in about 238 streams or drainages in 23 counties and is found primarily in wetlands and streams in the coastal drainages of Central California. Records of the species are known from Riverside County to Mendocino County along the Coast Range, from Calaveras County to Butte County in the Sierra Nevada,

and in Baja California, Mexico. CRLF are still locally abundant within portions of the San Francisco Bay area (including Marin County) and the central coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges (USFWS 2010a). In the Sierra Nevada, CRLF historically occupied portions of the lower elevations west of the crest from Shasta County south to Tulare County. Almost all known CRLF populations have been documented at elevations below 3,500 feet amsl with some historical sightings documented at elevations up to 5,200 feet amsl.

Within its range, CRLF occupies a distinct habitat of both aquatic and terrestrial components that consist of aquatic breeding and non-breeding areas embedded within a matrix of habitats used for dispersal, or refugia. Breeding and non-breeding aquatic habitat consists of low-gradient freshwater bodies, including ponds, marshes, sag ponds, dune ponds, stock ponds, lagoons, seeps, springs, and backwaters within streams and creeks. This species does not inhabit water bodies that exceed 70 degrees Fahrenheit if there are no cool, deep portions (USFWS 2002). Important characteristics of aquatic breeding habitat include still or slow moving fresh water (with salinities of less than 7.0 parts per thousand) deeper than 2.3 feet (0.7 meter) with dense, shrubby emergent or overhanging vegetation that provides egg deposition sites and cover for adult frogs (Jennings and Hayes 1994; USFWS 2002) and that persists for a minimum of 20 weeks following the breeding season to allow tadpoles to mature (USFWS 2010a). The breeding season typically occurs from November through April (USFWS 2002) and is likely influenced by local precipitation and ambient temperature. Females typically lay eggs between December and early April. Tadpoles typically metamorphose in 11 to 20 weeks, from July to September, but may overwinter in some sites. The largest populations of CRLF are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) intermixed with cattails. Adults feed primarily on aquatic and terrestrial invertebrates, but may feed on tadpoles, smaller frogs, small mammals, and fish. Juvenile frogs are active diurnally and nocturnally, and adult frogs are largely nocturnal (USFWS 2002).

CRLF are generally found in or near water but may disperse into uplands during the wet season to migrate to breeding habitat or for foraging, or in response to receding water during the driest time of the year. Well-vegetated terrestrial areas within a riparian corridor may provide important sheltering habitat when temperatures are cold in the winter or when water is unavailable during dry periods. CRLF spend considerable time resting and foraging in riparian vegetation when it is present (USFWS 2002). The use of the adjacent riparian corridor during summer is most often associated with drying of creeks in mid- to late-summer (Rathbun in litt., 1994 in USFWS 1996). During dry periods, CRLF remain close to water and often disperse upstream or downstream from their breeding habitat to forage or seek aestivation sites if water is not available (USFWS 2002). This habitat may include shelter under boulders, rocks, logs, industrial debris, agricultural drains, water troughs, small mammal burrows, incised stream channels, or areas with moist leaf litter (Jennings and Hayes 1994; USFWS 2002). Most CRLF do not disperse farther than the nearest suitable cold-shelter or aestivation habitat. CRLF have been found up to 200 feet from water in adjacent dense riparian vegetation (USFWS 2010a).

During periods of wet weather, individuals may disperse through uplands to migrate between aquatic breeding sites and have been observed making straight-line point to point migrations rather than using stream corridors (USFWS 2002). Movements of up to two miles have been reported (Fellers and Kleeman 2007), but one mile represents a more typical dispersal distance for breeding migration. Most overland movements occur at night (USFWS 2002).

The primary constituent elements of habitat for CRLF are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by



unfragmented dispersal habitat. Specifically, to be considered to have the primary constituent elements, an area must include two (or more) suitable breeding locations, a permanent water source, associated uplands surrounding these water bodies up to 300 feet from the water's edge, all within 1.25 miles of one another and connected by barrier-free dispersal habitat that is at least 300 feet in width (USFWS 2002).

#### *Survey History*

Two full seasons of protocol surveys for CRLF were conducted on the proposed project site. Surveys were conducted in two locations including Cayetano Creek and its tributaries adjacent to the central and southwest parcels and one ephemeral drainage in the northwest corner of the northern parcel. These were the only features in and adjacent to the site that were determined to provide potential aquatic habitat for CRLF. A total of eight surveys were conducted between January 30th and July 31st of 2018 and an additional eight surveys were conducted from February 6th to July 14th of 2020. For further information on CRLF protocol surveys, including survey data sheets, see Appendix F in the Biological Resources Technical Report (Appendix E).

The segment of Cayetano Creek adjacent to the site is a natural stream with intermittent flow, receiving most of its water from a combination of precipitation and groundwater. The stream channel is mostly vegetated with herbaceous upland species consistent with annual grasses and forbs in annual grassland habitat. Portions of the stream support wetland vegetation, which consists of broad-leaved cattail, California bulrush, tall flatsedge, saltgrass, and common spikerush and other emergent vegetation. The stream channel is an average of 5 to 6 feet in width and has an estimated maximum depth of 3-4 feet, although the top of bank width is approximately 20 feet wide. The maximum water depth observed during any of the CRLF surveys was only a few inches in 2018 and approximately 12 inches in 2020 in several small short-lived pools. Pools along the stream are small and shallow and are mostly located at the southern and northern reaches of the stream. There are no pools or deep-water areas within the stream that could support breeding CRLF. Amphibian species observed in the stream during the surveys included Sierran treefrog and western toad.

No CRLF were observed in the Cayetano Creek or its tributaries during any of the protocol surveys. The stream does not meet the habitat requirements for CRLF breeding because it is too shallow and does not provide water of sufficient depth for a long enough duration to support breeding CRLF. CRLF could potentially use the stream for dispersal between other more suitable habitats offsite since the stream holds moisture and hydrophytes into the summer.

There are 5 documented locations where CRLF have been reported in the CNDDDB within a one-mile radius of the project site (CDFW 2020). There are 9 additional reported occurrences on the Byron Hot Springs quad that show up with a one-mile radius search, but these records are non-specific records that cover the entire quad. The actual location of these reported occurrences appears to be outside of the one-mile radius and these records are not reported here.

The closest reported occurrence (Occurrence no. 297) of CRLF to the project site is located less than 0.5 mile southeast of the project site where juveniles were observed dispersing from Altamont Creek in non-native annual grassland in January of 1997. The exact location where the frogs were seen is unknown as the location of the reported occurrence is a non-specific polygon covering approximately 1,100 acres. The next closest record (Occurrence no. 1382) is approximately 0.6 mile west of the western project boundary south of Manning Road and along a branch of Cayetano Creek (CDFW 2020).

That record is of two adult CRLF and approximately 50 tadpoles that were observed in May 2013 in a riparian area dominated by willow. The creek was not flowing, but a remnant pool with a depth of between 2-3 feet provided habitat for CRLF (CDFW 2020). The branch of Cayetano Creek where the CRLF have been reported has stretches of dense riparian vegetation and holds water into at least late August in at least some years based on aerial imagery (Google Earth 2020; imagery date 8/31/2017), whereas the segment of Cayetano Creek adjacent to the project site has very sparse riparian vegetation consisting primarily of single trees and rarely holds any water past spring based on survey results and a review of aerial imagery (Google Earth 2020).

#### *Habitat Suitability*

The project site is located adjacent to Critical Habitat Unit CCS-2B, Mount Diablo, which is in Alameda County and Contra Costa County, north of Interstate 580. This Critical Habitat was considered occupied at the time of the April 16, 2010 ruling, and is in the San Francisco Bay watershed. The western portion of APN 903-0006-001-02, which is being split off as a separate parcel and is not part of the project site, is within designated Critical Habitat Unit CSS-2B. The project site was chosen in part because it is not located within the designated Critical Habitat and does not support breeding habitat surrounded by high quality upland habitat.

Based on the results of the site assessment and protocol surveys for CRLF, the project site lacks suitable breeding habitat for CRLF, but provides potential upland dispersal habitat for CRLF since the project site is within the current range of CRLF, federally designated Critical Habitat occurs adjacent to the project site to the north, east, and west, this species is documented breeding within one mile of the project site in the CNDDDB, and there are other pools within one mile of the project site that provide potential breeding habitat for CRLF. Potential dispersal by CRLF could occur through the uplands on the site as well as through segments of Cayetano Creek and its tributaries adjacent to the site. However, no CRLF were observed in or adjacent to the site during two seasons of CRLF protocol surveys or any other biological surveys. The project site does not provide suitable breeding habitat and is not being used by CRLF for breeding.

The project site is located within a larger geographic area that provides high quality habitat for CRLF and supports populations of CRLF breeding in constructed and natural ponds within a grassland matrix with dispersal habitat consisting of uplands as well as intermittent and ephemeral drainages. The project site itself does not provide breeding habitat for CRLF and is not a high-quality dispersal corridor. Although the project site supports annual grassland and provides potential for upland dispersal, it is peripheral to designated Critical Habitat and these higher quality habitats for CRLF and is on the edge of developed areas that are less suitable. The central and southern parcels in the project site are bordered by North Livermore Ave. on the east and the central parcel is also bordered by Manning Road on the north; these roadways may pose dispersal barriers to CRLF as does the chicken farm that separates the central and southern parcels. Although the potential for CRLF to disperse through the uplands or use the site for upland refugia (particularly in portions of the site adjacent to Cayetano Creek and its tributaries) cannot be ruled out, the site otherwise lacks suitable habitat for CRLF and also would not be expected to be highly utilized by this species as evidenced by the lack of sightings.

#### *Potential for Adverse Effects*

The potential for adverse effects to CRLF as a result of the proposed project are discussed in Section 4.4.6.

**Grasshopper Sparrow**

Federal status – none

State status – species of special concern

*Species Description*

Grasshopper sparrow are summer residents of the San Joaquin Valley and nest in along the foothills and lowlands up to 5,000 feet amsl. They use dense grasslands, forb, and scattered shrubs of grassland habitats. In addition to natural habitats, grasshopper sparrow can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Grasshopper sparrow forage in adjacent grasslands and other suitable habitats primarily for invertebrates and seeds. Grasshopper sparrow are reliant on dense vegetation for cover while foraging and nesting. Grasshopper sparrow nest on the ground in tall grasses and commonly perch on fence posts, shrubs or tall vegetation for singing.

*Survey History*

Grasshopper sparrow was not observed in the project site during any of the biological surveys. The nearest CNDDDB reported occurrence (Occurrence no. 21) of grasshopper sparrow is located 1.6 miles east of the project site. The reported occurrence describes breeding pairs in a grassland preserve with surrounding land uses consisting of rural residential homes, shooting range and cattle grazed land (CDFW 2020).

*Habitat Suitability*

The entire project site provides marginal potential foraging and nesting habitat for grasshopper sparrow. The project site is dominated by annual grasses and forbs. Fence posts, tall annual weeds and sparse shrubs provide perches for singing. However, the project site is actively grazed by cattle, and areas that are heavily grazed do not provide habitat for this species, since grazing removes foraging and cover sites for nesting. Potential threats to grasshopper sparrow in the project site include harvesting of oats in the northern and southern parcels and cattle grazing in the central parcel. Both existing land practices may diminish the quality of the grassland habitat and or result in mortality of individuals or nests located in the annual grass dominated vegetation communities, rendering the site inhospitable to this species.

*Potential for Adverse Effects*

The potential for adverse effects to grasshopper sparrow as a result of the proposed project are discussed in Section 4.4.6.

**Golden Eagle**

Federal status – The Bald and Golden Eagle Protection Act

State status – Fully Protected (nesting and wintering)

*Species Description*

Golden eagle is an uncommon permanent resident and migrant throughout California. Golden eagle nests on cliffs or in large trees in open habitats. Preferred habitats are in steep mountainous terrain with canyons and ledges for nesting. Golden eagles are year-round residents of California and typically do not

migrate but may move to lower or higher elevations depending on the season. Golden eagle nests are usually located on cliffs, but they will also use large trees with a commanding view of the landscape as well as electrical towers for nesting. Golden eagle requires open areas for hunting, such as rolling foothills, grasslands, deserts, shrublands and early successional stages of forest habitats. Golden eagles primarily feed on rodents and lagomorphs; however, they will feed on a variety of prey including other small mammals, birds, reptiles, carrion and on occasion domestic calves and lambs (Zeiner et al. 1990).

#### *Survey History*

The project is in the Livermore area, which has been documented to have one of the highest territory densities ever documented for this species at one pair per 19 km<sup>2</sup> (Hunt et al. 1998). Golden eagle was observed soaring over the project site during most biological surveys conducted in 2018 and 2020. During the surveys, golden eagles were observed flying from west to east during the late morning and then returning in the afternoon (traveling east to west). Golden eagles were observed soaring high over the project site and then foraging low over the surrounding hillslopes (out of the project site) pursuing California ground squirrel.

There are several reported occurrences in the CNDDDB of golden eagle nests within a 5-mile radius of the project site (CDFW 2020). The nearest CNDDDB record (Occurrence no. 70) is located approximately 2 miles north of the project site near Vaquero Reservoir. Another CNDDDB record (Occurrence no. 84) is located 4 miles west of the project site along Camino Tassajara Road. Both records document nests in oak trees (CDFW 2020), which are situated similarly to valley oak trees adjacent to the project site along Cayetano Creek. HELIX biologist Patrick Martin is familiar with the golden eagle nest (CNDDDB Occurrence no. 84) and observed activity at this nest in 2017 while conducting surveys for the County of Contra Costa. Golden eagle flights over the project site appear to originate from the general direction of this nest along Camino Tassajara Road and may be birds nesting in that location that are travelling to foraging grounds north and east of project site.

#### *Habitat Suitability*

There is no suitable nesting habitat for golden eagle on the project site. The site itself is treeless (except for three or four small horticultural trees and stunted oak trees around the former homestead in the central parcel) and consists entirely of grazed annual grassland and on some portions, dryland grain crop fields. Several large valley oak trees are located along Cayetano Creek adjacent to the site and other potentially suitable nesting habitat surrounding the project site includes other large oak trees and large stands of eucalyptus trees. However, because the large trees are situated around rural residential homes, which typically are not suitable nest locations for golden eagle, golden eagle is not expected to nest adjacent to the project site. No raptor nests that could support a golden eagle were detected in any of the large valley oak trees adjacent to the site during the surveys. One of these large valley oak trees adjacent to the site was found to have a red-tailed hawk nest during surveys in 2018 and 2020. The project site provides potential foraging habitat for golden eagle. Prey is present in the project site, with several occupied California ground squirrel burrows observed on the project site concentrated in the northern parcel. Black-tailed jackrabbit and Audubon's cottontail are also present in the annual grassland community on the central parcel.

#### *Potential for Adverse Effects*

The potential for adverse effects to golden eagle as a result of the proposed project are discussed in Section 4.4.6.

## **Long-eared Owl**

Federal status – none

State status – species of special concern

### *Species Description*

Long-eared owl nests and roosts in conifer, oak and riparian habitat. Typically, nests are located in open forests, or in dense forests on the edge of grasslands or another open habitat. This species will use old hawk or corvid nests, squirrel nests, woodrat nests or mistletoe brooms. This species forages in open habitat and rarely in wooded areas, and typically perches in dense areas relying on camouflage to remain undetected. This species has long wings and flies buoyantly and low over the ground and feeds almost exclusively on small mammals but will opportunistically take birds and rabbits.

### *Survey History*

Long-eared owl was detected on-site and evidence of other long-eared owl perch locations were also identified. During CRLF nighttime surveys, this species was detected by eye-shine perched on vegetation along Cayetano Creek adjacent to the project site. Small rodent prey was also detected by eye shine and appeared to be abundant in the annual grassland where the long-eared owl was foraging. Additionally, whitewash and large owl pellets were observed at other locations along Cayetano Creek adjacent to the project site that are consistent with long-eared owl pellets and were located similarly along the creek where the long-eared owl was observed to be perched while foraging. Long-eared owl nesting was not observed on the project site and there are no known occupied nest locations in or immediately adjacent to the project site (reported in the CNDDDB sources). However, other accounts from eBird document observations of long-eared owl in the Livermore area.

There are no CNDDDB reported occurrences for long-eared owl within a 5-mile radius of the project site or within Alameda County.

### *Habitat Suitability*

The entire project site provides potential foraging habitat for long-eared owl and large trees along Cayetano Creek adjacent to the site provide potential nesting habitat. Annual grassland and dryland grain crop habitat in the project site provide abundant habitat for prey resources. No suitable nest trees for long-eared owl occur in the project site.

### *Potential for Adverse Effects*

The potential for adverse effects to long-eared owl as a result of the proposed project are discussed in Section 4.4.6.

## **Burrowing Owl**

Federal status – none

State status – species of special concern

### *Species Description*

Burrowing owls are often found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls occur at elevations ranging from 200 feet below mean sea level to over 9,000 feet amsl. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet amsl in Lassen County. In addition to natural habitats, burrowing owls can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Burrowing owls forage in adjacent grasslands and other suitable habitats primarily for insects and small mammals, and less often for reptiles, amphibians, and other small birds. Burrowing owls nest in burrows in the ground and commonly perch on fence posts or mounds near the burrow. The owls often use ground squirrel burrows or badger dens or artificial burrows such as abandoned pipes or culverts. Although the more northern burrowing owl populations migrate seasonally, burrowing owls are year-round residents of the San Joaquin Valley. In the San Joaquin Valley, the nesting season for burrowing owl can begin as early as February 1 and continues through August 31.

### *Survey History*

Burrowing owls or sign was not observed in the project site during biological surveys conducted in 2018. However, several burrowing owl pellets and feathers were observed along the northern boundary of the project site and throughout Cayetano Creek adjacent to the project site during burrowing owl protocol surveys conducted in 2020. However, burrowing owl pellets were not observed in association with any burrows or owls and were likely a result of transient owls passing through the site or the creek, which represents an area used by burrowing owls to forage. On June 17 and 18, 2020, two juvenile burrowing owls were observed at a burrow east of the northern parcel approximately 200 feet from the project boundary (see Appendix A-Figure 5 in the Biological Resources Technical Report in Appendix E). Both owls were observed making short flights during daylight hours and returning to the burrow over two days. A follow up survey conducted on July 14, 2020 confirmed that four juvenile burrowing owls were at this burrow. Mature burrowing owls were not observed at this burrow. These owls likely originated from a nest nearby and are dispersing away from the nest. Burrowing owl pellets and feathers detected earlier in the 2020 survey season indicate that burrowing owls forage in the project site although no burrowing owls were observed while conducting nighttime surveys for CRLF.

No other indication of burrowing owl was detected. Burrowing owls were not observed at any of the California ground squirrel burrows or at any of the culverts or abandoned pipes located in the project site. Additionally, very little burrow habitat was observed in the project site in the central and southern parcels south of Manning Road. A few burrows located south of Manning Road were limited to Cayetano Creek and its banks outside of the project site. Most burrow habitat for this species was detected on the northern parcel north of Manning Road with several California ground squirrel burrows located throughout the project site.

There are eight CNDDDB reported occurrences of burrowing owl within a 2-mile radius of the project site with the nearest reported occurrence (Occurrence no. 257) located approximately 0.55 mi southeast where burrowing owls were documented nesting in grazed grassland with ground squirrel burrows in spring/summer of 1997. The next closest record (Occurrence no. 46) is located approximately 1.2 miles southeast of the project site. This observation documents two burrowing owls during the winter along the road. Another CNDDDB record (Occurrence no. 642) documents a pair of burrowing owl nesting in a preserve approximately 1.25 miles east of the project site in 2016 (CDFW 2020).

### *Habitat Suitability*

The project site provides potential foraging habitat for burrowing owl primarily in the dryland grain crop in the northern and southern parcels; much of the central parcel is comprised of tall grass, which is typically avoided by burrowing owl. Mammal burrows are present adjacent to the project site along Cayetano Creek, along the fence line of the northern parcel north of Manning Road, and in the dryland grain crop north of Manning Road providing potential nesting habitat for burrowing owl. Annual grassland habitat in the central parcel south of Manning Road is nearly devoid of burrowing mammals and the grassland consists of tall grass which is typically avoided by burrowing owl. No burrows showing sign of occupancy by burrowing owl were detected anywhere inside the project site boundaries, although suitable burrows are present.

### *Potential for Adverse Effects*

The potential for adverse effects to burrowing owl as a result of the proposed project are discussed in Section 4.4.6.

### **Northern Harrier**

Federal status – none

State status – species of special concern

### *Species Description*

Northern harrier is widespread throughout North America from southern Canada to northern Mexico and is a year-round resident in California. Population sizes increase during the non-breeding season due to over-wintering migrants. Northern harrier is also considered to be somewhat nomadic and will range widely even during nesting season. Northern harriers breed in a variety of open habitats including marshes, wet meadows, weedy shorelines, grasslands, weed fields, pastures, sagebrush flats, desert sinks, and croplands. Northern harrier nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breeding occurs from March to August. Northern harriers feed on a wide variety of vertebrate prey, including rodents, songbirds, waterfowl, and lizards.

### *Survey History*

Northern harrier was observed on the project site during several biological surveys in 2020. Both a male and female pair were observed foraging regularly over the central parcel on the project site. Annual grassland habitat in the central parcel on the project site provides habitat for nesting and foraging. Small mammal prey is abundant on portions of the project site and adjacent areas and could support this species. No northern harrier nests or breeding behaviors were observed during surveys in 2020. The nearest CNDDDB reported occurrence of northern harrier documents a nesting pair located approximately 4 miles west of the project site in the foothills (CDFW 2020).

### *Habitat Suitability*

Grazed annual grassland and dryland grain crop vegetation communities in the project site provide suitable foraging habitat for northern harrier. The project site provides suitable nesting habitat throughout the grassland where tall vegetation is present and suitable nesting habitat is adjacent to the project site along Cayetano Creek.

### *Potential for Adverse Effects*

The potential for adverse effects to northern harrier as a result of the proposed project are discussed in Section 4.4.6.

### **White-tailed Kite**

Federal status – none

State status – fully protected

### *Species Description*

White-tailed kite is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to over-wintering migrants. White-tailed kite prefers open stages of habitats dominated by herbaceous species (Zeiner et al. 1990). White-tailed kite will nest in tall trees adjacent to foraging habitat (Zeiner et al. 1990). White-tailed kites feed mainly on small mammals such as voles (*Microtus* spp.) but will take other small vertebrate and invertebrate prey.

### *Survey History*

White-tailed kite was observed in the project site during biological surveys in 2020. Two white-tailed kites were observed foraging in the annual grassland habitat on the site and perching in the large valley oak trees west of the site along Cayetano Creek. There are no suitable nest trees for white-tailed kite on the project site. However, suitable large valley oaks trees that provide potential nesting habitat for white-tailed kite are present adjacent to the site along Cayetano Creek although no white-tailed kite nests were observed in any of these trees. Only one raptor nest was observed in the large valley oak trees adjacent to the project site, which was being used by a red-tailed hawk on February 26, 2020.

There are no reported occurrences of white-tailed kite nesting in or adjacent to the site. The nearest CNDDDB reported occurrence (Occurrence no. 81) of white-tailed kite documents a nesting pair located approximately 4.5 miles west of the project site (CDFW 2020). The record documents a nesting pair from 1992 using an oak tree.

### *Habitat Suitability*

Annual grassland that is currently managed for cattle grazing and dryland grain crop fields in the project site provides suitable foraging habitat for white-tailed kite. Suitable nesting habitat is adjacent to the project site along Cayetano Creek where there several large valley oak trees rooted in the bank of the stream. The lands surrounding the project site consists primarily of a mix of active cattle grazed land, annual grassland and dryland grain crop fields that have been historically cultivated for agriculture and is subject to routine disturbance. These lands provide abundant suitable foraging habitat for white-tailed kite.

### *Potential for Adverse Effects*

The potential for adverse effects to white-tailed kite as a result of the proposed project are discussed in Section 4.4.6.



## **Loggerhead Shrike**

Federal status – none

State status – species of special concern

### *Species Description*

The range of the loggerhead shrike extends throughout the United States and southern Canada, and it is a year-round resident throughout most of its California range. This species prefers open habitats with scattered shrubs, trees, posts, or other perches. It can be found in shrublands or open woodlands with bare ground, or sparse herbaceous cover and is often found in open cropland. Loggerhead shrikes hunt in open areas of short grasses, forbs, or bare ground, and impale prey on thorns or barbed wire. Prey includes large insects, as well as various small reptiles, amphibians, rodents, and birds.

Suitable breeding habitat includes shrublands or open woodlands with grass cover or bare ground. Loggerhead shrikes in the Central Valley typically use riparian edges where they generally place their nests 1 to 2 meters (3.3 to 6.6 feet) above ground in shrubs or trees. Loggerhead shrike habitat includes alfalfa fields, grasslands, non-rice crops, oak groves, orchards, pastures, ponds and seasonally wet areas, riparian areas, disturbed areas, rural residential development, tree groves, and canals.

### *Survey History*

Several loggerhead shrikes were observed foraging in the project site during surveys in 2018 and 2020. These individuals were typically perched on fences or vegetation; no active nests of this species were observed. Several inactive stick nests were observed in small shrubs and trees adjacent to the project site along Cayetano Creek that could belong to loggerhead shrike. On June 17, 2020, a pair of loggerhead shrikes were observed feeding recently fledged offspring in a valley oak tree along Cayetano Creek adjacent to the site. The loggerhead shrikes were also very defensive around their fledglings. No active nest was observed at this location. The loggerhead shrikes and young were not present the following day on June 18, 2020.

There are no CNDDDB reported occurrences of loggerhead shrike nesting in a 5-mile radius of the project site.

### *Habitat Suitability*

The project site provides suitable nesting, perching and hunting habitat for loggerhead shrike. Grazed grasslands and barbed wire fences provide foraging habitat. Perennial shrubs are present in the project site, although they are sparse and scattered along the perimeter of the project site and along Cayetano Creek adjacent to the site. Additionally, several large trees along the bank of Cayetano Creek and other trees adjacent to the project boundary provide nesting habitat for this species. Loggerhead shrike could occur nesting and several individuals have been detected foraging during surveys in 2018 and fledglings were observed in June of 2020.

### *Potential for Adverse Effects*

The potential for adverse effects to loggerhead shrike as a result of the proposed project are discussed in Section 4.4.6.

## **American Badger**

Federal status – none

State status – species of special concern

### *Species Description*

American badger occurs throughout most of California in a wide range of habitats but prefers open stages of forest and scrub habitats with friable soils. American badger dens are typically located in open areas with sparse vegetation. American badger will use many dens in a season, reusing the same den or excavating new dens each night. Common signs of use include a dirt ramp leading to the entrance, flattened grass around the entrance, scat, and tracks. The home range of a badger typically ranges from 400 to 600 acres but may range to as high as 1,549 acres (Zeiner et al. 1990).

### *Survey History*

American badger or their burrows were not observed in the project site during any of the numerous biological surveys, including protocol surveys for burrowing owl which included searching for mammal burrows. The project site contains no known dens. A staple diet of the American badger, the California ground squirrel, and their burrows are abundant in the northern parcel north of Manning Road although they are relatively scarce in the central and southern parcels located south of Manning Road. Surrounding hillslopes outside of the project boundary support a heavy population of California ground squirrels in cattle grazed annual grasslands. Both coyote and golden eagle were observed foraging in these areas.

There are several CNDDDB reported occurrences of American badger near the project site, with the nearest CNDDDB reported occurrence (Occurrence no. 64) located approximately 2 miles northeast of the project site along North Vasco Road. This record is of a badger observed dead on the road in 1995.

### *Habitat Suitability*

Although this species does not currently occupy the site and no evidence of this species was detected, the entire project site is potentially suitable foraging and dispersal habitat for American badger, and marginal denning habitat is present on the site where California ground squirrel burrows are present. Since the annual grassland in the central and southern parcels south of Manning Road was virtually devoid of California ground squirrel burrows, foraging habitat for badger is likely poor in those parcels. However, fossorial prey that could support American badger such as California ground squirrel, Botta's pocket gopher and other rodents are abundant in the northern parcel north of Manning Road and in the surrounding area. American badger likely occupies the landscape in the vicinity of the project site since they have been documented in the CNDDDB, and the surrounding annual grasslands and dry farmed lands are contiguous with annual grassland and dryland grain crops on the project site.

### *Potential for Adverse Effects*

The potential for adverse effects to American badger as a result of the proposed project are discussed in Section 4.4.6.

## San Joaquin Kit Fox

Federal status – endangered

State status – threatened

### *Species Description*

San Joaquin kit fox was listed as “threatened with extinction” under the Endangered Species Preservation Act of October 15, 1966 (16 U.S.C. 668aa(c); 32 FR 4001) and is currently listed as “Endangered” under the Endangered Species Act of 1973 (16 U.S.C. 1531-1544).

San Joaquin kit fox inhabits a wide range of open and shrubby habitats, including grassland, scrublands, agricultural areas where dens are available (e.g., unplowed fields, row crops, vineyards, or orchards), non-irrigated pastures, vernal pool grasslands, playas, and alkali meadows. San Joaquin kit fox dens are typically located on slopes less than 40 degrees, and pupping dens are usually on level ground; den entrances are typically 8 – 10 inches in diameter. San Joaquin kit foxes use many dens in a season, and occupied dens often show no signs of use. Common signs of use include a dirt ramp leading to the entrance, flattened grass around the entrance, scat, tracks, and prey remains.

The largest extant populations of San Joaquin kit fox are at the western margins of the Central Valley and the eastern Coast Ranges. Population centers occur in western Kern County (Elk Hills and Pixley National Wildlife Refuge), eastern San Luis Obispo County (Carrizo Plain), western Fresno County and eastern San Benito County (Ciervo – Panoche Natural Area), Southern Monterey County (Fort Hunter-Liggett and Camp Roberts), western Merced County, and eastern Contra Costa County. These population centers generally form a meta-population lying west of Interstate 5 and/or south of Allensworth, with only isolated occurrences in the remainder of the valley. By 2006, San Joaquin kit fox was determined to be largely eliminated from the central San Joaquin Valley (USFWS 2010b).

### *Survey History*

No San Joaquin kit fox, potential dens, or their sign, was observed in the project site during any of the biological surveys, including transects of the site to search for dens of fossorial animals during protocol burrowing owl surveys as well as general biological reconnaissance surveys. The project site supports several ground squirrel burrows but contains no suitable San Joaquin kit fox dens. All burrows observed in the project site were either occupied by California ground squirrel, collapsed and inactive or had recent sign of use by California ground squirrel. Scat that likely belonged to coyote was observed along a cattle trail in Cayetano Creek adjacent to the site and consisted of red fur (cattle) and vegetation. Coyotes, a potential predator and competitor of kit fox were abundant with six individuals observed during the day north of the northern parcel outside of the project site. Another potential fox predator, golden eagle, was also observed foraging over the project site routinely.

There are several CNDDDB reported occurrences of San Joaquin kit fox within a 5-mile radius of the project site. The nearest CNDDDB reported occurrence (Occurrence no. 571) is located approximately 2.7 miles north of the project site. The record from 1989 documents a natal den near North Vasco Road (CDFW 2020). The most recent account of this species in Alameda County is an observation documented in the CNDDDB (Occurrence no. 58) from 2002 of one individual moving through an area dominated by annual grassland and rocky outcrops near Brushy Peak (CDFW 2020) approximately 4.5 miles northeast of the project site. This CNDDDB record did not document a den or breeding foxes.

The project site is in an area described as a satellite population at the northern and western extent of the San Joaquin kit fox range, which is in decline with no known breeding (USFWS 2010b). The project site is not in a core area or a linkage area between known occupied populations of San Joaquin kit fox (USFWS 2010b). There are very few studies documenting the status of this species in the northern portions of this species range, with very few recent accounts of this species persisting at detectable levels (USFWS 2010b).

A study conducted in 2003 using detection dogs surveyed public and private lands to detect the presence of this species in the northern extent of their range. Previous studies in the southern parts of the San Joaquin kit fox range using dog detection and DNA analysis were successful at identifying San Joaquin kit fox populations (Smith et al. 2006). The use of dog detection to identify fox scat, can identify old scat and recent scat and identify whether fox has occupied an area briefly or for a longer duration. The study collected all potential fox scat and used DNA analysis to identify scat to species. The study only identified San Joaquin kit fox in Merced County, and did not detect kit fox scat in Alameda County or any other northern counties examined. The only fox scat detected during the study in Alameda County was red fox scat, which is potentially detrimental for San Joaquin kit fox. Red fox, in addition to coyotes, are potential competitors and predators of San Joaquin kit fox. Additionally, red fox has been known to kill kit fox and may also spread disease to kit fox. In some areas, red fox has been known to replace the ecological niche of the kit fox. Although the dog detection study did not detect kit fox in most of their historical range in the north, that does not mean they still do not persist. San Joaquin kit fox may persist at very low levels that are difficult to detect, or the population may consist of transient individuals that are dispersing from other isolated populations.

#### *Habitat Suitability*

The entire project site is suitable foraging and dispersal habitat for San Joaquin kit fox. Potential prey species consisted primarily of California ground squirrel, which were abundant in the northern parcel north of Manning Road and in areas surrounding the project site. California ground squirrels established large burrow complexes irregularly throughout the project site, with most burrows north of Manning Road. Stream banks adjacent to the project site along Cayetano Creek and field margins in the northern parcel north of Manning Road support ground squirrel burrows, which could provide marginal denning habitat for kit fox. The project site is generally poor-quality denning habitat for San Joaquin kit fox. Soils in the project site consist primarily of clay or loam and were relatively hard and cracked and not the best habitat for kit fox (Clark et al. 2007). Dense vegetation in grasslands also makes kit fox more susceptible to ambush predation from species such as bobcat (*Lynx rufus*) (Clark et al. 2007). No potential San Joaquin kit fox dens were observed on the site. All burrows belonged to California ground squirrels and were either occupied or collapsed.

A pack of six coyotes was observed foraging on the outskirts of the northern edge of the project site and coyote scat was abundant throughout the project site. Coyote was also observed excavating ground squirrel burrows and chasing ground squirrels west of the project boundary. The project site is also within the range of gray fox, but gray fox typically does not occupy the same habitat as kit fox. The presence of several coyotes, golden eagle, the potential presence of red fox and the presence of hard clay to clay loam soils that cover most of the project site would make the project site less favorable for San Joaquin kit fox. Hard clay soils on the project site also reduce the kit fox's ability to dig refuge sites from potential canid and avian predators. Because the project site largely lacks suitable soils for San Joaquin kit fox, supports numerous predators of this fox, is in an area where populations of this fox species are in very low levels (if this species persists at all in the area), and no dens were observed on

the site, San Joaquin kit fox is generally considered to be absent from the project site. At best, San Joaquin kit fox would be expected to occasionally use the site for dispersal or foraging if there are populations in the region but would not be expected to linger on the site for any extended period of time.

#### *Potential for Adverse Effects*

The potential for adverse effects to San Joaquin kit fox as a result of the proposed project are discussed in Section 4.4.6.

### **Foraging Habitat for Special-Status Birds**

#### **Tricolored Blackbird**

Federal status – none

State status – Candidate Threatened

Tricolored blackbird forages on the ground in croplands, grassy fields, flooded land, and edges of ponds for insects (Shuford and Gardali 2008). With the loss of natural flooding cycles of foraging habitat in the Central Valley, breeding tricolored blackbirds forage primarily in managed habitats (Tricolored Blackbird Working Group 2007). Preferred foraging habitat is typically in vegetation that is less than 15 centimeters tall (Shuford and Gardali 2008) and within 3-4 miles of their breeding colony sites (Tricolored Blackbird Working Group 2007). The project site and surrounding areas provide suitable foraging habitat for tricolored blackbird. Tricolored blackbirds have not been observed in the project site during numerous biological surveys and there is no breeding habitat within the site. However, the site is dominated by dryland grain cropland and annual grassland, which may provide foraging habitat for colonies that may be breeding near the project site. The nearest CNDDDB record (CNDDDB occurrence no. 840) for tricolored blackbird is located approximately 1.3 miles east of the project site. The CNDDDB record documents several years of tricolored blackbirds foraging and breeding in stock ponds and seasonal wetlands set in annual grassland habitat, which was last documented in 2014 (CDFW 2020).

On the project site, foraging habitat for tricolored blackbird is likely limited to the areas that consist of dryland grain crops after they have been harvested, since the rest of the site consists of herbaceous annual vegetation that is much taller than 15 centimeters. Most vegetation in the annual grassland habitat is approximately 60-90 centimeters. The closely related red-winged blackbird (*Agelaius phoeniceus*) was observed foraging and nesting in annual grassland along Cayetano Creek and its tributaries, however no tricolored blackbirds were observed in association with the red-winged blackbirds.

Suitable foraging habitat for tri-colored blackbird is limited on the site, this species has never been observed foraging on the site during numerous biological surveys conducted over a period of approximately 2.5 years, suitable foraging habitat is abundant in the region, and the herbaceous understory will be maintained after the installation of the solar array and will continue to function as potential foraging habitat for tricolored blackbirds.

#### **Swainson's Hawk**

Federal status – none

State status – Threatened

Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and winter in Argentina, Mexico, and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1 and migrate south between September and October.

Swainson's hawks usually nest in trees adjacent to suitable foraging habitat. Swainson's hawk nests are usually located in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, idle land, certain grain and row croplands, and ruderal lands. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

The project site and surrounding areas provide suitable foraging habitat for Swainson's hawk, which was observed soaring over the project site on April 6, 2020. The project is not within the current nesting range for Swainson's hawk per the California Wildlife Habitat Relationship program (Zeiner et al. 2011). Although Swainson's hawk have recently been identified breeding outside of their current known range in Santa Clara County (Philips et al. 2014), no detections of nesting Swainson's hawk have been reported in the CNDDDB or on other public databases in or near the Livermore Valley. There is a total of seven CNDDDB records within a 10-mile radius of the project site, which is the standard accepted travel distance foraging Swainson's hawk will make from a nest (CDFW 1994). The nearest documented record for Swainson's hawk is approximately 3.9 miles southwest of the project site in the City of Livermore. The CNDDDB record states that a pair was observed at a nest from April through May in 2017 but does not specify the success of the nest or whether nestlings were observed in the nest or whether Swainson's hawk constructed the nest (CDFW 2020). Additionally, this is the only record of a Swainson's hawk at a nest in the Livermore Valley. In the region of the project site, Swainson's hawk typically nest in the Central Valley per their known range (Zeiner et al. 2011). There are no other nest sites in the Livermore Valley and all other accounts of nesting Swainson's hawk within a 10-mile radius are in the Central Valley or in the Sacramento-San Joaquin Delta (CDFW 2020).

Although the project site is within the foraging range of reported Swainson's hawk occurrences, Swainson's hawks are not expected to regularly use the project site for foraging. Over numerous biological surveys conducted over an approximately 2.5-year period, Swainson's hawk were only observed at the project site twice. Each time consisted of a single adult soaring over the site, presumably foraging in the annual grassland and dryland grain crop fields. Swainson's hawk was not observed capturing prey in or adjacent to the project site on either occasion. Since Swainson's hawk have not been documented successfully nesting in the area of the project, and the project site is outside of this species recognized breeding range per California Wildlife Habitat Relationship program, this species is not expected to nest in close proximity to the project site.

The site is at the edge of the known range of this species and therefore this species would not be expected to nest in close proximity to the site or use the site substantially for forage, as evidenced by the low level of observed site use by the species over numerous biological surveys. In addition, as discussed in Section 4.4.4.3, the site is expected to continue to provide suitable foraging habitat for Swainson's hawk upon installation of the solar generating facility and revegetation of the site.

### **Cooper's Hawk and Ferruginous Hawk**

Cooper's hawk and ferruginous hawk are two CDFW watch list bird species that were observed foraging over the project site on February 26, 2020. Ferruginous hawks only winter in California and will not nest in the project boundary and Cooper's hawks typically nest in riparian habitat, which is not present. There is an abundance of suitable foraging habitat for these species in the project region. In addition, as discussed in Section 4.4.4.3, the site is expected to continue to provide suitable foraging habitat for raptors upon installation of the solar generating facility and revegetation of the site.

### **Migratory Birds and Raptors**

#### **Nesting Habitat**

The project site and adjacent areas provide nesting habitat for a variety of native birds common to the region and a total of 45 bird species were observed on and adjacent to the site (see Appendix D to the Biological Resources Technical Report in Appendix E of this Draft EIR). The structures and associated trees along Manning Road adjacent to the site provide potential nesting habitat for species that nest or roost in buildings and trees. Large trees adjacent to the project site along Cayetano Creek also provide nesting habitat for red-tailed hawk and other raptors, which have been observed in the project site. Active nests were not observed during surveys, although fledgling red-tailed hawks were observed perching in the trees outside the site along Cayetano Creek and in the surrounding area. Grassland habitat also provides habitat for ground nesting birds such as western meadowlark, red-wing blackbird, and a variety of sparrows. Potential impacts to nesting birds are discussed in Section 4.4.4.6.

#### **Potential Avian Impacts Resulting from Photovoltaic Solar Generating Facilities**

It is acknowledged that solar generating facilities have been documented to result in bird mortality, however these studies are primarily conducted in the deserts of the southwest and include other types of solar facilities, such as solar thermal (power towers) facilities that injure birds due to collisions with the high towers and concentrated rays injuring the birds, and not just solar photovoltaic facilities. A publication by the U.S. Department of Energy reviewed the current state of knowledge concerning avian mortality at utility-scale solar facilities (Walston et al. 2015). The report included discussion of the potential for solar photovoltaic generating facilities to cause death and injury to waterfowl that mistake fields of photovoltaic panels for waterbodies – a phenomenon called the "lake effect". The report concluded that few empirical data are available on the number of birds killed or injured at solar generating facilities generally, and by the lake effect specifically. In addition, the authors state that no scientific studies testing the reality of the lake effect had been conducted up to the time of publication.

Waterfowl were not observed in or near the project site since the site is dry and does not provide habitat for waterfowl. Waterfowl are not expected to be common in the project site or pass over since there are no bodies of water in the project site and only seasonally flooded cattle ponds near the project site. The surrounding landscape consists of cattle grazed land in rolling hills. The segment of Cayetano Creek adjacent to the site supports a few small intermittent seasonal wetlands and does not support riparian vegetation. Most of Cayetano Creek supports annual grasses that are consistent with the surrounding grassland, which is dominated by non-native annual grasses. The segment of Cayetano Creek adjacent to the site generally does not provide habitat for avian species associated with aquatic habitats. Waterfowl may be attracted to nearby reservoirs or seasonal wetlands such as Los Vaqueros Reservoir located three miles north of the project site and Valley sink scrub habitat, which consists of

seasonal wetlands, located approximately 1.3 miles southeast of the project site. However, as stated previously, no waterfowl were observed on the project site during numerous biological surveys.

HELIX biologists have conducted studies of utility scale solar photovoltaic generation facilities related to bird use and potential mortality in the Central Valley. The purpose of the studies was to provide quantitative data on overall bird use and large-bird mortality, if any, as well as the effectiveness of an avian deterrent measures implemented to reduce avian collisions with solar panels in utility scale solar photovoltaic generation sites of 1,000 acres and larger. To date, these studies have shown that resident and migratory birds use the photovoltaic array for foraging and that the solar sites are not a significant source of avian mortality (HELIX 2018, unpublished data). Although impacts to birds due to collisions with solar panels or objects such as electrical lines or towers is not anticipated to be a significant source of mortality or result in a significant impact as discussed above, mitigation measures are being incorporated to reduce any such impacts and also study whether the solar facility is causing avian mortality once constructed and operational.

#### **4.4.4.2 Raptor Foraging Habitat**

This section discusses how conversion of the annual grassland and dryland grain crops on the site to a solar generating facility could affect the suitability of the site for use by foraging raptors. It has been previously thought that lands supporting linear rows lined with tall vegetation (e.g., vineyards) are considered unsuitable foraging habitat for raptors because the extent to which raptors would attempt to capture prey between rows of tall vegetation was considered negligible. Similarly, solar generation facilities – which are generally similar to vineyards in overall structure – are typically considered unsuitable foraging habitat. However, studies indicate that both vineyards and solar generation facilities that are appropriately managed can provide foraging habitat value for Swainson's hawk, which is a wide-ranging species that forages in open areas (Estep 2013; Swolgaard et al. 2008).

Although this section focuses on studies that were done to evaluate Swainson's hawk use of solar generating facilities for foraging specifically, this analysis can be applied to foraging raptors in general. Swainson's hawk is a far-ranging species that forages on the wing and typically requires large open tracts of land for foraging, although it will also capture prey along the ground (e.g. insects). Many other raptors are site-and-wait style predators that require much smaller areas to forage and will perch on trees, utility poles or structures and capture unsuspecting prey. For these reasons, Swainson's hawk is a good species to use as a surrogate for general raptor foraging requirements, because if Swainson's hawks can use a solar generating facility for foraging, most other raptor species could as well. In fact, it may be somewhat conservative to use Swainson's hawk for a discussion of overall raptor foraging as other species would be even better suited to forage in a solar generating facility based on their life history requirements. Due to the amount of studies that have been conducted on the use of solar facilities by Swainson's hawks for foraging and the reasons mentioned above, this analysis of potential impacts to raptor foraging considers studies done on the ability for Swainson's hawk to forage in a solar generating facility to generally discuss impacts to foraging raptors as a whole.

Because much of the typical solar generation facility is composed of open areas, there is potential for use of solar projects by Swainson's hawks and other raptors for foraging, particularly if the facility is managed to optimize habitat for prey and the area between the panels is managed as perennial grassland vegetation of a suitable height. For example, considering the proposed project at the most horizontal position the panels would cover approximately 50 percent of the ground surface within the portions of the project site covered by panels. As previously mentioned, other land uses with a similar



structure, such as vineyards, have also been demonstrated to be used by foraging raptors, so this concept is not completely new. To test the hypothesis that solar arrays provide foraging habitat for Swainson's hawks, Estep (2013) conducted a pilot study in Sacramento County in 2012 to evaluate the foraging use of solar arrays by Swainson's hawks and other raptor species relative to the surrounding agricultural landscape.

In that study, three PV solar generation facilities in Sacramento County, ranging from 105 to 200 acres in size, were evaluated for foraging use by Swainson's hawks and other raptors. All three of the solar generation facilities evaluated in the foraging study are located within a diverse agricultural landscape of similarly sized parcels to the solar facilities. The study was conducted after the three facilities had been constructed, operation had commenced, and grass cover had been established. The three facilities were being managed to allow establishment of grasses beneath and between the solar panels. The grass cover at these sites is maintained between 4 and 12 inches in height through a sheep grazing program. The grass ground cover is managed to promote the establishment of rodent populations to provide foraging habitat for raptors as well as refugia for rodents to assist with re-establishment of rodent populations on adjacent farmlands following cultivation.

Results of the study indicated that the solar array fields were used for foraging by Swainson's hawks similar to other moderate to high value agricultural cover types and the presence of the solar facilities did not appear to affect the overall use of the landscape by Swainson's hawks or other raptors. As one element of an otherwise diverse agricultural matrix, the solar array fields provided a consistent and an apparently reasonably accessible source of prey, particularly for Swainson's hawks and American kestrels. Surprisingly, the study also indicated that the solar arrays were used at a higher rate than would be expected based on their availability in the landscape, meaning that Swainson's hawks appeared to be selectively foraging within solar arrays over other crop types. The key to this was the fact that the solar sites were managed to provide a continual source of prey that was accessible to the hawks consistently throughout the spring and summer breeding season versus the seasonal availability of prey in agricultural crops due to the planting, growth, and harvesting regime.

Although this was a relatively simple short-term study (i.e., a 5-month study) designed to determine foraging use by Swainson's hawk in 100-200-acre solar arrays within a diverse agricultural matrix, it demonstrated that solar arrays do provide available foraging habitat for Swainson's hawk and are used by this species for foraging. The study also suggests that conversion of otherwise suitable foraging habitat to solar arrays does not necessarily constitute a complete loss of foraging habitat for Swainson's hawk and that properly managed solar arrays could provide important foraging habitat for Swainson's hawk during periods when surrounding agricultural crops are not suitable.

In 2017, HELIX biologists conducted a study of Swainson's hawk foraging at a large-scale solar generation facility in Kings County (HELIX 2018). The study showed that Swainson's hawk will forage in a large-scale solar generation facility (>1,000 acres). The study compared Swainson's hawk foraging use of the 1,100-acre solar facility to an approximately 4,800-acre off-site area that included active and fallow agricultural lands. HELIX found that Swainson's hawk foraged in the operational solar generation facility at a higher intensity (determined by the minutes of forage per unit area) than in surrounding lands. This result is consistent with the findings of Estep (2013), suggesting that solar generation facilities managed to promote raptor foraging may provide higher-value foraging habitat than active and idle agricultural lands.

The results of these studies indicate that solar generation facilities can be used for foraging by Swainson's hawks and other raptors similar to other moderate to high value agricultural cover types. As one element of an otherwise diverse agricultural matrix, the solar generation facilities provided a consistent and an attractive source of prey. The key to this was the fact that the solar generation facilities were managed to provide a continual source of prey that was accessible to the hawks consistently throughout the spring and summer breeding season versus the seasonal availability of prey in agricultural crops due to the planting, growth, and harvesting regime (Estep 2013).

Estep (2013) notes that to encourage raptor foraging use of solar arrays, the management of a grassland substrate to promote rodent populations, including maintaining vegetation at a height that promotes visibility and access to prey, is of key importance. Most crop types are available for a short period of time during the breeding season due to the planting, growing and harvesting regime, whereas a managed grassland can provide a consistent and available source of prey throughout the spring and summer breeding season.

During operation of the proposed project, the applicant plans to maintain the project site with vegetation and seasonally graze livestock (sheep) between and under the solar panels for the duration of operation of the solar facility, pursuant to an Agricultural Management Plan. The mixture of grassland and forbs managed by targeted sheep grazing is expected to provide high value and consistently available habitat conditions for small mammal prey species (ground squirrels, rabbits, voles, pocket gophers, deer mice and house mice). The Agricultural Management Plan would include vegetation management methods to ensure that the vegetation composition and structure provides a combination of areas with lower vegetation heights and density to provide accessibility to foraging raptors, and areas with denser, taller vegetation to attract and maintain prey on the site, thus enhancing the site for raptor foraging use.

Management conditions would include ensuring that the vegetation cover is not reduced to the extent that vegetation would not naturally regenerate; there are openings in the vegetation to allow foraging access for raptors; and there are areas where the vegetation would be allowed to grow taller. In general, vegetation heights below the panels should be allowed to be higher to provide cover for prey species, and the vegetation heights between the panels should be maintained at a suitable height to provide foraging accessibility. Suitable grass height to promote foraging for Swainson's hawk and other raptors is generally less than 12 inches, and optimally 4 – 8 inches.

With the proposed site management, many raptor species are expected to continue using the site for foraging and for some species the foraging quality of the site may improve due to more regular availability of prey. HELIX biologists have observed several raptor species foraging in utility scale solar generation facilities including northern harrier, American kestrel, great horned owl, and red-tailed hawk (HELIX 2018).

#### **4.4.4.3 Regionally Occurring Bats**

The project site does not provide habitat for special-status bats that may occur in the region, such as pallid bat (*Antrozous pallidus*) or Townsend's big-eared bat (*Corynorhinus townsendii*), and roosting habitat for bat species is absent from the project site. Water resources for bats are also very limited in the region of the project and are likely only limited to artificial water impoundments along drainages or in seasonal wetland complexes. Over the course of numerous biological surveys conducted for the project, including a total of 10 nighttime surveys for CRLF and four evening surveys for burrowing owl,

no bat roosts were detected and no bats were observed emerging from trees or structures in or adjacent to the project site. However, the project site may provide foraging habitat for a variety of common bat species such as Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), or California myotis (*Myotis californicus*). Brazilian free-tailed bat specifically is a wide-ranging bat species that prefers open habitats and may actively forage over the project site if it is present in the project region. Structures adjacent to the project site such as barns, abandoned houses or other outbuildings as well as large trees adjacent to the site along Cayetano Creek could provide roosting habitat for common bat species adjacent to the site that could forage on the site.

Based on the design of the project with buried utilities and the low profile of the solar arrays and the retention of the grassland habitat under the PV arrays, impacts to bats that may occur in the region are expected to be less than significant. PV solar projects pose little risk to bats, particularly among PV arrays. Based on the data presented in the Sunshine Valley Bird and Bat Conservation Strategy (WEST 2017), no bat fatalities were reported during the early implementation of three PV solar projects in California (WEST 2017). Bats detected in the PV arrays were either using the structures or fences for roosting (WEST 2017). Since habitat for roosting bats is absent from the project site, bats have not been observed on the project site during numerous surveys conducted at the ideal time to observe emerging and foraging bats, and the abundance of other suitable foraging habitat in the region, impacts to regionally occurring bat species resulting from the proposed project would be less than significant.

#### **4.4.4.4 Sensitive Natural Communities**

There is one 0.08-acre ephemeral drainage in the northwest corner of the northern section of the project site that is a potential waters of the State and could be considered a sensitive natural community. The proposed project as designed would result in fill of this feature. Impacts to the ephemeral drainage are discussed in Section 4.4.6.2, and mitigation is proposed to reduce impacts to the feature to less than significant. There are no other sensitive natural communities on the project site. The site consists almost entirely of annual grassland and other agricultural land that supports a mixture of non-native and native species and lacks native or naturalized vegetation communities. Cayetano Creek and its tributaries adjacent to the site are sensitive natural communities. However, the project has been designed to avoid impacts to these features.

#### **4.4.4.5 Jurisdictional Waters**

HELIX conducted a routine assessment of wetlands and “other waters” of the U.S. and State on July 31, 2018, August 1, 2018 and February 6, 2020, in accordance with the USACE *Wetlands Delineation Manual*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*, and SWRCB policies and guidelines. HELIX collected 10 data points, which documented upland areas in streams and swales. HELIX delineated five aquatic features: one ephemeral stream, one intermittent stream (Cayetano Creek), and three ephemeral tributaries to Cayetano Creek totaling 5.13 acres. With the exception of one ephemeral stream in the northwest corner of the northern parcel (north of Manning Road) that totals approximately 0.08 acre in size, the project boundaries have been modified to exclude aquatic features from within the project site. Ephemeral drainages are not considered waters of the U.S. but may be waters of the State subject to RWQCB jurisdiction and also subject to CDFW jurisdiction under Section 1600 of the Fish and Game Code. The project as designed could impact the ephemeral drainage. Therefore, the project could result

in impacts to waters of the State and waters under CDFW jurisdiction. However, no impacts to potentially jurisdictional waters of the U.S. are anticipated from the project.

#### **4.4.4.6 Wildlife Corridors**

A wildlife corridor is a link of wildlife habitat, generally native vegetation, which joins two or more larger areas of similar wildlife habitat. Corridors are critical for the maintenance of ecological processes including facilitating the movement of animals and the continuation of viable populations. Historically, the grasslands in eastern Alameda County were connected through the lowland valleys and stream systems through the Livermore Valley. The majority of this area has been converted to urban and agricultural uses, fragmenting and separating grassland habitat. In addition, I-580 serves as a barrier between the northern and southern parts of the county, with only a few linkages (under crossings) under the freeway between Livermore and the Alameda/Contra Costa County line.

The project site is not included in any corridors mapped by the California Essential Habitat Connectivity project and does not provide any unique movement or dispersal habitat relative to surrounding lands for several miles in all directions. The project site and surrounding lands, which consist predominately of annual grassland and dryland grain crop, currently provide extensive open, dispersal habitat for wildlife movement in the region.

#### **4.4.4.7 Local Policies**

The ECAP includes several policies intended to promote conservation of existing high-value biological resources in the county and protect sensitive resources and special-status species. The project site has been subject to a long history of agricultural land use that has severely reduced its biological value compared to undisturbed natural habitats. The ECAP lists the area of the project site as Large Parcel Agricultural that is outside of the Urban Growth area. The East Alameda County Conservation Strategy and East Bay Regional Conservation Investment Strategy are voluntary plans to promote conservation of natural resources. The project has potential for impacts to special-status species, and includes avoidance, minimization, and mitigation measures that will reduce impacts to special-status species. Therefore, the project would not conflict with local policies and ordinances protecting biological resources. No impacts to local policies or plans were identified and no additional mitigation is required.

#### **4.4.4.8 Habitat Conservation Plans/ Natural Community Conservation Plans**

The project does not fall under the purview of any Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs). The project site is in the PG&E Bay Area HCP coverage area, although this HCP is for the maintenance and operation of PG&E facilities and not for the installation of large utility scale solar projects.

#### **4.4.4.9 Potential Spread of Invasive Species**

Ongoing agricultural activities on a project site likely reduce the spread of invasive species compared to leaving the land fallow because active agriculture regularly removes established vegetation and replaces it with a crop monoculture. Abandoned fields typically become overgrown with invasive species, including host plants for agricultural pests. Converting active agricultural land to solar photovoltaic generation has the potential to result in increased establishment of weedy species by reducing the

frequency of disturbance. The project is expected to comply with all weed abatement policies and orders of the Alameda County Department of Agriculture and Weights and Measures.

#### 4.4.5 SIGNIFICANCE THRESHOLDS

The thresholds for determining significance under CEQA are based on Appendix G of the State CEQA Guidelines and goals and policies contained in the Alameda County General Plan. In this analysis, the proposed project would have significant impacts on biological resources if it would:

1. 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect of 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.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

#### 4.4.6 IMPACT ANALYSIS

**BIO-1      The proposed project may result in a substantial adverse effect, either directly or through habitat modifications, on 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.**

##### **California Red-Legged Frog and California Tiger Salamander**

Potentially adverse effects to CRLF and CTS could include take of individuals using upland areas for dispersal and/or refugia during construction, operations, and decommissioning. No impacts to potential breeding habitat would occur.

These species have the potential to use the project site seasonally due to its proximity to known breeding habitat and the known upland migration distance of CRLF and CTS. However, breeding habitat for these species is absent. For both CRLF and CTS, potentially suitable upland refuge habitat in the form

of mammal burrows is mostly limited to the portion of the project site north of Manning Road. Soil cracks in the surface of the soil may provide temporary refuge during migration between breeding ponds and other upland areas for both CRLF and CTS. Additionally, for CRLF, potentially suitable upland refuge habitat in the form of shallow or seasonally wet portions of Cayetano Creek, mammal burrows and deadfall from large trees is mostly limited within the project site to the proximity of Cayetano Creek. Because habitat is so limited on the project site, there is only a low potential for CRLF or CTS to occur on the project site south of Manning Road, either dispersing through the site or using the site for upland refugia at the time of construction and decommissioning and thus be harmed by construction equipment or personnel. Somewhat greater potential exists for CRLF and CTS to be present on the northern section, north of Manning Road.

Conversion of the project site from grassland and dry cropland to a solar generation facility would not permanently eliminate the potential for CRLF or CTS to use the site for dispersal and upland refugia and would not constitute a significant impact to these species. After construction has stopped and the site has been revegetated, the solar array is not expected to impede any migration route for CRLF or CTS, as the project will continue to support grassland and fossorial mammals at a level comparable to conditions prior to construction. The project was sited to utilize lower quality grasslands and avoid impacts to higher quality grassland habitats and streams that could provide dispersal corridors for this species. The setback of the solar array from Cayetano Creek would maintain an important wildlife corridor and dispersal habitat. Approximately 150 acres of APN 903-0006-001-02 was removed from the development footprint during the planning phase in part because of its biological value. This area is proposed to be subdivided to legally separate it from the real property affiliated with the proposed project development. The project will impact low quality grassland habitat next to heavily travelled roads and other development that is not expected to provide quality habitat for CRLF or CTS. In addition, the site will be revegetated following construction of the solar arrays and would still be expected to provide dispersal habitat for these species. No compensatory mitigation for potential impacts to CRLF or CTS upland habitat is considered necessary because grassland habitat would be preserved on site under the panels and the project once operational would not eliminate the potential for CRLF or CTS to use the site for dispersal and upland refugia.

### **Burrowing Owl**

In the absence of proposed mitigation measures described below, potential adverse effects of the proposed project on burrowing owl during project construction and decommissioning could include harm to individual burrowing owls, nest disturbance/loss of occupied burrows, and loss of foraging habitat. Burrowing owl nesting was not observed in the project site and there are no known occupied burrowing owl nesting locations in the project site (reported in the CNDDB or other sources). However, dispersing juvenile burrowing owls were observed using burrows approximately 200 feet east of the eastern boundary of the northern parcel.

If dispersing or transient burrowing owls occupy mammal burrow(s) in or adjacent to the project site at the time of project construction and/or decommissioning, such activities could result in direct impacts to burrowing owl individuals through harm because of contact with construction equipment or personnel and/or indirect impacts because of nest disturbance, habitat destruction or loss of burrows. Project construction activities would include road construction, trenching for low-voltage collection lines, boring for support posts, and installation of solar panel arrays. These activities would be considered low-intensity impacts because the construction disturbance (noise, presence of equipment and personnel)

would be comparable in nature to the agricultural practices in the region but could impact burrowing owl if present through noise, vibration, and the presence of construction equipment and personnel.

Foraging habitat will be impacted as a result of converting grassland to a solar generation facility, however, foraging habitat for burrowing owl will be available among the panels and in open undeveloped areas on the facility. HELIX biologists have observed other species of owls, such as great horned owls, perching on solar panels and searching for small mammal prey. Impacts to foraging habitat for burrowing owl will be less than significant due to the abundance of more suitable and higher quality foraging habitat in the region and the continued presence of foraging habitat within the project site. No mitigation is proposed for loss of potential foraging habitat.

### **American Badger**

American badger has the potential to use the project site since habitat with fossorial prey species is present and there are documented accounts of this species in the area. However, no occupied dens or direct observations of American badger or sign, such as tracks, or badger excavations were observed in the project site. There is a potential for American badger to occupy the project site prior to commencement of the project or to occur in the project site as transient individuals either foraging or dispersing through the site during construction and decommissioning. Wildlife friendly fencing has been incorporated into the proposed project to allow for dispersal of small to medium sized species such as American badger. Therefore, this species would not be precluded from foraging on the site. Because American badger is a highly mobile animal, other than potential denning, it would be able to avoid contact with construction equipment and personnel and any operational staff or maintenance operations. The project would have a low potential for adverse effects on American badger if it were to den on the project site. However, with the implementation of the proposed mitigation measures described below, impacts to American badger would be less than significant.

### **San Joaquin Kit Fox**

Conversion of the project site from suitable foraging and dispersal habitat to a solar generation facility would not eliminate the potential for San Joaquin kit fox to use the site for foraging and dispersal and would not constitute a significant impact to this species. Wildlife friendly fencing has been incorporated into the proposed project to allow for dispersal of small to medium sized species such as San Joaquin kit fox. Because San Joaquin kit fox is a highly mobile animal and the site does provide suitable foraging and dispersal habitat, there is a low potential for San Joaquin kit fox to occupy the project site prior to commencement of the project or to occur in the project site as transient individuals either foraging or dispersing through the site during construction, operation, and decommissioning. The project would have a low potential for adverse effects on San Joaquin kit fox. However, with the implementation of the proposed mitigation measures described below, impacts to San Joaquin kit fox would be less than significant.

**Grasshopper Sparrow, Golden Eagle, Long-Eared Owl, Northern Harrier, White-tailed kite, Loggerhead Shrike, and other Nesting Birds and Raptors**

The project site and adjacent areas provide suitable nesting habitat for special-status bird species including grasshopper sparrow, golden eagle, long-eared owl, northern harrier, white-tailed kite, and loggerhead shrike. Potential impacts to these species are discussed individually below.

*Grasshopper Sparrow*

In the absence of proposed mitigation measures described below, potential adverse effects of the proposed project (construction and decommissioning only) on grasshopper sparrow could include harm to individual grasshopper sparrow, nest disturbance/loss of active nests, and loss of potential habitat. No operational impacts are anticipated. Grasshopper sparrow nesting was not observed in the project site and there are no known occupied grasshopper sparrow nesting locations in the project site (reported in the CNDDDB or other sources). No mitigation is proposed or necessary for loss of potential habitat for this species because higher quality habitat for grasshopper sparrow is abundant in the project region.

*Golden Eagle**Nesting*

Although large valley oak trees are present adjacent to the project site and there are some stunted valley oak trees on the project site, they are not considered likely to be used by golden eagle due to their proximity to the nearby residential uses, including the caretaker's travel trailer. Because there are no potential nest trees on the project site, implementation of the project would not remove golden eagle nesting habitat. In the absence of proposed mitigation measures described below, project construction and decommissioning activities within 660 feet of a nest could potentially disturb nesting golden eagles if this species was to use trees adjacent to the project site for nesting.

*Foraging Habitat*

The project site provides suitable foraging habitat for golden eagle, which will be impacted as a result of converting grassland to a solar generation facility, although some habitat may remain around the perimeter of the site in undeveloped areas. Golden eagles were observed soaring over the project site, however, no attempts at capturing prey were observed on the project site. Golden eagle was observed unsuccessfully pursuing California ground squirrel on hills west and northeast of the site where this species was observed flying low over the ground and attempting to swoop down onto unsuspecting ground squirrels. Other species such as black-tailed jackrabbit and Audubon's cottontail are more abundant than ground squirrels on the project site and could provide forage for golden eagle on the project site. Golden eagles are known to have territories that range from 9 square miles to 74 square miles (Zeiner et al. 1990), which encompasses a vast area for foraging. Impacts to foraging habitat for golden eagle will be less than significant due to the abundance of more suitable foraging habitat in the region. No mitigation is proposed for loss of potential foraging habitat for golden eagle.



### *Long-Eared Owl*

In the absence of proposed mitigation measures described below, potential adverse effects of the proposed project on long-eared owl during construction and decommissioning could include harm to individual long-eared owls, nest disturbance, and loss of foraging habitat.

If dispersing or transient long-eared owls were to occupy nests adjacent to the project site prior to construction of the project or decommissioning, such activities could result in direct impacts to long-eared owl individuals through nest disturbance. Project construction activities would include road construction, trenching for low-voltage collection lines, boring for support posts, and installation of solar panel arrays. These activities would be considered low-intensity impacts because the construction disturbance (noise, presence of equipment and personnel) would be comparable in nature to the agricultural practices in the region, but could impact long-eared owl if present through noise, vibration, and the presence of construction equipment and personnel.

Foraging habitat for long-eared owl will largely be lost as a result of converting grassland to a solar generation facility, although some habitat may remain around the perimeter of the site in undeveloped areas and this species may be able to forage between rows of panels or under panels. HELIX biologists have observed other species of owls, such as great horned owls, perching on solar panels and searching for small mammal prey. Impacts to foraging habitat for long-eared owl will be less than significant due to the abundance of foraging habitat in the region and the generally low levels of long-eared owl populations in the region. No mitigation is proposed for loss of potential foraging habitat for long-eared owl.

### *Northern Harrier*

In the absence of proposed mitigation measures, project construction and decommissioning activities have the potential to affect northern harrier. Construction and/or decommissioning would not affect foraging northern harrier as it is a highly mobile bird species and individual birds foraging or otherwise occurring in the site could readily avoid construction areas or contact with construction equipment or personnel. Therefore, no impacts to individual harriers is anticipated unless this species nests on the site. If northern harrier were to nest on the site, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Mitigation measures described below (MM BIO-6) are proposed to reduce potential impacts to nesting northern harrier to a less than significant level.

### *White-Tailed Kite*

In the absence of proposed mitigation measures described below, project construction and decommissioning activities have the potential to affect white-tailed kite. Construction and/or decommissioning would not affect foraging white-tailed kite as it is a highly mobile bird species and individual birds foraging or otherwise occurring in the site could readily avoid construction areas or contact with construction equipment or personnel. Therefore, no impacts to individual white-tailed kite is anticipated unless this species nests adjacent to the site. If white-tailed kite were to nest adjacent to the site, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Mitigation measures described below (MM BIO-6) are proposed to reduce potential impacts to nesting white-tailed kite to a less than significant level.

Foraging habitat will be impacted as a result of converting grassland to a solar generation facility, however, foraging habitat for white-tailed kite will be available among the panels and in open undeveloped areas on the facility. Impacts to foraging habitat for white-tailed kite will be less than significant due to the abundance of more suitable and higher quality foraging habitat in the region the low populations levels of this species in the region and continued availability of foraging habitat at the site.

#### *Loggerhead Shrike*

In the absence of proposed mitigation measures described below, project construction and decommissioning activities have the potential to affect loggerhead shrike. Construction and/or decommissioning would not affect foraging loggerhead shrike as it is a highly mobile bird species and individual birds foraging or otherwise occurring in the site could readily avoid construction areas or contact with construction equipment or personnel. Therefore, no impacts to individual loggerhead shrike is anticipated unless this species nests on the site. If loggerhead shrike were to nest on the site, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Mitigation measures described below (MM BIO-6) are proposed to reduce potential impacts to nesting loggerhead shrike to a less than significant level.

Foraging habitat will be impacted as a result of converting grassland to a solar generation facility, however, foraging habitat for loggerhead shrike will be available among the panels and in open undeveloped areas on the facility. Impacts to foraging habitat for loggerhead shrike will be less than significant due to the abundance of more suitable and higher quality foraging habitat in the region the low populations levels of this species in the region and continued availability of foraging habitat on-site.

#### *Other Nesting Raptors and Nesting Birds*

In addition to the special-status species discussed above, the project site provides nesting and foraging habitat for a variety of native birds common to the Coast Range, such as western meadowlark, western kingbird, oak titmouse, and American kestrel. The structures and associated trees along Manning Road provide potential nesting habitat for species that nest or roost in buildings. Large trees in the project site along Cayetano Creek and the perimeter of the project site provide nesting habitat for red-tailed hawk and other raptors, which have been observed in the project site. Active nests were not observed during surveys, although fledgling red-tailed hawks were observed perching in the trees and in the surrounding area. Grassland habitat also provides habitat for ground nesting birds such as western meadowlark and a variety of sparrows.

Project activities during construction and decommissioning would not directly disturb trees or shrubs but could result in noise and other indirect disturbance that has potential to cause nest failure and project activities will affect herbaceous vegetation, which could contain nests. In the absence of proposed mitigation described below, destruction of nests, eggs, or nestlings by vegetation clearing or ground-disturbing activities or indirect impacts to birds nesting offsite that resulted in forced fledging or nest abandonment could occur if construction commenced during the avian breeding season (February through August). There is also the potential for small birds to enter hollow vertical piles in the solar arrays and in fence posts. Birds could become entrapped and unable to extricate themselves, potentially resulting in mortality. This could occur with both common and special-status bird species. Such impacts would be considered a violation of the Bald and Golden Eagle Protection Act (golden eagle only) and California Fish and Game Code.

## Summary

The proposed project could potentially result in significant impacts to the special-status animal species discussed in detail above as well as nesting raptors and other nesting birds. However, implementation of mitigation measures BIO-1 through BIO-7 would reduce potentially significant impacts to special-status species and/or nesting raptors and birds to a less than significant level. Species-specific mitigation measures are included in the mitigation measures identified below, and some of general mitigation measures identified in Mitigation Measure (MM) BIO-1 may be repeated in the species-specific measures.

## Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction

Construction and operation of project interconnection facilities by PG&E could potentially result in significant impacts to the special-status animal species discussed in detail above as well as nesting raptors and other nesting birds. Mitigation measures BIO-1 through BIO-7 would be applicable to construction and operation of project interconnection facilities by PG&E and would reduce potentially significant impacts to special-status species and/or nesting raptors and birds to a less than significant level.

**Significance without Mitigation:** Potentially significant impact.

### MM BIO-1: General Mitigation Measures

MM BIO-1a: Prior to the issuance of grading or building permits, and for the duration of construction activities, the project proponent/operator shall demonstrate that it has in place a Construction Worker Environmental Awareness Training and Education Program for all new construction workers at the project site. All construction workers shall attend the Program prior to participating in construction activities. Any employee responsible for the operations and maintenance or decommissioning of the proposed project facilities shall also attend the Environmental Awareness Training and Education Program prior to starting work on the project.

The Program will be developed and presented by a biologist meeting the qualifications of an authorized biologist as defined by USFWS or designee. The training may be presented in video form. The Program shall include:

- Information on the life history of the American badger, burrowing owl, grasshopper sparrow, loggerhead shrike, golden eagle and other raptors, as well as other wildlife and plant species that may be encountered during construction activities, and the legal protection status of each species (including all nesting birds);
- A description of CRLF, CTS and its habitat, the avoidance and minimization measures that are being implemented to conserve the CRLF and CTS as they relate to the project, and the boundaries within which work may occur;
- A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact

sheet conveying this information shall be prepared for distribution to the previously referenced people and anyone else who may enter the project site;

- The definition of “take” under the Federal Endangered Species Act and the California Endangered Species Act;
- Measures the project proponent/operator is implementing to protect the species; and
- Specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act or California Endangered Species Act.

The worker environmental awareness training material will be kept on-site for the duration of operations and all personnel will be instructed on the importance of CRLF and CTS, how to identify these amphibians, and what to do if CRLF or CTS is found on the facility.

MM BIO-1b: Environmental tailboard trainings shall take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

MM BIO-1c: Contracts with contractors, construction management firms, and subcontractors shall obligate all contractors to comply with these mitigation measures.

MM BIO-1d: The following shall not be allowed at or near work sites: trash dumping, firearms, open fires (such as barbecues) not required by the construction activity, hunting, and pets.

MM BIO-1e: Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

MM BIO-1f: Off-road vehicle travel shall be prohibited outside of designated project areas.

MM BIO-1g: Vehicles shall not exceed a speed limit of 15 mph on unpaved roads within natural land cover types or during off-road travel.

MM BIO-1h: Vehicles or equipment shall not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

MM BIO-1i: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

MM BIO-1j: To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation shall be either rice straw or weed-free straw.

MM BIO-1k: Pipes, culverts, and similar materials greater than four inches in diameter shall be stored so as to prevent covered wildlife species from using these as temporary refuges, and

these materials shall be inspected each morning for the presence of animals prior to being moved.

MM BIO-1l: Erosion control measures shall be implemented to reduce sedimentation in wetlands and drainages adjacent to the site that could be occupied by special-status animal species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

MM BIO-1m: Stockpiling of material shall occur such that direct effects to special-status species are avoided.

MM BIO-1n: Grading shall be restricted to the minimum area necessary.

MM BIO-1o: Prior to ground disturbing activities adjacent to sensitive habitats, project construction boundaries and access areas shall be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.

**MM BIO-2: California Tiger Salamander and California Red-Legged Frog**

MM BIO-2a: If construction commences during the wet season and active dispersal period for these species (between approximately October 16 and May 14, depending on the precipitation year), preconstruction surveys for CRLF and CTS shall be conducted in the project site approximately two weeks prior to the initiation of construction and decommissioning activities to ensure that CRLF and CTS are not actively using the project site or adjacent areas as a dispersal corridor. Preconstruction surveys shall be conducted by a qualified biologist familiar with all life stages of the amphibians and shall cover all aquatic habitats on and immediately adjacent to the project site (Cayetano Creek and its tributaries) that are suitable for CRLF and CTS dispersal.

MM BIO-2b: If any life stage of CRLF and/or CTS (e.g., egg, egg mass, larvae, tadpole, juvenile, or adult) is detected within the project site during any surveys or monitoring for the project during construction or decommissioning, USFWS and CDFW shall be notified within 48 hours. The biologist shall monitor the CRLF or CTS to make sure the amphibian is not harmed and that it leaves the site on its own. Construction activities will not be allowed within 100 feet of the animal. Handling of listed species without a take permit pursuant to the FESA is not allowed.

MM BIO-2c: Activities associated with construction and decommissioning conducted within 200 feet of on-site drainages shall be limited to a period outside of the active season for CRLF and CTS (approximately May 15 to October 15, depending on the precipitation year). This construction window is during the dry season in which creek levels are lower to dry, providing limited aquatic dispersal habitat for CRLF. The dry season is defined generally as that time between April 15th and the first qualifying rain event on or after October 15th defined as precipitation of more than one half of an inch for 24 hours. Any extension of the work window outside of the May 15 to October 15 timeframe due to abnormally dry conditions would require coordination with the USFWS and compliance with MM BIO-2a and -2b.

MM BIO-2d: Construction and decommissioning activities within 200 feet of on-site drainages shall be restricted to daylight hours to avoid CRLF and CTS that may be present in the project site during the time they are most active – between dusk and dawn. Construction and decommissioning activities shall cease one half hour before sunset and shall not begin prior to one half hour before sunrise.

MM BIO-2e: Construction and decommissioning activities and clearing within the project site shall be confined to the minimal area necessary to facilitate construction activities. To ensure that construction equipment and personnel do not affect sensitive habitat outside of designated work areas, orange barrier fencing shall be erected to clearly define the habitat to be avoided. This will delineate the Environmentally Sensitive Area on the project. The integrity and effectiveness of Environmentally Sensitive Area fencing, and erosion control measures shall be inspected daily. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective erosion control BMPs.

MM BIO-2f: To prevent CRLF and CTS from moving through the project site during construction and decommissioning, temporary exclusion fencing shall be placed along the boundary of the project site by October 15<sup>th</sup> of the year prior to commencement of construction and decommissioning. This will allow any CRLF or CTS potentially using the project site for upland refugia to leave the project site to access breeding habitat, but not return. The fence will be made of a material that does not allow amphibians to pass through, with one-way exit holes, and the bottom will be buried to a depth of two inches so that frogs cannot crawl under the fence. To avoid entanglement of amphibians and other wildlife, the use of plastic monofilament netting is prohibited. Exclusion fencing shall be removed within 72 hours of the completion of work.

MM BIO-2g: A biologist meeting the qualifications of an authorized biologist as defined by USFWS or designee shall survey the project site immediately prior to installation of temporary exclusion fencing to ensure that this species is not present within the site. Once the temporary exclusion fencing is installed, the work area within the exclusion fence shall be surveyed again immediately prior to the onset of construction activities. If listed species are found in the project site during preconstruction surveys, construction activities shall not start within a 100-foot radius until the species has left the area of its own volition. Handling of CRLF or CTS without a take permit pursuant to the FESA is not allowed.

MM BIO-2h: A qualified biological monitor shall be present daily during initial construction and decommissioning activities including but not limited to equipment mobilization, site clearing, vegetation removal, and grading/ground disturbance to verify that no CRLF or CTS enter the project site during construction or are harmed. Daily monitoring can be reduced to weekly inspections at the discretion of the biological monitor once site grading has been completed and no habitat/refugia is present for CRLF or CTS on the site.

- Any mammal burrows providing potential refugia for CRLF or CTS shall be scoped to search for these animals. If CRLF or CTS are found, the burrow shall be flagged and avoided by a suitable buffer as determined by the biological monitor.
- If CRLF or CTS are found during construction or decommissioning, work shall immediately stop within 100 feet and the listed amphibian will be allowed to move out of harm's way on its own accord. The biological monitor shall monitor the CRLF or CTS to

make sure the amphibian is not harmed and that it leaves the site on its own. Handling of listed species without a take permit pursuant to the FESA is not allowed. Sightings of special-status species will be reported to CNDDDB.

- Prior to the start of daily construction and decommissioning activities during initial ground disturbance, the biological monitor shall inspect the perimeter fence to ensure that it is neither ripped nor has holes and that the base is still buried. The fenced area shall also be inspected to ensure no amphibians are trapped. If listed amphibians are found inside or outside of the fence, work will immediately stop, and the animal will be allowed to leave the project site on its own accord. Any listed species shall be closely monitored until they move away from the construction area.
- A permitted biologist shall be contracted to trap and move CRLF and CTS to nearby suitable habitat if they are found inside the project area and do not leave the project site of their own accord.

MM BIO-2i: To ensure that amphibian diseases are not conveyed between work sites by the USFWS-approved biologist or biological monitor, the fieldwork code of practice developed by the Declining Amphibian Population Task Force shall be followed at all times.

MM BIO-2j: Standard construction BMPs shall be implemented throughout construction and decommissioning, in order to avoid and minimize adverse effects to the water quality within the project site. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from the project site. The integrity and effectiveness of the BMPs shall be inspected on a daily basis by the resident engineer or site foreman. Corrective actions and repairs shall be carried out immediately.

MM BIO-2k: Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials should not be allowed to enter into streams or other waters. A plan for the emergency clean-up of any spills of fuel or other materials should be available when construction equipment is in use.

MM BIO-2l: Equipment shall be re-fueled and serviced at designated construction staging areas. All construction material and fill shall be stored and contained in a designated area that is located away from channel areas to prevent transport of materials into adjacent streams. The preferred distance is 100 feet from the wetted width of a stream. In addition, a silt fence shall be installed to collect any discharge, and adequate materials should be available for spill clean-up and during storm events.

MM BIO-2m: Construction vehicles and equipment shall be monitored and maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Leaking vehicles and equipment shall be removed from the site.

MM BIO-2n: Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall be located outside of the 100-year flood zone, have an impermeable membrane between the ground and the hazardous material, and shall be bermed to prevent the discharge of pollutants to ground water and runoff water. The bermed area shall at a minimum have the capacity to store the volume of material placed in it.

MM BIO-2o: All disturbed soils shall undergo erosion control treatment prior to October 15 and/or immediately after construction is terminated. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from project sites. Erosion control blankets shall be installed on any disturbed soils steeper than a 2:1 slope or steeper.

MM BIO-2p: During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

MM BIO-2q: To prevent inadvertent entrapment of animals during construction, all excavated, steep walled holes or trenches more than one foot deep shall be covered at the close of each working day with plywood or other suitable material or provided with one or more escape ramps constructed of earth fill or wooden planks. At the beginning of each working day and before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist, or an on-site designee identified by the USFWS-approved biologist, will immediately place escape ramps or other appropriate structures to allow the animal to escape, or USFWS will be contacted for guidance and notified of the incident. All holes and trenches more than one foot deep shall be filled or securely covered prior to October 15.

MM BIO-2r: No monofilament plastic will be used for erosion control.

### **MM BIO-3: Burrowing Owl**

MM BIO-3a: If feasible, construction-related ground disturbance activities shall begin outside of the burrowing owl nesting season (February 1 through August 31) and during construction the site shall be maintained in a manner that is inhospitable to burrowing owl such as keeping the site free of vegetation, ground squirrel control (the use of poison baits or other substances that could be potentially harmful to San Joaquin kit fox shall not be allowed), and maintaining regular site disturbance by construction equipment and personnel. This will discourage burrowing owl from occupying the project site. If feasible, decommissioning-related ground disturbing activities shall begin outside of the burrowing owl nesting season (February 1 through August 31).

MM BIO-3b: No more than 14 days prior to initiation of ground disturbing activities associated with project construction or decommissioning, a qualified biologist shall conduct a pre-construction survey of the project site and surrounding areas to a distance of 150 meters in accordance with the methods outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012) or most recently adopted guidance. The first pre-construction survey will cover all areas within 150 meters of the portion of the site in which construction/ decommissioning is scheduled to start. Surveys will be phased based on the construction/ decommissioning schedule such that the surveys are conducted no more than 14 days ahead of the start of ground disturbance in new areas. If construction/decommissioning activities in portions of the site cease for a period of 14 days, those portions of the site will be resurveyed for burrowing owls prior to the resumption of construction/decommissioning activities. If no occupied breeding or wintering owl burrows are identified, no further mitigation will be required. If occupied burrows are identified on the site or within 150 meters, one of the following actions shall be taken: (1) permanent avoidance of the burrow or (2) establishment of a temporary



avoidance buffer followed by passive relocation and compensatory mitigation for loss of habitat in conjunction with the measures below:

- If an occupied wintering burrow is discovered during pre-construction surveys, a 50-meter buffer area shall be established around the burrow until the owl leaves on its own (if the burrow is more than 50 meters offsite and/or more than 50 meters from the work area, no buffer is necessary). Ground-disturbing work conducted during the nonbreeding (winter) season (September 1 to January 31) can proceed near the occupied burrow so long as the work occurs no closer than 50 meters to the burrow, and the burrow is not directly affected by the project activity. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist. If the 50-meter buffer cannot be maintained for the duration of occupancy by the owl, owls may be excluded from an occupied wintering burrow in accordance with the conditions of the project's *Burrowing Owl Exclusion Plan*, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls.
- If an occupied nesting burrow is discovered during pre-construction surveys, an avoidance buffer of 200 meters shall be established around the burrow location and maintained until a qualified biologist has determined that the nest has fledged or is no longer active (a 200-meter avoidance buffer is appropriate for low-intensity impacts near nesting burrows during breeding season [CDFW 2012]). No project activities shall take place within the 200-meter buffer during the time in which it is in place. A smaller buffer may be established in consultation with CDFW and monitored at the discretion of a qualified biologist.
- If an occupied burrow cannot be avoided, and the burrow is not actively in use as a nest, a 200-meter buffer shall be established until the burrowing owls can be excluded from burrows in accordance with the project's *Burrowing Owl Exclusion Plan*, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls. The Burrowing Owl Exclusion Plan is based on the recommendations made in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or most recently adopted guidance and shall include the following information for each proposed passive relocation:
  - Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species;
  - Type of scope to be used and appropriate timing of scoping;
  - Occupancy factors to look for and what shall guide determination of vacancy and excavation timing;
  - Methods for burrow excavation;
  - Removal of other potential owl burrow surrogates or refugia on-site;
  - Methods for photographic documentation of the excavation and closure of the burrow; and
  - Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take. Methods for assuring the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals.

MM BIO-3c: If an occupied burrow is identified off-site within 150 meters and passive exclusion is deemed necessary to protect the owls, burrowing owls may be excluded from burrows in accordance with the project's *Burrowing Owl Exclusion Plan*, which will be submitted for approval by CDFW prior to passive relocation of any burrowing owls. If burrowing owls cannot be excluded from an off-site burrow and it is not feasible to maintain an avoidance buffer as stated above, coordination will be conducted with CDFW to determine appropriate measures to minimize impacts to off-site burrowing owls. Such measures could include, but are not limited to: (1) installation of barriers between the construction or decommissioning area and the occupied burrows to block noise and views of construction or decommissioning equipment and personnel, and (2) regular monitoring by a qualified biologist to determine if construction or decommissioning activities are resulting in disturbance of the owls that could lead to nest abandonment or harm to adult owls or their young. If such disturbance was occurring, the biological monitor would have the authority to halt construction or decommissioning activities until further modifications could be made to avoid disturbance of the owls.

MM BIO-3d: If burrowing owl pairs are passively relocated, compensatory mitigation for lost wintering/breeding habitat shall be provided either through dedication of 6 acres of suitable habitat (per pair of relocated owls) at an off-site location in accordance with the conditions of the project's *Burrowing Owl Exclusion Plan* or through purchase of credits at a CDFW-approved mitigation bank in the region. No compensatory mitigation is required for passive relocation or eviction of transient, unpaired owls.

MM BIO-3e: If permanent avoidance buffers are established, such areas shall be managed for the duration of the project to preserve current values as foraging habitat for burrowing owl. Management shall include: (1) exclusion of all project activities throughout the construction, operation, and decommissioning phases, including staging, parking, driving, or dumping; (2) vegetation management by grazing or mowing to preserve open, low-growing vegetation; (3) fencing to discourage human incursion; (4) signage identifying the area as a biologically sensitive area managed for burrowing owl, and; (5) a worker education and awareness program for all personnel working on the site including contractors and sub-contractors.

#### **MM BIO-4: American Badger**

A qualified biologist shall conduct a preconstruction survey for American badger no more than 14 days prior to the beginning of ground disturbance related to construction and decommissioning activities, or any other project activity likely to impact American Badger (such as staging, mowing, vegetation clearing), to determine if there are any American badger dens on the project site. If there are no American badger dens on the project site, no further mitigation is necessary. If American badger dens are located within the work area and cannot be avoided, a qualified biologist will determine if the dens are occupied. If unoccupied, the dens will be collapsed under the supervision of the biologist. If occupied, the biologist will determine if it is a natal/pupping den or a solitary badger den. Dens of solitary badger may be collapsed under the supervision of the biologist once the animal has vacated the den. Natal/pupping dens will be avoided by establishment of an exclusion zone around the den determined by the qualified biologist until the young are old enough to leave the den and survive on their own.

**MM BIO-5: San Joaquin Kit Fox**

MM BIO-5a: A qualified biologist shall conduct a preconstruction survey no more than 14 days prior to the beginning of ground disturbance and/or construction/ decommissioning activities, or any other project activity likely to impact San Joaquin kit fox, to determine if potential San Joaquin kit fox dens are present in or within 500 feet of the project site (inaccessible areas outside of the project site can be surveyed using binoculars or spotting scopes from public roads). The surveys shall be conducted in all areas of suitable habitat for San Joaquin kit fox. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to disturbance of any particular portion of the site. If potential dens are observed and avoidance of the dens is determined to be feasible, the following minimum buffer distances shall be established prior to construction/decommissioning activities (consistent with USFWS 2011):

- Potential den: 50 feet
- Atypical den: 50 feet
- Known den: 100 feet
- Natal/pupping den: at least 500 feet – **USFWS must be contacted.**
  - Buffer establishment shall follow the *USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011) under “Exclusion Zones.”
  - If San Joaquin kit fox or occupied San Joaquin kit fox dens are observed on the site, USFWS must be contacted.

MM BIO-5b: If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent foxes from re-using them during construction.
- If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program may be implemented with prior concurrence from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction with prior concurrence from USFWS.

MM BIO-5c: In addition, the following avoidance and minimization measures for San Joaquin kit fox shall be implemented during construction/decommissioning of the project (USFWS 2011):

- a. Project-related vehicles shall observe a daytime speed limit of 20 mph and a nighttime speed limit of 10 mph throughout the project site, except on County roads, state and federal highways. Additionally, vehicles shall not exceed a speed limit of 15 mph on unpaved roads within natural land cover types or during off-road travel. Off-road traffic shall be prohibited outside of designated project areas.

- b. To prevent inadvertent entrapment of kit foxes or other animals during the construction or decommissioning phases of the project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks should be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted as noted under measure I. referenced below.
- c. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- d. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.
- e. No firearms shall be allowed on the project site.
- f. No pets, such as dogs or cats, shall be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
- g. Use of rodenticides, herbicides, poison baits, or other substances potentially harmful to San Joaquin kit fox shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. Use of such compounds should observe label and other restrictions mandated by the EPA, CDFA, and other State and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
- h. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program required by BIO-1a and their name and telephone number shall be provided to the Service.
- i. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant

species used to revegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, CDFW, and revegetation experts.

- j. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox should immediately report the incident to their representative. This representative should contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or the wildlife biologist at (530) 934-9309. The USFWS should be contacted at Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825, (916) 414-6620 or (916) 414-6600.
- k. The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.
- l. New sightings of kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS at the address listed under measure l.
- m. Fencing of the project site, with the exception of the project substation and energy storage areas, shall incorporate wildlife-friendly fencing design. Fencing plans may use one of several potential designs that would allow kit foxes to pass through the fence while still providing for project security and exclusion of other unwanted species (i.e., domestic dogs and coyotes). Raised fences or fences with entry/exit points of at least 6 inches in diameter spaced along the bottom of the fence to allow species such as San Joaquin kit fox access into and through the project site would be appropriate designs.

#### **MM BIO-6: Special-Status Birds and other Nesting Migratory Birds and Raptors**

MM BIO-6a: If project (construction/decommissioning) ground-disturbing or vegetation clearing, and grubbing activities commence during the avian breeding season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey no more than 7 days prior to initiation of project activities. The survey area shall include suitable raptor nesting habitat within 300 feet of the project boundary (inaccessible areas outside of the project site can be surveyed from the site or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure is required:

- A suitable buffer (e.g., 660 feet for golden eagle, 300 feet for common raptors; 100 feet for passerines) shall be established by a qualified biologist around active nests and no construction/decommissioning activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed).

Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.

MM BIO-6b: Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be used on the project site, the poles shall be capped immediately after installation to avoid entrapment of birds.

**MM BIO-7: Avian Effects During Operation of the Solar Facility**

MM BIO-7a: Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. This will prevent impacts to bird species nesting and foraging in riparian areas in Cayetano Creek and other sensitive habitats adjacent to the site.

MM BIO-7b: Rodenticides shall not be used at the project site. Rodents will be controlled by encouraging raptor foraging. If additional rodent control is required to minimize impacts on adjacent agricultural operations, non-chemical methods will be employed.

MM BIO-7c: During operations, trash – including microtrash that can be harmful to birds and other wildlife – will be regularly removed from the project site to avoid impacts to birds using the project site. The area of trash cleanup will include both the project site within the fence lines, in addition to focused trash pickup along the fence on the interior and exterior sides of the fence.

MM BIO-7d: The project shall be designed to underground electrical wiring to the maximum extent feasible. In particular, guy wires will be avoided to the maximum extent feasible without compromising public safety.

MM BIO-7e: In compliance with the Avian Power Line Interaction Committee's (APLIC) guidance, Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC, 2012), transmission lines and all electrical components shall be designed, installed, and maintained in accordance with APLIC (2012) guidance to reduce the likelihood of large bird electrocutions and collisions.

MM BIO-7f: The Applicant shall implement the following measures to reduce the risk of bird collisions with PV panels.

- A qualified biologist shall prepare an Avian Monitoring Plan to assess and monitor the potential for avian collisions with solar panels on the site. The Plan will include monitoring for levels of avian activity as well as avian mortality in treated and untreated (control) portions of the solar facility to determine if avian mortality is occurring and if there is any apparent difference in avian mortality between treated and untreated panels. The Plan shall also include methods to install visual deterrents or cues to encourage bird avoidance of the Project site. Implementation of the Plan will provide quantitative data on the effectiveness of the avian deterrent in terms of overall bird use and large-bird mortality in treated portions of the project versus an untreated control.

- Within 30 days after project commissioning, avian deterrent materials shall be installed in a total of four 50-acre blocks to achieve coverage of a total of 200 acres within the Solar Facility on a 3-month trial basis to evaluate potential avian collision issues. These deterrents shall be made of a material that is both reflective and highly visible, such that the material reflects ambient light and is stimulated by air movement. The effect of installation will create the visual impression of continuous and varied movement, which has been shown as an avian deterrent in agricultural applications. Examples of the types of material that could be used include plastic compact discs and reflective tape.
- Upon installation of deterrent measures, avian monitoring shall occur once per week for a total of 12 consecutive weeks; this will be repeated for the first three consecutive years of operation. During each monitoring event, bird abundance in each block (4 treatment blocks and one untreated control block) will be quantified using a point count method and the number, species, and behavior of birds observed within each block will be recorded. Behaviors will be recorded for each species and will reflect the modal (or typical) behavior observed for all individuals of the species, not for each individual bird. The observer will also record temperature, average wind speed, and percent cloud cover at the start of each observation period.
- Mortality of large birds in each block will be assessed by surveying the block for carcasses of large birds (crow-sized and larger). During the surveys, the location and species of each carcass will be recorded using a handheld GPS receiver, a photograph will be taken of the carcass, and the cause of mortality will be noted if apparent. Carcasses will not be collected or preserved.
- Overall bird abundance, species diversity, and large-bird mortality will be compared among all blocks, and between the control block and the treatment blocks combined. Analysis may include t-Test comparisons of means for overall abundance and large-bird mortality; however, statistical power may be low depending on the overall level of bird activity at the site.
- Facility operator or agent will provide a brief analysis of the effects of the deterrent measures on panel performance and the feasibility of maintaining avian deterrents for inclusion in the analysis.
- Following the initial 3-month period and based on the results of the Plan, visual deterrents will either be discontinued if there is no significant difference between avian mortality between the treatment and control blocks, adjusted to reduce performance issues and reexamined on a continuing 3-month basis, or if adjustments are not deemed necessary to improve panel performance, deployed on the remainder of the site and maintained for the life of the project or until determined infeasible (based on the definition of “feasible” in CEQA Guidelines §15364) or ineffective by the Project owner in consultation with CDFW and the County.

MM BIO-7g: Panels shall include, if feasible, a light-colored, UV-reflective, or otherwise non-polarizing outline, frame, grid, or border, which has been shown to substantially reduce panel attractiveness to aquatic insects (Horvath, 2010) and may reduce avian mortality by avoiding collisions with panel faces (NFL, 2014).

MM BIO-7h: Dryland pasture shall be established on the site and used for grazing livestock (sheep) between and under the solar panels throughout the year, pursuant to an Agricultural Management Plan. Portions of the site in and around the solar panels shall be maintained as dryland pasture containing a combination of grassland species and non-invasive forbs and would be maintained for grazing for the duration of the life of the solar facility. The mixture of grassland and native forbs, managed by targeted sheep grazing, is expected to provide high value and consistently available habitat conditions for small mammal prey species (voles, pocket gophers, deer mice and house mice) preferred by raptors in the region.

MM BIO-7i: The Agricultural Management Plan shall include grazing management methods to ensure that the vegetation composition and structure provides a combination of areas with lower vegetation heights and density to provide accessibility to raptors, and areas with denser, taller vegetation to attract and maintain prey on the site. Management conditions will include ensuring that the vegetation cover is not reduced to the extent that vegetation would not naturally regenerate; there are openings in the vegetation to allow foraging access for raptors; and there are areas where the vegetation would be allowed to grow taller. In general, vegetation heights below the panels should be allowed to be higher to provide cover for prey species (12-18 inches), and the vegetation heights between the panels should be maintained at a suitable height to provide foraging accessibility (<12 inches).

**Significance with Mitigation:** Less than significant impact.

## **BIO-2      The proposed project may result in a substantial adverse effect on a sensitive natural community.**

The proposed project could result in impacts to an ephemeral drainage totaling 0.08 acre in the northwest corner of the northern section of the project site that is a potential sensitive natural community and may be protected under Section 1600 of the Fish and Game Code. There are no other sensitive natural communities on the project site. The site consists almost entirely of annual grassland and other agricultural land that supports a mixture of non-native and native species and lacks native or naturalized vegetation communities. Cayetano Creek and its tributaries adjacent to the site are considered sensitive natural communities. However, the project has been designed to avoid impacts to these features. Mitigation for potential impacts to jurisdictional waters shall consist of avoidance of preserved jurisdictional waters on or adjacent to the site. In the event such waters cannot be avoided, the project applicant shall obtain the appropriate permits and provide compensatory mitigation at a minimum of a 1:1 ratio. Therefore, with implementation of MM BIO-8, potential impacts to a sensitive natural community would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would not be located with or near the area identified as an ephemeral drainage, as described above. The project interconnection facilities, and access roads to the interconnection facilities, would be located 1,600 feet or more from Cayetano Creek and its tributaries. MM BIO-8 would not apply to construction and operation of project interconnection facilities by PG&E. Therefore, construction and operation of project interconnection facilities by PG&E would not result in an adverse effect on a sensitive natural community, and there would be no impact.



**Significance without Mitigation:** Potentially significant impact.

**MM BIO-8: Jurisdictional Waters**

MM BIO-8a: The project shall be designed to avoid impacts to jurisdictional waters on and adjacent to the site. If jurisdictional waters cannot be avoided, prior to the start of construction, the project applicant shall secure any required aquatic resources permits for impacts to jurisdictional waters of the State from the San Francisco Bay RWQCB and CDFW, and shall comply with all conditions of such permits including providing compensatory mitigation as required to achieve no net loss of wetlands or other waters.

MM BIO-8b: For those waters of the State and CDFW jurisdictional areas that are not avoided by project construction, compensatory mitigation shall be provided. As approved by the San Francisco Bay RWQCB and CDFW, the project applicant may purchase mitigation credits from an approved mitigation bank at a minimum 1:1 ratio or implement another method of mitigation satisfactory to the San Francisco Bay RWQCB and CDFW.

MM BIO-8c: Impacts shall also be minimized by the use of Best Management Practices (BMPs) to protect preserved waters of the U.S./State adjacent to the site and to ensure that water quality standards are not compromised in preserved wetlands and other waters within the watershed. These practices can include installing orange construction fencing buffers, straw waddles to keep fill from entering preserved/avoided wetlands and other waters, and other protective measures.

**Significance with Mitigation:** Less than significant impact.

**BIO-3      The proposed project may result in a substantial adverse effect on State or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) or other waters of the U.S. or State through direct removal, filling, hydrological interruption, or other means.**

The proposed project could result in impacts to an ephemeral drainage totaling 0.08 acre in the northwest corner of the northern section of the project site that is a potential waters of the State and is also potentially subject to CDFW jurisdiction under Section 1600 of the Fish and Game Code. This feature could be filled or culverted to facilitate development of the proposed project. Implementation of MM BIO-8 would reduce any potential impacts to the ephemeral drainage to less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As described under impact BIO-2, above, the project interconnection facilities would not be located with or near the area identified as an ephemeral drainage and would be located 1,600 feet or more from Cayetano Creek and its tributaries. MM BIO-8 would not apply to construction and operation of project interconnection facilities by PG&E. Therefore, construction and operation of project interconnection facilities by PG&E would not result in an adverse effect on State or federally protected wetlands, and there would be no impact.

**Significance without Mitigation:** Potentially significant impact.

See Impact BIO-2 for MM BIO-8.

**Significance with Mitigation:** Less than significant impact.

**BIO-4      The proposed project may interfere substantially with the movement of native resident wildlife species or with established native resident or migratory wildlife corridors.**

The project site is not included in any corridors mapped by the California Essential Habitat Connectivity project and does not provide any unique movement or dispersal habitat relative to surrounding lands for several miles in all directions. However, the project site and surrounding lands, which consist predominately of annual grassland and dryland grain crop, currently provide extensive open, dispersal habitat for wildlife movement in the region. In the absence of proposed mitigation measures, the proposed project could impede use of the site by native resident wildlife or dispersing wildlife. In order to prevent loss of dispersal habitat or use of the site by native resident and special-status wildlife (other than large mammals), a gap will be maintained between the perimeter fence and the ground to allow passage of small to mid-sized mammals as included in the recommended fencing guidelines for San Joaquin kit fox in MM BIO-5. Implementation of these mitigation measures would reduce the potential impact to less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would be located within a small area comprising the existing Cayetano substation and the project substation. This area, and any required security fencing around the substations, is not included in any corridors mapped by the California Essential Habitat Connectivity project and does not provide any unique movement or dispersal habitat relative to surrounding lands. The guidelines for perimeter fencing for the reduction of impact to San Joaquin kit fox contained with BIO-5 would not apply to the security fencing around the project substation and the interconnection facilities. Therefore, construction and operation of project interconnection facilities by PG&E would not interfere substantially with the movement of native resident or migratory wildlife species, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact BIO-1 for MM BIO-5.

**Significance with Mitigation:** Less than significant impact.

**BIO-5      The proposed project may conflict with local policies or ordinances protecting biological resources.**

As discussed in Section 4.4.4.7, Local Policies, the ECAP includes several policies intended to promote conservation of existing high-value biological resources in the county and protect sensitive resources and special-status species. The project site has been subject to a long history of agricultural land use that has severely reduced its biological value compared to undisturbed natural habitats. The East Alameda County Conservation Strategy and East Bay Regional Conservation Investment Strategy are voluntary plans to promote conservation of natural resources. In the absence of the mitigation, the proposed project has the potential to conflict with local policies through loss of wildlife habitat and

impacts to protected species. The project includes avoidance, minimization, and mitigation measures that would reduce impacts to special-status species and allow for continued use of the site by special-status species for dispersal, refugia, and foraging once the solar facility is operational. Implementation of mitigation measures BIO-1 through BIO-7 would reduce potential impacts to a less than significant level.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As described above, the proposed project, including the project interconnection facilities, has the potential to conflict with local policies through loss of wildlife habitat and impacts to protected species. Avoidance, minimization, and mitigation measures included in the project would reduce impacts to special-status species and allow for continued use of the site by special-status species for dispersal, refugia, and foraging once the solar facility is operational. Mitigation measures BIO-1 through BIO-7 would be applicable to construction and operation of project interconnection facilities by PG&E and would reduce potential impacts related to conflicts with local policies or ordinances protecting biological resources a less than significant level.

**Significance without Mitigation:** Potentially significant impact.

See Impact BIO-1 for mitigation measures BIO-1 through BIO-7.

**Significance with Mitigation:** Less than significant impact.

#### **BIO-6      The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.**

As discussed in Section 4.4.4.8, Habitat Conservation Plans/Natural Community Conservation Plans, the proposed project does not fall under the purview of any HCPs or NCCPs. The East Alameda County Conservation Strategy, although affiliated with the East Bay Resource Conservation Investment Strategy, is not recognized within Alameda County as an HCP. Therefore, the project would not conflict with any provisions of an adopted HCP, and no mitigation is required.

The project is located within the EACCS area and the project has been designed to be incorporated into previously disturbed agricultural land. The project site will be managed and operated in a similar capacity for grazing of livestock and honey production from bees with the inclusion of PV solar arrays for the next 50 years. Through the implementation of project design and mitigation measures, the project site will continue to provide habitat for wildlife that already occur in the project site, which falls in line with the goals and purpose of the EACCS.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed in Section 4.4.4.8, Habitat Conservation Plans, the proposed project, including the project interconnection facilities, does not fall under the purview of any HCPs or NCCPs. Therefore, construction and operation of project interconnection facilities by PG&E would not conflict with any provisions of an adopted HCP or NCCP, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.4.7 CUMULATIVE IMPACTS**

##### **BIO-7 The proposed project may contribute to a significant cumulative impact to biological resources.**

Cumulative impacts would occur when a series of actions leads to the loss of biological resources in the North Livermore area. The analysis of cumulative impacts to biological resources is based on impacts of the proposed project that could occur in combination with other developments in the vicinity of the subject property, including the nearby proposed Livermore Community Solar Farm and Oasis Fund projects. In the absence of design measures, other applicant proposed measures, and proposed mitigation measures, the project would have the potential to result in a cumulative impact to biological resources in the region.

In the absence of the proposed mitigation measures, as well as measures taken by the applicant to site the project in an area that generally lacks high quality habitat for the majority of the special-status plant and wildlife species that occur in the region and the applicant proposed measures to revegetate the site to maintain wildlife habitat, the project would have the potential to result in a potentially significant cumulative impact on special-status species and other biological resources in concert with the impacts from other projects in the region.

Potential cumulative impacts could include 1) loss of high quality breeding and upland habitat for special-status amphibians (CRLF and CTS) or take of individuals leading to an incremental decline in the regional population of these species; 2) reduced nest success, nest failure, or other direct or indirect impacts to nesting birds as well as a complete loss of foraging habitat for special-status and common raptors and other resident and migratory birds that would have an incremental effect potentially leading to reduced populations of these birds in the region or lack of population expansion potential; 3) direct impacts to American badger and/or San Joaquin kit fox or loss of dispersal and foraging habitat for these species that could lead to an incremental reduction in populations of these species; 4) a net loss of jurisdiction waters in the watershed; and 5) loss of potential movement corridors for special-status and common wildlife species leading to a cumulative potential for impacts to gene flow or genetic diversity among these species.

The project was sited to avoid impacts to high quality grassland habitats and streams that provide breeding habitat and high-quality upland habitat for regionally-occurring special-status amphibians (CRLF and CTS). Approximately 150 acres of APN 903-0006-001-02 was removed from the development footprint during the planning phase in part because of its biological value. This area is proposed to be subdivided to legally separate it from the real property affiliated with the proposed project development. The project will impact low quality grassland habitat next to heavily travelled roads and other development that is not expected to provide quality habitat for CRLF and CTS. With the implementation of applicant proposed measures to revegetate the site and maintain herbaceous ground cover under the panels, upon construction of the solar generation facility and revegetation the site will provide grassland habitat for CRLF and CTS suitable for dispersal and refugia. Mitigation measures will also avoid take of individuals if present on the site by allowing them to leave but not return and by conducting pre-construction surveys to see if the site is being actively used as a dispersal corridor, avoiding construction within 200 feet of dispersal habitat during the active season of these species, biological monitoring and numerous other measures (MM BIO 2).

As opposed to completely eliminating the value of the site for foraging by developing an industrial type solar generating facility with no vegetation or wildlife habitat, the applicant has committed to maintaining foraging habitat for raptors and other birds on the site by maintaining vegetation under the solar panels that promotes a consistent source of prey and is a suitable height for raptor foraging. During operation of the proposed project, the applicant plans to maintain the project site with vegetation and seasonally graze livestock (sheep) between and under the solar panels for the duration of operation of the solar facility, pursuant to an Agricultural Management Plan. The mixture of grassland and forbs managed by targeted sheep grazing is expected to provide high value and consistently available habitat conditions for small mammal prey species (ground squirrels, rabbits, voles, pocket gophers, deer mice and house mice). The Agricultural Management Plan would include vegetation management methods to ensure that the vegetation composition and structure provides a combination of areas with lower vegetation heights and density to provide accessibility to foraging raptors, and areas with denser, taller vegetation to attract and maintain prey on the site, thus enhancing the site for raptor foraging use. Impacts to nesting raptors and other birds will be avoided by implementation of MM BIO-6 and MM BIO-7.

Direct impacts to American badger and San Joaquin kit fox will be avoided by implementation of MM BIO-4 and MM BIO-5 and wildlife friendly fencing will be implemented by maintaining a gap under the fence to allow passage of small to mid-sized mammals. No direct impacts or loss of habitat for these species is anticipated.

No net loss of jurisdictional waters will occur with implementation of MM BIO-8 and potential impacts to jurisdictional waters adjacent to the site will be avoided by implementation of BMPs as described in MM BIO-1 and BIO-8. The project will not contribute to a cumulative loss of jurisdictional waters in the watershed.

The project was sited to avoid impacts to high quality grassland habitats and streams that could provide dispersal corridors or temporary refugia for wildlife. With the implementation of proposed measures to revegetate the site upon completion of construction and incorporate wildlife friendly fencing, conversion of the project site from annual grassland and dryland grain cropland to a solar generation facility would not eliminate the potential for special-status amphibians or other wildlife to occupy, use or disperse through the site and would not constitute a cumulatively significant impact to wildlife movement corridors in the region. After construction has stopped and the site has been revegetated, the solar array is not expected to impede any migration route for wildlife, as the project site will support grassland vegetation as it did prior to construction.

Based on the above discussion, the proposed project as designed including the applicant proposed measures and proposed mitigation measures would result in a less than significant cumulative impact to special-status species and biological resources.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the proposed project, including the project interconnection facilities, would result in potentially significant impacts to biological resources. Mitigation measures BIO-1 through BIO-7 would apply to construction and operation of project interconnection facilities by PG&E and would reduce impacts to less than significant. MM BIO-8 would not be applicable to the project interconnection facilities. Therefore, construction and operation of project interconnection facilities by PG&E in combination with the cumulative projects, as described above, would not result in a cumulatively

considerable impact to biological resources, and the cumulative impact would be less than significant with mitigation incorporated.

**Significance without Mitigation:** Potentially significant impact.

See Impact BIO-1 for mitigation measures BIO-1 through BIO-7.

See Impact BIO-2 for MM BIO-8.

**Significance with Mitigation:** Less than significant impact.

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## **4.5 CULTURAL AND TRIBAL CULTURAL RESOURCES**

This section describes the regulatory framework and existing conditions related to cultural and tribal cultural resources at the project site, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.5.1 ENVIRONMENTAL SETTING**

#### **4.5.1.1 Regulatory Framework**

##### **Federal Regulations**

##### **National Historic Preservation Act (54 United States Code 300101 et seq.)**

The National Historic Preservation Act (NHPA) establishes the federal government policy on historic preservation and the programs, including the National Register of Historic Places (NRHP), through which this policy is implemented. Under the NHPA, significant cultural resources, referred to as historic properties, include any prehistoric or historic district, site, building, structure, object, or landscape included in, or determined eligible for inclusion in, the NRHP. Historic properties also include resources determined to be a National Historic Landmark. National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting United States heritage. A property is considered historically significant if it meets one or more of the NRHP criteria and retains sufficient historic integrity to convey its significance. This act also established the Advisory Council on Historic Preservation (ACHP), an independent agency that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policies. The ACHP also provides guidance on implementing Section 106 of the NHPA by developing procedures to protect cultural resources included in, or eligible for inclusion in, the NRHP. Regulations are published in 36 CFR Parts 60, 63, 800.

Section 106 of the NHPA (codified as 36 CFR Part 800) requires that effects on historic properties be taken into consideration in any federal undertaking. The process generally has five steps: (1) initiating Section 106 of the NHPA process, (2) identifying historic properties, (3) assessing adverse effects, (4) resolving adverse effects, and (5) implementing stipulations in an agreement document.

Section 106 of the NHPA affords the ACHP and the State Historic Preservation Officer, as well as other consulting parties, a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. State Historic Preservation Officers administer the national historic preservation program at the state level, review NRHP nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review.

The NRHP eligibility criteria (36 CFR Section 60.4) is used to evaluate significance of potential historic properties. Properties meeting any of the following criteria are considered eligible for listing in the NRHP

if they retain integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

- a. Associated with events that have made a significant contribution to the broad patterns of our history.
- b. Associated with the lives of persons significant to our past.
- c. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; or that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction.
- d. Have yielded, or may be likely to yield, information important in prehistory or history.

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion. In addition, a broader range of Traditional Cultural Properties are also considered and may be determined eligible for or listed in the NRHP. Traditional Cultural Properties are places associated with the cultural practices or beliefs of a living community that are rooted in that community's history and that may be eligible because of their association with cultural practices or beliefs of living communities that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. In the NRHP programs, "culture" is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the nation as a whole.

## **State Regulations**

### **California State Office of Historic Preservation**

The California State Office of Historic Preservation (OHP) is responsible for administering federally and state mandated historic preservation programs to further the identification, evaluation, registration and protection of California's irreplaceable archaeological and historical resources under the direction of the State Historic Preservation Officer (SHPO), a gubernatorial appointee, and the State Historical Resources Commission.

OHP's responsibilities include:

- Identifying, evaluating, and registering historic properties;
- Ensuring compliance with federal and state regulatory obligations;
- Encouraging the adoption of economic incentives programs designed to benefit property owners; and
- Encouraging economic revitalization by promoting a historic preservation ethic through preservation education and public awareness and, most significantly, by demonstrating leadership and stewardship for historic preservation in California.

### **California Environmental Quality Act**

Section 15064.5(b)(1) of the State CEQA Guidelines specifies that projects that cause "...physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such

that the significance of an historic resource would be materially impaired” shall be found to have a significant impact on the environment. Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the California Register of Historic Resources (CRHR) (Section 2.2). In addition, resources included in a local register of historic resources, or identified as significant in a local survey conducted in accordance with state guidelines, are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in, or determined eligible for listing in, the CRHR, or is not included in a local register or survey, shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California PRC Section 5024.1.7.

CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of an historical resource, or (2) the archaeological resource satisfies the definition of a “unique archaeological resource.” A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria (PRC § 21083.2(g)):

1. The archaeological resource contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
2. The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. The archaeological resource is directly associated with a scientifically-recognized important prehistoric or historic event or person.

### **California Register of Historic Resources**

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC § 5024.1(a)). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks (CHLs) numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR.

A resource, either an individual property or a contributor to an historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria (PRC § 5024.1(c)):

- Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- Criterion 2: It is associated with the lives of persons important in our past.
- Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

- Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

### **Native American Heritage Commission**

Section 5097.91 of the PRC established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

### **Government Code Sections 6254(R) and 6254.10**

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to “Native American graves, cemeteries, and sacred places maintained by the NAHC.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation (DPR), the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

### **Health and Safety Code, Sections 7050 and 7052**

Health and Safety Code, Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

### **Assembly Bill 52 and Related Public Resources Code Sections**

Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a NOP or a Notice of Intent to Adopt a Negative Declaration or MND will be filed on or after July 1, 2015.

The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a Lead Agency shall, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for the tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a Lead Agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the Lead Agency shall: provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project and who have requested in writing to be informed by the Lead Agency. Tribes interested in consultation must respond in writing within 30 days from receipt of the Lead Agency’s formal written notification and the Lead Agency must begin consultation within 30 days of receiving the tribe’s request for consultation.

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project’s impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If a California Native American Tribe has requested consultation pursuant to PRC Section 21080.3.1 and has failed to provide comments to the Lead Agency, or otherwise failed to engage in the consultation process, or if the Lead Agency has complied with Section 21080.3.1(d) and the California Native American Tribe has failed to request consultation within 30 days, the Lead Agency may certify an EIR or adopt an MND.

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American Tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the Lead Agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the Lead Agency publishes any information submitted by a California Native American Tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

### **Penal Code, Section 622.5**

Section 622.5 of the Penal Code provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

## Local Regulations

### East County Area Plan

The ECAP includes the following policies specific to cultural resources and applicable to the proposed project (Alameda County 2000).

- **Policy 136:** The County shall identify and preserve significant archaeological and historical resources, including structures and sites with contribute to the heritage of East County.
- **Policy 137:** The County shall require development to be designed and avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include implementation of appropriate mitigation measures that offset the impacts.

### Alameda County Municipal Code

The overall purpose of Chapter 17.62, Historic Preservation Ordinance, of the ACMC is to outline a consistent process for making determinations of historical significance and identify significant architectural, historic, prehistoric and cultural structures, sites, resources and properties within the County. ACMC Section 17.62.040, Cultural Resource Surveys, requires the County to maintain a list of cultural resources surveys and generate an inventory of potential historic resources collectively known as the Alameda County Register. Several such surveys have been compiled by the County, including an East County register of sites and their potential to be listed formally in the California Register of Historic Resources.

### Alameda County Mapping of Archaeological Resources

Alameda County staff utilize a technical report prepared in 1976 entitled *Archaeology in Alameda County: A Handbook for Planners* which assists in identifying the potential for archaeological resources throughout the County, using a four-step ranking of relative sensitivity. The *Handbook* includes a map that classifies areas of the County, from minimal to moderate to high to extreme archaeological sensitivity. The project site is in an area that is designated as having “high” sensitivity to the potential for encountering archaeological resources, and therefore careful investigation is necessary.

#### 4.5.1.2 Cultural Setting

A project-specific Cultural Resources Assessment (CRA) was prepared by HELIX, and the methods and results are summarized in the following subsections (HELIX 2020). The CRA is included as Appendix F of this Draft EIR.

### Prehistory

As is the case for archaeological research in many areas of California, the various classification schemes and chronologies used by researchers when addressing the prehistory of the San Francisco Bay area often conflict with one another. Most recently, Milliken et al. (2007) have framed an overview of past research in the area by revising Fredrickson’s (1974) period scheme. The following summary of local cultural history is based on this revised chronological framework.



**Pleistocene/Holocene Transition, ~13,500 to 9950 Years Before Present (BP)**

There is no evidence of Late Pleistocene occupation in the immediate region, although the southern portion of the Central Valley shows evidence in the form of isolated, basally thinned and fluted projectile points found on the surface of remnant Pleistocene landscape features. With few exceptions these points have been found as isolates in undatable surface contexts, and therefore have been associated with the Paleo-Indian period solely on the basis of their morphological similarity to securely dated Clovis projectile points from the Great Plains and Southwest regions (Dillon 2002). Potential Paleo-Indian finds from the general region include a fluted point found in the Sacramento Valley, in Tehama County near Thomas Creek (Dillon 2002). Local archaeological deposits associated with the late Pleistocene, if they exist, are likely destroyed or buried by a significant period of alluvial deposition that began about 9050 cal BP (Rosenthal et al. 2007).

**Early and Middle Holocene (Lower Archaic), 9950 to 5450 BP**

The Lower Archaic period in Bay Area and Central Valley has been mainly represented by isolated finds, including heavy stemmed dart or spear points and flaked stone crescents that are often found in association with groundstone tools. The period was marked by high residential mobility, although the density of groundstone and expedient cobble-core tools at some sites suggest that they represent frequently visited camps in a settlement system structured around repetitive seasonal movement (Rosenthal et al. 2007). In contrast to the common interpretation that large game hunting was the focus of Lower Archaic economies, this seasonal round appears to have targeted grassland-savanna resources, particularly acorns and wild cucumbers. Seeds and nuts were processed with millingslabs and handstones.

Obsidian from Lower Archaic period sites has been sourced to both the North Coast Ranges and Eastern Sierra sources, suggesting that regional interaction spheres were well established by this time (Rosenthal et al. 2007). At CA-CCO-696, a Los Vaqueros site located approximately 5 miles west of the project area, a large-stemmed projectile point of Napa Valley obsidian was dated to 7,300 BP. At nearby CA-CCO-637, the earliest documented grave in west-central California was dated to 8520 BP (6570 cal B.C.). No comparable assemblage has been found in the San Francisco Bay area, although it shares characteristics with the Borax Lake pattern of the southern North Coast ranges (Meyer and Rosenthal 1997).

**Early Period (Middle Archaic), 5450 to 2450 BP**

The beginning of the Middle Holocene saw a substantial shift to warmer, drier conditions, with rising sea levels pushing inland to form the wetland habitats associated with the Sacramento-San Joaquin Delta. Subsistence increasingly emphasized upland plant resources. Mortars and pestles appeared in the Bay Area as early as 4050 cal B.C., and expedient cobble tools were common. Projectile points associated with the Middle Archaic period include notched, stemmed, thick-leaf, and narrow concave base dart forms, many manufactured from obsidian from North Coast Ranges and Eastern Sierra (Rosenthal et al. 2007). Red ochre and *Olivella* and *Haliotis* shell beads recovered from burials suggest that social stratification began to develop during this period (Milliken et al. 2007).

The latter half of the Early Period (ca. 4000-2000 BP) represented “the end of generalized, and often highly mobile, Early Holocene lifeways and the beginning of more specialized and intensive California hunter-gatherer-fishers known from ethnographic times” (Stevens et al. 2009:1). In the Sacramento Delta region this period is associated with the Windmiller Pattern. Windmiller was marked by westerly

oriented, extended burials with grave offerings, extensive long-distance trade of exotic materials such as beads and obsidian, and adaptations that were less mobile and more specialized than previous cultures, probably representing the first intensive acorn economies in the state (Rosenthal et al. 2007; Stevens et al. 2009). The Windmill Pattern also represents the peak in trade in Eastern Sierra obsidian, with both earlier and later intervals characterized by increased procurement and use of local toolstone (Stevens et al. 2009).

The central Bay Area during the latter half of the Early Period is characterized by the Lower Berkeley Pattern. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson (1973) suggests that the Lower Berkeley Pattern marked the eastward expansion of Miwok groups from the Bay Area. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, et al. (1939), the practice of spreading ground ochre over the burial was common at this time. Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual (Hughes 1994).

The Early Period also saw the occupation and expansion of what were to become the largest shell mound sites in the Bay Area. Initially the mounds were composed almost entirely of marine shell and other refuse that accumulated beneath seasonal village locations, but over time, these were intentionally enlarged by the addition of rocks, sand, and clay. Lightfoot (1997) argues that the mounds were constructed and periodically enlarged to keep bay shore villages above the high tide level, which continued to gradually rise through the Middle Holocene. These elevated residences would also have been ideal for the exploitation of estuarine resources that otherwise would have been difficult to access. The core deposits of mounds often contained human remains and ceremonial offerings, suggesting that the mounds also provided a way for the living to maintain a direct link to their ancestors.

### **Middle Period (Upper Archaic), 2450 to 900 BP**

The climate of the prehistoric late Holocene approximated that of today, with cooler and moister conditions than the middle Holocene but drier than the early Holocene.

The Middle Period coincides with the Upper Berkeley Pattern which was marked by a decrease in residential mobility and the establishment of fixed, permanent or semi-permanent villages. Existing shell mounds grew in size, and new mounds were constructed as populations increased. For the first time sea mammals, waterfowl, and fish were exploited in significant quantities, while the use of terrestrial mammals declined; this shift to higher-cost marine resources suggests overexploitation of terrestrial game by the increasing populations. The Upper Berkeley also saw a peak in regional violence, with increased evidence of fractures, embedded points, puncture wounds, and scalping appearing in burials from the period. It is likely that the dwindling resource base was directly linked to the increased warfare and may have further encouraged mound building as a way to assert territoriality (Arnold and Walsh 2010).

### **Late Period (Emergent), 900 BP to Historic Era**

The stable climate that began during the Upper Archaic continued through the Late Period. The most significant technological advancement during this period was the adoption of the bow and arrow, which

replaced the atlatl and dart between about A.D. 1000 and 1300. Territorial boundaries became well established, and increased social complexity is suggested by a wider variation in burial types and furnishings. Cremation, which was reserved for high-status individuals during the beginning of the period, eventually became widespread (Rosenthal et al. 2007).

Sites established during the Late Period, or Augustine Pattern, were generally located inland, rather than on the bay shore, reflecting an increased reliance on acorn over marine resources. Year-round occupation of the shell mounds appears to have totally ceased by 450 BP, probably due to the overhunting of marine resources and a shortage of fresh water caused by drought related to the Medieval Climatic Anomaly (Arnold and Walsh 2010).

Obsidian use, including the importation of obsidian cobbles, flake blanks, and finished formal tools, also increased during the period. This obsidian was imported exclusively from Napa Valley – Patterson and DeGeorgey (2014) argue that high-quality toolstone may have been directly inaccessible to local populations due to well-developed territorial systems, and that this resulted in the development of a complex interregional exchange system.

## **Ethnography**

At the time of European contact, the East Bay and Southeast Bay areas were occupied by various tribelets that were part of the Ohlone (previously Costanoan) tribe of California Native Americans (Harrington 1942, Levy 1978). The Ohlone group represents a language family consisting of eight branches of the Costanoan language that are considered too distinct to be dialects, with each being related to its geographically adjacent neighbors. These groups lived in approximately 50 separate and politically autonomous tribelet areas, each with one or more permanent villages, between the North San Francisco Bay and the lower Salinas River (Levy 1978).

The timing of the arrival of Ohlone groups into the Bay Area appears to coincide with the appearance of Augustine Pattern assemblages in the archaeological record, as documented at sites such as the Emeryville Shellmound or the Ellis Landing Shellmound. It is probable that the Ohlone moved south and west from the delta region of the San Joaquin-Sacramento River into the Bay Area during the Late Period, when they displaced Hokan-speaking groups that had traditionally occupied the area. The region surrounding the project area was occupied by speakers of the Chochenyo language, whose territory extended from the southern end of the Carquinez Straits south to Mission San Jose (present-day Fremont), east to present-day Livermore and west to San Francisco Bay. The Livermore area is believed to have been home to the *sewnen* (El Valle) tribelet. Their direct neighbors to the east may have been tribelets associated with Northern Valley Yokuts people.

The various Ohlone tribes subsisted as hunter-gatherers and relied on local terrestrial and marine flora and fauna for subsistence (Levy 1978). The predominant plant food source was the acorn, but they also exploited a wide range of other plants, including various seeds, buckeye, berries, and roots. Protein sources included grizzly bear, elk, sea lions, antelope, and black-tailed deer as well as smaller mammals such as raccoon, brush rabbit, ground squirrels, and wood rats. Waterfowl, including Canadian geese, mallards, green-winged teal, and American widgeon, were attracted by decoys and captured in nets. Fish also played an important role in the Chochenyo diet and included steelhead, salmon, and sturgeon.

The Ohlone constructed watercraft from tule reeds and possessed bow and arrow technology. They fashioned blankets from sea otter pelts, fabricated basketry from twined reeds of various types, and

manufactured a variety of stone and bone tools. Ohlone villages typically consisted of domed dwelling structures, communal sweathouses, dance enclosures, and assembly houses constructed from thatched tule reeds and a combination of wild grasses, wild alfalfa, and ferns.

The Ohlone were politically organized into autonomous tribelets that had distinct cultural territories. Tribelet territories contained one or more villages with seasonal satellite camps to facilitate resource procurement. The tribelet chief could be either male or female, and the position was inherited patrilineally, but approval of the community was required. The tribelet chief and council were essentially advisors to the community and were responsible for feeding visitors, directing hunting and fishing expeditions, ceremonial activities, and warfare on neighboring tribelets.

Ohlone culture was severely disrupted by the establishment of seven Spanish missions within their territory between 1770 and 1797. Practically the entire Ohlone population was conscripted, and the last Ohlone tribelets living an aboriginal existence had disappeared by 1810. Mission life and the subsequent Gold Rush brought disease to the native inhabitants, and by the 1850s, nearly all of the Ohlone had adapted in some way or another to economies based on cash income. Hunting and gathering activities continued to decline and were rapidly replaced with economies based on ranching and farming.

## **History**

### **Spanish and Mexican California**

The most dramatic and permanent change to the Native American lifestyle in Central California was the establishment of the Spanish Mission system. The first European contact with the local Ohlone is believed to have occurred in 1772 when the Fages Expedition entered the San Ramon Valley (Levy 1976). Under Father Junipero Serra's leadership, the Franciscan monks erected seven missions within 27 years, and forced most of the Ohlone tribal members into the missions to live and work. The nearest missions were the Mission San Carlos Borromeo de Carmelo (1770), Mission San Francisco de Asís (1776), Mission Santa Clara de Asís (1777), Mission Santa Cruz (1791), Mission Nuestra Señora de la Soledad (1791), Mission San Juan Bautista (1797), and Mission San Jose (1797). The Ohlone forced to live at the Missions were termed neophytes, which were Indians who and had either converted to Christianity or were expected to convert.

The Mexican Period (1821 to 1848) was marked by secularization of the missions and division of their lands among the Californios as land grants termed ranchos. With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change in the lifestyles of the local populations actually occurred. Political change did not take place until mission secularization in 1834, when Native Americans were released from missionary control and the mission lands were granted to private individuals. Shoup and Milliken (1999) state that Mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following secularization, the Mexican population grew as the native population continued to decline. Anglo-American settlers began to arrive in Alta California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the United States-Mexican War (1846 to 1848), the estimated population of Alta California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.

In 1839, former Mission San Jose lands in the Livermore Valley under Mexican authority were granted as a rancho to Don Salvio Pacheco, who in turn transferred his interest to Robert Livermore and Jose Noriega. Rancho Las Positas measured approximately 2 leagues (8,857 acres), and was bounded by two other ranchos, Cañada de Los Vaqueros to the north, and Valle de San Jose to the west. The land grant was intended to be a place for the owners to graze their herds while they resided further to the west in more populated regions (Ziesing 1997).

### **Expansion and Settlement**

Jedediah Smith was the first American to explore the Central Valley in 1828, but other expeditions soon followed. In 1848, as a result of the Treaty of Guadalupe Hidalgo, California became a United States territory. Also, in 1848, John Marshall found gold at Sutter's Mill, which marked the start of the Gold Rush. The influx of miners and entrepreneurs increased the population of California, not including Native Californians, from 14,000 to 224,000 in just four years. When the Gold Rush was over, many miners established farms, ranches, and lumber mills.

### **Alameda County and Murray Township**

The following historic context is largely based on the *Historical and Cultural Resource Survey: East Alameda County* (Corbett 2005).

Following Mexico's independence from Spain in 1822, former Mission lands in Alta California were secularized and divided up into large ranchos. Beginning in 1839, Rancho de las Positas, Rancho Valle de San Jose, Rancho San Ramon, and Rancho Santa Rita were established as the result of land grants to Mexican citizens. Rancho de las Positas, which includes the study area, came into the control of Robert Livermore, an English Mexican Rancher (Corbett 2005).

These Ranchos were largely unfenced, allowing for large swaths of open grazing lands for cattle. Cattle were raised for their hides and tallow which were used to make leather and soap. These goods were exported to the eastern United States and Europe, making them the major export commodities of California until the Gold Rush. Vineyards, pear and olive orchards, grains, corn, and watermelon were also planted during the Mexican Rancho era (Corbett 2005).

American-settlement in Alta California began in 1841 and greatly increased during the Gold Rush beginning in 1848. California became part of the United States in 1850 after the Mexican American War. Most Mexican ranchos were divided up, but Robert Livermore was able to retain control of Rancho Las Positas after the transition (Corbett 2005).

The large area now known as Murray Township was first included in Contra Costa County, one of the first counties designated in California under the United States. In 1853, Alameda County was formed, and a large portion of Contra Costa County was ceded to the new County and deemed as Murray Township (named after an earlier settler - Michael Murray). Murray Township was the largest and most eastern township in Alameda County and bordered Contra Costa County to the north, San Joaquin County to the east, and Santa Clara County to the south.

Americans continued to homestead and establish farms in Murray Township in the mid and late nineteenth century. Growth increased after the establishment of the transcontinental Central Pacific Railroad in 1869 (Corbett 2005). The construction of the railroad to Murray Township helped establish

the towns of Alisal (now Pleasanton) and Livermore (Corbett 2005). By 1878, Murray Township had been surveyed under the U.S. Public Land Survey System.

Between the 1880s and 1910s, many changes affected farming and ranching operations in Murray Township. Long-term grain farming had depleted the nutrients in the soil. As a result of increased domination by the beef industry in the Midwest, cattle ranching and hay production in Murray Township declined. Fruit production in Murray Township increased during this period, however, and the advent of the refrigerated rail car allowed for the effective exportation of fruit to other markets. Improvements in automobile transportation allowed easier access to San Francisco markets which made fruit, veggies, poultry, and dairy viable agricultural options. Demand for fruit and vegetables also increased due to improved canning operations around the bay. Fruit and vegetable production required seasonal and experienced labor, which led to an increase in hired workers and a decrease in family farming operations in Alameda County (Corbett 2005).

Until World War II, Murray Township primarily consisted of agricultural properties, but development in the area occurred during and after World War II. A U.S. Naval Auxiliary airfield was established northwest of Livermore, and Parks Air Force Base was created near Pleasanton. By 1953 the Lawrence Livermore Laboratory was established east of Livermore, and the Vallecitos Atomic Laboratory was established in Vallecitos Valley. Interstate 680 was completed by 1967, and U.S. 50 became Interstate 580 by 1973. Housing subdivisions, shopping centers, offices, and industrial parks were also constructed within Murray Township during the mid and late twentieth century. With the lack of agricultural development after World War II, the increase in land prices, taxes, and labor wages led many farming families to sell or lease their land to large scale commercial farmers (Corbett 2005).

### **Rancho Las Positas**

Rancho Las Positas is located within the Murray Township, and its land has been utilized as ranching and farmland since the mid-nineteenth century. Beginning in the 1860s, wheat farming became prominent within Murray Township and Rancho Las Positas. Between 1865 and 1870, there were several farmers within Murray Township with over 1,000 acres of wheat fields each, some within multiple parcels. Smaller scale family ranches usually produced grain and a single livestock type at the level where the family could manage the farm independently. Wheat was the most popular grain and was harvested using horse-drawn or steam powered threshing machines as shown in Figure 5. Livestock included sheep which grazed on the hills and were raised for meat as well as wool, cattle for meat, and horses for transportation and as draft animals. Hay was grown for feed with the excess being sold in San Francisco (Corbett 2005).

### **Stanley Ranch**

George Chester Stanley was a Vermont native, born in 1840 to a farming family. He emigrated to California before the Civil War and found work on a farm near Fremont. In 1862, he began managing a mule team that carried supplies to mining camps in the Sierras. By 1866, Stanley left the mule team and opened up a butcher shop in Rancho San Jose and then another in Livermore. He secured a two-year contract to provide meat for the Central Pacific Railroad construction labor camps circa 1869. His brother John C. Stanley became his business partner, and they each purchased ranch land in Livermore Valley circa 1869. (Homan 2007:444-445; Thompson & West 1878). John C. Stanley's primary residence and ranch was located on Mines Road (Homan 2007:45; U.S. Census Bureau 1910).

The 1876 Alameda County Business Directory lists George C. Stanley as a farmer and a sheep raiser. He was listed as one of the largest landowners in Murray township with 936 acres (Alameda County 1876). George C. Stanley had purchased land within Rancho Las Positas Parcel B as shown in Figure 24 (Thompson & West 1878). His primary residence was located on 2nd Street in downtown Livermore (Thompson & West 1878).

In 1879 George's farm produced \$11,000.00 in revenue including \$250 in hay (U.S. Census Bureau 1880). In the 1880 Non-Population Schedule, the Stanley family's farmland, buildings, and fences were valued at \$40,000. Their livestock were valued at \$6,000, and farm implements were valued at \$1,200 (U.S. Census Bureau 1880). By the mid-1880s, George had acquired a large portion of Parcel A of Rancho Las Positas, expanding his ranch. According to an article in the *Livermore Herald*, in 1881 George C. Stanley owned 600 acres of land used for grain production (*Livermore Herald* 1880). Based on the historic records available, it appears that the Stanley ranch historically produced grain and hay and raised livestock including cattle and sheep.

In 1885, George and John's brother, Joseph S. Stanley, moved to California from Vermont to help George with his ranch on Beck Road, now known as N. Livermore Ave. (Homan 2007). George also served as superintendent and part-owner of the Stanley and Bartlett Magnesia Mine in Chiles Valley. His mining investments led to his murder on May 29, 1900 when he was shot over a mining dispute. George's estate was divided up between his widow Emma Stanley and his two sons George R. and Leland C. Stanley (*Weekly Calistogian* 1900). George's brother Joseph S. continued working the ranch after George's death (Homan 2007:445).

By 1912, brothers Leland C. Stanley and George R. Stanley owned the Stanley ranch land within Rancho Las Positas Parcels A and B. Leland C. Stanley's family and Joseph's son, John M. Stanley's family continued to ranch on N. Livermore Ave. (Beck Road) throughout the twentieth century (U.S. Census Bureau 1910; 1920; 1930; 1940; State of California 1900-1968). The 1920's U.S. Census lists Leland C. Stanley and his wife and four children living on Beck Road (N. Livermore Ave.) and running a "general" farm. John M. Stanley and his family are also listed on Beck Road and running a "general" farm (U.S. Census Bureau 1920). It is unclear which family worked the ranch at 4400 N. Livermore Ave. or if they worked this ranch property together.

In addition to the structures located at 4400 N. Livermore Ave. (discussed below), a structure that is shown on topographic maps dating back to the late 1800s was located approximately 450 feet south of the intersection of Manning Road and Morgan Territory Road, in the northwest corner of the central section of the project site. As described in Section 4.5.1.6 below, this area was investigated during the archaeological survey for the proposed project. The area currently contains a concrete slab foundation that does not appear to be particularly old. No other information is available regarding the structure that once stood at that location.

#### **4400 N. Livermore Ave. (Beck Road)**

The subject property at 4400 N. Livermore Ave. is an approximately 15-acre portion of the historic Stanley Ranch that is located immediately south of Hartman Road. The 1878 map and the Stanley Ranch illustration in Plate 25 indicate that a building or a complex of buildings and structures was extant within George C. Stanley's ranch property in Rancho Las Positas Parcel B by 1878. It is unknown when the extant barn was constructed, although it appears to be sometime between 1878 and 1904 according to the historic records available. The earliest record confirming that a structure was extant within the

subject property at 4400 N. Livermore Ave. is the 1906 Pleasanton topographic map. The survey for the map was completed in 1904 (USGS 1906). The earliest aerial photograph available is from 1939. The photograph shows the barn and other accessory structures and possibly a dwelling which are no longer extant. It appears that these other accessory ranching structures and possibly a dwelling were demolished in the 1960s. The extant shed is not present in the 1939 aerial. The shed first appears in the 1958 aerial photograph and was constructed sometime between 1949 and 1958 by Leland E. Stanley, Leland C. Stanley's son (NETROnline 2020; Stanley 2020; State of California). Between 1961 and 1980, three buildings/structures were added to the property including a mobile home in 1977 (USGS 1961; 1968; 1973; 1980; Stanley 1977). The addition of the mobile home is the only building record on file with Alameda County for 4400 N. Livermore Ave.

Leland C. Stanley passed away in 1959 and was survived by five children and eight grandchildren (*San Francisco Examiner* 1959). Leland E. Stanley passed away in 2003 (Social Security Administration 1935-2014). Richard Stanley, Leland E. Stanley's son, currently owns and manages the ranch.

### **4.5.1.3 Area of Potential Effects**

The Area of Potential Effects (APE) is defined as the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of significant historical or archaeological resources. The APE is influenced by the scale and nature of the project as well as by the types of cultural resources in the vicinity. For the purposes of this analysis, the direct APE is understood to be the area that would be subjected to ground disturbance during construction and operation of the proposed project. The proposed project's indirect APE is the area in which significant cultural resources may be subjected to secondary impacts such as vibration, visual impacts, vandalism, or looting (among others). The indirect APE varies in size depending on the type of secondary impact being considered.

The direct APE for the project measures 410 acres, including the 103-acre northern section, the 269-acre central section, the 23-acre southeastern section, and the 15-acre southwestern section. Although the project would avoid any direct impacts to the property at 4400 N. Livermore Avenue, this property is surrounded by the proposed project and therefore was analyzed for secondary, indirect impacts.

### **4.5.1.4 Cultural Resource Records Search**

A cultural resources records search was conducted at the Northwest Information Center (NWIC) at Sonoma State University on July 18, 2018. The records search addressed the entire 410-acre project area plus a 0.5-mile buffer. The purpose of the record search was to (1) identify prehistoric and historic resources previously documented in the project area and within 0.5 mile of project area boundaries; (2) determine which portions of the project area may have been previously studied, when those studies took place, and how the studies were conducted; and (3) ascertain the potential for archaeological resources, historical resources, and human remains and other potential Native American areas of traditional cultural significance to be found in the project area. This search also included a review of the appropriate United States Geological Survey (USGS) topographic maps on which cultural resources are plotted, archaeological site records, building/structure/object records, and data from previous surveys and research reports. The California Points of Historical Interest, the CHLs, the CRHR, the NRHP, and the California State Historic Resources Inventory listings were reviewed to ascertain the presence of designated, evaluated, and/or historic-era resources within the project area. Historical maps and historical aerial photographs of the area were also examined.



An expansion of the project area necessitated that an additional, infill record search be conducted at the NWIC on February 20, 2020. This record search addressed the newly added portions of the project area plus a 0.5-mile buffer.

## Previous Studies

The cultural resources records search identified 11 previous studies that have been conducted within a 0.5-mile radius of the proposed project area (Table 4.5-1). Of these, only one addressed a portion of the project's Area of Potential Effect (APE): report S-024986 investigated a small portion of the central section located immediately south of the PG&E Cayetano substation.

**Table 4.5-1**  
**PREVIOUS STUDIES CONDUCTED WITHIN 0.5 MILE OF THE PROJECT AREA**

Report	Year	Author(s)	Title	Affiliation
S-001842	1979	Chris D. Porter	Cultural Resource Survey of MS 61-79, 62-79, 64-79, Three Adjacent Parcels Totaling 311.35 Acres, on Morgan Territory Road, Contra Costa County, Calif.	Anthropological Studies Center, Sonoma State University
S-013257	1991	Allan G. Bramlette, Mary Praetzellis, David A. Fredrickson, and Adrian Praetzellis	A Summary Inventory of Archaeological Resources Within the Los Vaqueros Project Area, Alameda and Contra Costa Counties, California	Anthropological Studies Center, Sonoma State University
S-020335	1998	Randy S. Wiberg, Randall Dean, and Miley P. Holman	A Cultural Resources Study for the North Livermore Master Plan/Specific Plan, Environmental Impact Report, Alameda County, California	Holman & Associates
S-024852	2002	Benjamin Annanian	Archaeological Study of Property at 13151 Morgan Territory, Livermore, CA	Unknown
S-024986	2000	Unknown	Cultural Resources Assessment, PG&E Proposed Tri-Valley 2002 Electric Power Capacity Increase Project	Basin Research Associates, Inc.
S-031014	2005	Gabriel Roark	Cultural Resources Inventory Report for the P4 North Route, Phase 3 of the Tri-Valley 2002 Capacity Increase Project, Alameda and Contra Costa Counties, California	Jones & Stokes
S-031014a	2004	Unknown	Addendum 1 to the Cultural Resource Inventory Report for the Tri-Valley Phase III P4 North Route Access Roads, Alameda and Contra Costa Counties, California, Archaeological Survey of Three Alignment Changes	Jones & Stokes
S-042083	2013	Jennifer Thomas, Jack Meyer, and Naomi Scher	Cultural Resources Report for PG&E's Line 131 ILI Investigation Digs Project, Alameda County, California	Far Western Anthropological Research Group, Inc.

**Table 4.5-1 (cont.)**  
**PREVIOUS STUDIES CONDUCTED WITHIN 0.5 MILE OF THE PROJECT AREA**

<b>Report</b>	<b>Year</b>	<b>Author(s)</b>	<b>Title</b>	<b>Affiliation</b>
S-042083a	2012	Jennifer Thomas and Jack Meyer	Cultural Resources Study of the PG&E Line 131 Direct Examination and Repair Project, Alameda and Contra Costa Counties, California	Far Western Anthropological Research Group, Inc.
S-042083b	2013	Jennifer Thomas	Cultural Resources Report for PG&E's Line 131 ILI Investigation Digs Project, Alameda County, California	Far Western Anthropological Research Group, Inc.
S-042083c	2013	Kayla Paschal	RE: COE-2013-1010-001 Re; U.S. Army Corps of Engineers Application for Department of the Army Permit, L-131 Anomaly Dig Site 33	Pacific Gas and Electric Company

### **Prior Historical and Cultural Resource Survey: East Alameda County**

A reconnaissance historic and cultural resource survey in unincorporated East Alameda County took place in 2005. The survey was produced as a first step to identifying the rapidly changing historic landscape of the region and to facilitate compliance with CEQA (Corbett 2005). The cumulative loss of individual farmhouses, barns, and other historic farming and ranching infrastructure in recent years was determined to be substantial. The survey helped to identify potentially significant and eligible historic properties based solely on visual appearance and aesthetics. The survey did not include any property specific research or any intensive studies.

It appears that the subject property, 4400 N. Livermore Ave., is listed as 4270 North Livermore Avenue on parcel 903-000-600-305 in the 2005 survey (Corbett 2005). It is listed with code “E MA” which means it features “multiple agricultural buildings” that “have integrity but is unlikely to be individually significant; a common example of a common type”. The survey estimated that the infrastructure on the property dates to 1940 (Corbett 2005).

### **Previously Recorded Resources**

The records search determined that no previously recorded cultural resources are located within the project’s APE, and no individually recorded resources are within 0.5 mile of the APE. A small portion of one resource, the Los Vaqueros/Upper Kellogg Creek Historic District, is located almost 0.5 mile to the northeast of the APE. This district is composed of at least 74 contributing elements, including landscaping and orchards, trash scatters, roads and trails, walls and fences, standing structures, dams, bedrock milling features, rock shelters, and habitation debris. None of these elements are located within 0.5 mile of the APE.

#### **4.5.1.5 Native American Outreach**

##### **NAHC Sacred Lands File Search**

On July 18, 2018, HELIX requested that the NAHC conduct a search of their Sacred Lands File for the presence of Native American sacred sites or human remains in the vicinity of the proposed project site. A written response received from the NAHC on July 25, 2018 stated that the Sacred Lands File failed to

indicate the presence of Native American cultural resources in the immediate project area (Appendix F; HELIX 2020).

On July 30, 2018, HELIX sent letters to the following six Native American contacts that were recommended by the NAHC as potential sources of information related to cultural resources in the vicinity of the project area:

- Rosemary Cambra, Chairperson, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
- Tony Cerda, Chairperson, Costanoan Rumsen Carmel Tribe
- Andrew Galvan, Ohlone Indian Tribe
- Katherine Erolinda Perez, Chairperson, North Valley Yokuts Tribe
- Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan Ohlone People
- Irenne Zwierlein, Chairperson, Amah Mutsun Tribal Band of Mission San Juan Bautista

The letters advised the tribes and specific individuals of the proposed project and requested information regarding cultural resources in the immediate area, as well as any feedback or concerns related to the proposed project. It should be noted that this informal Native American coordination is distinct from the formal consultation mandated by AB 52, which is described in the following subsection. To date, one response has been received:

- Kanyon Coyote Woman Sayers-Roods responded on behalf of the Indian Canyon Mutsun Band of Costanoan Ohlone People on August 27, 2018. Ms. Sayers-Roods wrote, “We are inquiring if you are familiar with this area and if it contains any culturally sensitive recorded sites. If there are any culturally sensitive sites within a quarter of a mile or if this site is near any waterways, we are expressing our concern about this project and wish to be consulted. If there is to be any earth movement in these areas we recommend that a Native American Monitor and an Archaeologist be present on-site at all times any disruptive surveying or earth movement transpires.”

## **AB 52 Consultation**

CEQA, as amended by AB 52, requires that the County provide notice to any California Native American tribes that have requested notice of projects subject to CEQA review and consult with tribes that responded to the notice within 30 days of receipt with a request for consultation. For the County, these included the following tribes that previously submitted general request letters, requesting such noticing:

- Ohlone Indian Tribe;
- Indian Canyon Mutsun Band of Costanoan;
- Amah Mutsun Tribal Band of Mission San Juan Bautista;
- North Valley Yokuts Tribe;
- Muwekma Ohlone Indian Tribe of the SF Bay Area; and
- Costanoan Rumsen Carmel Tribe.

The purpose of consultation is to identify Tribal Cultural Resources (TCR) that may be significantly impacted by the proposed project, and to allow the County to avoid or mitigate significant impacts prior to project approval and implementation. Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

*Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*

- a) included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or,*
- b) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or,*
- c) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Because the first two criteria also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as an Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators and can only be identified by a culturally affiliated tribe, which has been determined under State law to be the subject matter expert for TCRs.

CEQA requires that the County initiate consultation with tribes at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures. Therefore, in accordance with the requirements summarized above, the County carried out, or attempted to carry out, tribal consultation for the project.

Formal invitations to participate in the AB 52 consultation on the proposed project were sent by the County to six tribal representatives on June 4, 2020. Each tribe was provided a brief description of the project and its location, the contact information for the County's authorized representative, and a notification that the tribe has 30 days to request consultation.

Letters were sent the following representatives:

- Andrew A. Galvan, The Ohlone Indian Tribe;
- Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan;
- Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista;
- Katherine Erolinda Perez, North Valley Yokuts Tribe;
- Rosemary Cambra, Muwekma Ohlone Tribe of the SF Bay Area; and
- Tony Cerda, Costanoan Rumsen Carmel Tribe.

No tribe has responded requesting consultation under AB 52.

#### **4.5.1.6 Archaeological Survey**

Archaeological surveys of the central section and the western half of the northern section of the project area were completed on August 6 through 8, 2018, by HELIX archaeologists Clarus J. Backes, Jr., RPA, Kate Thomas, RPA, Katherine Eadie, and Shane Davis. Infill surveys were conducted on the eastern half of the northern section, the southeastern section, and the southwestern section of the project area on

March 3 and 4, 2020 by HELIX archaeologists Clarus J. Backes, Jr., RPA and Jentin Joe. The surveys involved systematic investigation of the ground surface in 15-meter transects. During the surveys, the ground surface was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, prehistoric ceramics), soil discoloration that might indicate the presence of a prehistoric cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations, wells, mines) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as gopher holes, burrows, cut banks, and arroyos were also visually inspected. A global positioning system (GPS) receiver and a topographic map were used to locate the project area boundaries and maintain survey accuracy (HELIX 2020).

### **Northern Section of the Project Area**

The northern section of the project area is generally flat cropland and slopes slightly uphill to the north. The soils in this section are compact, reddish-gray sandy clay loam with small to medium igneous (basalt, rhyolite, and granitic) pebbles and cobbles. A thin obsidian lag deposit is represented by occasional small obsidian nodules (Apache tears). The area, which is harvested for hay production, is dominated by oats but also includes weedy non-crop species such as soft brome, Italian rye grass, pineapple weed, and other annual grasses and forbs. As such, survey visibility was fair to good, with approximately 75 percent of the ground surface visible. The unirrigated cropland functions in a similar fashion to adjacent non-native grasslands on the south side of Manning Road. The area appears to have been in agricultural use for nearly a century based on historical aerial imagery. No cultural materials were found in the northern section of the project area.

### **Central Section of the Project Area**

The central section of the project area primarily consists of grazed fields and field margins, with cattle actively grazing the area during surveys. Most of the area is dominated by wild oats, soft brome, yellow-star thistle, and riggut brome. Other portions of this non-native grassland community are dominated by a mix of Italian rye grass, black mustard, medusahead, and soft brome. The soils in the central section of the project area are reddish-brown alluvial clay loam with small to medium igneous and metamorphic pebbles (HELIX 2020).

Cayetano Creek, an intermittent stream, enters the central section at the north and drains to the south. A separate branch of Cayetano Creek enters the stream near the central section's southern boundary. Within the project area, Cayetano Creek does not appear to be altered, rerouted or otherwise heavily disturbed by agricultural practices. The banks of this stream are steeply incised with a narrow stream channel. Cattle trails are present in the stream and along its banks, and the stream shows evidence of heavy grazing from cattle. At the far southeastern corner of the central section is a graveled or paved staging area with farm equipment. This area is heavily disturbed and consists mostly of bare ground or landscaped vegetation (HELIX 2020).

Near the northwestern corner of the central section, just south of Manning Road, is a concrete slab foundation and debris. The foundation may be associated with a structure that appears on historic topographic maps dating back to the late 1800s, although its construction and general lack of weathering suggest that it may not be particularly old. Adjacent to the foundation is a large pile of lumber fragments and refuse that may represent the remains of a demolished structure. The foundation is currently occupied by a modern camping trailer, and modern livestock watering troughs with buried

pipes are located in the immediate vicinity. No historic-era or prehistoric artifacts were found in the vicinity of the foundation or anywhere else in the central section of the project area (HELIX 2020).

## **Southern Sections of the Project Area**

The small southern sections of the project area are both currently being used to grow hay. The soils in both areas are similar to those in the central section, although the southwestern section has larger igneous cobbles and occasional fragments of caliche. Survey visibility in this section was fair, with less than 50 percent of the ground surface visible. The southeastern section is a flat, plowed and planted hay field with few pebbles or cobbles. Due to the crop cover, visibility in this section was poor, with less than 25 percent of the ground surface visible. No cultural materials were found in the southeastern or southwestern sections of the project area (HELIX 2020).

### **4.5.1.7 Built Environment**

Fieldwork for the built-environment analysis of the subject property (the Stanley Ranch at 4400 N. Livermore Avenue) was conducted on March 16, 2020 by HELIX architectural historian Annie McCausland. The fieldwork included collecting photo documentation, architectural descriptions, character defining feature identification, and integrity notes related to an historic-era barn and shed located on the property. HELIX has prepared a California DPR site record for the Stanley Ranch that is provided in Appendix F.

#### **Barn**

The barn's original function appears to have been as a cattle feed and hay barn but is currently used for storage. This post-and-beam three-portal crib barn is approximately 4,093 square feet with a rectangular footprint that partially rests on both concrete pier blocks and sill plates. The barn features a front gabled corrugated metal roof and lean-tos on the south and north elevations with corrugated metal shed roofs. The roof is supported on 2"x 6" rafters with 2"x 4" purlins. The exterior of the barn is clad with vertical 1" x 12" redwood boards on the east and south façades. The south lean-to retains its original openings (likely for cattle) and the north lean-to openings have been boarded up with plywood. The east façade features a large primary opening that looks to have been expanded at some point when the barn door was removed. The opening features an exposed hay rail with metal chain for lifting hay bales. Both lean-tos feature a sliding barn door and a cut square opening for natural light and ventilation on the east façade. The west façade features vertical wood board siding, possibly redwood, and a plywood barn door on the north end. The west façade also features a natural light and ventilation opening in the gable. A contemporary gutter system has been installed along the roofline of the barn on the south and east facades.

The barn's interior showcases its vernacular post-and-beam construction. Several support braces have been added throughout. It appears that the posts and beams may have been replaced over the decades because they are in relatively good condition and the color of the framing does not match the rest of the structure. Waist high wooden dividers separate the central hay bay and the bays within the lean-tos (likely cattle feeding bays). Stabilization cables have also been installed.

## Shed

The shed's original function appears to have been either for hay storage or for vehicle and implement storage. The shed is currently used for vehicle and implement storage. The vernacular post-and-beam constructed shed is approximately 1,813 square feet and has a rectangular footprint supported by new concrete piers. The shed features a side gabled corrugated metal roof supported by rafters and purlins. The exterior is partially clad with horizontal 1"x 12" redwood siding, like the barn's east façade siding. The rest of the shed is clad with horizontal 1"x 6" boards, possibly redwood. The primary east façade includes five supporting posts with a new support beam above connected with metal brackets. The original support beam with mortices, possibly from an older building, rests above and is stabilized by the newer primary support beam. Some of the original posts have been removed to allow for storage of larger equipment. The posts and beams appear to be made of redwood. The interior of the shed is open for storage and does not include any architectural elements of note. A trailer was stationed against the west façade of the shed blocking the view of the west façade. The north façade was also not accessible during the survey.

### 4.5.2 SIGNIFICANCE THRESHOLDS

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact associated with cultural and tribal cultural resources if the project would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
2. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
3. Disturb any human remains, including those interred outside of formal cemeteries;
4. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geologically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or
  - b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

### 4.5.3 IMPACT ANALYSIS

#### **CUL-1      The proposed project may cause a substantial change in the significance of a historical resource.**

The project-specific CRA found that the 4400 North Livermore Avenue property is eligible for listing in the NRHP, CRHR, and the local County register, and the barn and shed are considered historical resources under CEQA. The barn and shed footprints are outside of the project area and would be preserved in place. However, with the construction of the proposed solar energy generation and solar facility, the historic ranch, which has been used for oat and hay cultivation and livestock grazing, would no longer be open ranch land. The proposed project will indirectly impact these historical resources by disrupting the integrity of their setting and feeling, causing a potentially significant impact under CEQA. The site-specific Historical American Buildings Survey (HABS) documentation required in Mitigation Measure (MM) CUL-1 would document the historical resources in place in their current setting. Implementation of MM CUL-1 would reduce this potential impact to less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the barn and shed (which are eligible for listing) footprints are outside of the project area, including the project interconnection facilities area. The site-specific Historical American Buildings Survey (HABS) documentation required in MM CUL-1 would include the interconnection facility areas and would be completed by the project proponents under the jurisdiction of the County. MM CUL-1 would not apply to construction and operation of project interconnection facilities by PG&E. Therefore, construction and operation of project interconnection facilities by PG&E would not cause a substantial change in the significance of a historical resource, and the impact would be less than significant impact.

**Significance without Mitigation:** Potentially significant impact.

#### **MM CUL-1: Historical American Buildings Survey Documentation of Historical Resource**

Prior to project construction, the project applicant shall retain an Architectural Historian who meets the Secretary of Interior's Professional Qualification Standards to complete photographic documentation of the historical resources located at 4400 North Livermore Avenue. The photographic documentation shall adhere to the standards and guidelines for Historical American Buildings Survey (HABS) documentation, as outlined in the updated June 2015 HABS Guidelines set by the Heritage Documentation Program instituted by the National Parks Service.

**Significance with Mitigation:** Less than significant impact.

#### **CUL-2      The proposed project may cause a substantial change in the significance of a unique archaeological resource.**

The records search completed for the proposed project determined that no previously recorded cultural resources are located within the project area boundaries, and no archaeological resources were encountered during the survey. Native American outreach did not provide information about any specific prehistoric resources in the area, although one Native American contact expressed concern that the area was sensitive for archaeological resources. In addition, the County's *Handbook (Archaeology in Alameda County: A Handbook for Planners)* identifies the area as having high potential for discovery of



archaeological resources. Based on these findings, the project area has a potential to contain buried archaeological resources and if not addressed, the project could result in a potentially significant impact. Implementation of MM CUL-2 and MM CUL-3 would reduce this potential impact to less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The records search that was completed for the proposed project included the proposed interconnection facilities area and, as described above, no previously recorded cultural resources are located within the project area boundaries, and no archaeological resources were encountered during the survey. However, there is a potential that the interconnection facilities area could contain buried archaeological resources and construction of project interconnection facilities by PG&E could result in a potential significant impact. MM CUL-2 and MM CUL-3 would be applicable to construction of project interconnection facilities by PG&E and would reduce the impact related a substantial change in the significance of a unique archaeological resource to less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **MM CUL-2: Worker Training Program**

Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained in the protection of cultural resources, the recognition of buried cultural remains, and the notification procedures to be followed upon the discovery of archaeological materials, including Native American burials. The training should be presented by an archaeologist who meets the Secretary of Interior's Standards for Prehistoric and Historic Archaeology and should include recognition of both prehistoric and historic resources. Personnel should be instructed that unauthorized collection or disturbance of artifacts or other cultural materials is illegal, and that violators will be subject to prosecution under the appropriate state and federal laws. Supervisors should also be briefed on the consequences of intentional or inadvertent damage to cultural resources.

#### **MM CUL-3: Inadvertent Discoveries**

In the event that cultural or tribal cultural resources are exposed during ground-disturbing activities, construction activities (e.g., grading, grubbing, or vegetation clearing) shall be halted in the immediate vicinity of the discovery. An archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards shall then be retained to evaluate the resource's significance under CEQA. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted and shall be discussed in consultation with the County.

**Significance with Mitigation:** Less than significant impact.

### **CUL-3      The proposed project may result in disturbance of human remains, including those interred outside of formal cemeteries;**

Although there is no evidence to suggest the presence of human remains in the project area, their discovery is always a possibility during project construction. If such an event did occur, the project could result in a potentially significant impact. Implementation of MM CUL-4 would reduce this potential impact to less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Although there is no evidence to suggest the presence of human remains in the project interconnection area, their discovery is always a possibility during project construction. If such an event did occur, construction of project interconnection facilities by PG&E could result in a potentially significant impact. MM CUL-4 would be applicable to construction of project interconnection facilities by PG&E and would reduce the impact related to the inadvertent discovery of human remains to less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **MM CUL-4: Discovery of Human Remains**

If discovery of human remains occurs during ground-disturbing activities or construction activities (e.g., grading, grubbing, or vegetation clearing), the specific procedures outlined by the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, must be followed:

1. All excavation activities within 60 feet of the remains will immediately stop, and the area will be protected with flagging or by posting a monitor or construction worker to ensure that no additional disturbance occurs.
2. The project owner or their authorized representative will contact the County Coroner.
3. The coroner will have two working days to examine the remains after being notified in accordance with HSC 7050.5. If the coroner determines that the remains are Native American and are not subject to the coroner's authority, the coroner will notify NAHC of the discovery within 24 hours.
4. NAHC will immediately notify the Most Likely Descendant (MLD), who will have 48 hours after being granted access to the location of the remains to inspect them and make recommendations for their treatment. Work will be suspended in the area of the find until the City approves the proposed treatment of human remains.

**Significance with Mitigation:** Less than significant impact.

#### **CUL-4      The proposed project may cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k).**

No evidence has been provided by the tribes that TCRs may be present in the project area, and the thresholds under PRC Section 21074(a)(1) have not been met. However, the County acknowledges that TCRs may be present within the project area, and the proposed project could cause a significant impact to unknown TCRs within the project footprint. Accordingly, implementation of MM CUL-3 would address unanticipated discoveries to TCRs, and the proposed project's potential impacts to unknown TCRs would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

No evidence has been provided by the tribes that TCRs may be present in the project area, including the interconnection facilities area and the thresholds under PRC Section 21074(a)(1) have not been met. However, the County acknowledges that TCRs may be present within the project area. Inadvertent discoveries of TCRs during construction of project interconnection facilities by PG&E could result in a potentially significant impact. MM CUL-3 would be applicable to construction of project interconnection facilities by PG&E and would reduce the impact related to the inadvertent discovery of TCRs to less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact CUL-2 for MM CUL-3.

**Significance with Mitigation:** Less than significant impact.

**CUL-5      The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.**

No evidence has been provided by the tribes that TCRs may be present in the project area and the thresholds under PRC Section 21074(a)(1) have not been met. However, the County acknowledges that TCRs may be present within the project area, and the proposed project could cause a significant impact to unknown TCRs within the project footprint. Accordingly, implementation of MM CUL-3 would address unanticipated discoveries to TCRs, and the proposed project's potential impacts to unknown TCRs would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

No evidence has been provided by the tribes that TCRs may be present in the project area, including the interconnection facilities area and the thresholds under PRC Section 21074(a)(1) have not been met. However, the County acknowledges that TCRs may be present within the project area. Inadvertent discoveries of TCRs during construction of project interconnection facilities by PG&E could result in a potentially significant impact. MM CUL-3 would be applicable to construction of project interconnection facilities by PG&E and would reduce the impact related to the inadvertent discovery of TCRs to less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact CUL-2 for MM CUL-3.

**Significance with Mitigation:** Less than significant impact.

#### 4.5.4 CUMULATIVE IMPACTS

##### **CUL-6      The proposed project would not contribute to a significant cumulative impact to cultural or tribal cultural resources.**

Cumulative cultural and tribal cultural resource impacts may occur when a series of actions leads to the loss of historically or archaeologically significant type of site, building, deposit, or tribal cultural resource. For example, while the loss of a single historic building may not be significant to the character of a neighborhood or streetscape, continued loss of such historic resources on a project-by-project basis could amount to a significant cumulative effect. The analysis of cumulative impacts to cultural and tribal cultural resources is based on impacts of the proposed project plus other projects in the North Livermore Valley, including the Livermore Community Solar Farm project and the Oasis Fund project.

The project-specific CRA found that the 4400 North Livermore Avenue property is eligible for listing in the NRHP, CRHR, and the local County register, and the barn and shed discussed above are considered historical resources under CEQA. The barn and shed footprints are outside of the project area and would be preserved in place. However, with the construction of the proposed solar energy generation and solar facility, the historic ranch, which has been used for oat and hay cultivation and livestock grazing, would no longer be open ranch land. The proposed project will indirectly impact these historical resources by disrupting the integrity of their setting and feeling, causing a potentially significant impact under CEQA. As discussed above, no previously recorded cultural resources are located within the project area boundaries, and no archaeological resources were encountered during the survey. One Native American contact expressed concern that the area was sensitive for archaeological resources. Based on these findings, the project area has a low to moderate potential to contain buried archaeological resources. Potential project impacts would be addressed through the implementation of mitigation measures CUL-1 through CUL-4. With the implementation of these measures, there would be less than significant impacts to cultural, historical, and tribal cultural resources that occur or may occur within the project area.

The Livermore Community Solar Farm and Oasis Fund projects were both analyzed in accordance with CEQA. The CEQA documentation for both projects determined that neither project sites contain any designated historic resource, significant historic structures, or known archaeological or tribal cultural resources. Nonetheless, the potential for discovery of archaeological or historic resources in the course of construction was considered potentially significant. Both projects would therefore be required to implement mitigation measures for inadvertent discovery of resources that would ensure that any buried archaeological, historical, or tribal cultural resource of significance would be handled properly and in consultation with the County.

Therefore, compliance with the mitigation measures identified for the proposed project, including the other nearby projects, would reduce cumulative impacts to cultural and tribal cultural resources to a less than significant level. Therefore, the proposed project would not contribute to a significant cumulative impact to cultural or tribal cultural resources, and impacts would be less than significant.

##### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, impacts to cultural resources resulting from construction and operation of project interconnection facilities and the cumulative projects would be potentially significant. The cumulative

projects would be required to implement mitigation measures to reduce the impacts related to inadvertent discovery of resources and to ensure that any buried archaeological, historical, or tribal cultural resource of significance would be handled properly and in consultation with the County. Therefore, compliance with the mitigation measures identified for the construction and operation of project interconnection facilities by PG&E (MM CUL-2, MM CUL-3, and MM CUL-4) and compliance with the mitigation measures identified for the other nearby projects, would reduce cumulative impacts to cultural and tribal cultural resources to a less than significant level. Therefore, construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative impact to cultural or tribal cultural resources, and impacts would be less than significant with mitigation incorporated.

**Significance without Mitigation:** Potentially significant impact.

See Impact CUL-1 for MM CUL-1.

See Impact CUL-2 for MM CUL-2 and MM CUL-3.

See Impact CUL-3 for MM CUL-4.

**Significance with Mitigation:** Less than significant impact.

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## **4.6 ENERGY**

This section describes the regulatory framework and existing conditions on the subject property related to energy, evaluates the potential impacts that could occur as a result of implementation of the proposed project related to energy, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific energy evaluation was completed as part of the Air Quality, Energy, and Greenhouse Gas Technical Report for the Aramis Solar Energy Generation and Storage Project, included as Appendix D to this Draft EIR (HELIX 2020). The results of the energy evaluation are summarized below.

### **4.6.1 ENVIRONMENTAL SETTING**

This section provides an evaluation of existing energy production/consumption conditions and potential energy use and related impacts from the project. The units of energy used in this section are the British thermal units (BTU), megawatt hours (MWh)<sup>1</sup>, therms, and gallons. A BTU is the quantity of heat required to raise the temperature of one pound of water one °F at sea level. Because the other units of energy can all be converted into equivalent BTU, the BTU is used as the basis for comparing energy consumption associated with different resources. A MWh is a unit of electrical energy, and one MWh is equivalent to approximately 3.413 million BTU (MBtu), taking into account initial conversion losses (i.e., from one type of energy, such as chemical, to another type of energy, such as mechanical) and transmission losses. Natural gas consumption is described typically in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1.05 MBTU, and one therm represents 0.1 MBTU. One gallon of gasoline/diesel is equivalent to approximately 0.125/0.139 MBTU, respectively, taking into account energy consumed in the refining process.

#### **4.6.1.1 Regulatory Framework**

##### **Federal Energy Regulations**

###### **Energy Independence and Security Act of 2007**

House of Representatives Bill 6, the federal Energy Independence and Security Act of 2007, established new standards for a few energy-consuming equipment types not already subject to a standard, and updated some existing standards. The most substantial new standard that House of Representatives Bill 6 established is for general service lighting that is being deployed in two phases. First, phased in between 2012 through 2014, common light bulbs were required to use about 20 to 30 percent less energy than previous incandescent bulbs. Second, by 2020, light bulbs were required to consume 60 percent less energy than previous incandescent bulbs; this requirement will effectively phase out the incandescent light bulb.

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<sup>1</sup> MWh is the most common measure of electrical energy when discussing utility-scale electrical generation. Kilowatt hours (kWh; 1,000 kWh = 1 MWh) and gigawatt hours (GWh; 1,000 MWh = 1 GWh).

## **California Energy Regulations**

### **Renewable Energy Programs and Mandates (SB 1078, SB 107, SB 2 X1, SB 350 and SB 100)**

A series of substantive and far-reaching legislative initiatives have been advanced at the State level in the last two decades. These initiatives focused on increasing the generation of electricity via renewable energy sources and promoting a shift from fossil- or carbon-based fuels as a key strategy to reduce GHG emissions, air pollution, and water use associated with the energy sector.

In 2002, California established the Renewables Portfolio Standard (RPS) with Senate Bill (SB) 1078, requiring electric utilities in the State to increase procurement of eligible renewable energy resources to achieve a target of 20 percent of their annual retail sales by the year 2010. In 2011, Governor Jerry Brown approved the California Renewable Energy Resources Act, SB 2 X1. SB 2 X1 legislatively broadens the scope of the State RPS to include retail electricity sellers; investor- and publicly owned utilities; municipal utilities; and community choice aggregators under the mandate to obtain 33 percent of their retail electrical energy sales from renewable sources by 2020.

Approved by Governor Brown on October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of RPS eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

Approved by Governor Brown on September 10, 2018, SB 100 extends the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sale of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and/or zero-carbon resources by the end of 2045.

### **California Energy Plan**

The California Energy Commission (CEC) is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the fewest environmental and energy costs. To further this policy, the plan identifies a number of strategies, including providing assistance to public agencies and fleet operators.

### 4.6.1.2 Existing Conditions

#### State Energy Supply

##### Electricity

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly owned utilities, electric service providers, and choice aggregators.<sup>2</sup> As of 2018, California electricity demand totaled 285,488 gigawatt hours (GWh). In-state generating facilities accounted for about 194,842 GWh, or 68 percent of the total electric power used in the State, with the remaining electricity coming from out-of-state imports (CEC 2019a).

Since deregulation in 1998, the CEC has licensed or given small power plant exemptions to 91 power plants, including:

- 66 projects representing 22,965 MW currently on-line;
- 4 projects totaling 2,635 MW currently under construction or pre-construction;
- 2 projects totaling 795 MW currently on hold or under suspension; and
- 15 projects totaling 5,844.5 MW approved but then cancelled by applicants, or license expired or terminated before construction.

In addition, as of February 2020, the CEC had five proposed projects under review, totaling approximately 453 MW (CEC 2020a). One additional geothermal steam turbine project, representing a total of 250 MW, has been announced but has not yet filed with the CEC.

On the demand side, Californians consumed 284,060 GWh of electricity in 2017; this is a decrease from the 285,434 GWh demanded in 2016 (CEC 2018). CEC staff forecasts of future electricity demand anticipate that consumption will grow by between 0.99 and 1.59 percent per year from 2017 to 2030, with peak demand forecasts growing by 0.30 to 1.52 percent annually from 2017 to 2030 (CEC 2018).

##### Natural Gas

Natural gas continues to play an important and varied role in California. In 2012, nearly 45 percent of the natural gas burned in California was used for electricity generation, and much of the remainder was consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors (CEC 2019b). Natural gas supplies are currently plentiful and relatively inexpensive as a result of technological advances that allow recovery of natural gas from formations such as shale reservoirs that were previously inaccessible. However, potential environmental concerns are causing decision makers to reexamine the development of shale resources and consider tighter regulations, which could affect future natural gas supplies and prices.

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<sup>2</sup> Community choice aggregation is authorized in California by AB 117 (Chapter 836, Statutes of 2002), which allows cities, counties, and groups of cities and counties to aggregate the electric load of the residents, businesses and institutions within their jurisdictions to provide them electricity.

## Transportation Fuels

Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil, which in turn is derived from petroleum. In addition to energy consumption associated with on-road vehicle use, energy is consumed in connection with construction and maintenance of transportation infrastructure. Passenger cars and light-duty trucks are by far the largest consumers of transportation fuel. Retail sales of transportation fuel in California totaled 15.6 billion gallons of gasoline and 1.9 billion gallons of diesel in 2017 (CEC 2018).

## Local Energy Supply

### Electricity

The primary provider of electricity in Alameda County is PG&E. PG&E provides electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California. The electrical grid (a network of transmissions lines that links powerplants, other utility providers, and end-use customers) operated by PG&E includes 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2020a). PG&E generates or procures energy from a variety of sources that may include fossil fuel powerplants (e.g., natural gas, coal), nuclear power plants, large hydroelectric facilities, and renewable sources (e.g., solar, wind, geothermal, biomass, small hydroelectric). In 2018, PG&E's electrical power mix comprised 39 percent renewable sources, 34 percent nuclear power plants, 15 percent natural gas power plants, and 13 percent large hydroelectric facilities (PG&E 2020b). PG&E customers consumed 52.5 GWh of electricity in 2018 (CEC 2019b). The EBCE is a public agency located within Alameda County, formed for the purpose of implementing a community choice aggregation program, authorized in California by AB 117. Alameda County PG&E customers have the option of sourcing their electricity from EBCE, which is provided via PG&E infrastructure. EBCE customers have the options of selecting from three energy services (with different energy prices): 41 percent, 45 percent, or 100 percent renewable sourced electricity (EBCE 2020).

### 4.6.1.3 Methodology

Construction and operational energy used were calculated based on the off-road equipment use and on-road vehicle trips and distances described in Section 4.3, Air Quality. Fuel consumption factors in terms of gallons per hour of diesel for off-road equipment were calculated using data from the CARB Mobile Source Emissions Inventory online database – OFFROAD2017 version 1.0.1 (CARB 2020c). Fuel consumption factors in terms of gallon of diesel and gasoline per mile travel were calculated from the CARB Mobile Source Emissions Inventory online database – EMFAC2017 version 1.0.2 (CARB 2020d). The energy calculation sheets are included in Appendix D of this Draft EIR.

## 4.6.2 SIGNIFICANCE THRESHOLDS

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered in establishing the significance of energy consumption:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
2. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

The CEQA Guidelines Appendix F, Energy Conservation, provides guidance for EIRs regarding potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing the inefficient, wasteful and unnecessary consumption of energy. In addition, though not described as thresholds for determining the significance of impacts, Appendix F seeks inclusion of information in an EIR addressing the following topics:

- The project’s energy requirements and its energy-use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project’s projected transportation energy use requirements and its overall use of efficient transportation alternatives.

### 4.6.3 IMPACTS ANALYSIS

#### ENE-1 The proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

##### Construction

Energy consumed for project construction would primarily consist of fuels in the form of diesel and gasoline. Fuel consumption would result from: the use of on-road trucks for the transportation of construction materials and water; construction worker vehicles traveling to and from the project site; and from the use of off-road construction equipment. The estimated fuel and total energy consumed during project construction is shown in Table 4.6-1, Construction Energy Use. The full construction energy consumption calculation sheets are included as Appendix D to this Draft EIR.

**Table 4.6-1  
CONSTRUCTION ENERGY USE**

Phase	Gallons Diesel	Gallons Gasoline	MBtu
Site Preparation	7,336	6,671	1,847
General Construction Operations	58,320	12,519	9,659
Photovoltaic Installation	41,759	83,387	16,144
Electrical and Gen-Tie Installation	4,098	20,847	3,155
<b>TOTAL</b>	<b>111,513</b>	<b>123,423</b>	<b>30,805</b>

Source: CalEEMod; OFFROAD2017; EMFAC2017

MBtu = million British thermal units

While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. The BCMs, required to be implemented by MM AQ-1, described in Section 4.3 above, would reduce the inefficient use of fuels by requiring proper maintenance and tuning of off-road vehicles and limiting idling time. The petroleum consumed during project construction would be typical of similar solar PV generation projects and would not require the use of new petroleum resources beyond those typically consumed in California annually for construction activities. Based on these considerations, construction of the project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and the impact would be less than significant.

## Operation

During long-term operation of the project, energy would be consumed in the form of: diesel and gasoline used by worker/company vehicles and water trucks traveling to and from the project site for O&M; diesel and gasoline used in the operation of off-road equipment for facility maintenance; natural gas for heating and hot water in the O&M building; and electricity required to source and treat water used by the project.

The project would be capable of generating up to 100 MW of AC electricity under peak solar conditions. The energy generated by the project is estimated by multiplying the electrical power capacity by the number of hours in a year and by a capacity factor. The capacity factor accounts for: the available hours of sunlight in a year (daylight hours); climate (the amount of cloud cover); the efficiency of the PV panel tracking system; the efficiency of the inverters, transformers, transmission lines, and energy storage system; and the electricity consumed in operation of the project (e.g., building electricity, PV panel tracking motors, equipment cooling fans, security lighting). Data from the CEC for existing solar PV facilities with one or more MW capacity was used to estimate the capacity factor for the project. Using data collected from the eastern and southern Bay Area counties with similar climates to the project site (the counties of Alameda, Contra Costa, Santa Clara, and Solano), the average capacity factor for solar generation facilities in 2019 was 20.2 percent (CEC 2020b). The project's estimated annual energy generated would be 177,207 MWh (100 MW times 8,766 hours per year times 20.2 percent). Because the project would utilize a battery storage system, some of the electricity generated during off-peak hours could be stored and released during hours of peak demand.

The project's net operational energy use in gallons of fuel, electricity, and equivalent MBtu is shown in Table 4.6-2, Operational Net Energy Use. The energy calculation sheets are included in Appendix D to this Draft EIR.

**Table 4.6-2  
OPERATIONAL NET ENERGY USE**

Source	Diesel (gallons)	Gasoline (gallons)	Electricity (MWh)	Energy (MBtu)
Mobile	5,504	5,950	-	1,503
Off-Road	1,568	-	-	278
Natural Gas	-	-	-	7
Water/Wastewater	-	-	9	30
Electricity Generation	-	-	(-177,207)	(-604,657)
<b>TOTAL<sup>1</sup></b>	<b>10,620</b>	<b>5,970</b>	<b>(-177,198)</b>	<b>(-602,839)</b>

Source: CalEEMod; OFFROAD2017; EMFAC2017

MWh = megawatt hours; MBtu = million British thermal units

<sup>1</sup> Totals may not sum due to rounding.

As shown in Table 4.6-2, the project would generate a net of approximately 177,198 MWh (602,839 MBtu of energy) of renewable electricity delivered to the State and regional electrical distribution system. Operation of the project would consume approximately 2,314 MBtu of energy, or approximately 0.4 percent of the energy generated by the project. Because the amount of energy consumed by project operation would be inconsequential compared to the amount of energy generated by the project, the operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources, and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and the responsibility for project interconnection facilities would not affect the project's anticipated energy generation. Therefore, construction and operation of project interconnection facilities by PG&E would not result in the wasteful, inefficient, or unnecessary consumption of energy resources, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **ENE-2      The proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.**

As a solar PV energy generation facility, the project would directly support the State's renewable energy programs and the renewable source electricity procurement mandates of 50 percent by 2030 from SB 350 and 100 percent by 2045 from SB 100 (described in Section 4.6.1.1). The project would also support the BAAQMD 2017 Clean Air Plan Energy Control Measure EN1, Decarbonize Electricity Production, which strives to maximize the amount of renewable energy contributing to the production of electricity within the SFBAAB as well as electricity imported into the region (BAAQMD 2017). The EBCE is a public agency located within Alameda County, formed for the purpose of implementing a community choice aggregation program, authorized in California by AB 117. Alameda County PG&E customers have the option of sourcing their electricity from EBCE. The EBCE has adopted a Community Choice Aggregation Implementation Plan which outlined the program's primary objectives, which include reducing greenhouse GHG emissions resulting from electricity use within the County, and stimulation of renewable energy development (ECBE 2017). Although the EBCE would not be obligated to purchase energy from the project, the proposed project would provide a potential local source of renewable energy with reduced GHG emissions, and it would support the objectives of the EBCE's implementation plan. Therefore, the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and there would be no impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction would not affect the project's anticipated energy generation or consistency with State and local plan for renewable energy. Therefore, construction and operation of project interconnection facilities by PG&E would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and there would be no impact.

**Significance without Mitigation:** No impact.

#### 4.6.4 CUMULATIVE IMPACTS

##### **ENE-3      The proposed project would not contribute to significant cumulative impacts on regional energy supplies and sources.**

Potential cumulative impacts on energy would result if the proposed project, in combination with past, present, and future projects, would result in the wasteful or inefficient use of energy. This could result from development that would not incorporate sufficient building energy efficiency features, not achieve building energy efficiency standards, or would result in the unnecessary use of energy during construction and/or operation. The cumulative projects within the areas serviced by the energy service providers would be applicable to this analysis. Projects that include development of large buildings or other structures that would have the potential to consume energy in an inefficient manner would have the potential to contribute to a cumulative impact. Projects that would mostly include construction, such as transportation infrastructure or renewable energy projects, could also contribute to a cumulative impact; however, the impact of these projects would be limited because they would not typically involve substantial ongoing energy use.

As discussed in impacts ENE-1 and ENE-2 above, the project would consume 30,805 MBtu of energy, primarily from non-renewable fossil fuel sources resources, during the temporary construction activities. The project would generate a net increase of approximately 602,839 MBtu of renewable energy per year over the project's 50 plus year anticipated lifespan. The project would not contribute to an increase in long-term energy demand. Instead, the project would result in a net long-term increase in available renewable energy in the State, and the project would support of the State's renewable energy programs. The proposed project would not result in wasteful, inefficient, or unnecessary use of energy due to the project's production of renewable energy. Cumulative projects that include long-term energy demand, such as residential developments, would be subject to CALGreen, which provides energy efficiency standards for commercial and residential buildings. CALGreen would implement increasingly stringent energy efficiency standards that would require the Project and the related projects to minimize the wasteful and inefficient use of energy. In addition, related projects would be required to meet or exceed the Title 24 building standards, further reducing the inefficient use of energy. Future development would also be required to meet even more stringent requirements, including the objectives set in the AB 32 Scoping Plan (CARB 2017), which would seek to make all newly constructed residential homes produce a sustainable amount of renewable energy through the use of on-site photovoltaic solar systems. Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of cumulative projects.

In consideration of cumulative energy use, the proposed project would not contribute to a substantial demand on energy resources or services such that new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand resulting from the proposed project. Therefore, the project's contribution to cumulative energy demand would be less than cumulatively considerable, and there would be no cumulative energy impacts.

##### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction would be within the scope of the cumulative analysis of regional energy supplies and sources described above. In



consideration of cumulative energy use, construction and operation of project interconnection facilities by PG&E would not contribute to a substantial demand on energy resources or services such that new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand. Therefore, the contribution from construction and operation of project interconnection facilities by PG&E to cumulative energy demand would be less than cumulatively considerable, and there would be no cumulative energy impacts.

**Significance without Mitigation:** No impact.

#### 4.6.5 REFERENCES

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## **4.7 GEOLOGY, SOILS, MINERAL RESOURCES, AND PALEONTOLOGICAL RESOURCES**

This section describes the regulatory framework and existing conditions related to geology, soils, mineral resources, and paleontological resources, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.7.1 ENVIRONMENTAL SETTING**

#### **4.7.1.1 Regulatory Framework**

##### **Federal Regulations**

No federal regulations apply to mineral resources in the project area. The following federal regulations are related to geologic hazards or soils.

##### **International Building Code, as Adopted by the California Building Code**

The design and construction of engineered facilities in California must comply with the requirements of the International Building Code (IBC) and the adoptions of that code by the State of California (see California Building Standards Code in the State Regulations subsection).

##### **U.S. Geological Survey Landslide Hazard Program**

To fulfill the requirements of Public Law 106-113, the USGS created the National Landslide Hazards Program to reduce long-term losses from landslide hazards by improving the understanding of the causes of ground failure and suggesting mitigation strategies. The FEMA is the responsible agency for the long-term management of natural hazards.

##### **Paleontological Resources Preservation Act**

The federal Paleontological Resources Preservation Act of 2002 limits the collection of vertebrate fossils and other rare and scientifically significant fossils to qualified researchers who have obtained a permit from the appropriate state or federal agency. Additionally, it specifies that these researchers must agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and to other researchers. This Act incorporates key findings of a report, Fossils on Federal Land and Indian Lands, issued by the Secretary of Interior in 2000, which establishes that most vertebrate fossils and some invertebrate and plant fossils are considered rare resources.

##### **State Regulations**

##### **Alquist-Priolo Earthquake Fault Zoning Act**

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC Section 2621 et seq.) is intended to reduce risks to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults capable of surface rupture or fault creep (earthquake fault zones). Generally, the required setback is 50 feet from

an active fault trace. The act also defines criteria for identifying active faults and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

The Alquist-Priolo Act establishes “earthquake fault zones” and strictly regulates construction along or across zones that are sufficiently active and well defined. A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,700 years). A fault is considered well-defined if its trace can be identified clearly by a trained geologist at the ground surface, or in the shallow subsurface using standard professional techniques, criteria, and judgment (Bryant and Hart 2018).

### **Seismic Hazards Mapping Act**

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act—the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards; and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. Geotechnical investigations conducted within seismic hazard zones must incorporate standards specified by California Geological Survey Special Publication 117a, Guidelines for Evaluating and Mitigating Seismic Hazards in California (CGS 2008).

### **California Building Standards Code**

The California Building Standards Code (CBSC) (24 California Code of Regulations) provides the minimum standards for structural design and construction. The CBSC is based on the IBC, which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC requires that “classification of the soil at each building site will be determined when required by the building official” and that “the classification will be based on observation and any necessary test of the materials disclosed by borings or excavations.” In addition, the CBSC states that “the soil classification and design-bearing capacity will be shown on the (building) plans, unless the foundation conforms to specified requirements.” The CBSC provides standards for various aspects of construction, including, not limited to, excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, certain aspects of the project would be required to comply with all provisions of the CBSC.

The CBSC requires extensive geotechnical analysis and engineering for grading, foundations, retaining walls, and other structures, including criteria for seismic design.

### **California Surface Mining and Reclamation Act of 1975**

The principal legislation addressing mineral resources in California is the Surface Mining and Reclamation Act of 1975 (SMARA) (PRC Sections 2710–2719), which was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; to ensure that mined lands are reclaimed and residual hazards to public health and safety are eliminated; and to give consideration to recreation, watershed, wildlife, aesthetic, and other related values. SMARA governs the use and conservation of a wide variety of mineral resources, although some resources and activities are exempt from its provisions, including excavation and grading conducted for farming, construction, or recovery from flooding or other natural disaster.

SMARA provides for the evaluation of an area’s mineral resources using a system of Mineral Resource Zone (MRZ) classifications that reflect the known or inferred presence and significance of a given mineral resource. The MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data, and on socioeconomic factors such as market conditions and urban development patterns. The MRZ classifications are defined as follows:

- MRZ-1—areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2—areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- MRZ-3—areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4—areas where available information is inadequate for assignment into any other MRZ.

Although the State of California is responsible for identifying areas containing mineral resources, the county or city is responsible for SMARA implementation and enforcement by providing annual mining inspection reports and coordinating with the California Geological Survey (CGS).

Mining activities that disturb more than 1 acre or involve excavation of at least 1,000 cubic yards of material require a SMARA permit from the lead agency, which is the county, city, or board that is responsible for ensuring that adverse environmental effects of mining are prevented or minimized. The lead agency establishes its own local regulations and requires a mining applicant to obtain a surface mining permit, submit a reclamation plan, and provide financial assurances pursuant to SMARA.

Certain land-disturbing activities do not require a permit, such as excavation related to farming, grading related to restoring the site of a natural disaster, and grading related to construction.

### **California Public Resources Code**

Several PRC sections protect paleontological resources. Section 5097.5 prohibits “knowing and willful” excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public

corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that result from development on public lands.

## Local Regulations

The policies and regulations of the county government that address issues related to geology, such as seismic hazards, slope stability, and erosion, and mineral resources are found in the Alameda General Plan, APMC, and ECAP and are described below. There are no general plan policies related to paleontological resources.

### Alameda County General Plan

The Safety Element of the Alameda County General Plan specifies numerous policies and actions to meet its relevant goal, which is, “To minimize risks to lives and property due to seismic and geologic hazards.” These policies and actions are listed below (Alameda County 2013).

- **Policy P1.** To the extent possible, projects should be designed to accommodate seismic shaking and should be sited away from areas subject to hazards induced by seismic shaking (land sliding, liquefaction, lurking, etc.) where design measures to mitigate the hazards will be uneconomic or will not achieve a satisfactory degree of risk reduction.
- **Policy P2.** Structures should be located at an adequate distance away from active fault traces, such that surface faulting is not an unreasonable hazard.
- **Policy P3.** Aspects of all development in hillside areas, including grading, vegetation removal and drainage, should be carefully controlled in order to minimize erosion, disruption to natural slope stability, and landslide hazards.
- **Policy P4.** Within areas of demonstrated or potential slope instability, development should be undertaken with caution and only after existing geological and soil conditions are known and considered. In areas subject to possible widespread major land sliding, only very low density development should be permitted, consistent with site investigations; grading in these areas should be restricted to minimal amounts required to provide access.
- **Policy P5.** All existing structures or features of structures which are hazardous in terms of damage, threat to life or loss of critical and essential function in the event of an earthquake should be, to the extent feasible, brought into conformance with applicable seismic and related safety (fire, toxic materials storage and use) standards through rehabilitation, reconstruction, demolition, or the reduction in occupancy levels or change in use.
- **Policy P6.** The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.

- **Policy P7.** The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.
- **Policy P8.** The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.
- **Policy P9.** Site specific geologic hazard assessments, conducted by a licensed geologist 21, shall be completed prior to development approval in areas with landslide and liquefaction hazards as indicated in Figures S-2 and S-4 and for development proposals submitted in Alquist-Priolo Zones as indicated in Figure S-1, hazards to be mapped include:
  - Seismic features
  - Landslide potential
  - Liquefaction potential

Mitigation measures needed to reduce the risk to life and property from earthquake induced hazards should be included.

- **Policy P10.** Buildings shall be designed and constructed to withstand ground shaking forces of a minor earthquake (1-4 magnitude) without damage, of a moderate (5 magnitude) earthquake without structural damage, and of a major earthquake (6-8 magnitude) without collapse of the structure. The County shall require that critical facilities and structures (e.g. hospitals, emergency operations centers) be designed and constructed to remain standing and functional following an earthquake.
- **Policy P11.** All construction in unincorporated areas shall conform to the Alameda County Building Ordinance, which specifies requirements for the structural design of foundations and other building elements within seismic hazard areas.
- **Policy P12.** To the extent feasible, major infrastructure including transportation, pipelines, and water and natural gas mains, shall be designed to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term service disruptions.
- **Policy P13.** The County shall encourage the retrofitting of existing structures and other seismically unsafe buildings and structures to withstand earthquake ground-shaking.
- **Policy P14.** In order to minimize off-site impacts of hillside development, new construction on landslide-prone or potentially unstable slopes shall be required to implement drainage and erosion control provisions to avoid slope failure and mitigate potential hazards.
- **Action A1.** Require all new construction to meet the most current, applicable, lateral force requirements.
- **Action A2.** Require applications for development within Alquist-Priolo Study Zones to include geological data that the subject property is not traversed by an active or potentially active fault,

or that an adequate setback can be maintained between the fault trace and the proposed new construction.

- **Action A3.** Require sites to be developed in accordance with recommendations contained in the soil and geologic investigations reports.
- **Action A4.** Establish standards for areas previously in Alquist-Priolo Study Zones and eliminated in the last update.
- **Action A5.** Regulate, with collaboration from utility owners, the extension of utility lines in fault zones.
- **Action A6.** Establish (with collaboration from utility owners) and enforce design standards for transportation facilities and underground utility lines to be located in fault zones.
- **Action A7.** Require soils and/or geologic reports for development proposed in areas of erodible soils and potential slope instability.
- **Action A8.** Pursue programs to identify and correct existing structural hazards, with priority given to hazards in critical, essential and high occupancy structures and in structures built prior to the enactment of applicable local or state earthquake design standards.
- **Action A9.** Support regional or statewide programs providing funding or technical assistance to local governments to allow identification of existing structural hazards in private development and providing assistance to public and private sectors to facilitate and to minimize the social and economic costs of hazards abatement.
- **Action A10.** Continue to require the upgrading of buildings and facilities to achieve compliance with current earthquake bracing requirements as a condition of granting building permits for major additions and repairs.
- **Action A11.** Continue, and as required, expand programs to provide the public information regarding seismic hazards and related structural hazards.
- **Action A12.** Require geotechnical studies prior to development approval in geologic and/or seismic hazard areas as identified by future studies by federal, state, and regional agencies. Require or undertake comprehensive geologic and engineering studies for critical structures regardless of location.
- **Action A13.** Adopt and amend as needed the most current version of the California Building Code (CBC) to ensure that new construction and renovation projects incorporate Earthquake resistant design and materials that meet or exceed the current seismic engineering standards of the CBC.
- **Action A14.** Periodically update detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, County Engineer, County Counsel and the County Risk Manager and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.



- **Action A15.** Develop and implement an earthquake retrofit plan to reduce hazards from earthquakes. The plan should identify and tally the seismically unsafe buildings and structures, including unreinforced masonry, unreinforced concrete and soft-story buildings, and require inspection for these structures. It should also identify sources of funding to help reconstruct or replace inadequate structures and assist homeowners with earthquake retrofitting.
- **Action A16.** On sites with slopes greater than 30 percent, require all development to be clustered outside of the 30 percent slope area. (Source: Castro Valley Plan, pg. 10-31) With the exception that development upon any area outside of the Urban Growth Boundary where the slope exceeds 25 percent shall not be permitted.
- **Action A17.** Aspects of all development in hillside areas, including grading, vegetation removal and drainage, should be carefully controlled in order to minimize erosion, disruption to natural slope stability, and landslide hazards. The County's development standards and guidelines, permit application review process, Section 15.08.240 of its Building Ordinance, the Grading Erosion and Sediment Control Ordinance (Chapter 15.36 of the Alameda County General Ordinance Code), the Stormwater Management and Discharge Control Ordinance (Chapter 13.08), and Subdivision Ordinance (Title 16) shall serve to implement this policy.

### **Alameda County Municipal Code**

Chapter 15.08, Building Code, of the County's code sets forth requirements for new construction in areas affected by seismic and geologic hazards. The code requires that project proponents submit soil and geotechnical reports before the County will permit construction of a foundation. In addition, Chapter 15.36, Grading Erosion and Sediment Control, known as the grading ordinance, sets forth requirements for grading, construction, and the control of erosion and sediments in order to safeguard human health and property, protect waterways, and ensure that the graded site is prepared in accordance with the general plan.

Chapter 6.80, Surface Mining and Reclamation, of the County's code regulates surface mining operations and reclamation of mined lands within the unincorporated area of the County pursuant to the California Surface Mining and Reclamation Act of 1975 in order to ensure the continued availability of important mineral resources. Pursuant to Section 6.80.031, Mineral Resource Protection, mine development is encouraged in compatible areas and incompatible land uses that may impede or preclude mineral extraction or where processing is discouraged.

### **Alameda County East County Area Plan**

The ECAP sets forth the following goals, policies, and implementation programs to minimize the risks related to seismic hazards (Alameda County 2000) and open space.

#### *Hazard Zones*

#### **Goal: To minimize the risks to lives and property due to environmental hazards.**

- **Policy 134:** The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.

- **Policy 135:** The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.

*Environmental Hazards (Soil and Slope Stability)*

**Goal: To minimize the risks to lives and property due to soil and slope instability hazards.**

- **Policy 307:** The County shall encourage Zone 7, cities, and agricultural groundwater users to limit the withdrawal of groundwater in order to minimize the potential for land subsidence.
- **Policy 308:** The County shall not permit development within any area outside the Urban Growth Boundary exceeding 25 percent slopes to minimize hazards associated with slope instability.

*Seismic and Geologic Hazards*

**Goal: To minimize the risks to lives and property due to seismic and geologic hazards.**

- **Policy 309:** The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk caused by seismic and geologic activity.
- **Policy 310:** The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.
- **Policy 311:** The County shall ensure that new major public facilities, including emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.
- **Policy 312:** The County shall ensure that major transportation facilities and pipelines are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.
- **Policy 313:** The County shall require development in hilly areas to minimize potential erosion and disruption of natural slope stability which could result from grading, vegetation removal, irrigation, and drainage.
- **Policy 314:** The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of the Calaveras, Greenville, or Verona earthquake fault zones as defined by the Alquist-Priolo Earthquake Fault Zoning Act.
- **Policy 315:** The County shall require that buildings be designed and constructed to withstand ground shaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse of the structure. The County shall require that critical facilities and structures (e.g., hospitals, emergency operations

centers) be designed and constructed to remain standing and functional following an earthquake.

#### **Implementation Programs:**

- **Program 111:** The County shall delineate areas within East County where the potential for geologic hazards (including seismic hazards, landslides, and liquefaction) warrants preparation of detailed site-specific geologic hazard assessments. Areas shall be delineated based upon data from published sources and field investigations. Maps shall be maintained and updated as new data become available. These maps shall not be used by the County to determine where hazardous conditions exist, but instead to identify the presence of conditions which warrant further study.
- **Program 112:** The County shall develop detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, the County Engineer, County Geologist, County Counsel, and the County Risk Manager, and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.

#### *General Open Space*

**Goal: To protect regionally significant open space and agricultural land from development.**

- **Policy 52:** The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.

### **4.7.1.2 Existing Conditions**

#### **Geologic Setting**

The project site is located in the eastern portion of the San Francisco Bay Region within the Coast Ranges Geomorphic Province of California. The Coast Ranges Geomorphic Province borders the coast of California and generally consists of discontinuous series northwesterly/southeasterly trending mountain ranges, ridges, and intervening valleys characterized by intense, complex folding and faulting. Numerous northwest to southeast trending faults lie parallel the trend of the Coast Ranges and the ridges are most often comprised of granitic, metavolcanic and metasedimentary rocks.

San Francisco Bay is a broad shallow depression within the Coast Ranges that has been subsequently filled with sedimentary or alluvial deposits. The project site is located on an alluvial plain.

#### **Seismicity**

##### *Faults*

The County has been subjected to numerous seismic events, originating both on faults within the County and in other parts of the region. Six major Bay Area earthquakes have occurred since 1800 that have affected the County, and at least two of the faults that produced them run through or into the County.

Active faults within the County include the Hayward-Rodgers Creek fault system, Calaveras fault, and the Greenville-Las Positas fault. Potentially active faults within the County include the Verona fault, Williams fault, Midway fault, and the Mocho fault. The Marsh Creek-Greenville section of the Greenville fault, located approximately 1.5 miles to the east, is the nearest fault to the project site. The Working Group of California Earthquake Probabilities has determined that earthquakes of equally destructive forces are certainly possible within the region. According to their findings, the Hayward-Rodgers Creek fault system is estimated to have a probability of 31 percent of producing an earthquake of a magnitude of 6.7 (M 6.7) or higher within the next 30 years; this probability is the highest of the Bay Area faults (ABAG 2013). In the event of an M 6.7 earthquake on the Hayward-Rodgers Creek fault system, the seismic forecasts presented on ABAG's interactive GIS website suggest that the project site is expected to experience "moderate" shaking (ABAG 2013). However, no mapped earthquake faults run through or adjacent to the project site (ABAG 2013).

#### *Liquefaction*

Liquefaction typically occurs in areas where moist, fine-grained, cohesionless sediment or fill materials are subjected to strong, seismically-induced ground shaking. Under certain circumstances, the ground shaking can temporarily transform an otherwise solid material to a fluid state. Liquefaction is a serious hazard because buildings in areas that experience liquefaction may subside and suffer major structural damage. Liquefaction is most often triggered by seismic shaking, but it can also be caused by improper grading, landslides, or other factors. In dry soils, seismic shaking may cause soil to consolidate rather than flow, a process known as densification. According to hazard maps published by the USGS, the project site lies within an area susceptible to moderate category of liquefaction (USGS 2006). Such areas require stronger shaking events to cause liquefaction. Geologic map units included in the Moderate category include latest Pleistocene and Holocene Bay and other estuarine mud, alluvial fan and levee deposits and stream terrace deposits (USGS 2006).

#### *Landslides*

Landslides are gravity-driven movements of earth materials that can include rock, soil, unconsolidated sediment, or combinations of these materials. The rate of landslides movement can vary considerably. Some landslides move rapidly, as in a soil or rock avalanche, while other landslides creep or move slowly for extended periods of time. The susceptibility of a given area to landslides depends on many variables, although the general characteristics that influence landslide hazards are well understood. Some of the more important factors that can increase the likelihood of landslides are 1) loose slope materials such as unconsolidated soil and weakly indurated or highly fractured bedrock; 2) steep slopes; 3) the orientation of planar elements in earth materials such as bedding, foliation, joints, etc; 4) increased moisture in soil or bedrock; 5) sparse vegetation; 6) eroded slopes or man-made cuts; and 7) strong seismic shaking. Due to the prevailing gentle topography and lack of steep slopes, landslides are unlikely to occur at the project site or in the immediate vicinity (CGS 2010).

### **Soils**

The project site is comprised of a variety of clay soils. The NRCS has mapped three soil units within the proposed project: Clear Lake clay, drained, 0-2 percent slopes; Diablo clay, very deep, 3 to 15 percent slopes; and Linne clay loam, 3-15 percent slopes. The Clear Lake clay soils cover 73 percent of the project site while the Linne Clay loam soils cover 14 percent of the site and the Diablo clay soils cover

13 percent of the site. See Figure 4.7-1 for a map of the soil distribution on site and Table 4.7-1 for a description of the soils identified on the project site.

**Table 4.7-1  
PROJECT SITE SOILS**

Map Unit Symbol	Map Unit Name	Soil Description
CdA	Clear Lake clay, drained, 0-2 percent slopes, MLRA 14	The Clear Lake series consists of very deep, poorly drained soils that formed in fine textured alluvium derived from mixed rock sources. Clear Lake soils are typically found in flood basins, flood plains and in swales of drainageways. The soils formed in fine textured alluvium derived from igneous, metamorphic and sedimentary rocks.
DvC	Diablo clay, very deep, 3-15 percent slopes	Diablo soils typically have dark gray, neutral and mildly alkaline, silty clay horizons that rest on shale. These types of soils are typically found in grain fields in Alameda County. The soils formed in residuum weathered from shale, sandstone, and consolidated sediments with minor areas of tuffaceous material.
LaC	Linne clay loam, 3-15 percent slopes	The Linne series consists of moderately deep, well drained soils that formed in material weathered from fairly soft shale and sandstone. This type of soil is typically found in mountainous uplands and foothills.

Source: NRCS 2020, 2018, 2017, and 2001.

## Mineral Resources

The CGS Mineral Resource Project has been tasked with mapping and classifying mineral resources in the State of California pursuant to SMARA. Mineral resources have been mapped on a 7.5-minute topographic quadrangle map basis, and the most relevant map for aggregate (i.e., sand and gravel) mineral resources in the project area is the Livermore quadrangle. Pursuant to the Livermore quadrangle map, there are no mineral deposits located on the project site or within the project vicinity (CDC 1996). In addition, the ECAP does not assign land use designations for mineral resources within eastern Alameda County. Furthermore, the CDC maintains a database showing all mines within the State of California, and according to this data base, there are no mines on-site or within 2-miles of the project site (CDC 2020).

## Paleontological Resources

Paleontological resources (fossils) are the remains and/or traces of prehistoric plant and animal life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, and wood are found in the geologic deposits (rock formations) in which they were originally buried. Paleontological resources represent a limited, non-renewable, sensitive scientific and educational resource.

The potential for fossil remains at a location can be predicted through previous correlations that have been established between the fossil occurrence and the geologic formations within which they are buried. For this reason, knowledge of the geology of a particular area and the paleontological resource sensitivity of particular rock formations, make it possible to predict where fossils likely will or will not be encountered.

The natural geology of the project site is comprised of Holocene and/or Pleistocene (2.5 million years ago to present) alluvium, lake, playa, and terrace deposits. These deposits primarily consist of non-marine sedimentary rocks but can include marine deposits near the coast (CDC 2010).

#### **4.7.2 SIGNIFICANCE THRESHOLDS**

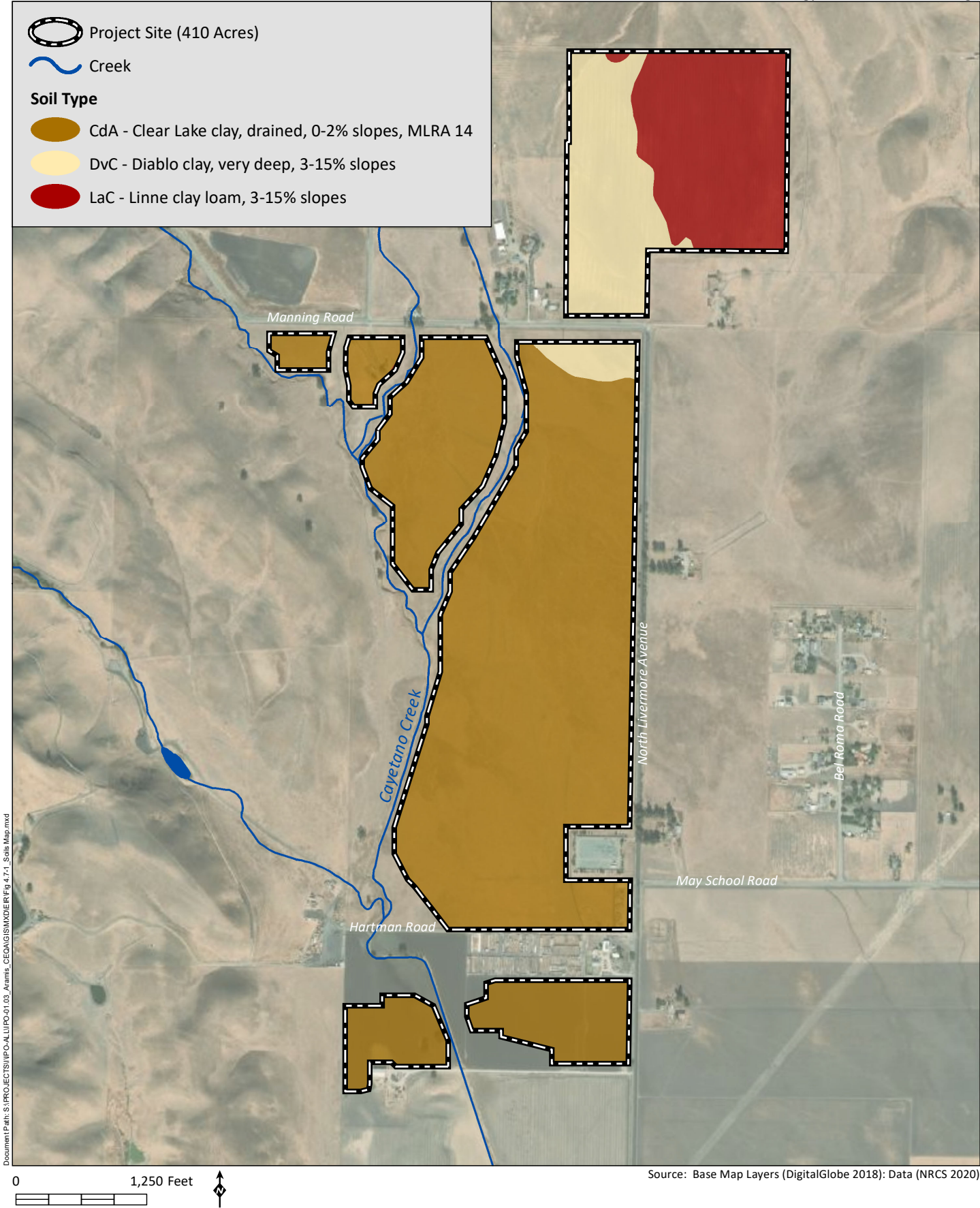
In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact associated with geology, soils, mineral resources or paleontological resources if the project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving: (i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; (ii) strong seismic ground shaking; (iii) seismic-related ground failure, including liquefaction; or (iv) landslides;
2. Result in substantial soil erosion or the loss of topsoil;
3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;
5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
6. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
7. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan; or
8. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

#### **4.7.3 IMPACT ANALYSIS**

**GEO-1      The proposed project may directly or indirectly cause potential substantial adverse effects involving rupture of known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction or landslides.**

As discussed above, no active faults are located within the project site. The closest fault line to the project is the Greenville fault, located approximately 1.5 miles east of site. Due to the site's proximity to the known fault, there is a potential for the site to be exposed to seismic-related ground shaking. Equipment could be damaged or collapse and injure personnel on-site or damage property in the immediate vicinity. Implementation of MM GEO-1 would reduce this potential impact to less than



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significant. The site-specific geotechnical report required in MM GEO-1 would assess the potential for geologically related impacts and make project-specific design recommendations for proposed inverter pads and foundations to withstand probable seismically-induced ground shaking. In addition, project construction would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations provided by the California-licensed geotechnical engineer in accordance with CBC requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal structures. The final structural designs would be subject to approval and follow-up inspection by the County.

Adherence to the requirements of the California and County Building Code and MM GEO-1 would ensure that effects from strong seismic ground shaking or seismic-related ground failure, including liquefaction or landslides, would be minimized. The facility would be constructed in accordance with all applicable codes, which require property line and public roadway setbacks that would protect the general public from any potential hazards associated with the facility that could result from an earthquake. Therefore, personnel present during the construction and operation phases of the proposed project would not be exposed to a substantial increase in seismic ground shaking hazards as a result of project implementation beyond those that generally exist in the entire project region. Implementation of these building code requirements and local agency enforcement would reduce impacts from ground shaking to less-than-significant levels.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The interconnection facility area would be within the project area covered by a site-specific geotechnical report. Any work performed by PG&E on project interconnection facilities would be required to implement the applicable recommendations identified in the site-specific geotechnical report and meet any electrical transmissions facility design standards required by the CPUC. Therefore, construction activities for the interconnection facilities performed by PG&E would not require the preparation of a separate geotechnical report and MM GEO-1 would not apply. Personnel present during the construction and operation of the interconnection facilities by PG&E would not be exposed to a substantial increase in seismic ground shaking hazards beyond those that generally exist in the entire project region, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **Mitigation Measure GEO-1: Site-Specific Geotechnical Investigation**

Prior to issuance of a grading permit, the project applicant shall retain a geotechnical firm with local expertise in geotechnical investigation and prepare a site-specific geotechnical report. The report shall be prepared by a California-licensed geotechnical engineer or engineering geologist and be submitted to the County building department for approval prior to the issuance of a grading permit. This report shall be based on data collected from subsurface exploration, laboratory testing of samples and surface mapping, and address the potential for surface fault rupture, ground shaking, slope failure, expansive soils, and unstable cut or fill slopes and make recommendations based on those findings. The project applicant shall implement the recommendations identified in the site-specific geotechnical report.

**Significance with Mitigation:** Less than significant impact.



## **GEO-2      The proposed project would not result in substantial soil erosion or loss of topsoil.**

The proposed construction and decommissioning activities would result in some soil disturbance and vegetation removal. However, preparation of a site-specific SWPPP and compliance with County stormwater management plan standards would ensure that ground-disturbing activities do not result in significant erosion. Typical erosion-prevention measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover would be used to minimize erosion impacts. Implementation of these standard measures and the site-specific SWPPP would ensure that potential impacts of soil erosion would be less than significant, and no mitigation is required.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The interconnection facilities under CPUC jurisdiction would be included in the site-specific SWPPP and project design for stormwater drainage. Construction and operation of the project interconnection facilities by PG&E would be required to implement all erosion-prevention measures specified in the SWPPP. Therefore, construction and operation of project interconnection facilities by PG&E would not result in substantial soil erosion or loss of topsoil, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

## **GEO-3      The proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.**

As discussed above, due to the prevailing gentle topography and lack of steep slopes, landslides are unlikely to occur at the project site or in the immediate vicinity. According to hazard maps published by the USGS, the project site lies within an area susceptible to a moderate category of liquefaction (USGS 2006). In the event of an M 6.7 earthquake on the Hayward-Rodgers Creek fault system, the seismic forecasts presented on ABAG's interactive GIS website suggest that the project site is expected to experience "moderate" shaking and liquefaction is unlikely (ABAG 2013). Furthermore, existing nearby developments in the immediate vicinity of the project site constructed on sites with similar topography and underlying geologic units and soils that have not experienced soil failure or resulted in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, the proposed project is unlikely to result in significant adverse impacts related to unstable geologic units or soil, and impacts would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As described above, the project site, including the interconnection facilities, is expected to experience "moderate" shaking and liquefaction is unlikely (ABAG 2013). Therefore, construction and operation of project interconnection facilities by PG&E is unlikely to result in significant adverse impacts related to unstable geologic units or soil, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**GEO-4      The proposed project may be located on expansive soil, creating substantial loss of life or property.**

The NRCS has mapped three soil units within the proposed project: Clear Lake clay, drained, 0-2 percent slopes; Diablo clay, very deep, 3 to 15 percent slopes; and Linne clay loam, 3-15 percent slopes. The Clear Lake clay soils cover 73 percent of the project site while the Linne Clay loam soils cover 14 percent of the site and the Diablo clay soils cover 13 percent of the site. The clay and clay loam soils covering the project site have a moderate to high shrink-swell potential which could cause damage to project inverter pads and foundations as a result of soils expansion beneath these structures. As discussed in impact GEO-1 above, the proposed project would be required to implement MM GEO-1. MM GEO-1 would require the project applicant to retain a geotechnical firm with local expertise in geotechnical investigation to prepare a site-specific geotechnical report. This report will address the potential for expansive soils to occur on site and make project design recommendations based on those findings. If required, treatment of expansive soil may include removing the expansive soil and replacing it with non-expansive soil, incorporating additives, or installing specially designed foundations. Additionally, Chapter 18, Sections 1803.5.3 and 1808.6 of the CBC set forth investigation and foundation requirements for development on expansive soils. Adherence to the CBC requirements and implementation of MM GEO-1 would reduce any potential impact from expansive soils on-site to a less than significant level.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the clay and clay loam soils covering the project site have a moderate to high shrink-swell potential which could cause damage to any interconnection facilities requirement foundations as a result of soils expansion. The site-specific geotechnical report, described under impact GEO-1, would address the potential for expansive soils to occur on site and make project design recommendations based on those findings. Therefore, construction and operation of the project interconnection facilities by PG&E would not result in substantial loss of life or property from expansive soils, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact GEO-1 for MM-GEO-1.

**Significance with Mitigation:** Less than significant impact.

**GEO-5      The proposed project would not have soils that are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.**

Construction of the O&M building would include the installation of a septic system for waste discharge. The project would be required to submit a Service Request Application for a special OWTS permit through the Alameda County Department of Environmental Health Department, and the proposed project would be subject to Section 15.18.040 of the APMC, which requires that any proposed OWTS follow the standards and guidelines contained in the Alameda County OWTS Manual. Additionally, the OWTS would be constructed and installed in adherence to all federal, State, and local building and

plumbing codes. Therefore, the proposed project would not install a septic system on soils incapable of adequately supporting the use of septic tanks, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would not require the use of septic tanks or alternative wastewater disposal systems and there would be no impact related to soils and wastewater disposal systems.

**Significance without Mitigation:** Less than significant impact.

**GEO-6      The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.**

**GEO-7      The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.**

There are no known mineral resources in the project area. Alameda County is located within the South San Francisco Bay Production-Consumption (P-C) Region of the California Division of Mines and Geology land classification map. According to this map, the project site and surrounding area are not designated as an MRZ (CDC 1996). Additionally, the General Plan does not identify mineral resources within the general vicinity of the project site. Therefore, the proposed project would have no impact for impacts GEO-6 and GEO-7.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

There are no known mineral resources in the project interconnection facilities area, or within the general vicinity of the project site. Therefore, construction and operation of the project interconnection facilities by PG&E would not result in loss of availability of a known mineral resource or locally important mineral resource recovery site, and there would be no impact.

**Significance without Mitigation:** No impact.

**GEO-8      The proposed project may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

No previous surveys conducted in the project area have identified the project site as sensitive for paleontological resources or other geologically sensitive resources, nor have testing or ground disturbing activities performed to date uncovered any paleontological resources or geologically sensitive resources. While the likelihood of encountering paleontological resources and other geologically sensitive resources is considered low, project-related ground disturbing activities could affect the integrity of a previously unknown paleontological or other geologically sensitive resource, resulting in a substantial change in the significance of the resource. Therefore, the proposed project could result in potentially significant impacts to paleontological resources. Implementation of MM GEO-2 would reduce potentially significant impacts to a level of less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

While the likelihood of encountering paleontological resources and other geologically sensitive resources is considered low, project interconnection facility-related ground disturbing activities could affect the integrity of a previously unknown paleontological or other geologically sensitive resource, resulting in a substantial change in the significance of the resource. Therefore, construction and operation of the project interconnection facilities by PG&E could result in potentially significant impacts to paleontological resources. Implementation of MM GEO-2 would reduce potentially significant impacts related to inadvertent discovery of paleontological resource to a level of less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **Mitigation Measure GEO-2: Avoid and Minimize Impacts to Paleontological Resources**

In the event a paleontological or other geologically sensitive resources (such as fossils or fossil formations) are identified during any phase of project construction, all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at the County of Alameda who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, the County shall implement those measures which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code Section 21083.2.

**Significance with Mitigation:** Less than significant impact.

### **4.7.4 CUMULATIVE IMPACTS**

#### **GEO-9 The proposed project would not contribute to significant cumulative impacts with respect to geology, soils, mineral resources, or paleontological resources.**

All areas of the County are considered to be potentially seismically active depending on their proximity to active regional faults. Impacts of the project would be cumulatively considerable if the project, in combination with related projects, would result in significant cumulative impacts. Related projects that are proposed within the North Livermore area include the Livermore Community Solar Farm and the Oasis Fund Livermore Grow Facility. However, the effects of these projects are not of a nature to cause cumulatively significant effects from geologic impacts, or on soils, because such impacts are site-specific and would only have the potential to combine with impacts of the project if they occurred in the same location.

None of the proposed projects are located on a fault line, near mineral resources site, or known paleontological or geologically sensitive resources. All three projects would be required to conform with local, State, and federal building regulations, applicable mitigation measures, and would obtain grading and building permits from Alameda County which would require review and approval of the project design and construction plans. Therefore, with implementation of MM GEO-1 and MM GEO-2, the proposed project's contribution to impacts related to geology, soils, mineral resources, or

paleontological resources would be less than cumulatively considerable, and cumulative impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the geographic scope of impacts and the analysis of cumulative impacts regarding geology, soils, mineral resources, or paleontological resources, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. Therefore, with implementation of MM GEO-2, construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative impact to geology, soils, mineral resources, or paleontological resources, and cumulative impacts would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact GEO-1 for MM GEO-1.

See Impact GEO-8 for MM GEO-2.

**Significance with Mitigation:** Less than significant impact.

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## 4.8 GREENHOUSE GAS EMISSIONS

This section describes the regulatory framework and existing conditions related to GHG emissions, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific GHG emissions evaluation was completed as part of the Air Quality, Energy, and Greenhouse Gas Technical Report for the Aramis Solar Energy Generation and Storage Project, included as Appendix D to this Draft EIR (HELIX 2020). The results of the GHG emissions evaluation are summarized below.

### 4.8.1 ENVIRONMENTAL SETTING

#### 4.8.1.1 Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with 2018 ranked as the fourth warmest year on record with an increase of 1.5 degrees Fahrenheit compared to the 1951-1980 average. Globally, 2018's temperatures rank behind the three warmest years on record—2016, 2017, and 2015 (NASA 2019). GHG emissions from human activities are the most significant driver of observed climate change since the mid-20<sup>th</sup> century (United Nations Intergovernmental Panel on Climate Change [IPCC] 2013). The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The statistical models show a "high confidence" that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations are stabilized at about 450 ppm carbon dioxide equivalent (CO<sub>2</sub>e) by the year 2100 (IPCC 2014).

#### 4.8.1.2 Greenhouse Gases

The GHGs defined under California's AB 32 include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

**Carbon Dioxide.** CO<sub>2</sub> is the most important and common anthropogenic GHG. CO<sub>2</sub> is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO<sub>2</sub> include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO<sub>2</sub> concentrations remained steady prior to the current period for approximately 10,000 years. The atmospheric CO<sub>2</sub> concentration in 2010 was 390 ppm, 39 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). As of April 2020, the CO<sub>2</sub> concentration exceeded 413 ppm (NOAA 2020).



**Methane.** CH<sub>4</sub> is the main component of natural gas used in homes. A natural source of methane is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

**Nitrous Oxide.** N<sub>2</sub>O is produced by both natural and human-related sources. N<sub>2</sub>O is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

**Hydrofluorocarbons.** Fluorocarbons are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. Chlorofluorocarbons are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at Earth's surface). Chlorofluorocarbons were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because hydrofluorocarbons destroy stratospheric ozone, their production was stopped as required by the 1989 Montreal Protocol.

**Sulfur Hexafluoride.** SF<sub>6</sub> is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF<sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO<sub>2</sub>. For example, because methane and N<sub>2</sub>O are approximately 25 and 298 times more powerful than CO<sub>2</sub>, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO<sub>2</sub> has a GWP of 1). CO<sub>2</sub>e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO<sub>2</sub>e.

Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). In 2007, IPCC updated the GWP values based on the latest science at the time in its Fourth Assessment Report (AR4). The updated GWPs in the IPCC AR4 have begun to be used in recent GHG emissions inventories. In 2013, IPCC again updated the GWP values based on the latest science in its Fifth Assessment Report (AR5) (IPCC 2013). However, United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the AR4. To comply with international reporting standards under the UNFCCC, official emission estimates for California and the U.S. are reported using AR4 GWP values, and statewide and national GHG inventories have not yet updated their GWP values to the AR5 values.

By applying the GWP ratios, project related CO<sub>2</sub>e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO<sub>2</sub> over a 100-year period is used as a baseline. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.8-1, Global Warming Potentials and Atmospheric Lifetimes.

**Table 4.8-1**  
**GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES**

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO <sub>2</sub> )	50-200	1
Methane (CH <sub>4</sub> )	12	25
Nitrous Oxide (N <sub>2</sub> O)	114	298
HFC-324a	14	1,430
PFC: Tetrafluoromethane (CF <sub>4</sub> )	50,000	7,390
PFC: Hexafluoroethane (C <sub>2</sub> F <sub>6</sub> )	10,000	12,200
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	22,800

Source: IPCC 2007

HFC: hydrofluorocarbon; PFC: perfluorocarbon

### 4.8.1.3 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (federal, State, and regional/local) has specific responsibilities relating to air quality regulation. GHG emissions and the regulation of GHGs is a relatively new component of air quality management.

## Federal Regulations

### Federal Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. USEPA* that CO<sub>2</sub> is an air pollutant, as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC, and SF<sub>6</sub>) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010 for 2012 through 2016 model year vehicles and on October 15, 2012 for 2017 through 2025 model year vehicles (USEPA 2017; USEPA and NHTSA 2012).

### Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA worked together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The USEPA established the first-ever national GHG emissions standards under the CAA, and the NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. On August 2, 2018, the agencies released a notice of proposed rulemaking—the Safer Affordable Fuel-Efficient Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). The purpose of the SAFE Vehicles Rule is “to correct the national automobile fuel economy and greenhouse gas emissions standards to give the American people greater access to safer, more affordable vehicles that are cleaner for the environment.” The direct effect of the rule is to eliminate the standards that were put in place to gradually raise average fuel economy for passenger cars and light trucks under test conditions from

37 miles per gallon (mpg) in 2020 to 50 mpg in 2025. The new SAFE Vehicles Rule freezes the average fuel economy level standards indefinitely at the 2020 levels. The new SAFE Vehicles Rule also results in the withdraw of the waiver previously provided to California for that State's GHG and zero emissions vehicle programs under Section 209 of the CAA. The combined USEPA GHG standards and NHTSA CAFE standards resolve previously conflicting requirements under both federal programs and the standards of the State of California and other states that have adopted the California standards.

## **State Regulations and Plans**

There are numerous State plans, policies, regulations, and laws related to GHG emissions and global climate change. Following is a discussion of some of these plans, policies, and regulations that (1) establish overall State policies and GHG emission reduction targets; (2) require State or local actions that result in direct or indirect GHG emission reductions for the proposed project; and (3) require CEQA analysis of GHG emissions.

### **California Energy Code**

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Title 24 standards went into effect on January 1, 2020. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings.

The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards – the energy budgets – that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

### **California Green Building Standards Code**

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for new residential and nonresidential buildings (including industrial buildings) throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the CCR (CBSC 2019). The current 2019 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2020.

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

### **Executive Order S-3-05**

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

### **Assembly Bill 32 – Global Warming Solution Act of 2006**

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that the CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

### **Senate Bill 100**

SB 100 builds on SB 350, the Clean Energy and Pollution Reduction Act of 2015, which required the following by 2030: (1) an RPS of 50 percent and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings, SB 100 increases the 2030 RPS target set in SB 350 to 60 percent and requires an RPS of 100 percent by 2045.

### **Senate Bill 375**

SB 375, the Sustainable Communities and Climate Protection Act of 2008, supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities.

Under the Sustainable Communities Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPOs). CARB periodically reviews and updates the targets, as needed.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. CARB must review the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate alternative planning strategy (APS) to meet the targets. The APS is not a part of the RTP. Qualified projects consistent with an approved SCS or

Alternative Planning Strategy categorized as “transit priority projects” would receive incentives to streamline CEQA processing.

### **Senate Bill 743**

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changes transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for land use projects and plans in California. Further, parking impacts will not be considered significant impacts on the environment for select development projects within infill areas with nearby frequent transit service. According to the legislative intent contained in SB 743, these changes to current practice were necessary to more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions.

### **Senate Bill 97**

SB 97 required the Governor’s Office of Planning and Research to develop recommended amendments to the State CEQA Guidelines for addressing GHG emissions, including the effects associated with transportation and energy consumption. The amendments became effective on March 18, 2010.

### **Executive Order B-55-18**

EO B-55-18 establishes a statewide goal to achieve carbon neutrality by 2045 and to achieve and maintain net negative emissions thereafter. This goal is in addition to statewide targets for reducing GHGs set in EO 3-05 and SB 32.

### **Executive Order B-30-15**

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California’s GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. California’s new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

### **Senate Bill 32 and Assembly Bill 197**

As a follow-up to AB 32 and in response to EO-B-30-15, SB 32 was passed by the California legislature in August 2016 to codify the EO’s California GHG emission reduction target of 40 percent below 1990 levels by 2030 and requires the State to invest in the communities most affected by climate change. AB 197 establishes a legislative committee on climate change policies to help continue the State’s activities to reduce GHG emissions.

### **Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases**

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State.” On

September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to merge its rules with the federal CAFE rules for passenger vehicles (CARB 2017a). In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called Advanced Clean Cars (CARB 2017a).

### **Assembly Bill 341**

The State legislature enacted AB 341 (California Public Resource Code Section 42649.2), increasing the solid waste diversion target to 75 percent statewide. AB 341 requires all businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. The final regulation was approved by the Office of Administrative Law on May 7, 2012 and went into effect on July 1, 2012.

### **Executive Order S-01-07 – Low Carbon Fuel Standard**

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. As a result, CARB continues to implement the LCFS statewide.

### **California Air Resources Board: Climate Change Scoping Plan**

On December 11, 2008, CARB adopted the Scoping Plan (CARB 2008) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the 2008 Scoping Plan includes nine measures or recommended actions related to reducing VMT and vehicle GHG emissions through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis.

In response to EO B-30-15 and SB 32, all state agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the Scoping Plan to reflect the 2030 target (CARB 2014). The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions. In December 2017, CARB adopted the *2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target*, to reflect the 2030 target set by EO B-30-15 and codified by SB 32 (CARB 2017b).

## Regional Regulations and Plans

### Bay Area Air Quality Management District

The BAAQMD provides direction and recommendations for the analysis of GHG impacts of a project and approach to mitigation measures in its CEQA Guidelines (BAAQMD 2017a). The guidance provided in the handbook was used to prepare this analysis. In addition, the 2017 Clean Air Plan, *Spare the Air Cool the Climate* defines a control strategy that the BAAQMD and its partners will implement to reduce greenhouse gas emissions to protect the climate (BAAQMD 2017a).

### Association of Bay Area Governments and Metropolitan Transportation Commission

As required by the Sustainable Communities and Climate Protection Act of 2008 (SB 375), ABAG and the MTC have developed an RTP/SCS as a component of Plan Bay Area 2040 (MTC and ABAG 2017). This plan seeks to reduce GHG and other mobile source emissions through coordinated transportation and land use planning to reduce VMT.

## Local Regulations and Plans

### Alameda County

The County adopted the *Unincorporated Areas Community Climate Action Plan* (CAP) in 2014. The CAP addresses reduction of greenhouse gas emissions through a series of local programs and policy measures related to transportation, land use, building energy, water, waste, and green infrastructure. Implementation of the plan would reduce GHG emissions in the unincorporated County area to 15 percent below 2005 levels by 2020 and set the County on a path towards reducing emissions to 80 percent below 1990 levels by 2050 (County 2014).

### 4.8.1.4 Existing Conditions

#### Worldwide and National GHG Inventory

In 2014, total GHG emissions worldwide were estimated at 48,892 million metric tons (MMT) of CO<sub>2</sub>e emissions (WRI 2020). The U.S. contributed the second largest portion (13 percent) of global GHG emissions in 2014. The total U.S. GHG emissions was 6,319 MMT CO<sub>2</sub>e in 2019, of which 82 percent was CO<sub>2</sub> emission (WRI 2020). On a national level, approximately 27 percent of GHG emissions were associated with transportation and about 38 percent were associated with electricity generation (WRI 2020).

#### State GHG Inventories

The CARB performed statewide inventories for the years 1990 to 2017, as shown in Table 4.8-2, California State Greenhouse Gas Emissions by Sector. The inventory is divided into six broad sectors of economic activity: agriculture, commercial, electricity generation, industrial, residential, and transportation. Emissions are quantified in MMT CO<sub>2</sub>e.

As shown in Table 4.8-2, statewide GHG source emissions totaled 431 MMT CO<sub>2</sub>e in 1990, 471 MMT CO<sub>2</sub>e in 2000, 449 MMT CO<sub>2</sub>e in 2010, and 424 MMT CO<sub>2</sub>e in 2017. Transportation-related emissions

consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

**Table 4.8-2**  
**CALIFORNIA STATE GREENHOUSE GAS EMISSIONS BY SECTOR**

Sector	Emissions (MMT CO <sub>2</sub> e)	Emissions (MMT CO <sub>2</sub> e)	Emissions (MMT CO <sub>2</sub> e)	Emissions (MMT CO <sub>2</sub> e)
	1990	2000	2010	2017
Agriculture and Forestry	18.9 (4%)	31.0 (7%)	33.7 (8%)	32.4 (8%)
Commercial	14.4 (3%)	14.1 (3%)	20.1 (4%)	23.3 (5%)
Electricity Generation	110.5 (26%)	105.4 (22%)	90.6 (20%)	62.6 (15%)
Industrial	105.3 (24%)	105.8 (22%)	101.8 (23%)	101.1 (24%)
Residential	29.7 (7%)	31.7 (7%)	32.1 (7%)	30.4 (7%)
Transportation	150.6 (35%)	183.2 (39%)	170.2 (38%)	174.3 (41%)
Unspecified Remaining	1.3 (<1%)	0.0 (0%)	0.0 (0%)	0.0 (0%)
<b>TOTAL</b>	<b>430.7</b>	<b>471.1</b>	<b>448.5</b>	<b>424.1</b>

Source: CARB 2007 and CARB 2019

MMT = million metric tons; CO<sub>2</sub>e = carbon dioxide equivalent

### Regional GHG Inventory

A San Francisco Bay Area regional emissions inventory for the year 2015 prepared by BAAQMD for the 2017 Clean Air Plan is presented in Table 4.8-3, San Francisco Bay Area GHG Emissions by Sector (BAAQMD 2017c). The sectors included in this inventory are somewhat different from those in the statewide inventory. Similar to the statewide emissions, transportation related GHG emissions contributed the most regionally.

**Table 4.8-3**  
**San Francisco Bay Area GHG Emissions by Sector**

Sector	2015 Emissions MMT CO <sub>2</sub> e (% total) <sup>1</sup>
Transportation	34.6 (41%)
Electricity	12.1 (14%)
Buildings	8.9 (11%)
Stationary Sources	22.0 (26%)
Waste Management	2.3 (3%)
Fluorinated Gases	3.6 (4%)
Agriculture	1.2 (1%)
<b>TOTAL</b>	<b>84.7</b>

Source: BAAQMD 2017c

<sup>1</sup> Percentages may not total 100 due to rounding.

MMT = million metric tons; CO<sub>2</sub>e = carbon dioxide equivalent

#### 4.8.1.5 Methodology

The project's GHG emissions were calculated using CalEEMod, as described in Section 4.3, Air Quality.



## **Construction GHG Emissions**

Construction of the project would result in emissions of GHGs from the use of diesel-powered equipment, from worker vehicles traveling to and from the project site, and from trucks hauling material and water to the project site. The anticipated construction equipment and vehicle trips required for project construction are described in Section 3.5.3, Construction Workforce, Equipment, and Trip Generation.

## **Operational GHG Emissions**

### **Area GHG Sources**

The project O&M activities would result in area GHG emissions from the use of gasoline-powered landscape equipment for vegetation management.

### **Energy Sources**

The project would generate electrical energy from PV panels and supply that energy to the electrical grid through a series of inverters and transformers and an energy storage system. Long-term operation of the project would use electrical energy for PV panel tracking motors, inverter and transformer cooling fans, security lighting, and use of the O&M building (e.g., lighting, appliances, and heating ventilation, and air conditioning [HVAC] systems). All electricity used for operation of the project was assumed to be generated on-site and would not result in direct or indirect emissions of GHGs. Natural gas or propane may be used for the O&M building heating system and/or hot water heater. The CalEEMod default natural gas consumption for the O&M building was used in the emissions modeling.

### **Vehicular (Mobile) GHG Sources**

Operational GHG emissions from mobile source emissions are associated with vehicle trip generation and trip length. The anticipated vehicle trips associated with O&M activities are described in Section 4.3.1.5.

### **Off-Road GHG Sources**

The project O&M activities would require the use of off-road vehicles for ongoing maintenance, repairs, panel washing, and vegetation management. The anticipated off-road equipment required for O&M activities is described in Section 4.3.1.5.

### **Solid Waste Sources**

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. CalEEMod determines the GHG emissions associated with disposal of solid waste into landfills. Portions of these emissions are biogenic. CalEEMod methods for quantifying GHG emissions from solid waste are based on the IPCC method using the degradable organic content of waste. The CalEEMod default levels of solid waste generation for long-term operation of the O&M building were used in the emissions modeling.

## **Water Sources**

The project would require approximately 5 acre-feet (1,629,255 gallons) of water annually for provisioning the O&M building, panel washing, and livestock drinking water. Water would either be obtained via an on-site well or from an off-site water purveyor and trucked to the site. GHG emissions associated with trucking water to the project site are included in the vehicular sources trip generation. Indirect GHG emissions associated with the sourcing and treatment of water are included in the modeling.

### **4.8.2 SIGNIFICANCE THRESHOLD**

Given the relatively small levels of emissions generated by a project in relationship to the total amount of GHG emissions generated on a national or global basis, individual projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could make a cumulatively considerable contribution to existing significant, cumulative impacts with respect to climate change. Thus, the impact analysis for GHG emissions is limited to a cumulative analysis. The geographic scope of the cumulative analysis is global.

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered in establishing the significance of GHG emissions:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;
2. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As discussed in Section 15064.4 of the State CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the Lead Agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

The BAAQMD has adopted GHG thresholds of significance that a lead agency may use for determining the significance of a land use development project's GHG impacts. For development projects, the BAAQMD recommends a bright-line screening threshold of 1,100 metric tons (MT) of CO<sub>2</sub>e per year for a project's long-term operational GHG emissions (BAAQMD 2017b). The BAAQMD's GHG thresholds were developed to meet the year 2020 statewide GHG emissions targets as mandated by AB 32 and implemented by the CARB Scoping Plan. The BAAQMD has not adopted guidance or revised thresholds to account for GHG reduction target beyond 2020. Therefore, this analysis compares the project's emissions to a reduced threshold corresponding to the SB 32 reduction target of emissions 40 percent below 1990 levels by 2030. Accordingly, a threshold reduced by 4.98 percent for each year between 2020 and 2030 would meet the mandates of SB 32. The first full year of operation for the project is anticipated to be 2023. Therefore, an adjusted threshold of 968 MT of CO<sub>2</sub>e per year is used in this analysis. The last year of project operations is anticipated to be 2073, but no State goal or policy related to climate change extends beyond 2050. For this reason, the GHG analysis examines significance in 2050 rather than 2073.

The BAAQMD has not adopted a threshold for determining the significance of a project's construction GHG emissions. However, the BAAQMD recommends quantification and disclosure of GHG emissions that would occur during construction.

### 4.8.3 IMPACT ANALYSIS

#### **GHG-1      The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.**

The results of the modeling of the project's construction GHG emissions shows that construction of the project would generate a total of 2,941 MT of CO<sub>2</sub>e, or 58.8 MT of CO<sub>2</sub>e per year amortized (averaged) over the anticipated 50-year lifespan of the project. Because the neither the County nor the BAAQMD has adopted thresholds to determine the significance of a project's construction-period GHG emissions, the data are presented for informational purposes. To be conservative, the annualized construction emissions also are added to the operational emissions to determine significance. The complete CalEEMod output is provided in Appendix D to this Draft EIR.

The results of the modeling of the project's operational GHG emissions are shown in Table 4.8-4, Operational GHG Emissions. The data are presented as the maximum anticipated operational GHG emissions for the first full year of operation (2023) and compared to the BAAQMD thresholds (adjusted for the year 2023). As shown in Table 4.8-4, the estimated GHG emissions associated with long-term operational activities of the project would not exceed the 2023 or 2050 adjusted thresholds.

**Table 4.8-4  
OPERATIONAL GHG EMISSIONS**

Source	Emissions (MT CO <sub>2</sub> e/year)
Area	<0.1
Energy	0.4
Vehicular (Mobile)	95.4
Off-Road	29.0
Solid Waste	0.2
Water and Wastewater	1.8
Annualized Construction Emissions	58.8
<b>Total Annual Emissions<sup>1</sup></b>	<b>187.6</b>
<i>2023 Adjusted Threshold</i>	<i>968</i>
<i>2050 Adjusted Threshold</i>	<i>220</i>
<b><i>Exceed Threshold?</i></b>	<b><i>No</i></b>

Source: CalEEMod, output data is provided in Appendix D.

<sup>1</sup> Totals may not sum due to rounding.

MT = metric ton; CO<sub>2</sub>e = carbon dioxide equivalent

The installation and operation of solar facilities, such as the project, would result in a net reduction of fossil-based electricity generation and, therefore, a net reduction in CO<sub>2</sub>e emissions relative to overall CO<sub>2</sub>e emissions that would occur without the project. Using PG&E's electricity generation GHG intensity factors, the project's estimated generation of 177,207 MWh of electrical power would result in the offset of up to 51,730 MT CO<sub>2</sub>e per year (CAPCOA 2017) in 2023. This net reduction of emissions would

gradually lower until 2045, when the mandates of SB 100 require 100 percent of California’s electricity be procured from zero carbon sources. The project’s net reduction of GHG emissions would be zero in 2045 and beyond. The energy and GHG offset calculations are included in Appendix D to this Draft EIR.

The project’s net annual GHG emissions for the year 2023, accounting for project construction and operational GHG emissions and offset GHG emissions, are presented in Table 4.8-5, 2023 Net GHG Emissions. As shown in Table 4.8-5, the project would result in a reduction in GHG emissions of 51,542 MT CO<sub>2</sub>e per year. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the impact would be less than cumulatively considerable.

**Table 4.8-5  
2023 NET GHG EMISSIONS**

Source	Emissions (MT CO <sub>2</sub> e/year)
Amortized Construction Emissions	58.8
Operation Emissions	128.8
Offset GHG Emissions (reduced fossil fuel use in State electricity procurement)	(-51,729.6)
<b>Net Annual Emissions</b>	<b>(-51,542.0)</b>

Source: CalEEMod; CEC 2020b; calculations and output data are provided in Appendix D.

MT = metric ton; CO<sub>2</sub>e = carbon dioxide equivalent

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not result in higher GHG emissions for the proposed project (including interconnection facilities) than described above. Therefore, the construction and operation of project interconnection facilities by PG&E would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **GHG-2      The proposed project would not conflict with applicable plans, policies, and regulations related to GHG emission reductions.**

As a solar PV generation project, the project would fulfill a portion of the RPS that is mandated for California and reflected in the CARB Scoping Plan, partially satisfying the goals of the California Renewable Energy Programs (as described in Section 4.6, Energy). Additionally, the project would help reach the SB 32 and SB 100 statewide GHG emission reduction goals for the electricity generation sector. The project would directly support the BAAQMD 2017 Clean Air Plan Energy Control Measure EN1, *Decarbonize Electricity Production*, which strives to maximize the amount of renewable energy contributing to the production of electricity within the SFBAAB as well as electricity imported into the region (BAQMD 2017c). The project would also support achievement of the County’s GHG reduction goals in the CAP through expanding renewable energy generation within the unincorporated county and supporting the CAP Renewable Energy Strategy E-13. The proposed project would not conflict with the

BAAQMD 2017 Clean Air Plan, the County CAP, or Plan Bay Area 2040. Therefore, the project would not conflict with applicable plans, policies, and regulations related to GHG emission reductions, and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not exceed the employment growth accounted for in the County General Plan and the ECAP or conflict with any control measures in the 2017 Clean Air Plan, the County CAP, or Plan Bay Area 2024, as described above. Therefore, construction and operation of project interconnection facilities by PG&E would not conflict with applicable plans, policies, and regulations related to GHG emission reductions, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **4.8.4 CUMULATIVE IMPACT**

#### **GHG-3 The proposed project would not contribute to a significant cumulative impact to regional and State GHG emissions.**

As noted above climate change impacts are cumulative. Given the relatively small levels of emissions generated by a typical project in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant, direct impacts with respect to climate change. However, considering the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could make cumulatively considerable contributions to significant cumulative impacts with respect to climate change. As discussed in impacts GHG-1 and GHG-2 above, the project would not make a cumulatively considerable contribution to significant cumulative GHG emissions and would not conflict with or obstruct applicable plans related to GHG emission reductions. Therefore, the project's contribution to global climate change would be less than cumulatively considerable.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed above and would not conflict with any control measures in the 2017 Clean Air Plan, the County CAP, or Plan Bay Area 2024, as described above. As discussed in impacts GHG-1 and GHG-2 above, construction and operation of project interconnection facilities by PG&E would not make a cumulatively considerable contribution to significant cumulative GHG emissions and would not conflict with or obstruct applicable plans related to GHG emission reductions. Therefore, the contribution by construction and operation of project interconnection facilities by PG&E to global climate change would be less than cumulatively considerable.

**Significance without Mitigation:** Less than significant impact.

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## **4.9 HAZARDS AND HAZARDOUS MATERIALS**

This section describes the regulatory framework and existing conditions related to hazards and hazardous materials, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.9.1 ENVIRONMENTAL SETTING**

#### **4.9.1.1 Regulatory Framework**

Development of the proposed project is subject to numerous regulatory requirements and industry standards related to the storage, transport, and use of hazardous materials. Most regulations originate at the state and federal levels, with enforcement by local agencies.

#### **Federal Regulations**

##### **Hazardous Materials and Waste Handling**

The federal Resource Conservation and Recovery Act of 1976 (RCRA) established a “cradle-to-grave” regulatory program governing the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. In California, the Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous material waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations also require hazardous materials users to prepare written plans, such as a HMBP, that describe hazardous materials inventory information, storage and secondary containment facilities, emergency response and evacuation procedures, and employee hazardous materials training programs. A number of agencies participate in enforcing hazardous materials management requirements, including DTSC, the RWQCBs, and the Alameda County Department of Environmental Health’s Hazardous Materials/Waste Program.

##### **Environmental Protection Agency**

The USEPA is responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in CFR Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws (which are described below):

- Resource Conservation and Recovery Act of 1976 (42 U.S. Code [USC] 6901 et seq.);
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also called the Superfund Act) (42 USC 9601 et seq.); and
- Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499).



These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. The USEPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards. Much of the focus of these regulations is the regulation of hazardous wastes and substances that are toxic to the environment if accidentally discharged.

The RCRA establishes a framework for national programs to achieve environmentally sound management of both hazardous and nonhazardous wastes. Under CERCLA, the USEPA has authority to seek the parties responsible for releases of hazardous substances and ensure their cooperation in site remediation. CERCLA also provides federal funding (the “Superfund”) for remediation. SARA Title III, the Emergency Planning and Community Right-to-Know Act, requires companies to declare potential toxic hazards to ensure that local communities can plan for chemical emergencies.

### **Transportation of Hazardous Materials and Oversized Loads**

The U.S. Department of Transportation regulates hazardous materials transportation on all interstate roads. Within California, the State agencies with primary responsibility for enforcing federal and State regulations and for responding to transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, federal and state agencies determine driver-training requirements, load-labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code. Requests for such special permits require the completion and application for a Transportation Permit.

### **State Regulations**

California hazardous materials and waste regulations are equally or more stringent than federal regulations. The USEPA has granted the State primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several important State laws pertaining to hazardous materials and wastes are discussed below.

#### **California Environmental Protection Agency**

The California EPA was created in 1991 by EO W-5-91. Several State regulatory boards, departments, and offices were placed under the Agency’s umbrella to create a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of State resources. The California EPA also oversees the unified hazardous waste and hazardous materials management regulatory program (Unified Program).

### **California Department of Toxic Substances Control**

The California DTSC, which is a department of California EPA, is authorized to carry out the federal hazardous waste program in California to protect people from exposure to hazardous wastes. The department regulates hazardous waste, cleans up existing contamination, and looks for ways to control and reduce the hazardous waste produced in California. Permitting, inspection, compliance, and corrective action programs ensure that people who manage hazardous waste follow federal and State requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

### **California Division of Occupational Safety and Health**

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health (OSHA) and the federal Occupational Safety and Health Administration are the agencies responsible for assuring worker safety in the workplace.

OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices within the state. At sites known to be contaminated, a site safety plan must be prepared to protect workers. The site safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

### **California Building Code**

The State of California provides minimum standards for building design and construction through Title 24 of the California Code of Regulations. The California Building Code is located in Part 2 of Title 24 and is adopted by reference in Chapter 15.08, Building Code, of the Alameda County Municipal Code. The California Building Code is updated every three years. Commercial and residential buildings are plan-checked by County building officials for compliance with the typical fire safety requirements of the California Building Code.

### **California Fire Code**

Chapter 6.04 of the ACMC adopts the California Fire Code by reference. The California Fire Code adopts by reference the International Fire Code with necessary State amendments. Updated every three years, the California Fire Code includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Typical fire safety requirements include the following: installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

### **California Emergency Management Agency**

The California Emergency Management Agency adopted the State Hazard Mitigation Plan in 2007. This plan is the official statement of California's statewide hazard mitigation goals, strategies, and priorities. Hazard mitigation can be defined as any action taken to reduce or eliminate long-term risk to life and property by natural and human caused disasters. The plan, required under federal law, includes

chapters on hazard assessment, local hazard mitigation planning, and mitigation strategy, and it must be updated every three years.

### **California Department of Forestry and Fire Protection**

Sections 4201–4204 of the California PRC and Sections 51175–51189 of the Government Code require identification of fire hazard severity zones within the state of California. Fire prevention areas considered to be under state jurisdiction are referred to as “state responsibility areas” (SRA). In SRA’s, the California Department of Forestry and Fire Protection (CAL FIRE) is required to delineate three hazard ranges: moderate, high, and very high; whereas “local responsibility areas,” which are under the jurisdiction of local entities (e.g., cities, counties), are required to only identify very high fire hazard severity zones. The hazard ranges are measured quantitatively, based on vegetation, topography, weather, crown fire potential (a fire’s tendency to burn upward into trees and tall brush), and ember production and movement within the area of question.

SRAs include much of the wildlands in unincorporated Alameda County. According to CAL FIRE’s hazards area mapping, the project site is within an SRA and is designated as a moderate fire hazard severity zone (FHSZ) (CAL FIRE 2020).

## **Local Regulations**

### **Alameda County General Plan**

The Safety Element of the Alameda County General Plan (Alameda County 2013) contains goals, policies, and actions the County might take related to nonnatural hazards and fire hazards. Many of the principles and actions refer to new development. Those relating to the proposed Project as an existing facility are excerpted below.

Goal 2. To reduce the risk of urban wildland fire hazards.

- **Policy P3.** Development should generally be discouraged in areas of high wildland fire hazard where vegetation management programs, including the creation and maintenance of fuel breaks to separate urban uses would result in unacceptable impacts on open space, scenic and ecological conditions.

Goal 4. Minimize residents’ exposure to the harmful effects of hazardous materials and waste.

- **Policy P1.** Uses involving the manufacture, use or storage of highly flammable (or toxic) materials and highly water reactive materials should be located at an adequate distance from other uses and should be regulated to minimize the risk of on-site and off-site personal injury and property damage. The transport of highly flammable materials by rail, truck, or pipeline should be regulated and monitored to minimize risk to adjoining uses.
- **Policy P8.** Developers shall be required to conduct the necessary level of environmental investigation to ensure that soil, groundwater and buildings affected by hazardous material releases from prior land uses and lead or asbestos in building materials will not have a negative impact on the natural environment or health and safety of future property owners or users. This shall occur as a precondition for receiving building permits or planning approvals for development on historically commercial or industrial parcels.

- **Policy P9.** The safe transport of hazardous materials through the unincorporated areas shall be promoted by implementing the following measures:
  - Maintain formally-designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.
  - Maintain formally-designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.
  - Maintain formally-designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.
  - Encourage businesses to ship hazardous materials by rail.

### **East County Area Plan**

The Hazard Zones and Environmental Health and Safety Elements of the ECAP contain goals, policies, and programs related to hazards (Alameda County 2000).

#### *Hazard Zones*

Goal: To minimize the risks to lives and property due to environmental hazards.

- **Policy 134:** The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.

#### *Environmental Health and Safety*

- **Program 117:** The County shall work with the California Department of Forestry and Fire Protection to designate “very high fire hazard severity zones” in conformance with AB 337 (1992). The County shall ensure that all zones designated as such meet the standards and requirements contained in this legislation.
- **Program 118:** The County shall prepare a comprehensive wildland fire prevention program including fuel breaks, brush management, controlled burning, and access for fire suppression equipment.

### **Alameda County Department of Environmental Health**

The Alameda County Department of Environmental Health is the Certified Unified Program Agency (CUPA) for Alameda County. This certification by the California Secretary of Environmental Protection authorizes the Department of Environmental Health to implement the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program specified in Health and Safety Code Chapter 6.11 of Division 20 (beginning with Section 25404). As the CUPA, the Department of Environmental Health oversees the regulatory programs for Hazardous Materials Business Plans, underground and aboveground storage tanks, onsite treatment of hazardous waste, hazardous waste generators, and California Accidental Release Prevention.

### **Best Management Practices**

As discussed in Section 4.7, Geology, Soils, Mineral Resources, and Paleontological Resources, any future project that would disturb 1 or more acres of soil or would disturb less than 1 acre but is part of a larger common plan of development must obtain coverage under General Permit Order 2010-0014-DWQ. Coverage under the General Permit requires development and implementation of a SWPPP. The SWPPP must include plans for erosion and sediment control and would adhere to the County's grading ordinance and BMPs. Typical construction erosion control BMPs are listed below:

- Perform clearing and earth moving activities only during dry weather.
- Limit construction access routes and stabilize designated access points.
- Prohibit cleaning, fueling, and maintaining vehicles onsite, except in a designated area where washwater is contained and treated.
- Properly store, handle, and dispose of construction materials/wastes to prevent contact with stormwater.
- Train and provide instruction to all employees/subcontractors on construction BMPs.
- Control and prevent discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.

#### **4.9.1.2 Existing Conditions**

##### **Environmental Setting**

The project site has been in continuous agricultural use for more than 100 years.

##### **Environmental Database Search**

A database search of the project site and 1-mile search radius was conducted by Environmental Data Resources, Incorporated (EDR), and the search did not identify hazardous waste sites that could potentially cause upset and accident conditions involving the release of hazardous materials into the environment (EDR 2020). The database search was conducted consistent with the requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14).

The EDR search identified one small quantity generator of hazardous wastes and three underground storage tanks in the search radius. These facilities are registered to handle these types and quantities of hazardous waste and no violations were indicated.

## **Schools**

The project site is not located within 0.25 mile of a school. The closest school, Andrew Christensen Middle School, is located approximately 2.3 miles to the southeast of the site.

## **Aircraft Hazards**

The project site is not located within 2 miles of a public airport or public use airport. The closest public airport to the project site is Livermore Municipal Airport, located 3.2 miles southwest of the project site in the City of Livermore. The closest private aircraft facility is the PG&E Livermore Training Center Heliport located approximately 4.1 miles southeast of the proposed project site. The ValleyCare Medical Center Heliport is located 6 miles southwest of the project site in the City of Pleasanton. Byron Airport, a public-use airport, is located at 550 Eagle Court in Byron, approximately 9 miles northeast of the project site.

## **Wildland Fires**

The project site is within an SRA and is designated as a moderate FHSZ (CAL FIRE 2020). See Section 4.18, Wildfire, for more information on wildland fire risks.

## **Solar Project-Related Hazards**

Hazardous materials are classified as those including solids, liquids, or gaseous materials that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, could pose a threat to human health or the environment. Hazardous materials are not directly used during solar PV system installation and operations; however, such materials may be used during manufacturing and in equipment used for assembly and installation. Other materials that may result in a public health concern that would be used during solar PV installation and operation include fuels, lubricants, and herbicides, and batteries. These materials must be handled and used in accordance with federal and State regulations.

## **Crystalline and Amorphous Silicon Modules**

Crystalline and amorphous silicon (c-Si) is a semiconductor used in solar cells to convert solar energy into electricity. Silicon-based solar PV cell production involves many of the same materials and hazards as those used in the microelectronics industry, with the highest toxicity levels occurring during production and disposal.

## **Cadmium Telluride**

The PV panels to be installed for the project may contain cadmium telluride (CdTe), which is manufactured as a result of a reaction between elemental cadmium (Cd) and tellurium (Te). The USEPA has classified elemental cadmium as a probable human carcinogen (Group B1) (USEPA 2000). Elemental cadmium is a lung carcinogen and long-term exposure can cause detrimental effects to kidneys and bones (Fthenakis and Zweibel 2003). Tellurium compounds are highly toxic and can cause birth defects as well as acute and chronic health effects (BNL/DOE 2003). However, when cadmium and tellurium are combined, a crystalline lattice is formed that is highly stable (high melting point, low vapor pressure, low solubility) and substantially less toxic than elemental cadmium and tellurium alone. If CdTe PV panels

are used on site, human exposure would occur only if CdTe flakes or dust particles were generated and particles of CdTe dust would not be generated unless the panels were broken and/or ground up (such as during off-site disposal of old panels) or burned in a fire (Fthenakis and Zweibel 2003). For cadmium to be vaporized by fire, flame residence time and temperature would have to be sufficient to heat the PV panels to over 1,000 degrees Celsius (°C). Flame residence times in grass fuels have been shown to be approximately 15 seconds; maximum grass fire temperatures are approximately 800°C to 1,000°C. The melting point of CdTe is 1,041°C, and evaporation begins at 1,050°C (Fthenakis and Zweibel 2003). Because grass fires are characterized by rapid burn time and low temperature, heat transfer during a wildland fire would be insufficient to vaporize cadmium into the environment.

## **Battery Storage System**

The on-site battery storage system could deploy lithium-ion, vanadium redox, iron flow, or zinc hybrid batteries. The suite of batteries that could be used contain a variety of valuable metals, and recycling of these batteries is expected to become increasingly commonplace with the increased use of batteries in consumer goods and electric vehicles. Some batteries may have the capacity at the end of the operating life of the project to be reused. The chemical components of flow batteries may either be disposed of as hazardous waste (i.e., neutralization of the liquid within the battery), or they may comprise valuable elements which would also be recycled or reused.

## **Routine Use of Other Materials During Construction, Operation, and Decommissioning**

Hazardous materials would be used during project construction, operation, and decommissioning. Materials of concern include gasoline, diesel fuel, inverter coolant, ethylene glycol, hydraulic oil, transformer oil, sulfur hexafluoride, gases (such as acetylene, argon, oxygen and propane) and cleaning chemicals. The Materials Safety Data Sheets associated with each of these substances discloses their potential risk to human health. The primary health risks associated with these materials would generally occur when put in direct contact with either eyes or skin, or by ingestion, or inhalation. Most of the materials would not present long-term health risks in the quantity and duration of exposure during the project's construction, operation, and decommissioning. Short-term health risks may include skin or eye irritant, respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, or nausea. In rare cases of extreme overexposure, unconsciousness or death could occur. Some of the materials are flammable or combustible and could result in an explosion if handled improperly. Additionally, the project could use any commercially available battery technology which could contain potentially hazardous material including lithium ion, iron, lead acid, sodium sulfur and sodium or nickel hydride batteries.

Fuels, lubricants, and other materials including batteries would be stored on-site. Oil would be used as an insulating fluid in the transformers proposed to be located at the project substations. The transformers would be filled with oil at the manufacturing company and subsequently checked in four-year intervals for integrity. The inverter coolant would be routinely and remotely monitored, with inverter replacement expected to occur every 15 years. In addition, sheep grazing would be utilized at the project site for vegetation management, which would minimize the use of herbicides.

Hazardous and non-hazardous wastes that are likely to be generated from construction and operation of the project include used inverter coolant, waste motor oils, waste hydraulic fluids, and waste solvents and adhesives. Inverter coolant would be replaced approximately every 15 years, and the oil used in the

transformers would be replaced at regular intervals. All oils, lubricants, and spent filters would be collected and removed for recycling at the time of replacement. All waste handling, storage, transportation, and disposal would comply with state and federal regulations.

#### **4.9.2 SIGNIFICANCE THRESHOLDS**

Based on Appendix G of the State CEQA Guidelines, a hazards and hazardous materials impact is considered significant if implementation of the proposed project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
3. Emit hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the California Government Code and, as a result, would create a significant hazard to the public or the environment;
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

#### **4.9.3 IMPACT ANALYSIS**

**HAZ-1      The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

Potentially hazardous materials would be used during construction, operation, and decommissioning of the proposed project. The routine transport, use, and disposal of hazardous materials are subject to local, State, and federal regulations to minimize risk and exposure. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 335 of the CFR) are anticipated to be produced, used, stored, transported, or disposed of as a result of the proposed project. The following discussion summarizes potential hazards and hazardous materials associated with construction, operation, and decommissioning of the solar facility.



## **Construction**

Construction of the project would involve the use of hazardous materials, such as fuels and greases, to fuel and service construction equipment. Such substances may be stored in temporary aboveground storage tanks or sheds located on the project site. The fuels stored on-site would be in a locked container within a fenced and secure staging area. Trucks and construction vehicles would be serviced at off-site facilities. The use, storage, transport, and disposal of hazardous materials used in construction of the facility would be carried out in accordance with federal, State, and County regulations. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 355 of the CFR) would be produced, used, stored, transported, or disposed of as a result of project construction. Material Safety Data Sheets for all applicable materials present on-site would be made readily available to on-site personnel.

Construction materials would be sorted on-site and then transported to appropriate waste management facilities. Recyclable materials would be separated from non-recyclable items and stored until they could be transported to a designated recycling facility. It is anticipated that at least 20 percent of construction waste would be recyclable, and at least 50 percent of those materials would be recycled. Wooden construction waste (such as wood from wood pallets) would be sold, recycled, or chipped and spread on the project site for weed control as appropriate. Other compostable materials, such as vegetation, might also be composted off-site. Non-hazardous construction materials that cannot be reused or recycled would likely be disposed of at municipal County landfills. Hazardous waste and electrical waste would be transported to a hazardous waste handling facility (e.g., electronic-waste recycling). All contractors and workers would be educated about waste sorting, appropriate recycling storage areas, and how to reduce landfill waste.

## **Operation**

Limited quantities of hazardous materials would be used and stored at the solar facility for operation and maintenance. Materials may include oils, lubricants, paint, solvents, degreasers, fire suppressants, dust palliatives, and transformer oil. The transformers proposed to be located at the project substation would use oil as an insulating fluid. As required for routine maintenance of the transformers, the oil would be replaced and disposed of in accordance with applicable regulations. Other materials would be stored in the O&M building. The concrete floor of the O&M building and the concrete foundations of the equipment pads and buildings would prevent against contamination from accidental spills.

## **Decommissioning**

Once the project has reached the end of its productive life, the solar arrays and supporting infrastructure would be disassembled and removed, with all materials recycled, reused, or disposed of appropriately. The transport and disposal of hazardous materials during decommissioning of the facility would be carried out in accordance with federal, State, and County regulations.

## **Conclusion**

As discussed in Section 3.5.4, Hazardous Materials and Waste Management, of this Draft EIR, the project applicant shall prepare and implement a HMBP in accordance with the requirements of the County Department of Environmental Health and the Hazardous Materials Release Response Plan and Inventory Act of 1985. Under this State law, the applicant is required to prepare an HMBP to be submitted to the County Department of Environmental Health, which is the CUPA for the County. The HMBP shall include

a hazardous material inventory, emergency response procedures, training program information, and basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of at the proposed project site, and procedures for handling and disposing of unanticipated hazardous materials encountered during construction. The HMBP shall include an inventory of the hazardous waste generated on-site and specify procedures for proper disposal. As required, hazardous waste will be transported by a licensed hauler and disposed of at a licensed facility. According to the HMBP reporting requirements, workers must be trained to respond to releases of hazardous materials in accordance with State and federal laws and regulations governing hazardous materials and hazardous waste (e.g., HAZWOPER training required by OSHA). Any accidental release of small quantities of hazardous materials shall be promptly contained and abated in accordance with applicable regulatory requirements and reported to the Department of Environmental Health. As the CUPA for the County, the Department of Environmental Health is responsible for implementation and enforcement of HMBPs.

Adherence to the project-specific HMBP would minimize the potential hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The use of hazardous materials for the construction and operation of interconnection facilities under CPUC jurisdiction, such as fuels and greases, to fuel and service construction equipment, and the limited quantities of hazardous materials used and stored in project interconnection facilities, would not be different than described above. PG&E would be required to prepare and implement an HMBP for portions of the interconnection facilities within their area of responsibility or update an existing HMBP for the Cayetano substation to include the new interconnection facilities. Adherence to the HMBP for facilities within PG&E's responsibility would minimize the potential hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**HAZ-2            The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

#### **Routine Project Transport, Use, or Disposal Activities**

As discussed under impact HAZ-1, project construction, operation, and decommissioning activities would involve the use of hazardous materials. The risk of accidental release of hazardous materials would be reduced by compliance with local, State, and federal regulations and implementation of project-specific HMBP. With implementation of the HMBP, potential impacts to the public and/or environment resulting from the accidental release of hazardous materials associated with routine project transport, use, or disposal activities would be less than significant.

### **Hazardous Materials in Solar Panels**

There are two dominant semiconducting materials used in photovoltaic technology: crystalline silicon (c Si) which is the conventional material used in flat plate panels, and thin-film semiconductors such as amorphous silicon (a-Si) and CdTe. Silicon based solar cells do not contain hazardous materials, although they may use lead-containing solders. Improper decommissioning of the panels with lead containing solders could result in lead leaching into landfills and eventually into waterbodies. The applicant would recycle, reuse, or dispose of solar PV cells in compliance with all applicable local, state, and federal regulations.

CdTe is a hazardous substance when not imbedded within a PV module (cadmium compounds are classified by USEPA as a probable human carcinogen (USEPA 2000). The proposed project may use thin film modules with CdTe. At present, CdTe is only contained in modules manufactured by First Solar, Inc. (First Solar).

During the manufacturing process, the CdTe semiconductor layer is sealed between two sheets of glass. CdTe contained within PV modules is highly stable and, even if the modules become broken or damaged, would not mobilize from the glass and into the environment except under extreme laboratory conditions, which would not occur under foreseeable operational conditions. For example, in one experiment, CdTe was released after it was purposely ground into an extremely fine powder and then subjected to agitation in an acidic environment. However, these conditions would not occur in the field during any operational conditions or in a landfill (Golder 2010). Testing involving realistic risk scenarios, such as accidental breakage or structure fire, found that Cd emissions were negligible (Fthenakis 2003; Fraunhofer 2010). Standard leaching tests of broken and end-of-life modules found that CdTe modules pass federal leaching criteria for non-hazardous waste (ibid).

The primary manufacturer and operator of solar facilities with CdTe PV modules, First Solar, employs operational and maintenance protocols to identify and remove damaged or defective PV modules, which are recycled in accordance with First Solar's PV module collection and recycling program. The purpose of this program is to minimize the potential for modules to be disposed of in landfills. The recycling program has sufficient capacity to accept high volume recycling as the modules reach the end of their 25-year life cycle (First Solar 2016). During the recycling and refining process, up to 90 percent of the semiconductor material is recovered for reuse in new modules.

As discussed above, the potential for emissions of CdTe is negligible during normal use of CdTe PV modules or under any foreseeable risk scenario such as accidental breakage or fire. Although evidence indicates there is negligible human health risk associated with CdTe modules, recycling of CdTe modules is preferable to disposal at a landfill from a waste reduction and materials recovery standpoint, and a manufacturer's program is in place to accept used CdTe PV modules.

In summary, the potential use of CdTe PV modules for the proposed project would not result in a significant risk of a release of hazardous materials that would be harmful to human health or the environment. Therefore, the potential for health hazard due to CdTe PV panels would represent a less than significant impact.

### **Battery Storage System**

Each battery unit in the battery storage system would be constantly monitored by a battery management system to ensure safe operations. The battery management system monitors individual

cell temperature, voltage, current, charge and discharge parameters, and other metrics to ensure the health and safety of the batteries. If there were to be multiple failures in this multi-level safety system, an automatic fire suppression system would kick in. Emergency fire kits would be kept on site during construction and operation, and a 250,000-gallon water storage tank for fire suppression would be located adjacent to the battery storage system, west of the PG&E Cayetano substation. Additionally, batteries do not result in emissions during their normal operations, and accidental breakage is unlikely. All hazardous materials would be disposed of in accordance with RCRA and State Hazardous Waste Management Program requirements. Although the project would introduce batteries to the site, resulting in an increased use of commercially available potentially hazardous materials, the use of these substances is subject to applicable federal, State, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials. These regulations establish a comprehensive system for handling, using, and transporting hazardous materials in a manner that protects human health and the environment. As such, both accidental and reasonably foreseeable hazardous materials releases would be expected to occur infrequently and result in minimal hazard to the public or to the environment.

In summary, the project-specific HMBP would be implemented to minimize potential impacts from accidental release of hazardous materials into the environment, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed under impact HAZ-1, construction and operation of project interconnection facilities by PG&E would involve the use of hazardous materials. The risk of accidental release of hazardous materials would be reduced by compliance with local, State, and federal regulations and implementation of an HMBP that incorporates the new interconnection facilities within PG&E's responsibility. With implementation of the HMBP, potential impacts to the public and/or environment resulting from the accidental release of hazardous materials associated with routine project transport, use, or disposal activities would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **HAZ-3      The proposed project would not emit hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

The nearest school to the proposed project is Andrew Christensen School, 5757 Haggin Oaks Avenue, Livermore, approximately 2.25 miles to the southeast. At this distance, the proposed project would have no impact on emitting hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of the existing school.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The nearest school to the project interconnection facilities is the Andrew Christensen School, approximately 2.37 miles southeast of the Cayetano substation. At this distance, the project interconnection facilities would have no impact on emitting hazardous emissions or require handling of

hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of the existing school.

**Significance without Mitigation:** No impact.

**HAZ-4      The proposed project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the California Government Code and, as a result, would not create a significant hazard to the public or the environment.**

A database search of the proposed project site and 1-mile search radius was conducted by EDR pursuant to Section 65962.5 of the California Government Code (EDR 2020), and it did not identify any hazardous materials sites that could potentially cause upset and accident conditions involving the release of hazardous materials into the environment. The list under Section 65962.5, also known as the Cortese list, consists of sites identified by the SWRCB for Leaking Underground Storage Tanks, the Integrated Waste Board for State and tribal landfill and/or solid waste disposal sites, and the DTSC for potential or confirmed hazardous substance releases (Cal-Sites, now replaced by ENVIROSTOR).

The proposed project is not located on a site listed under Section 65962.5 of the California Government Code. Therefore, the proposed project would have no impact.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the database search area described above, and no hazardous materials sites that could potentially cause upset and accident conditions involving the release of hazardous materials into the environment were identified. The project interconnection facilities and the Cayetano substation are not located on a site listed under Section 65962.5 of the California Government Code. Therefore, construction and operation of project interconnection facilities by PG&E would have no impact.

**Significance without Mitigation:** No Impact.

**HAZ-5      The proposed project, which is not within an airport land use plan or within two miles of a public airport or public use airport, would not result in a safety hazard or excessive noise for people residing or working in the project area.**

The proposed project is not located within two miles of a public airport or public use airport. The closest airport to the proposed project is the Livermore Municipal airport which is located approximately 3.2 miles southwest of the southernmost portion of the project site. The project site is not located within the Livermore Municipal airport influence area (Alameda County 2012).

As described in the *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (FAA 2018), issues with siting solar near airports may include reflectivity. Although the project site is not within 2 miles of an airport, to limit reflection, solar PV panels would be constructed of dark, light-absorbing materials, and would be given an anti-reflective coating or textured surface. With the addition of the anti-reflective coating or treatment, the reflectivity can be reduced to less than four percent of

incoming sunlight (EERE 2013). Since the solar panels would have low reflective intensity and would be covered with anti-reflective coating, any resulting glare effects would not be disruptive to aircraft operations in the area. Reflectivity and glare are also discussed in Section 4.1, Aesthetics.

Some projects involving new construction or alteration to an existing structure may require an FAA Airspace Determination. In accordance with Federal Regulation Title 14 Part 77.9, notification to the FAA would be required for any construction or alteration that is more than 200 feet above ground level or within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet in length. Although the proposed project does not propose any structures more than 200 feet above ground level, the proposed project is within 20,000 feet of the Livermore Municipal Airport which is a public use airport, and the runway at Livermore Municipal is longer than 3,200 feet. Therefore, the proposed project would require an FAA Airspace Determination. Appropriate filing of FAA forms would ensure that the project is in compliance with FAA regulations.

Therefore, the proposed project would not result in a safety hazard or excessive noise for people working in the project area, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities and the Cayetano substation are not located within two miles of a public airport or public use airport. The closest airport to the project interconnection facilities and Cayetano substation is the Livermore Municipal Airport which is located approximately 3.7 miles southwest of those facilities. The project interconnection facilities are not located within the Livermore Municipal airport influence area (Alameda County 2012). The project interconnection facilities would not include solar panels. Therefore, construction and operation of project interconnection facilities by PG&E would not result in a safety hazard or excessive noise for people working in the project area, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **HAZ-6      The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

The proposed project would not impair implementation of the Alameda County Emergency Operations Plan or the Alameda County Catastrophic Earthquake Transportation and Evacuation Plan (Alameda County Sheriff's Office 2012). The Emergency Operations Plan identified various natural and human-caused hazards that could be experienced in the County, and identified earthquakes, flood/storm, and wildland fires as having the highest disaster rating (likelihood of occurrence and effect). The proposed project is located in a moderate FHSZ in an SRA served by CAL FIRE. Several direct project site access points along North Livermore Avenue, Manning Road, and Hartman Road are proposed and large equipment could temporarily be on these roadways during construction and decommissioning. However, it is anticipated that with standard traffic control measures (including signage, orange cones, and flaggers), there would be a less than significant impact on emergency response. Operation of the facility would not interfere with emergency providers traveling North Livermore Avenue or Manning Road since access points would be designed in accordance with County standards; adequate spacing,

vehicle turning radii, and line-of-site would be accounted for. Except for new project site access points, the project would not permanently alter roadways or create any traffic conditions that would impede emergency access. The proposed project would not impact private driveways or access to residences in the area. The impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not interfere with emergency providers traveling on North Livermore Avenue or Manning Road. The proposed project would not permanently alter roadways or create any traffic conditions that would impede emergency access. Construction and operation of project interconnection facilities by PG&E would not impact private driveways or access to residences in the area. The impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **HAZ-7      The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.**

The project site is located in an SRA designated as a moderate FHSZ (CAL FIRE 2020). As discussed in Section 3.8.7, Fire Protection and Coordination, the project applicant would coordinate with the Alameda County Fire Department to ensure firefighter access and training in an emergency. As discussed in more detail in Section 4.18, Wildfire, the proposed project would have a fire prevention and management system in place and would not expose workers and the surrounding neighborhoods to uncontrolled spread of wildfire. The proposed project would not impact emergency evacuation and would have a less than significant impact regarding exacerbating wildfire risks or expose occupants to pollutant concentrations from a wildfire or exposing people or structures to significant risks stemming from post-fire instability. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are located within an SRA designated as a moderate FHSZ (CAL FIRE 2020). As discussed in more detail in Section 4.18, Wildfire, construction and operation of project interconnection facilities by PG&E would have a fire prevention and management system in place and would not expose workers and the surrounding neighborhoods to uncontrolled spread of wildfire. Construction and operation of project interconnection facilities by PG&E would not impact emergency evacuation and would have a less than significant impact regarding exacerbating wildfire risks or expose occupants to pollutant concentrations from a wildfire or exposing people or structures to significant risks stemming from post-fire instability. Therefore, construction and operation of project interconnection facilities by PG&E would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### 4.9.4 CUMULATIVE IMPACTS

##### **HAZ-8      The proposed project would not contribute to a significant cumulative impact with respect to hazards and hazardous substances.**

The geographic scope of impacts associated with hazardous materials generally encompasses the project site and a 0.25-mile-radius area around the project site. Similar to other potential impacts, such as those related to geology and soils, risks related to hazards and hazardous materials are typically localized in nature since they tend to be related to on-site existing hazardous conditions and/or hazards caused by the project's construction or operation. This analysis of cumulative impacts regarding hazardous materials is based on the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects. The Livermore Community Solar Farm project is a solar PV energy generation facility, and the Oasis Fund project is a cannabis cultivation and operation project.

With implementation of HMBP, the proposed project would have a less than significant impact regarding transport, use, or disposal of hazardous materials and release of hazardous materials into the environment. The proposed project would also have a less than significant impact on hazardous emissions near schools, sites pursuant to Section 65962.5 of the California Government Code, airport-related hazards, emergency response or evacuation, and exposure of people or structures to wildland fire.

##### **Hazardous Materials**

The Livermore Community Solar Farm project site, as documented in the Livermore Community Solar Farm Initial Study (Alameda County 2018), does not contain any known hazardous materials spills or storage and its operation could involve the use of common cleaning substances and PV facility maintenance products. However, these potentially hazardous substances would not occur in sufficient quantities on-site to pose a significant hazard to public health and safety or the environment.

Considering the Oasis Fund project is a less than once acre cannabis cultivation project where agriculture is the primary activity, it is not anticipated that major amounts of hazardous materials would be stored on-site. The Oasis Fund project would be subject to various County and State regulations regarding its approval, construction, and operation, further limiting the potential for mishandling of hazardous materials.

##### **Emergencies and Wildfires**

The proposed project and other nearby projects would not involve the addition of new residents to the area, nor would the projects include components that would exacerbate wildfire risk.

The proposed project would include coordination with the ACFD to ensure firefighter access in an emergency, would manage on-site vegetation to minimize fire risk, and emergency fire kits would be kept on-site during construction and operation of the solar facility. A stormwater pollution and prevention plan would be prepared to ensure that off-site stormwater would not occur. Furthermore, similar to the proposed project, the Livermore Community Solar Farm and Oasis Fund projects would be required to comply with the California Fire Code, the California Building Code, the California PRC, Community Wildfire Protective Plan for Alameda County, the Alameda Emergency Operations Plan, and other State and local regulations that would ensure adequate evacuation capabilities in the area.



Compliance with these requirements would reduce cumulative development-related impacts relating to wildfire hazards and emergency response. Accordingly, the cumulative development would not result in a cumulatively significant impact to wildfire hazards and impacts from the proposed project would not be cumulatively considerable. The proposed project would not contribute to a significant cumulative increase in wildland fire hazards in the immediate vicinity of the subject property or throughout the region.

Based on the summary above and consideration of the Livermore Community Solar Farm and Oasis Fund projects, the proposed project would not contribute to a significant cumulative impact on hazards and hazardous materials, and impacts would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the geographic scope of impacts and the analysis of cumulative impacts regarding hazardous materials, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. Therefore, construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative impact on hazards and hazardous materials, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

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## 4.10 HYDROLOGY AND WATER QUALITY

This section describes the regulatory framework and existing conditions related to hydrology and water quality, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific water supply assessment (WSA) and site-specific preliminary hydrology study were prepared for the Aramis Solar Energy Generation and Storage Project and are included as Appendix G to this Draft EIR (Rincon 2020). The results of the WSA and preliminary hydrology study are incorporated in this section.

### 4.10.1 ENVIRONMENTAL SETTING

#### 4.10.1.1 Regulatory Framework

##### **Federal Regulations**

##### **Clean Water Act**

The following are potentially applicable sections of the CWA (33 USC 1251-13176).

##### *Section 303 and 305- Total Maximum Daily Load Program*

The State of California adopts water quality standards to protect beneficial uses of state waters as required by CWA 303 Total Maximum Daily Load (TMDL) Program and the State's Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act). CWA 303(d) established the TMDL process to guide the application of state water quality standards (see the discussion of state water quality standards below). To identify candidate water bodies for TMDL analysis, a list of water quality-limited streams is generated. Such streams are considered to be impaired by the presence of pollutants, including sediments, and to have no additional capacity for these pollutants.

In addition to the impaired water body list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report that assesses statewide surface water quality. Both CWA requirements are addressed through the development of a 303(d)/305(b) Integrated Report, which provides both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The SWRCB's statewide 2014/2016 California Integrated Report was based on Integrated Reports from each of the nine RWQCBs. After approval of the Section 303(d) list portion of the California Integrated Report by the SWRCB, the complete 2014 and 2016 California Integrated Report was approved by the USEPA on April 6, 2018.

##### *Section 401- Water Quality Certification*

CWA Section 401 requires that an applicant obtain a water quality certification (or waiver) for pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to a regulated water body. Water quality certifications are issued by the RWQCBs in California and the San Francisco Bay RWQCB is responsible for issuing certifications in the Bay Area. Because the proposed project area drains to San Francisco Bay, it is under the jurisdiction of the San Francisco Bay RWQCB. Under the CWA, the state (as implemented by the relevant RWQCB) must issue or waive a CWA Section 401 water quality certification for a Project to be permitted under CWA Section 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or the placement of fill.

materials into waters of the United States. Construction of the proposed project would require a CWA 401 certification for the Project if CWA Section 404 requirements are triggered.

#### *Section 402- National Pollutant Discharge Elimination System Program*

The 1972 amendments to the Federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources (CWA Section 402). The 1987 amendments to the CWA created a new section of the CWA that is devoted to stormwater permitting (CWA 402[p]). USEPA has granted the State of California primacy in administering and enforcing the provisions of CWA and the NPDES permit program. The NPDES permit program is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States.

The SWRCB issues both general and individual permits for certain activities. Although implemented at the state and local level, relevant general and individual NPDES permits are discussed below.

#### *Construction Activities*

Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to file a notice of intent to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit). Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the preparation and implementation of a SWPPP, which must be completed before construction begins. The SWPPP should contain a site map that shows the construction site perimeter; existing and proposed buildings, lots, roadways, and stormwater collection and discharge points; general topography both before and after construction; and drainage patterns across the project site. The SWPPP must list the BMPs that the discharger will use to manage stormwater runoff and describe the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a monitoring program for pollutants that are not visible to be implemented if there is a failure of BMPs, and a pH and turbidity monitoring program if the site discharges to a water body listed on the 303(d) list for sediment. The Construction General Permit describes the elements that must be contained in a SWPPP.

#### *Post Construction Stormwater Management*

The individual NPDES permit (under Provision C.3, San Francisco Bay Regional Water Quality Control Board areas only) requires that permanent water quality control devices treat all stormwater to the maximum extent practicable and result in no additional runoff. Runoff from new impervious surfaces of 10,000 square feet or more must be sized according to the volume or rate criteria identified in the permit. After treatment devices are installed, owners must enter into a maintenance agreement with the County to ensure the treatment devices are maintained, inspected, and reported on annually. Low impact development (LID) facilities are required for a project unless the project is eligible for LID reduction credit. LID includes rainwater harvesting, infiltration, and bio treatment.

#### *Section 404- Permits for Fill Placement in Waters and Wetlands*

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity. Before any actions are implemented that may affect surface waters, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the study area contains wetlands or other waters of the United States that qualify for CWA protection. These areas include the following.

- Sections within the ordinary high-water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Section 404 permits may be issued for only the least environmentally damaging practical alternative (i.e., authorization of a proposed discharge is prohibited if there is a practical alternative that would have fewer significant effects and lacks other significant consequences). Section 404 would apply if project construction was proposed within waters of the United States.

### **State Regulations**

#### **Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

#### **California Regional Water Quality Control Board and San Francisco Bay Regional Water Quality Control Board Basin Plan**

Water quality in streams and aquifers of the region is guided and regulated by the respective RWQCB basin plans. State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. The proposed project is under the jurisdiction of the San Francisco Bay RWQCB, which established regulatory standards and objectives for water quality in its Water Quality Control Plan for the San Francisco Bay, commonly referred to as the Basin Plan. To develop water quality standards consistent with the uses of a water body, the RWQCBs classify existing and potential beneficial uses for the San Francisco Bay waters as part of their basin plan.

In general, beneficial uses can be classified to include municipal supply, cold freshwater habitat, groundwater recharge, fish migration, water contact recreation, noncontact water recreation, fish spawning, warm freshwater habitat, rare species habitat, and wildlife habitat.

## **Sustainable Groundwater Management Act**

The Sustainable Groundwater Management Act (SGMA) is a three-bill package that passed the California state legislature and was signed into California state law by Governor Jerry Brown in September 2014. SGMA establishes a framework for long-term sustainable groundwater management across California and requires local agencies to bring overdrafted basins into balanced levels of pumping and recharge. The California Department of Water Resources (DWR) uses the California Statewide Groundwater Elevation Model Priority List to rank groundwater basins across the State according to priority levels of high, medium, low, or very low, and SGMA specifies deadlines for completion of Groundwater Sustainability Plans (GSPs) in order of basin priority. Under SGMA, high- and medium-priority basins, as designated by the DWR, must establish Groundwater Sustainability Agencies (GSAs) that oversee the preparation and implementation of a local GSP.

## **Local Regulations**

### **Alameda County Stormwater Management Plan**

The Department of Environmental Health developed a formal agreement with the Public Works Agency to implement the industrial and commercial component of the Alameda Countywide Clean Water Program's Stormwater Management Plan for unincorporated Alameda County. The program includes inspection of facilities for compliance with the clean water regulations, outreach and education of best management practices to business owners, inspections for enforcement action, and creation and maintenance of a database of businesses in Alameda County unincorporated area for the Clean Water Program. This program also addresses items addressed above under Construction Activities in the Federal subsection.

### **East County Area Plan**

Relevant components of the ECAP related to meeting water quality goals for surface and groundwater are listed below (Alameda County 2000). These policies and implementation programs address similar components as in the Alameda County General Plan.

#### *Policies*

- **Policy 306:** The County shall protect surface and groundwater resources by:
  - preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas;
  - minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal related disturbance of the soil;
  - not allowing the development of septic systems, automobile dismantlers, waste disposal facilities, industries utilizing toxic chemicals, and other potentially polluting substances in creekside, reservoir, or high groundwater table areas when polluting substances could come in contact with flood waters, permanently or seasonally high groundwaters, flowing stream or creek waters, or reservoir waters; and
  - avoiding establishment of excessive concentrations of septic systems over large land areas.

### *Implementation Programs*

- **Program 108:** The County shall implement all federal, state and locally imposed statutes, regulations, and orders that apply to storm water quality. Examples of these include, but are not limited to:
  - NPDES stormwater permit issued by the California RWQCB to the Alameda County Urban Runoff Clean Water Program and amendments thereto;
  - State of California NPDES General Permit for Storm Water Discharges (General Industrial Permit, General Construction Permit) and amendments thereto;
  - Coastal Zone Management Act;
  - Coastal Zone Act Reauthorization Amendments;
  - Water Quality Control Plan, San Francisco Bay Basin Region (Basin Plan) and amendments thereto; and
  - Letters issued by the RWQCB under the California Porter-Cologne Water Quality Act.
- **Program 109:** The County shall endeavor to minimize herbicide use by public agencies by reviewing existing use and applying integrated pest management principles, such as mowing and mulching, in addition to eliminating or scaling back the need for vegetation control in the design phase of a project.
- **Program 110:** The County shall conform with Alameda County Flood Control and Water Conservation District's (Zone 7) Wastewater Management Plan and the Regional Water Quality Control Board's San Francisco Bay Basin Plan.

### **Alameda County Municipal Code**

Chapter 15.36, Grading Erosion and Sediment, of the ACMC includes regulations for work on private property within the unincorporated area of the County in order to safeguard life, limb, health, property, and public welfare; to protect creeks, watercourses, and other drainage facilities from illicit discharges of surface runoff generated in or draining through the permit work area; and to ensure that the construction and eventual use of a graded site is in accordance with the County general plan and all applicable County ordinances.

### **Alameda County Flood Control & Water Conservation District**

The Alameda County Flood Control & Water Conservation District (District) provides flood protection for Alameda County residents and businesses. The District plans, designs, constructs, and maintains flood control projects such as natural creeks, channels, levees, pump stations, dams, and reservoirs. In 2016, the District updated the Hydrology & Hydraulics Manual which serves as a guide for minimum design requirements and provides a hydrologic model for all of Alameda County. The District is also charged with administering the Clean Water Program for unincorporated areas of Alameda County, the 14 cities of Alameda County, the District, and the Zone 7 Water Agency. The District provides administrative and contracting services for the Alameda Countywide Clean Water Program to help comply with federal and State requirements to improve water quality and better manage urban stormwater and runoff.



### **4.10.1.2 Existing Conditions**

#### **Surface Waters**

The project site is located in a valley that gently slopes to the southeast; it is just downslope of a series of ridges to the north and west. Cayetano Creek, which is joined by three unnamed tributaries, flows southward through the central section of the project site. North of Manning Road, there is an unnamed tributary that flows southeastward through the northern section of the project site.

The project site lies within the Arroyo Las Positas Watershed which encompasses 81 square miles in the northeastern corner of the County. Arroyo Las Positas is considered the driest subwatershed of the Alameda Creek Watershed and is comprised of many small streams that spread out and sink into the ground where they exit their canyons and begin to cross the valley floor (ACFC&WCD 2020).

Cayetano Creek and the project site are within the South Bay Hydrologic Planning Area of the San Francisco Bay Basin overseen by the San Francisco Bay RWQCB. The San Francisco Basin Plan (Basin Plan) identifies preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation as beneficial uses of Cayetano Creek.

Cayetano Creek flows to Arroyo Las Positas which joins with Arroyo Mocho. Cayetano Creek is not on the 303 (d) list of impaired waters subject to Total Maximum Daily Loads (TMDLs) necessary to attain or maintain water quality standards. As of reporting year 2016, Arroyo Las Positas is impaired for cold and warm freshwater habitat designated uses due to diazinon attributed to pesticides and is impaired for warm freshwater habitat due to eutrophication from excessive nutrients. A TMDL has been developed for diazinon and is needed for eutrophication due to excessive nutrients.

#### **Groundwater**

The proposed project site and development area overlies the Livermore Valley Groundwater Basin. The Livermore Valley Groundwater Basin is managed by the Zone 7 Water Agency (Zone 7), which is the designated exclusive GSA in accordance with SGMA. As noted above, the DWR uses the California Statewide Groundwater Elevation Model Priority List to rank groundwater basins across the State according to priority levels of high, medium, low, or very low, and SGMA specifies deadlines for completion of GSPs in order of basin priority. DWR identifies the Livermore Valley Groundwater Basin as a medium-priority basin (DWR 2020). In accordance with SGMA, as the GSA for the Livermore Valley Groundwater Basin, Zone 7 is required to prepare a GSP, or an Alternative Plan that is determined by the DWR to meet SGMA's requirements for a GSP, which is a detailed framework for how groundwater basins will reach long-term sustainability. In 2016, Zone 7 adopted an Alternative Plan for the Livermore Valley Groundwater Basin which was approved by the DWR as functionally equivalent to a GSP. Zone 7 is currently preparing a 2022 update to the Alternative Plan (Zone 7 2016a; Zone 7 2016b).

#### **Zone 7 Water Agency**

Zone 7 is a division of the Alameda County Flood Control and Water Conservation District and is the primary water wholesaler for the Livermore-Amador Valley. Zone 7 supplies imported treated surface water to four agencies in Alameda County: California Water Service Company – Livermore District; Dublin San Ramon Services District; City of Livermore; and City of Pleasanton. Additionally, Zone 7 owns and maintains approximately 37 miles of local flood control channels, equating to about a third of the

Livermore-Amador Valley's flood control system. Zone 7 manages and supplies both imported and local groundwater to its service area. The agency imports raw surface water from the State Water Project (SWP) through the South Bay Aqueduct for treatment, storage, and distribution, as well as for groundwater recharge purposes to improve local groundwater conditions (Zone 7 2015). Additionally, Zone 7 operates 10 municipal supply wells for groundwater access which are distributed throughout the basin. Zone 7 also supplies untreated water for local industry and agriculture (Zone 7 2005).

The SWP is the nation's largest state-built water and power development and conveyance system. The SWP includes approximately 700 miles of aqueduct and conveyance facilities, supplying water to more than 27 million people in northern California, the Bay Area, the San Joaquin Valley, and the central coast and southern portions of California (DWR 2020). Zone 7 receives both direct deliveries and Table A water supplies from the SWP. The SWP is contracted to deliver a maximum of approximately 4.2 million AFY of Table A water to a total of 29 contracting agencies. Table A water is a reference to the amount of water listed in "Table A" of the contract between the SWP and its contractors, which represents the maximum amount of water a contractor may request each year. Zone 7 has an allocation for purchasing up to 80,619 AFY of Table A water from the SWP. When water supplies are limited, such as during extended drought, SWP deliveries can be curtailed, and water is allocated based on a percentage of full contractual Table A amounts. Zone 7 prepares for single- and multiple-dry year scenarios by storing water imported from the SWP in the Livermore Valley Groundwater Basin through groundwater banking programs (Zone 7 2020).

### **Livermore Valley Groundwater Basin**

The Livermore Valley Groundwater Basin spans approximately 69,600 acres (109 square miles) of surface area and underlies portions of Alameda and Contra Costa Counties. The Livermore-Amador Valley, which provides the setting for the Livermore Valley Groundwater Basin, lies about 40 miles east of San Francisco and 30 miles southwest of Stockton within a structural trough of the Diablo Range. The Livermore Valley Groundwater Basin extends from the Pleasanton Ridge east to the Altamont Hills (approximately 14 miles) and from the Livermore Upland north to the Orinda Upland (approximately three miles).

**Water Bearing Formations.** The entire floor of the Livermore Valley and portions of the upland areas on all sides of the valley overlie groundwater-bearing materials. The materials are continental deposits from alluvial fans, outwash plains, and lakes. They include valley-fill materials, the Livermore Formation, and the Tassajara Formation. Under most conditions, the valley-fill and Livermore sediments yield adequate to large quantities of groundwater to all types of wells. The quality of water produced from these formations ranges from poor to excellent, with most waters in the good to excellent range (DWR 2004).

**Restrictive Structures.** Within the Livermore Valley Groundwater Basin, faults are the major structural features known to have marked effect on the movement of groundwater. Faults in this region tend to act as barriers to the lateral movement of groundwater. The resulting groundwater levels stand higher on the up-gradient side. The Livermore, Pleasanton, and Parks faults act as such barriers, dividing the Quaternary Alluvium into five groundwater subbasins (DWR 2004).

**Water Quality.** The character of groundwater quality in the Livermore Valley Groundwater Basin is generally sodium cation in the northern extent of the basin, magnesium-sodium as the dominant cation in the western part of the basin near Pleasanton, and magnesium along the eastern portion of the basin

beneath Livermore. Nearly the entire basin has bicarbonate as the dominant anion. Total Dissolved Solids (TDS) concentrations range from 300 milligrams per liter (mg/L) to 550 mg/L with an average of 450 mg/L based on analyses from 27 municipal wells (DWR 2004).

Boron is generally the dominant source of groundwater quality impairment in the Livermore Valley Groundwater Basin. Some areas have boron concentrations exceeding 2 mg/L (16 wells of approximately 137 wells sampled in 1982). Boron is generally highest in shallow wells because of marine sediments adjacent to the basin. The most extensive elevated boron concentrations occur in the northeast part of the basin (DWR 2004).

**Groundwater Budget.** The Zone 7 Water Agency, as part of the Alameda County Flood Control and Water Conservation District, has maintained an annual hydrologic inventory of supply and demand since 1974. The inventory describes the balance between groundwater supply and demand. Under average hydrologic conditions, the groundwater budget is essentially in balance. Groundwater budget inflow components include natural recharge of 10,000 acre-feet (AF), artificial recharge of 10,900 AF, applied water recharge of 1,740 AF, and subsurface inflow of 1,000 AF. Groundwater budget outflow components include urban extraction of 10,290 AF, agricultural extraction of 190 AF, other extraction and evaporation associated with gravel mining operations of 12,620 AF, and subsurface outflow of 540 acre-feet (DWR 2004).

### **May School Subbasin**

The May School Subbasin, which encompasses portions of the central section of the project site, has been identified as an Area of Concern by Zone 7 for nitrate levels above the Basin Objective of 45 mg/L (Zone 7 2015). There is currently only one Zone 7 monitoring well in this Area of Concern, and it had a nitrate concentration of 189 mg/L in 2013. The source of high nitrate levels at the Area of Concern has not been identified; however, it likely comes from agricultural land use in that area. Also, this unsewered area has a concentration of rural residences on Bel Roma Road that are served by OWTS (Zone 7 2015). Zone 7 stated in its Nutrient Management Plan that historical sources of the nitrate in the Livermore Valley Groundwater Basin are from:

- Decaying vegetation (buried and surficial);
- Municipal wastewater and sludge disposal;
- OWTS (i.e., septic systems);
- Concentrated animal boarding/ranching (horse boarding, chicken and/or cattle ranching); and
- Applied fertilizers (crops and landscape).

### **Floodplain**

The project area is addressed by FEMA Flood Insurance Rate Maps/Panels 06001C0332G, 06001C0331G and 06001C0170G. As shown on the FEMA maps, areas along Cayetano Creek have been mapped as FEMA Zone AE, an area inundated by 1 percent annual chance flooding for which base flood elevations have been determined. The proposed project has been designed so that all structures associated with the project would be located outside of the 100-year floodplain of Cayetano Creek as determined through hydrologic modeling and a minimum of 50 feet from the banks of Cayetano Creek and its tributaries.

The Preliminary Hydrology Study for Aramis Solar Project (Westwood 2020) studied the site hydrology for considerations to be made in the project design. The study identified a watershed area encompassing approximately 12.8 square miles. Based on hydrologic modeling, which accounted for topography, soil infiltration, and land cover, the study found that existing channels on the site convey most of the flow from a 100-year event with small breakout flows causing low water depths and velocities across the project site. During a 100-year storm, the flood depths across the project site would be less than 2 feet with velocities of less than 2 feet/second.

### **Dam Inundation**

Dam failure is the uncontrolled release of impounded water behind a dam. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism, and terrorism can all cause a dam to fail. The project site is not located within a dam inundation zone.

## **4.10.2 SIGNIFICANCE THRESHOLDS**

In accordance with Appendix G of the State CEQA Guidelines, project-related impacts to hydrology and water quality would be significant if the proposed project would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows;
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## **4.10.3 IMPACT ANALYSIS**

**HYD-1      The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**

### **Construction**

Clearing, grading, excavation, and construction activities have the potential to impact water quality through soil erosion and increased silt and debris discharged via surface runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality.

Temporary storage of construction materials and equipment in work areas or staging areas could create the potential for a release of hazardous materials, trash, or sediment to the storm drain system. Since construction of the proposed project would result in disturbance of an area greater than one acre, the project applicant would be required to enroll for coverage under the Storm Water Construction General Permit for the NPDES program. The Storm Water Construction General Permit requires the submittal of Permit Registration Documents to the SWRCB prior to the start of construction and a Notice of Intent (NOI), risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations would be included in the submittal. A project-specific SWPPP would be prepared and BMPs would be implemented during construction. Typical BMPs would include: diversion of runoff from disturbed areas, protective measures for sensitive areas, temporary soil stabilization measures, storm water runoff quality control measures, concrete waste management, watering for dust control, and installation of perimeter silt fences, as needed. New requirements by the SWRCB also require the SWPPP to include post-construction treatment measures aimed at minimizing stormwater runoff.

Implementation of Mitigation Measure HYD-1, which requires compliance with the Construction General Permit and preparation and implementation of a SWPPP and its BMPs, would reduce potential erosion- and sedimentation-related water quality impacts to a less-than-significant level. Therefore, construction of the proposed project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

## **Operations**

### *Stormwater Runoff*

Direct impacts to Cayetano Creek and its tributaries would be avoided through site design, LID features, and implementation of operational BMPs (monitoring, maintenance, etc.). Structures would be located outside of high flow areas and the 100-year floodplain of Cayetano Creek as modeled in the site-specific hydrology report and set back a minimum of 50 feet from the banks of Cayetano Creek and its tributaries. Design BMPs include two drainage basins, one along the southern boundary of the central section and one in the southwest section of the project site, and silt fencing along the perimeter. Because the solar panels would be installed on a system of racks, stormwater would partially continue to infiltrate into the undeveloped ground below the solar panels and 98.5 percent of the site would remain pervious for stormwater infiltration into onsite soils; additional overland flow would be accommodated with onsite drainage to drainage basins.

Public comments received during the NOP process raised concerns regarding the potential for chemicals in the PV panels to leach out and contaminate groundwater or nearby surface waters. As discussed in Section 4.9, Hazards and Hazardous Materials, there are two dominant semiconducting materials used in PV technology: crystalline silicon (c Si) which is the conventional material used in flat plate panels, and thin-film semiconductors such as amorphous silicon (a-Si) and CdTe. Silicon based solar cells do not contain hazardous materials, although they may use lead-containing solders. CdTe is a hazardous substance when not imbedded within a PV module (cadmium compounds are classified by USEPA as a probable human carcinogen [USEPA 2000]). During the manufacturing process, the CdTe semiconductor layer is sealed between two sheets of glass. CdTe contained within PV modules is highly stable and, even if the modules become broken or damaged, would not mobilize from the glass and into the environment except under extreme laboratory conditions, which would not occur under foreseeable operational conditions. For example, in one experiment, CdTe was released after it was purposely ground into an

extremely fine powder and then subjected to agitation in an acidic environment. However, these conditions would not occur in the field during any operational conditions or in a landfill (Golder 2010). Testing involving realistic risk scenarios, such as accidental breakage or structure fire, found that Cd emissions were negligible (Fthenakis 2003; Fraunhofer 2010). Standard leaching tests of broken and end-of-life modules found that CdTe modules pass federal leaching criteria for non-hazardous waste. Additionally, because daily monitoring of the site would occur remotely and up to four permanent staff could be on the site at a time for ongoing facility maintenance, facility staff would immediately clean up and remove any broken PV modules to further reduce any risk of contamination.

The proposed project would be subject to requirements of the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MS4 Permit), Order No. R2-2015-0049, NPDES Permit No. CA S612008, of which Alameda County is a permittee. Discharge of non-stormwater materials into storm drain systems and watercourses would be prohibited. Through project site design, daily site monitoring, and implementation of BMPs that would be identified in the required SWPPP, potential water quality impacts from stormwater runoff from during project operation would be less than significant.

#### *Septic System*

The Alameda County Department of Environmental Health coordinates with the San Francisco Bay RWQCB to permit OWTs on new development projects in all areas of Alameda County. An OWTs permit from the Alameda County Department of Environmental Health would be required prior to the construction of the on-site septic system proposed to support the O&M building. Due to the project boundary's overlap with the May School Subbasin which has been identified as an Area of Concern for high nitrate levels by Zone 7, special OWTs permit requirements have been developed for new OWTs applications received in Areas of Concern to reduce nitrogen loading (Zone 7 2015). The special permit provisions are designed to limit or reduce the amount of nitrogen loading from OWTs in the Areas of Concern over time by requiring parcels planned for new OWTs to meet a lower nitrogen loading standard than what exists for parcels located outside of the Areas of Concern. Approval of an OWTs permit from the County Department of Environmental Health for the septic system would require compliance with special requirements identified in the Nutrient Management Plan and reduce potential impacts on water quality standards, waste discharge, or degradation of surface or groundwater quality to a less than significant level.

#### **Decommissioning**

The decommissioning phase would remove the project components, and the potential impacts would be similar to those of the construction phase. The approved SWPPP (MM HYD-1) would be implemented during both the construction and decommissioning phases, reducing potentially significant impacts to a level of less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities do not include the proposed solar panels or a septic system. The interconnection facilities areas are included in the project design for stormwater drainage BMPs during operation. The interconnection facility area would be covered by the SWPPP developed by the project applicant, and any work performed by PG&E on project interconnection facilities would be required to adhere to the treatment measures and BMPs in the SWPPP. Therefore, construction activities for the interconnection facilities performed by PG&E would not be required to file a separate NOI or prepare a

separate SWPPP and MM HYD-1 would not apply. Adherence to the project design BMPs and SWPPP would ensure that construction and operation of project interconnection facilities by PG&E would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

#### **Mitigation Measure HYD-1: Stormwater Quality Protection**

The project applicant shall file an NOI to comply with the Construction General Permit with the San Francisco Bay RWQCB prior to each phase of construction and project decommissioning. Individual SWPPPs shall be prepared for each NOI (project construction and project decommissioning) and shall detail the treatment measures and BMPs to control pollutants that shall be implemented and complied with during the construction and post-construction phases of the project. The SWPPP(s) required for decommissioning will specify BMPs to be implemented during that final project phase. The SWPPPs are subject to approval by the San Francisco Bay RWQCB, which makes the final determination on which BMPs are required for the project. The construction contracts for each project phase and for the decommissioning phase shall include the requirement to implement the BMPs in accordance with the SWPPPs, and proper implementation of the specified BMPs is subject to inspection by the San Francisco Bay RWQCB staff. Example BMPs may include practices such as: designation of restricted-entry zones, sediment tracking control measures (e.g., crushed stone or riffle metal plate at construction entrance), truck washdown areas, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, provision mulching for soil stabilization during construction, and provision for revegetation upon completion of construction within a given area. The SWPPPs will also prescribe treatment measures to trap sediment once it has been mobilized, such as straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and siltation or sediment ponds.

**Significance with Mitigation:** Less than significant impact.

#### **HYD-2      The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**

During project construction and decommissioning, it is anticipated that up to 50,000 gallons of water would be used daily and that a total of up to 42-acre-feet would be used for dust suppression. During the project's 50-year O&M period, water demands include annual washing of the solar PV panels to clean accumulated dust and debris to maintain efficiency, potential wastewater associated with water treatment, potential on-site emergency fire suppression storage water, operation of the project's O&M building, and water provided in on-site troughs for sheep grazing. The panels would be washed with water only as the use of soap or detergent for panel washing would not be necessary and is not proposed for this project. It is conservatively estimated that up to 12.85 AFY of water would be needed for project operation. See Appendix G of this Draft EIR for more detailed information on the water demand calculation and assumptions.

Water supplies considered in the WSA for project construction, operation, and decommissioning include groundwater pumped from the Livermore Valley Groundwater Basin via an on- or off-site groundwater well, surface water imported to the project area and distributed via the Zone 7 Water Agency, and local groundwater banking operations that receive surplus water supplies during wet years and provide supply reliability during dry years.

The project's amortized annual water demand is 13.97 AFY; this is the project's total maximum water demand averaged over all phases of the project, accounting for 52 years to capture construction and decommissioning or repowering occurring during years that O&M activities also may occur, in addition to 50 full years of project O&M. During a normal O&M year for the project, water demands would include a minimum of 5 AFY for panel washing activities to maintain maximum efficiency of the project's technology. In order to provide a conservative analysis of water supply availability and reliability, the WSA considers a maximum operational water demand of up to 12.85 AFY, which accounts for factors including a possible need to treat water for high TDS concentrations before it is used for panel washing, and accounts for the option of storing a supply of emergency fire suppression water on-site (see Appendix G of this Draft EIR).

Long-term water supply availability projections provided in the Zone 7 2015 UWMP were reviewed and assessed in the WSA in comparison to the anticipated water demands of the proposed project. Zone 7's UWMP projects a surplus water supply under all considered drought scenarios, including normal-year, single-dry year, and multiple dry year conditions. This is likely due to Zone 7's diversified water supply portfolio consisting of local groundwater recharge and banking efforts as well as imported surface water supplies, in addition to other proactive management efforts including salt and nutrient management of the local groundwater resources, to maximize their potential for future use. Consistent with ongoing activities, it is anticipated that Zone 7 will respond to anticipated dry-year water shortages by pumping banked groundwater that is actively managed for this purpose, and by implementing management actions including but not limited to conservation actions.

The water supply planning efforts discussed above, including Zone 7's UWMP, rely upon General Plan land use designations and zoning in order to predict water demands based upon known and anticipated land uses. In this case, the project site is designated and zoned for agriculture, and although agriculture would continue to occur on the project site in the form of sheep grazing and apiary uses, the site's primary land use after project implementation would be solar energy development, which is generally less water intensive than agricultural land uses. Therefore, with implementation of the proposed project, the actual water demands that would occur on the project site would likely be lower than planned for the project site in the UWMP for the area. This suggests that the water demands that would occur on the project site with implementation of the project are accounted for in the supply availability projections provided in the UWMP (Rincon 2020).

The WSA concludes that sufficient water supply is available to meet the project's maximum potential water demands over a 20-year projection, and that water supply is reliable under normal year, single-dry-year, and multiple-dry-year conditions. This conclusion is based upon conservative water demand factors assumed for the proposed project, and allows for the project's use of local groundwater pumped from the underlying Livermore Valley Groundwater Basin, which is managed by Zone 7 in accordance with SGMA, and/or the project's use of imported surface water purchased from Zone 7 or from one of the four local water purveyors that receive their imported surface water supply through Zone 7 (California Water Service Company – Livermore District, Dublin San Ramon Services District, City of Livermore, and City of Pleasanton). Although regional water shortages may occur during the project's



lifetime, such conditions may occur regardless of the proposed project and are accounted for in UWMP supply availability projections.

Additionally, a total of seven (7) water storage tanks would be installed on-site for fire suppression for the battery storage system, use for O&M activities, and to maintain the proposed landscaping and vegetation. The fire suppression water storage tank for the battery storage system would hold up to 250,000 gallons of water and be located west of the PG&E Cayetano substation. One, 5,000-gallon water storage tank would be installed on-site near the O&M building and would be filled quarterly. Five, 25,000-gallon water storage tanks would be installed on-site near the proposed landscape corridors along North Livermore Avenue and Manning Road and would be filled quarterly to provide irrigation water for the proposed vegetation and landscaping. Therefore, the proposed project would not substantially decrease groundwater supplies or impede sustainable groundwater management of the Livermore Valley Groundwater Basin.

Groundwater recharge would remain similar to existing conditions because the ground below the solar panel modules would remain pervious/undeveloped. During rain events, stormwater would be able to infiltrate onsite soils in areas that have panels. Approximately 6.1 acres of impervious surfaces would be constructed for the some of the proposed access roads internal to the project site and for the foundations of the project substation, battery storage system, O&M building, and inverter pads. Impervious surfaces would amount to approximately 1.5 percent of the 410-acre site. This total impervious surface area would consist of small, widely spaced impervious areas, runoff from which would be promptly absorbed by surrounding pervious surfaces. Because 98.5 percent of the ground surface of the project site would remain pervious and the project would not increase stormwater conveyance off the site, the proposed project would not substantially reduce groundwater recharge in the project site such that sustainable groundwater management of the basin would be impeded.

Therefore, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The anticipated water use during construction of the interconnection facilities for dust suppression is included in the estimated total water use described above. Maintenance of the interconnection facilities would not involve solar panel washing and the maintenance and irrigation of landscaping around the project site would not be the responsibility of PG&E. Therefore, construction and operation of interconnection facilities by PG&E would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**HYD-3      The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows;**

A site-specific preliminary hydrology study was prepared for the proposed project to describe the hydrology of the project site and to design the proposed solar facility to avoid any potential hydrology impacts identified in the study (see Appendix G of this Draft EIR for the preliminary hydrology study). The hydrologic modeling was created using a flood routing model (FLO-2D) that simulates river, alluvial fan, urban and coastal flooding. Because of the complex and distributary nature of flow paths upstream and through the project area, FLO-2D hydrologic/hydraulic modeling software was utilized to determine flow depths and velocities throughout the project site.

Overall, the hydrology analysis identifies low water depths and velocities across the majority of the project site. During a 100-year storm, the flood depths across the majority of the project site are less than 2 feet with velocities less than 2 feet/second. Areas with higher flood depths and velocities are generally located along or near Cayetano Creek and its tributaries. The proposed project, as designed, would avoid all areas of high flow and FEMA floodplains, and the study determined that the project site is suitable for the planned development. However, the project area is located in a valley downslope of a series of ridges, which could cause localized flooding on portions of the project area. Therefore, the proposed project would include the construction of two stormwater detention basins strategically located based on the results of the preliminary hydrology study to prevent off-site stormwater runoff and protect downstream properties. A narrow, linear approximately 0.4-acre stormwater detention basin is proposed in the southeastern corner of the central section of the project site along Hartman Road and terminating at North Livermore Avenue. An additional, approximately 0.5-acre stormwater detention basin is proposed along the southern boundary of the southwestern section of the project site (see Figure 3-1 for locations of proposed detention basins).

Although the proposed project has been designed to avoid areas of high flow and FEMA floodplains, the project applicant would submit to the County pre- and post-construction site drainage calculations prepared by a qualified hydrologist or civil engineer, and supported by a 2-dimensional hydrologic model, prior to issuance of building permits to ensure the proposed project would not generate increased runoff in excess of what is already planned for in the current project design. If an increase in runoff is projected, then sizing and location of additional detention basins or other stormwater BMPs identified by the qualified hydrologist or civil engineer would be implemented to prevent any projected increase in off-site runoff and to protect downstream properties against adverse impacts.

In summary, the proposed project would not substantially alter the existing drainage pattern of the site through alteration of the course of a stream or river because the proposed project would not be constructed within a FEMA floodplain or near Cayetano Creek or its tributaries as project elements would be setback a minimum of 50 feet from these features. Additionally, the proposed project would

not substantially alter the existing drainage pattern of the site or area through the addition of impervious surfaces because new structures would not be large or clustered enough to alter drainage patterns. Additionally, 98.5 percent of the ground surface of the project site would remain pervious, and the proposed project is not anticipated to increase stormwater conveyance off-site. However, the project area is located in a valley downslope of a series of ridges, which could cause localized flooding on portions of the project site. Although the proposed stormwater detention basins have been designed to reduce this potential impact, a SWPPP shall be prepared by qualified engineer as required by MM HYD-1 discussed above under impact HYD-1, and the approved stormwater management practices in the SWPPP would be carried out by on-site construction and operations personnel to ensure that off-site stormwater sedimentation would not occur. Therefore, with the construction of the proposed stormwater detention basins and implementation of MM HYD-1, the project's potential impacts to the existing drainage pattern in the project area would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of the interconnection facilities were considered in the results of the hydrology study prepared for the proposed project, described above. The interconnection facility area would be within the project area covered by the SWPPP developed by the project applicant, and any construction or operational maintenance activities completed by PG&E would be required to adhere to the requirements of the SWPPP and MM HYD-1 would not apply. Therefore, construction and operation of project interconnection facilities by PG&E would not substantially alter the existing drainage pattern of the site through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact HYD-1 for MM HYD-1.

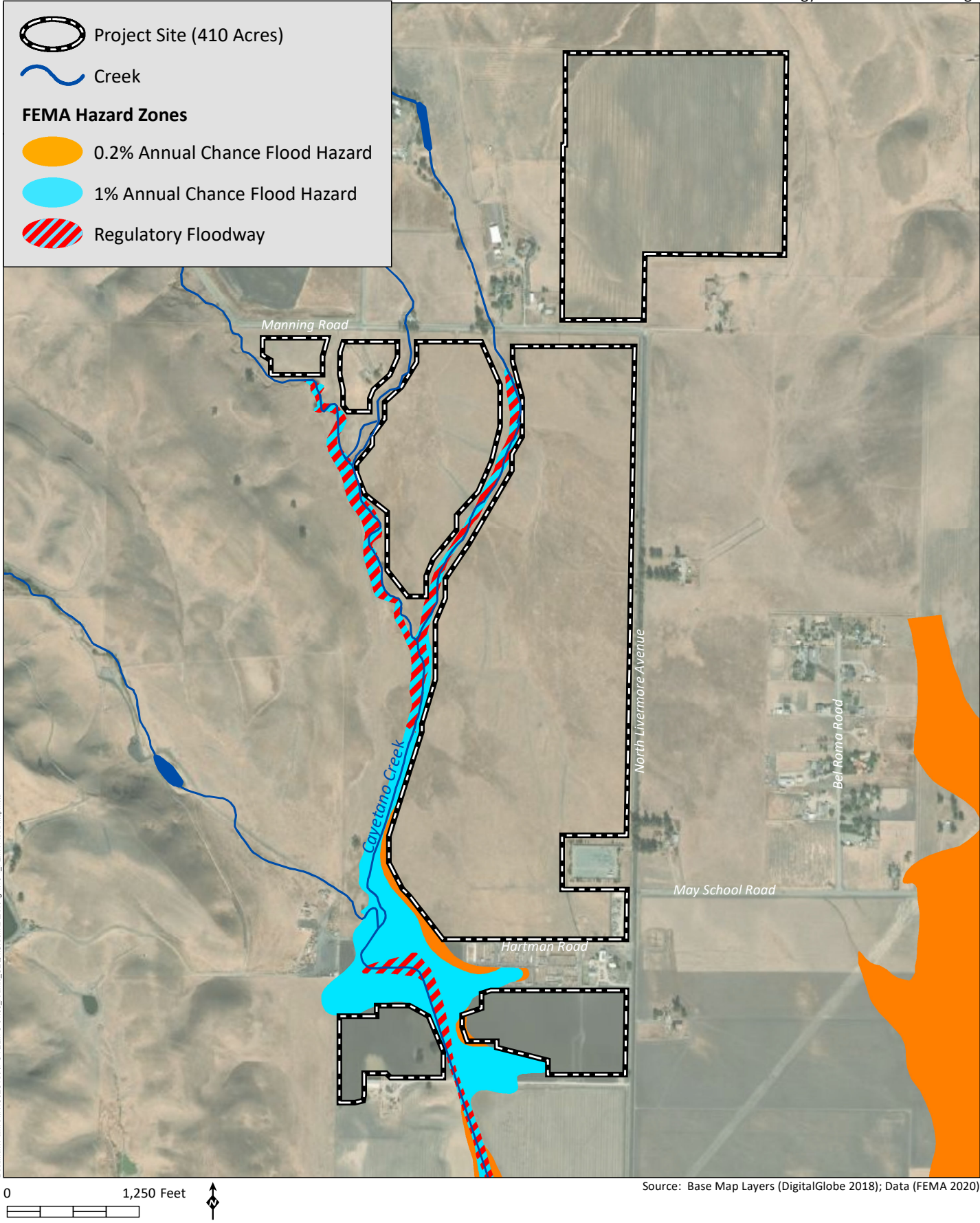
**Significance without Mitigation:** Less than significant impact.

#### **HYD-4      The proposed project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.**

The proposed project would not be constructed within the 100-year flood zone mapped for the project site or within 50 feet of the banks of Cayetano Creek and its tributaries (see Figure 4.10-1 for the FEMA flood zones in the project area). The project site is 40 miles inland from the Pacific Ocean and is not subject to tsunamis, nor is it subject to seiche as the nearest lake is 5 miles southwest of the project site. Therefore, impacts from the risk of release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would not be constructed within the 100-year flood zone mapped for the project site or within 50 feet of the banks of Cayetano Creek and its tributaries (see Figure 4.10-1 for the FEMA flood zones in the project area). The project interconnection facilities are 40 miles inland from the Pacific Ocean and are not subject to tsunamis, nor are they subject to seiche as the nearest lake is 5 miles southwest of the project site. Therefore, construction and operation of project



interconnection facilities by PG&E would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**HYD-5      The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

**Surface Waters**

Arroyo Las Positas is the most pertinent waterbody receiving flow from Cayetano Creek. Arroyo Las Positas is a 303(d) listed impaired water for diazinon and eutrophication (excessive growth of algae). TMDL for diazinon has been established, and TMDL for excessive nutrients is needed. Excessive nutrients that can cause eutrophication are typically nitrogen and phosphorous; the source of these nutrients is usually from sediment entering waterways from excessive erosion. The proposed project would not result in diazinon discharge into Cayetano Creek and ultimately, Arroyo Las Positas. Agricultural activities would be limited to sheep grazing and pesticide-use would not be necessary. Although a TMDL for excessive nutrients has not been established for Arroyo Las Positas, the proposed project would not discharge excessive nutrients into Cayetano Creek and ultimately Arroyo Las Positas because the project applicant would be required to implement standard BMPs as discussed under impact HYD-1. Implementation of MM HYD-1, which requires compliance with the Construction General Permit and preparation of a SWPPP, would control erosion, prevent sediment from entering waterways, and reduce potential impacts to a less than significant level.

**Groundwater**

As discussed under impact HYD-2, long-term water supply availability projections provided in the Zone 7 2015 UWMP were reviewed and assessed in the WSA in comparison to the anticipated water demands of the proposed project. Zone 7's UWMP projects a surplus water supply under all considered drought scenarios, including normal-year, single-dry year, and multiple dry year conditions. The water supply planning efforts discussed above, including Zone 7's UWMP, rely upon General Plan land use designations and zoning in order to predict water demands based upon known and anticipated land uses. In this case, the project site is designated and zoned for agriculture, and although agriculture would continue to occur on the project site in the form of sheep grazing and apiary uses, the site's primary land use after project implementation would be solar energy development, which is generally less water intensive than agricultural land uses. Therefore, with implementation of the proposed project, the actual water demands that would occur on the project site would likely be lower than planned for the project site in the UWMP for the area (Rincon 2020). This suggests that the water demands that would occur on the project site with implementation of the project are accounted for in the supply availability projections provided in the UWMP and impacts would be less than significant.

Groundwater management plans applicable to the proposed project also includes the Nutrient Management Plan for the Livermore Valley Groundwater Basin (Zone 7 2015). As discussed in Section 4.10.1.2, Existing Conditions, the May School Subbasin, which encompasses portions of the central section of the project site, has been identified as an Area of Concern by Zone 7 Water Agency for nitrate levels above the Basin Objective of 45 mg/L. High levels of nitrate at the May School Subbasin have been attributed to agricultural land use and OWTs in the area. The project site would remain in

agricultural use for sheep grazing. The project site is currently used for cattle grazing, and the waste associated with sheep is expected to be substantially less than that associated with cattle. Additionally, approval of an OWTS permit for an on-site septic system would be required, and special OWTS permit requirements may be applicable to reduce nitrogen loading, as discussed in Impact HYD-1. Approval of an OWTS permit from the County Department of Environmental Health for the septic system would require compliance with adopted requirements that would minimize potential impacts on the purpose of the Nutrient Management Plan to reduce nitrate levels at the May School Subbasin.

In summary, the proposed project would not conflict with or obstruct the implementation of a sustainable groundwater management plan, and implementation of MM HYD-1 and approval of an OWTS permit would prevent sediment or high levels of nitrates from entering waterways and reduce potential impacts to a water quality control plan to a less than significant level.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of project interconnection facilities by PG&E would not conflict with or obstruct the implementation of a sustainable groundwater management plan, as described above. The interconnection facility area would be within the project area covered by the SWPPP developed by the project applicant and any construction or operational maintenance activities completed by PG&E would be required adhere to the requirements of the SWPPP and MM HYD-1 would not apply. Therefore, construction and operation of project interconnection facilities by PG&E would not conflict with or obstruct the implementation of a sustainable groundwater management plan, and the impact would be less than significant.

**Significance without Mitigation:** Potentially significant impact.

See Impact HYD-1 for MM HYD-1.

**Significance with Mitigation:** Less than significant impact.

### **4.10.4 CUMULATIVE IMPACTS**

#### **HYD-6      The proposed project would not contribute to a significant cumulative impact with respect to hydrology and water quality resources.**

The cumulative analysis for hydrology and water quality considers the impacts of the proposed project when combined with other projects in the North Livermore area that are pending, including the Livermore Community Solar Farm and the Oasis Fund Livermore Grow Facility.

As discussed above, the project would minimize potential impacts on hydrology and water quality by designing facilities to have a minimal effect on flow conditions across the site. The project would be designed to preserve existing drainage patterns onsite and hydrologic analyses conducted suggest the proposed development would not substantially alter existing drainage patterns. Small areas of impervious surfaces that would be added by the project would drain to adjacent pervious areas such that existing drainage patterns would be maintained. The project would not adversely impact surface drainage such that it would cause on- or offsite flooding or alter the course of any creek or stream in the project vicinity. In addition, the project operator would adhere to all regulatory requirements during the

construction and operational phases of the proposed project. With implementation of the SWPPP and all recommended BMPs as part of MM HYD-1, the project would not result in significant on- or offsite erosion or sedimentation during either construction activities and would reduce the potential of surface water contact with project-related pollutants. Any potentially adverse impacts on hydrology and water quality would be mitigated through adherence to all applicable federal, State, and local regulations.

The related projects would occur in areas overlying the Livermore Valley Groundwater Basin and could depend on the basin for groundwater supply. As discussed above, the water supply planning efforts rely upon General Plan land use designations and zoning to predict water demands based upon known and anticipated land uses. The other cumulative projects considered are on sites that are designated and zoned for agriculture, and although agriculture would continue to occur on the Oasis Fund Livermore Grow Facility project site for cannabis cultivation and on the Livermore Community Solar Farm project site in the form of sheep grazing, the sites' primary land use after project implementation would be less than one acre of cannabis cultivation and a solar energy development, which are generally less water intensive than agricultural land uses assumed for the entire project parcels. Therefore, the actual water demands that would occur on the project sites would likely be lower than planned for the project sites in the UWMP for the area and that the water demands for the project sites are accounted for in the supply availability projections provided in the UWMP.

All other related projects in the North Livermore area would be subject to the same federal, State, and local regulations regarding erosion control, grading, and drainage plans. Furthermore, any of the related projects that are more than one acre in size would also be required to draft and implement a SWPPP with BMPs that include erosion control, sediment control, good housekeeping, waste management, and post-construction BMPs during construction activities to minimize impacts to water quality. None of the proposed projects would substantially alter the existing drainage pattern in the area, be constructed within a FEMA floodplain, or significantly increase the extent of impervious surfaces or stormwater runoff in the area. All three projects would be required to conform with County, State, and federal regulations and would be required to prepare a project-specific SWPPP and implement BMPs to reduce potential erosion- and sedimentation-related water quality impacts to a less-than-significant level. Therefore, with implementation of MM HYD-1, the proposed project's contribution to impacts related to hydrology and water quality resources would be less than cumulatively considerable, and the cumulative impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the geographic scope of impacts and the analysis of cumulative impacts regarding hydrology and water quality resources, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. Therefore, construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative impact to hydrology and water quality resources, and impacts would be less than significant.

**Significance with Mitigation:** Potentially significant impact.

See Impact HYD-1 for MM HYD-1.

**Significance with Mitigation:** Less than significant impact.



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## **4.11 LAND USE AND PLANNING**

This section describes the regulatory framework and existing conditions related to land use and planning at the proposed project site, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.11.1 ENVIRONMENTAL SETTING**

#### **4.11.1.1 Regulatory Framework**

##### **Federal Regulations**

There are no federal regulations related to land use and planning that apply to the project.

##### **State Regulations**

All cities and counties are required by the State to adopt a general plan establishing goals and policies for long-term development, protection from environmental hazards, and conservation of identified natural resources (California Government Code 65300). California Government Code Section 65302 lists seven elements or chapters that cities and counties must include in their general plans: land use, circulation, housing, conservation, open space, noise, and safety.

Of the mandatory general plan elements, the land use element typically has the broadest scope. This central element describes the desired distribution, location, and extent of the jurisdiction's land uses, which may include housing, business, industry, and open space, including agriculture, natural resources, and recreation. Enjoyment of scenic beauty, education, and public buildings and grounds, and solid and liquid waste disposal facilities are also typically addressed in the land use element.

##### **Local Regulations**

As stated above, land use and planning are the province of local governments in California. General plans lay out the pattern of future residential, commercial, industrial, agricultural, open space, and recreational land uses within a community. To facilitate implementation of planned growth patterns, general plans typically also include goals and policies addressing the coordination of land use patterns with the development and maintenance of infrastructure facilities and utilities.

Local jurisdictions implement their general plans by adopting zoning, grading, and other ordinances. Zoning identifies the specific types of land uses that are allowed on a given site and establishes standards for new development.

Lands within the project area are planned and managed according to the Alameda County General Plan, which is split into three area plans; the project site falls within the area covered by the ECAP.

##### **East County Area Plan**

The ECAP guides future development and resource conservation within unincorporated eastern Alameda County, which encompasses 418 square miles around the cities of Dublin, Livermore, and Pleasanton, a portion of Hayward, and surrounding unincorporated areas. The ECAP, which applies only

to unincorporated areas of the County, includes policies that address landscaping, grading, storm drainage, and flood control, which are intended to preserve the rural character of County land outside of the Urban Growth Boundary.

The ECAP contains goals, policies, and procedures regarding land use, including urban and rural development, sensitive lands and open space, public facilities, and special land uses (Alameda County 2000). Several of its land use policies and programs apply to the proposed project. In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D; effective date, December 22, 2000). The Initiative amended portions of the County General Plan, including the ECAP. The Initiative added policies pertaining specifically to the North Livermore area to allow for more intensive agricultural uses in this area with the goal to permit and encourage cultivated agriculture and to preclude urbanization without unduly impairing the open and natural qualities of the area. The Urban Growth Boundary was redrawn to remove North Livermore from urban development, and North Livermore, west of Dagnino Road, was delineated as an Intensive Agriculture area. The Initiative restricts areas outside of the urban growth boundary to agricultural, natural resource, and rural areas, and prevents the construction of infrastructure to support any urban development.

Relevant general open space land use policies are listed below.

- **Policy 13:** The County shall not provide nor authorize public facilities or other infrastructure in excess of that needed for permissible development consistent with the Initiative. This policy shall not bar 1) new, expanded or replacement infrastructure necessary to create adequate service for the East County, 2) maintenance, repair or improvements of public facilities which do not increase capacity, and 3) infrastructure such as pipelines, canals, and power transmission lines which have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative. “Infrastructure” shall include public facilities, community facilities, and all structures and development necessary to the provision of public services and utilities.
- **Policy 52:** The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.
- **Policy 53:** The County shall preserve a continuous band of open space consisting of a variety of plant communities and wildlife habitats to provide comprehensive, rather than piecemeal, habitat conservation for all of East County. This open space should, as much as possible, be outside of the Urban Growth Boundary and contiguous to large open space areas of Contra Costa, Santa Clara, and San Joaquin Counties.
- **Policy 70:** The County shall work with the East Bay Regional Park District, the Livermore Area Recreation and Park District, and other relevant agencies to ensure that open space trails adjacent to San Joaquin, Contra Costa, and Santa Clara Counties connect with trail systems in these other counties.

Relevant agriculture land use policies are listed below.

- **Policy 71:** The County shall conserve prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary.
- **Policy 89:** The County shall retain rangeland in large, contiguous blocks of sufficient size to enable commercially viable grazing.
- **Policy 92:** The County shall encourage the retention of existing large parcels of greater than 320 acres in remote areas designated “Large Parcel Agriculture” or “Resource Management,” where the parcels are not well served by roads, infrastructure, and services.

As in the current case, new applications for projects are reviewed using both the zoning and General Plan regulations and policies to determine compliance. Since many of the ECAP policies are not reflected in the zoning ordinance (which generally contains prescriptive development standards) County staff planners are required to consider both policy and ordinance language to determine if a project is consistent with overall County regulations.

#### 4.11.1.2 Existing Conditions

The project site is located in a rural agricultural area of the County. It lies at an elevation of roughly 500 to 700 feet amsl and is generally undeveloped, with the exception of a concrete slab foundation occupied by a modern camping trailer in the northwest corner of the central section of the project site. The site is currently used for oat and hay cultivation and cattle grazing. A review of aerial photographs and landowner interviews indicates that the property has been harvested and grazed by cattle for many decades. Cayetano Creek bisects the central section of the project area from north to south, and the project has been designed to avoid Cayetano Creek and the FEMA regulatory floodplain.

Land uses north, south, east of the northern section, and west of the project site include row crop cultivation, cattle grazing, rural residential, and open space. An approximately 59-acre solar PV facility is proposed by SunWalker Energy, Livermore Community Solar Farm, east of the central section of the project site and northeast of the intersection of North Livermore Avenue and May School Road (Alameda County 2020). The existing PG&E Cayetano substation is located west of the terminus of May School Road at North Livermore Avenue. The project site surrounds this substation on the north, west, and south. Refer to Figure 2-2 for an aerial image of the project site and surrounding land uses.

#### ECAP Designation

Approximately 367 acres of the project site are designated as LPA, 22 acres are designated as RM, and 21 acres are designated as WM under the ECAP (see Figure 2-3). A voter initiative, Measure D, passed in 2000 with corresponding ECAP modifications adopted in 2002, amended the definitions of LPA, RM, and WM designated lands to limit residential and non-residential floor area within these designations, and except for infrastructure as provided under Policy 13 of the ECAP, requires all buildings to be located in development envelopes of no more than two acres unless necessary for agricultural uses. Policy 13 prohibits the County from developing new infrastructure that exceeds the need for development

allowed by Measure D which would be growth-inducing or otherwise result in more capacity than necessary for providing public services and utilities.

Among the allowed uses in the LPA land use designation, besides agricultural and residential uses, are “public and quasi-public uses, solid waste landfills and related waste management facilities, quarries, windfarms and related facilities, utility corridors, and similar uses compatible with agriculture.” The RM designation “permits agricultural uses, recreational uses, habitat protection, watershed management, public and quasi-public uses, areas typically unsuitable for human occupation due to public health and safety hazards such as earthquake faults, floodways, unstable soils, or areas containing wildlife habitat and other environmentally sensitive features, secondary residential units, active sand and gravel and other quarries, reclaimed quarry lakes, and similar and compatible uses. This designation is intended mainly for land designated for long-term preservation as open space but may include low intensity agriculture, grazing, and very low density residential use.” The WM designation specifies that it provides for sand and gravel quarries, reclaimed quarry lakes, watershed lands, arroyos, and similar compatible uses (Alameda County 2000). The portion of the project site designated as WM is comprised of a 400-foot wide corridor along Cayetano Creek where it bisects the central section of the project site.

In the ECAP, building intensities are expressed in terms of maximum floor-area-ratios (FARs) and are based on net acreage for non-residential uses. A FAR is a ratio of the gross building square footage permitted on a lot to the net square footage of the lot. For example, on a site with 10,000 square feet of net land area, a FAR of 1.0 will allow 10,000 gross square feet of building floor area. On the same site, a FAR of 2.0 would allow 20,000 square feet; and a FAR of .5 would allow 5,000 square feet (Alameda County 2000). The proposed project includes the construction of supporting buildings on a property designated as LPA. As defined on Page 47 of the ECAP, the maximum building intensity for non-residential buildings located on lands designated for LPA is .01 FAR but not less than 20,000 square feet. Policy 335 from Measure D further defines that the floor area for all non-agricultural buildings, except restaurants, shall not exceed 12,000 sf. Therefore, the maximum floor area for all non-agricultural buildings shall not exceed 12,000 sf, and the allowable building intensity for the 350-acre lot where buildings are proposed is less than 3.5 acres (.01 FAR of 350 acres).

## Zoning

The project site is located entirely within land that is within the Agricultural (“A”) zoning district, pursuant to the ACMC (see Figure 2-3; ACOA 2020). Surrounding properties are also within the “A” district. According to Section 17.06.030 of the ACMC, the uses permitted within the “A” district include the following: single-family dwelling, secondary family dwelling, crop, vine or tree farm, truck garden, plant nursery, greenhouse, apiary, aviary, hatchery, horticulture, raising or keeping of poultry, fowl, rabbits, sheep or goats or similar animals, grazing, breeding or training of horses or cattle, winery or olive oil mill, fish hatcheries, and public or private hiking trails.

While there is no direct or indirect reference to solar electric facilities (SEFs) in either the ECAP or zoning ordinance, there have been discussions within the County over the past ten years as to whether these facilities are permitted in ECAP lands and to what degree their size can be regulated. Early experience with these types of projects in the County determined that many of the metrics used for more traditional development are not applicable or useful when looking at SEFs. As an example, ECAP regulates development typically associated with buildings that contain floor area, and where FAR are used to limit development intensity. Since the major feature of SEFs, solar photovoltaic panels, are not buildings with floor area, using the metric of FAR does not apply in these cases. That same analysis has

been applied to the building envelope requirement because SEFs would be allowed to exceed the two-acre building envelope requirement that would normally apply to more traditional buildings such as homes, agricultural buildings, and accessory structures. ECAP has a specific exception where non-growth inducing infrastructure can lie outside of the two-acre building envelope.

There is supporting language in ECAP to view lands under its jurisdiction as appropriate for infrastructure and utility corridors. Historically, portions of the ECAP lands have major utilities and infrastructure serving urban areas of the East Bay and Central Valley, some examples include the major windfarms located in the Altamont Pass Wind Resource Area, the Western Area Power Administration (WAPA) Tracy substation, numerous quarries, landfills and other similar types of infrastructure facilities. While there is no explicit General Plan language or zoning ordinance specifically allowing or prohibiting solar facilities, SEFs are viewed as similar to the types of land uses described above.

Despite having an undefined regulatory path for SEFs, the County Planning Department began receiving applications for SEFs in the ECAP jurisdiction in 2008. Alameda County made findings in 2008 pursuant to Sections 17.54.050 and 17.54.060 (Determination of Use) of the Alameda County General Ordinance Code regarding district classifications of uses not listed within the ordinance. The Alameda County Planning Commission made findings that an SEF would not be contrary to the specific intent clauses or performance standards established for the “A” district and could be permitted under a conditional use permit. Their action determined that SEFs were similar enough to other quasi-public land uses such as windfarms and related uses, utility corridors, and similar uses compatible with agriculture. The County reiterated these findings to reconfirm the conditional permissibility of similar solar uses under the “A” district for the GreenVolts project, approved in 2008, and the Altamont Solar Energy Project, approved in 2011 (ECBZA 2008 and 2011).

Acknowledging that having policies for SEFs would be beneficial to both review projects and mitigate their impacts, the County’s Planning Department proceeded to develop SEF policies in both 2011 and 2015 and held numerous meetings on the matter. A draft document was prepared and presented to a subcommittee of the Board of Supervisors, most recently in 2018. The subcommittee determined that broad policies applying to all of the ECAP is less desirable than a case by case analysis, which is the approach being utilized in this proposed project.

#### **4.11.2 SIGNIFICANCE THRESHOLDS**

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered in establishing the significance of land use and planning impacts:

1. Physically divide an established community; or
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

### **4.11.3 IMPACT ANALYSIS**

#### **LUP-1            The proposed project would not physically divide an established community.**

The proposed project would develop approximately 410 acres of privately owned land with a solar PV energy generation and storage facility. The project site is surrounded by row crop cultivation, cattle grazing, rural residential, and open space to the north, south, east of the northern section, and west (see Figure 2-2 for areas identified as northern section, central section, southeast section, and southwest section locations). The proposed Livermore Community Solar Farm project would be located east of the central section of the project site and northeast of the intersection of North Livermore Avenue and May School Road. The project site surrounds the existing PG&E Cayetano substation on the north, west, and south. The proposed project would not develop any new major roadways or physical features or alter existing roadways through existing residential neighborhoods or other communities. Therefore, the proposed project would not physically divide an established community, and no impact would occur.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The construction and operation of project interconnection facilities by PG&E would not develop any new major roadways or physical features or alter existing roadways through existing residential neighborhoods or other communities. Therefore, the construction and operation of project interconnection facilities by PG&E would not physically divide an established community, and no impact would occur.

**Significance without Mitigation:** No impact.



**LUP-2      The proposed project would conflict with a land use plan, policy, or regulation which would result in a significant land use and planning impact.**

Tables 4.11-1 summarizes the ECAP policies applicable to the proposed project and addresses the project's consistency with those policies.

**Table 4.11-1  
CONSISTENCY WITH ECAP POLICIES RELATED TO LAND USE**

ECAP Policies	Proposed Project Consistency	Discussion
<p><b>Policy 52:</b> The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.</p>	<p>Mostly Consistent</p>	<p>The proposed project may not be fully consistent with preservation of open space areas portion of Policy 52 as the project proposes the construction of a solar facility on open agricultural land. However, because the solar panels (modules) are installed on a system of racks, the ground below the modules remains undeveloped. Additional areas within the project site include grassy areas between the rows and undeveloped portions of the site that will remain as open space for the life of the project. When the panels are at a horizontal, midday position, only 50 percent of the land area is covered by the solar panels from a bird's eye view.</p> <p>The proposed project is consistent with the provision of recreational opportunities portion of Policy 52 as the project applicant proposes to dedicate an easement to Alameda County (or the Livermore Area Recreation and Park District, which manages open space and trail development in conjunction with the East Bay Regional Parks District) along Cayetano Creek in the project area, outside of the development footprint of the solar facility, for their potential use to construct a public hiking trail in the future, if desired.</p> <p>The proposed project is consistent with the production of natural resources portion of Policy 52 as the proposed project would generate 100 MW of solar energy.</p> <p>The proposed project is not fully consistent with the protection of sensitive viewsheds portion of Policy 52. Although, the proposed project includes landscape screening along County-designated scenic corridors (North Livermore</p>

**Table 4.11-1 (cont.)**  
**CONSISTENCY WITH ECAP POLICIES RELATED TO LAND USE**

ECAP Policies	Proposed Project Consistency	Discussion
		<p>Avenue and North Manning Road) to screen less than desirable views of the solar facility without impeding views of the ridgeline scenic vista in the background, the proposed project and landscaping screening would alter the visual character and quality of views along North Livermore Avenue and North Manning Road.</p> <p>The proposed project is consistent with the preservation of biological resources portion of Policy 52. The proposed project has been designed to avoid impacts to Cayetano Creek and its tributaries and would not result in the take of a special-status animal species or impact a special-status plant species. See Section 4.4, Biological Resources, for the mitigation measures identified to protect and avoid impacts to biological resources.</p> <p>The proposed project is consistent with the physical separation of the neighboring communities' portion of Policy 52 as the project does not propose the construction of residential units.</p>
<p><b>Policy 53:</b> The County shall preserve a continuous band of open space consisting of a variety of plant communities and wildlife habitats to provide comprehensive, rather than piecemeal, habitat conservation for all of East County. This open space should, as much as possible, be outside of the Urban Growth Boundary and contiguous to large open space areas of Contra Costa, Santa Clara, and San Joaquin Counties.</p>	<p>Not consistent</p>	<p>The northernmost portion of the northern section of the project site is designated RM land which is intended for long-term preservation of open space and contiguous to large open space areas near Contra Costa County boundary line to the north. The project proposes the construction of a solar facility on open land designated for RM uses outside of the Urban Growth Boundary which is not consistent with Policy 53.</p>
<p><b>Policy 70:</b> The County shall work with the East Bay Regional Park District, the Livermore Area Recreation and Park District, and other relevant agencies to ensure that open space trails adjacent to San Joaquin, Contra Costa, and Santa Clara Counties connect with trail systems in these other counties.</p>	<p>Consistent</p>	<p>As noted above, the project applicant proposes to dedicate an easement to Alameda County (or the Livermore Area Recreation and Park District, which manages open space and trail development in conjunction with the East Bay Regional Parks District) along Cayetano Creek in the project area, outside of the development footprint of the solar facility, for their potential use to construct a public hiking trail in the future, if desired. However, the construction of a public hiking trail along Cayetano Creek is not proposed as part of this project.</p>

**Table 4.11-1 (cont.)**  
**CONSISTENCY WITH ECAP POLICIES RELATED TO LAND USE**

ECAP Policies	Proposed Project Consistency	Discussion
<b>Policy 71:</b> The County shall conserve prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary.	Consistent	<p>The project site is not located on prime soils (Class I or Class II). The three soil units mapped within the project site include Clear Lake clay, Diablo clay, and Linne clay loam. The project site is historically dry farmed and not irrigated. The land capability classification (nonirrigated) of the mapped soils are Class III for Clear Lake clay and Class IV for Diablo clay and Linne clay loam (NRCS 2020).</p> <p>The project site is not located on Farmland of Statewide Importance or Unique Farmland. The California Department of Conservation’s FMMP map shows that the entire project site is designated as Grazing Land, which is designated to land primarily used for livestock grazing (CDC 2020).</p>
<b>Policy 89:</b> The County shall retain rangeland in large, contiguous blocks of sufficient size to enable commercially viable grazing.	Consistent	<p>Because the solar panels are installed on a system of racks, the ground below the modules remains undeveloped. Therefore, the proposed project allows for seasonal sheep grazing on-site throughout project operation.</p>
<b>Policy 92:</b> The County shall encourage the retention of existing large parcels of greater than 320 acres in remote areas designated “Large Parcel Agriculture” or “Resource Management,” where the parcels are not well served by roads, infrastructure, and services.	Consistent	<p>The proposed project is well served by roads, infrastructure, and services.</p>

As discussed above in Section 4.11.1.2, Existing Conditions, approximately 367 acres of the project site are designated as LPA, 22 acres are designated as RM, and 21 acres are designated as WM under the ECAP (see Figure 2-3). The maximum building intensity for non-residential buildings located on lands designated for LPA, RM, and WM is .01 FAR but not less than 20,000 square feet for lands designated LPA and RM. Therefore, the range of the allowable building intensity for the 350-acre lot where buildings are proposed is between 20,000 square feet and 3.5 acres (.01 FAR of 350 acres). The non-residential buildings proposed as part of the project include an approximately 5,000-sf project substation located in a 0.9-acre dedicated area, 400-sf O&M building, and a battery storage system that would have foundations with a cumulative floor area of 3 acres or less, which would be below the maximum allowable building intensity of 3.5 acres.

Within the LPA land use designation, utility-scale solar energy facilities are considered comparable to “windfarms and related facilities, utility corridors, and similar uses compatible with agriculture” as evidenced by the prior approvals of utility-scale solar energy facilities on lands designated for LPA in Alameda County (i.e. GreenVolts and Altamont Solar Energy Project [Cool Earth]). As discussed above,

the Initiative added policies pertaining specifically to the North Livermore area to allow for more intensive agricultural uses in this area with the goal to permit and encourage cultivated agriculture and to preclude urbanization without unduly impairing the open and natural qualities of the area. The proposed project, inclusive of primarily solar arrays, vegetation, compacted dirt and graveled access roads, and concomitant agricultural uses including sheep grazing and honeybee foraging, would be consistent with the LPA land use designation and the intensive agricultural uses allowed in the North Livermore area through the Initiative. Additionally, the proposed project is a solar project that would contribute to the renewable energy portfolio on a local and State level and is not a growth-inducing project that would result in the urbanization of County lands outside of the Urban Growth Boundary.

The RM designation “permits agricultural uses, recreational uses, habitat protection, watershed management, public and quasi-public uses, areas typically unsuitable for human occupation due to public health and safety hazards such as earthquake faults, floodways, unstable soils, or areas containing wildlife habitat and other environmentally sensitive features, secondary residential units, active sand and gravel and other quarries, reclaimed quarry lakes, and similar and compatible uses. This designation is intended mainly for land designated for long-term preservation as open space but may include low intensity agriculture, grazing, and very low-density residential use.” The proposed project components located within the RM designation consist of solar panels mounted on steel i-beams, gravel and compacted dirt access roads, fencing, and managed native and naturalized vegetation associated with a quasi-public energy use. No inverters or equipment requiring foundations would be located within the RM designation. However, although proposed activities within the RM designation would include sheep grazing, honeybee foraging, and wildlife passage which is consistent with the low intensity agriculture and grazing allowable uses, the proposed project would conflict with the long-term preservation of open space intent of the RM designation.

The WM designation specifies that it provides for sand and gravel quarries, reclaimed quarry lakes, watershed lands, arroyos, and similar compatible uses (Alameda County 2000). The WM designation was identified to protect water quality and ensure floodplain management in the vicinity of Cayetano Creek. The WM designated area boundary was loosely mapped as a 400-foot wide corridor along Cayetano Creek. Although project components—consisting of solar panels mounted on steel i-beams, gravel and compacted dirt access roads, fencing, and managed native and naturalized vegetation associated with a quasi-public energy use—would fall within the WM designated area, a project-specific hydrological engineering study was performed to confirm the extent of the 100-year (extreme) flood conditions to ascertain the actual limits of the portion of Cayetano Creek that is in the vicinity of the project site and its true flood inundation area. The hydrological engineering study found that the 100-year flood inundation area is more constrictive than the applied 400-foot corridor for the WM designated area. Correspondingly, the project has been designed to be set back at least 100 feet from the top of the banks of Cayetano Creek, and to avoid both the FEMA designated floodways and the modeled 100-year flood inundation areas as determined by the site-specific hydrological engineering study. In addition, the project would incorporate stormwater best management practices to ensure no sedimentation would occur to Cayetano Creek or its tributaries during project construction, operation, or decommissioning. Therefore, the water quality and floodplain maintenance attributes of the WM designation would be maintained, and the project would not conflict with the WM designation.

The “A” district established by the Zoning Ordinance (Section 17.06) establishes permitted and conditionally permitted uses. The intent of the district is: “to promote implementation of general plan land use proposals for agricultural and other non-urban uses, to conserve and protect existing

agricultural uses, and to provide space for and encourage such uses in places where more intensive development is not desirable or necessary.”

Although the Zoning Ordinance does not have provisions specifically permitting utility-scale solar projects, Section 17.54.050 of the Ordinance provides a procedure for “uses not listed,” stating that “whenever there is doubt as to the district classification of a use not listed in any part of this title, the planning department may refer the matter to the planning commission for action pursuant to Section 17.54.060. The referral shall include a detailed description of the proposed use.” Section 17.54.060 directs the planning commission to:

“... make such investigations as are necessary to compare the nature and characteristics of the use in question with those of the listed uses in the various districts. If the use is found to be, in all essentials pertinent to the intent of this title of the same character as a permitted use in any district or districts, or of the same character as a conditional use in any district or districts, the commission shall so determine and the order shall be final, unless a notice of appeal is filed pursuant to Section 17.54.670 within ten days after the date of such an order. The person requesting the determination shall be notified forthwith and the final determination shall become a permanent public record.”

Alameda County made findings in 2008 pursuant to Sections 17.54.050 and 17.54.060 (Determination of Use) of the Zoning Ordinance regarding district classifications of uses not listed within the ordinance. The Alameda County Planning Commission made findings that a solar electric facility would not be contrary to the specific intent clauses or performance standards established for the “A” district and could be permitted under a CUP. The County reiterated these findings to confirm the conditional permissibility of similar solar uses under the “A” district for the Green Volts project, approved in 2008, and the Altamont Solar Energy Project (Cool Earth), approved in 2011 (ECBZA 2008 and 2011). As discussed in a September 13, 2012 memorandum regarding draft solar policies for the ECAP, County Counsel determined that “solar facilities are consistent with ECAP policies. Solar facilities constitute quasi-public uses consistent with ‘windfarms and related facilities, utility corridors and similar uses compatible with agriculture’ which are allowed on parcels designated Large Parcel Agriculture (LPA)” (Alameda County Community Development Agency 2012).

In summary, the proposed project as designed would be consistent with the “A” district and lands designated for LPA and WM in the ECAP. However, the proposed project would not be consistent with the long-term preservation of open space intent of the RM ECAP land use designation. Conflict with the RM land use designation would be potentially significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The construction and operation of project interconnection facilities by PG&E would be located on lands designated for LPA, and the construction and operation of a utility-scale solar project on lands designated for LPA is determined to be consistent with the land use designation with concomitant agriculture uses. Therefore, construction and operation of the project interconnection facilities would not conflict with a land use plan, policy, or regulation, and impacts would be less than significant.

**Significance without Mitigation:** Significant and unavoidable impact.

No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

#### **4.11.4 CUMULATIVE IMPACTS**

##### **LUP-3      The proposed project would contribute to a significant cumulative impact with respect to land use and planning.**

This analysis of cumulative impacts to land use and planning is based on the proposed project in combination with projects proposed in the North Livermore area which includes the Livermore Community Solar Farm and Oasis Fund projects.

The Livermore Community Solar Farm project is on lands designated for LPA and within the “A” zoning district. Similar to the proposed project, the Livermore Community Solar Farm project would also implement concomitant agricultural activities with the solar development and would be consistent with the LPA land use designation and “A” zoning district. The Oasis Fund project is on land designated for RM and within the “A” zoning district. The Initial Study/Mitigated Negative Declaration for the Oasis Fund project concluded that the project was consistent with the zoning and land use designation as the County zoning ordinance states that cultivation of cannabis may be an appropriate conditionally permitted use in the “A” district, and the project adheres to Policy 79 of the ECAP, which requires areas designated for RM not require the extension of public sewer or water, detract from agricultural production in the area, or create a concentration of commercial uses in the area.

However, although the proposed project activities within the RM designation would include sheep grazing, honeybee foraging, and wildlife passage which is consistent with the low intensity agriculture and grazing allowable uses, the proposed project would not be consistent with the long-term preservation of open space intent of the RM ECAP land use designation. Approval of project development within the RM ECAP land use designation would set a new precedence in Alameda County to conditionally allow for utility-scale solar developments in lands designated for RM which could contribute to a cumulatively considerable land use and planning impact, and the impact would be potentially significant.

##### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the geographic scope of impacts and the analysis of cumulative impacts regarding land use and planning, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. The construction and operation of project interconnection facilities by PG&E would occur on lands designated LPA and would not contribute to a cumulatively considerable land use and planning impact, and impacts would be less than significant.

**Significance without Mitigation:** Significant and unavoidable impact.

No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

### 4.11.5 REFERENCES

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## 4.12 NOISE

This section describes the regulatory framework and existing conditions related to noise sources and the overall noise environment in the vicinity of the proposed project, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific noise evaluation was completed as part of the Acoustical Analysis Technical Report for the Aramis Solar Energy Generation and Storage Project, included as Appendix H to this Draft EIR (HELIX 2020). The results of the noise evaluation are summarized below.

### 4.12.1 ENVIRONMENTAL SETTING

#### 4.12.1.1 Noise and Sound Level Descriptors and Terminology

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this wide range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 mPa.

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dBA changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

Time-averaged noise levels are expressed by the symbol  $L_{EQ}$ , followed a specified duration. Noise levels expressed as  $L_{EQ}$  without a specified duration are time-averaged for one hour. Maximum noise levels are expressed by the symbol  $L_{MAX}$ . The Day Night sound level ( $L_{DN}$ ) is a 24-hour average with an added 10 dBA weighting during the hours from 10:00 p.m. to 7:00 a.m. The Community Noise Equivalent Level (CNEL) is a 24-hour average similar to  $L_{DN}$ , where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. These metrics are used to express noise levels for both

measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

## **Groundborne Vibration Terminology and Metrics**

Groundborne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of groundborne vibrations include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV) and another is vibration velocity decibels (VdB). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and is the metric used in this analysis.

### **4.12.1.2 Regulatory Framework**

The project site is located in an unincorporated area of Alameda County. Regulatory requirements related to environmental noise are typically promulgated at the local level, however, federal and State agencies also provide standards and guidelines to local jurisdictions. Noise standards for Alameda County, along with the State CEQA Guidelines, were considered in the noise assessment.

#### **U.S. Environmental Protection Agency Recommendations**

The USEPA provides guidance in Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety (NTIS 550\9-74-004, EPA, Washington, D.C., March 1974), which is commonly referenced as the “Levels Document.” The Levels Document establishes an  $L_{DN}$  of 55 dBA as the requisite noise level, with an adequate margin of safety for areas of outdoor uses, including residential and recreational areas. This document does not rely upon USEPA regulations or standards, but it identifies safe levels of environmental noise exposure without consideration of costs for achieving these levels or other potentially relevant considerations. The Levels Document is intended to “provide State and local governments as well as the Federal government and the private sector with an informational point of departure for the purpose of decision-making.” The agency is careful to stress that the recommendations contain a factor of safety and do not consider technical or economic feasibility issues and therefore should not be construed as standards or regulations.

#### **Federal Transit Administration**

The Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual contains guidelines and recommendations for predicting and assessing the vibration impacts of proposed transit projects, including predicting and assessing the ground-borne vibrations from commonly used construction equipment. The manual contains guidelines for determining thresholds for damage to structures from construction equipment vibrations based on the age and/or construction type of the structures near construction activity (FTA 2018).

## State Regulations

### California Noise Control Act

The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

## Local Regulations

### Alameda County General Plan and East County Area Plan Noise Element

The Alameda County General Pan Noise Element does not contain policies or standards for acceptable noise levels. The ECAP contains one policy pertaining to acceptable noise levels and applicable to the project (Alameda County 2000):

- **Policy 288:** The County shall endeavor to maintain acceptable noise levels throughout East County.

### Alameda County Noise Ordinance

The ACMC Chapter 6.60, Noise, contains ordinances to control unnecessary, excessive and annoying noise in the County. The following sections would be applicable to the project (Alameda County 2020a):

6.60.040 - Exterior noise level standards.

- A. It is unlawful for any person at any location within the unincorporated area of the county to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any single- or multiple-family residential, school, hospital, church, public library or commercial properties situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in Table 6.60.040A [shown in this report as Table 4.12-1]:

**Table 4.12-1**  
**ALAMEDA COUNTY EXTERIOR NOISE STANDARDS**

RECEIVING LAND USE — SINGLE- OR MULTIPLE-FAMILY RESIDENTIAL, SCHOOL, HOSPITAL, CHURCH OR PUBLIC LIBRARY PROPERTIES NOISE LEVEL STANDARDS, dBA			
Category	Cumulative Number of Minutes in any one-hour time period	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Source: Alameda County Municipal Code Table 6.60.40A.  
dBA= A-weighted decibels

- B. In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal said ambient noise level.
- E. Notwithstanding the noise level standards set forth in this section, the noise level standard applicable to the emission of sound from transformers, regulators, or associated equipment in electrical substations shall be 60 dBA.

6.60.070 - Special provisions or exceptions.

- E. Construction. The provisions of this chapter shall not apply to noise sources associated with construction, provided said activities do not take place before 7 a.m. or after 7 p.m. on any day except Saturday or Sunday, or before eight a.m. or after five p.m. on Saturday or Sunday.

### **4.12.1.3 Existing Conditions**

#### **Surrounding Land Uses**

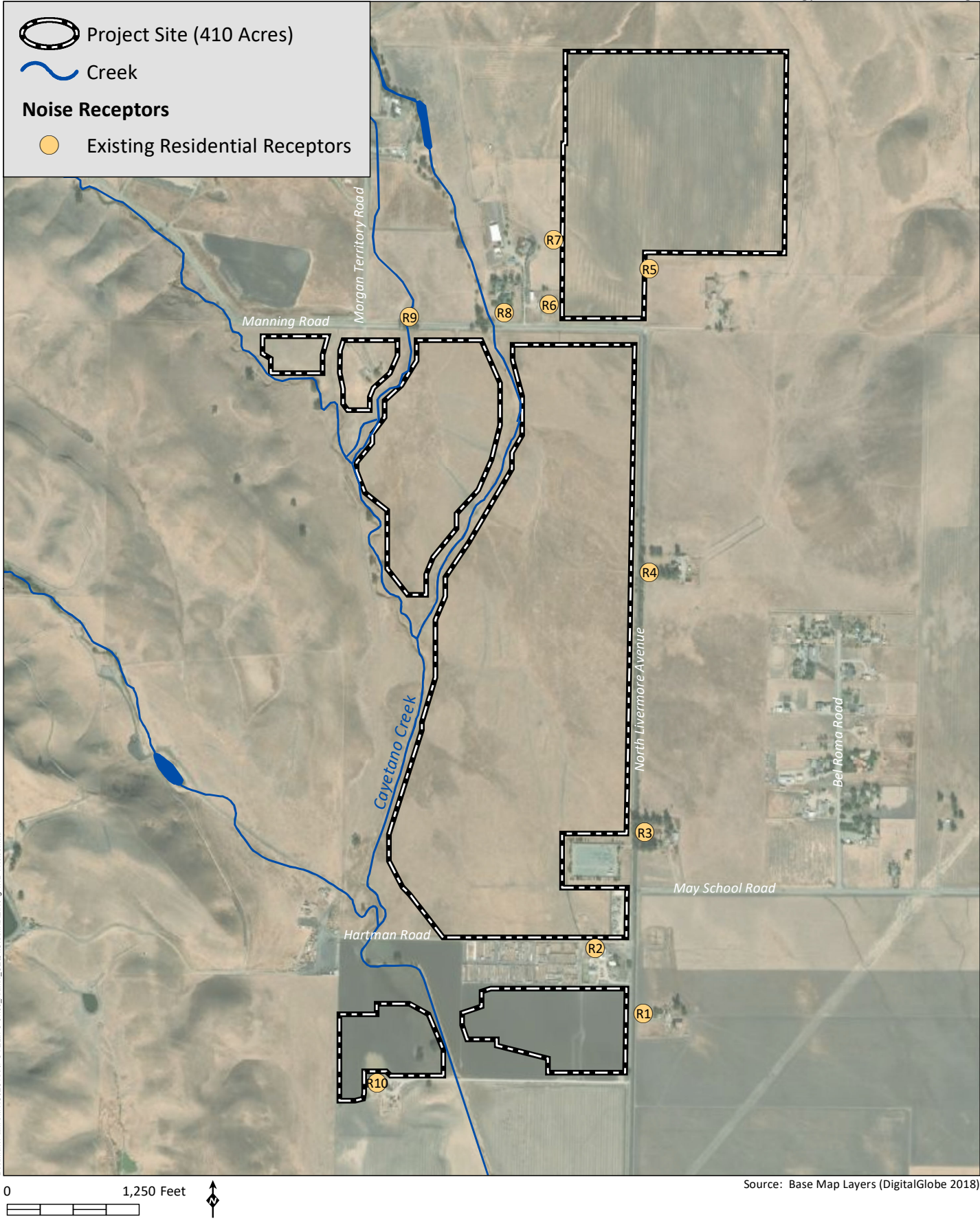
Land uses north, south, east of the northern section, and west of the project site include row crop cultivation, cattle grazing, rural residential housing, agricultural outbuildings, small-scale ground-mounted solar systems, and open space. An approximately 59-acre solar PV facility is proposed by SunWalker Energy, Livermore Community Solar Farm, east of the central section of the project site and northeast of the intersection of North Livermore Avenue and May School Road. The existing PG&E Cayetano substation is located west of the terminus of May School Road at North Livermore Avenue. The project site surrounds the existing substation to the north, west, and south. Refer to Figure 2-2 for an aerial image of the project site and surrounding land uses.

#### **Existing Noise Environment**

The project site is located in a rural agricultural area of the County and is generally undeveloped. The site is currently used for oat and hay cultivation and cattle grazing. Noise sources in the project vicinity include seasonal agricultural equipment use for crop cultivation, traffic on North Livermore Avenue and other County roads, and electrical equipment [e.g., transformers] in the Cayetano Substation.

#### **Noise and Vibration Sensitive Land Uses**

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. The closest existing sensitive receptors to the project site are rural single-family homes, with the closest residential building located approximately 60 feet from the project site. Figure 4.12-1, Receptor Locations, shows the property line location closest to future project noise sources for the closest existing residences around the project site. There are no schools, hospitals, or daycare facilities within 1 mile of the project site.



#### 4.12.1.4 Methodology and Assumptions

##### Methodology

###### Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using the computer noise model Computer Aided Noise Abatement (CadnaA) version 2017. CadnaA is a model-based computer program developed by *DataKustik* for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project-related information, such as noise source data, barriers, structures, and topography to create a detailed CadnaA model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. The noise models used in this analysis were developed from Computer Aided Design (CAD) plans provided by the project applicant. Input variables included electrical equipment and building air conditioning system reference noise levels.

Modeling of the exterior transportation noise environment for this report was accomplished using the Traffic Noise Model (TNM) version 2.5. The TNM was released in February 2004 by the U.S. Department of Transportation and calculates the daytime average hourly  $L_{EQ}$  from three-dimensional model inputs and traffic data (USDOT 2004). The one-hour  $L_{EQ}$  noise level is calculated utilizing peak-hour traffic; when peak-hour traffic data is limited, peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour  $L_{EQ}$  noise output is the equivalent to the  $L_{DN}$  (Caltrans 2013).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes measured and estimated of sound levels from standard construction equipment.

##### Assumptions

###### Construction

Project construction would be completed in four phases: Phase 1 site preparation (30 days), Phase 2 photovoltaic installation (150 days), Phase 3 electrical and gen-tie installation (75 days), and Phase 4 general construction operations, site clean-up and restoration (175 days). Phases 2 and 3 would occur concurrently and Phase 4 would span the entire construction duration (concurrent with Phases 1, 2, and 3). Phase 3 includes building construction and architectural coatings for the O&M and energy storage buildings.

###### *Off-Road Equipment*

Construction would require the use of equipment throughout the site. Construction activities would use a variety of construction equipment including, but not limited to graders, dozers, loaders/backhoes, trenchers, cranes, forklifts, water trucks, vibratory rollers, and piledrivers.

The most likely source of vibration during project construction would be pile drivers (used to install the PV panel rack system) and vibratory rollers (used to achieve soil and gravel compaction as part of building foundation and access road construction).

### *Construction Traffic*

Project construction activities would result in vehicles traveling to and from the project site including worker commute vehicles and trucks hauling the project electrical equipment, construction materials, and water. The project construction traffic was analyzed in the Aramis Solar Energy Generation and Storage Project TIS. The maximum worker commute trips would be 1,500 daily trips and 375 peak hour trips. The maximum truck haul trips would be 121 daily trips and 14 peak hour trips (CHS 2020). In addition, up to 30 truck trips per day (3 trips during the peak hour) may be required to haul water to the project site for dust suppression. The project construction traffic trip distribution would be 90 percent on North Livermore Avenue between the project site and Interstate 580 (I-580) and 10 percent on Manning Road between to project site and Morgan Territory Road (CHS 2020). The TIS includes intersection traffic counts for the I-580/North Livermore Avenue interchange and for Manning Road/Morgan Territory Road taken in February 2020. For the purpose of traffic noise modeling, existing traffic was assumed to consist of a typical mix of vehicle types for California rural roads: 97 percent autos and light trucks; 3 percent medium trucks; and 1 percent heavy trucks.

### **Operation**

#### *Operational Traffic*

While daily monitoring of the site would occur remotely, up to four permanent staff could be on the site at a time for ongoing facility maintenance and repairs. Up to 12 workers could be on the site once annually for module washing. To model the most conservative (highest) daily operational traffic noise, 12 workers were assumed be on the site each day with the same trip assumptions as the construction traffic: two commute trips per employee per day and two off-site trips per employee per day for a total of 48 maximum daily trips and 12 peak hour trips. The off-site employee trips include up to 4 truck trips per day to haul water to the project site. Operational trip distribution was assumed to be the same as the construction trip distribution analyzed in the TIS: 90 percent on North Livermore Avenue between the project site and I-580, and 10 percent on Manning Road between the project site and Morgan Territory Road.

#### *Electrical Equipment*

**Tracking Systems:** Each row of PV panels would be equipped with a small electric motor and hydraulic or gear system to allow the panels to track the sun from east to west throughout the day. Typical one-axis tracking systems rotate the row of panels between 3 and 5 degrees approximately every 15 minutes during daylight. Each tracking movement would take a few seconds. Once or twice per day, a longer movement of 30 seconds to one minute would occur to place the panels in the stow position or to move the panels in preparation for sunrise. Noise from the tracking systems is anticipated to be significantly lower than, and not discernable from, the inverter and transformer noise, described below, and is not included in the operational noise modeling.

**String Inverter Stations:** The operational noise modeling assumed that string inverter stations would be dispersed through the project at 29 sites within the PV modules (see Figure 3-1). Specifications for the project's inverter stations had not been developed at the time of this analysis. The project applicant provided specifications for a typical system that could be used: each PV power conditioning system (string inverter station) would convert up to 4,200 kilowatts of DC power collected from the PV panels to AC power and step up the voltage to 34.5 kV for transmissions to the project substation. The power conditioning system would include inverters housed in an electrical enclosure with cooling fans, a step-

up transformer, and associated electrical connection and control panels. The system specifications indicate a maximum sound level of 75 dBA at 3 feet for the inverter enclosure. The power conditioning system specifications do not indicate sound levels for the transformer. The National Electrical Manufacturers Association (NEMA) standards publication for transformers, regulators, and reactors provides maximum audible sound level specifications. For a liquid immersed 4,200 kilovolt-amperes (kVA) transformer with auxiliary cooling (pump and heat exchanger/fan), the highest average sound power level would be 69 dBA (NEMA 2000). Noise from the string inverter stations would only occur during daylight hours when the PV panels are generating electricity.

**Substation:** The project substation would require one or more transformers to step up the 34.5 kV power from the string inverter stations to the 230 kV power required for tie-in to the Cayetano Substation. Specifications for the project's substation transformer had not been developed at the time of this analysis. Noise levels for the substation were modeled assuming one transformer with a capacity of 150,000 kVA (150 percent of the project's PV generation capacity). Per the NEMA standards, for a liquid immersed 150,000 kVA transformer with second stage auxiliary cooling (pump and heat exchanger/fan), the highest average sound power level would be 87 dBA (NEMA 2000). The substation would also include protective switches (e.g., circuit breakers) which can produce impulsive noise (very short noise events). Protective switching devices would only activate in emergency situations (e.g., power surges) and are not included as noise sources in the modeling.

**Energy Storage:** Specification for the project's energy storage buildings had not been developed at the time of this analysis. It was assumed that the energy storage buildings would have ventilation/cooling fans to circulate air through the battery rooms. Each of the four buildings was assumed to have six ventilation fans mounted on the exterior walls. This analysis assumes each fan would have a ventilation capacity of approximately 5,000 cubic feet per minute, using a 5-horsepower motor turning a 20-inch fan at approximately 1,100 revolutions per minute. Based on data from Greenheck Fan Corporation, each fan would have an overall outlet noise sound power level of 91 dBA. Control equipment rooms within the energy storage buildings could require temperature control through the use of air conditioning systems. Specific air conditioning planning information for the project including the area of conditioned space, unit types, and locations was not available at the time of the analysis. To be conservative by analyzing the highest potential noise, one-third of each energy storage building was assumed to be conditioned and the air conditioning system was assumed to be mounted at ground level outside of each energy storage building without any sound enclosure. Standard air conditioning planning assumes one ton of air conditioning for every 350 SF of conditioned space (American Society of Heating, Refrigeration, and Air Conditioning Engineers [ASHRAE] 2012). Based on 6,000 sf of conditioned space, one 20-ton unit would be required for each energy storage building. This analysis assumes a 20-ton Carrier Centurion Model 50PG24 with a sound rating of 84.9 dBA sound power. This unit produces noise levels of 52 dBA  $L_{EQ}$  at 50 feet. Air conditioning systems were assumed to operate in steady state during the daytime and for 30 minutes out of each hour during the nighttime. The manufacturer's data sheets are included in Appendix B to the Acoustical Technical Report (included as Appendix H to this Draft EIR). Energy storage building ventilation fans were assumed to operate in steady state 24 hours per day.



## 4.12.2 SIGNIFICANCE THRESHOLD

The impact analysis provided below is based on the application of the following State CEQA Guidelines Appendix G thresholds of significance, which indicate that a project would have a significant noise impact if it would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
2. Generation of excessive groundborne vibration or groundborne noise levels;
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

The significance of noise and vibration levels, or the increase in noise levels as a result of the project, are based on the following standards from the County Code or other agencies:

- **Temporary Construction Noise:** The County Code, (Section 6.60.070), specifies that construction activities are exempt from the provisions in the Alameda County Noise Control Ordinance if they are limited to the hours between 7:00 a.m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays.
- **Traffic Noise:** For traffic-related noise, impacts would be considered significant if implementation of the project would result in an increase of the existing ambient noise levels by 5 dBA or more, where the existing ambient level is less than 60 dBA  $L_{DN}$ ; or an increase of the existing ambient noise level by 3 dBA or more, where the existing ambient level is 60 dBA  $L_{DN}$  or more.
- **Permanent Operational Noise:** Noise generated by the project substation electrical equipment (e.g., transformers) would be significant if the level would exceed the County Code (Section 6.60.040 [E]) standard of 60 dBA for transformers, regulators, or associated equipment in electrical substations, measured at the receiving residential property. Assuming that the string inverter stations and energy storage building cooling/ventilation systems would operate for 30 or more minutes at least one hour per day, the noise generated by the string inverter stations and energy storage building cooling/ventilation systems would be significant if their combined noise would exceed the County Code (Section 6.040[A], Table 6.60.040A, Category 1) standard of 50 dBA  $L_{EQ}$  during daytime hours (7:00 a.m. to 10:00 p.m.) or 45 dBA  $L_{EQ}$  during nighttime hours (10:00 p.m. to 7:00 a.m.), as measured at the receiving residential property line.
- **Construction Groundborne Vibration:** The County has not adopted thresholds for determining the significance of groundborne vibrations. The Federal Transit Administration (FTA) has guidelines and recommendations for ground-borne vibration thresholds for damage to structures based on the age and/or construction type of the structures near construction activity. Per the FTA, a ground-borne vibration level of 0.2 inch-per-second PPV would be considered the architectural damage threshold criterion (e.g., cracking of plaster and no

structural damage) for non-engineered timber and masonry buildings and a ground-borne vibration level of 0.12 inch-per-second PPV would be considered the damage threshold criterion for buildings extremely susceptible to vibration damage (e.g., historical structures; FTA 2018). This analysis assumes a conservative threshold of 0.2 inch-per-second.

### 4.12.3 IMPACT ANALYSIS

**NOI-1      The proposed project may result in a temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the County Noise Ordinance.**

#### **Construction**

Construction activities would result in noise from the use of heavy construction equipment on the project site, from heavy trucks hauling electrical equipment, construction materials and water to the site, and from worker and vendor vehicles traveling to and from the site.

#### *Off-Road Equipment Noise*

The APMC Section 6.60.070 specifies that construction activities are exempt from the provisions in the County Noise Control Ordinance if they are limited to the hours between 7:00 a.m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays.

The most substantial noise increases from construction activities that may affect nearby residences would occur during earth moving operations for installation of access roads and equipment pads. Construction equipment noise would be temporary and sporadic and would not be concentrated near residential property lines for extended periods. During these operations it is anticipated that a grader, dozer, and frontend loader could all be operating simultaneously within 50 feet of a residential property line. The combined total noise of all equipment at the residential property line would be 83.4 dBA  $L_{EQ}$ , above the 45 dBA to 70 dBA standard (depending on time of day and cumulative minutes per hour for the noise) for exterior noise received by residential land uses. Provided that construction activity conforms to the hourly restrictions within the County Noise Control Ordinance, noise level limits would not apply. However, if noise generating construction activities would occur outside of the allowable times, impacts would be potentially significant. MM NOI-1 would restrict the hours of construction activity to those specified in the County ordinance. Implementation of MM NOI-1 would reduce potential construction off-road equipment noise impacts to a less than significant level.

#### *On-Road Construction Traffic Noise*

Noise levels at residential properties located along the project's proposed construction traffic routes were estimated using the TNM, described in Section 4.12.1.4, Methodology and Assumptions, above. As discussed above, 90 percent of construction traffic would utilize North Livermore Avenue between the project site and I-580 and 10 percent of the construction traffic would utilize Manning Road north of the project. The closest residence to the construction traffic affected road segments centerlines would be 30 feet from North Livermore Avenue (approximately 1,600 feet south of the project site), and 35 feet from Manning Road (approximately 160 feet north of the project site). The predicted traffic noise level for the project-affected road segments is shown in Table 4.12-2, Construction Traffic Noise.

**Table 4.12-2  
CONSTRUCTION TRAFFIC NOISE**

Roadway Segment	Distance to Nearest NSLU (feet) <sup>1</sup>	NSLU Type	dBA L <sub>DN</sub> at Nearest NSLU <sup>2</sup>		
			Existing	2011 + Project	Change in L <sub>DN</sub>
North Livermore Avenue					
Project Site to westbound I-580	30	SF	69.8	71.8	+2.0
Manning Road					
Project Site to Morgan Territory Road	35	SF	65.9	66.5	+0.6

Source: HELIX 2020.

I-580 = Interstate 580; MF = SF = Single-Family Residential.

<sup>1</sup> Distance measured from roadway centerline.

<sup>2</sup> Noise level assuming all traffic at the posted speed limit of 50 miles per hour.

As shown in Table 4.12-2, existing noise levels at all roadway segments at the closest residences already exceed 60 dBA L<sub>DN</sub> without the project. With the project construction traffic included, the maximum increase in noise levels be 2.0 dBA L<sub>DN</sub> and would not exceed 3 dBA L<sub>DN</sub> along any roadway segment. In addition, project construction traffic would be temporary and would cease once the project is operational. Therefore, project construction traffic noise would not result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project and the impact would be less than significant.

### **Decommissioning and Site Reclamation**

The solar facility is anticipated to have an operating life of at least 50 years. Once the operating life of the facility is over, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Project decommissioning would occur in accordance with the expiration or termination of the CUP and would involve the removal of above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a Decommissioning Plan. Equipment would be repurposed off-site, recycled, or disposed of in a landfill as appropriate.

Decommissioning is anticipated to take approximately six months to complete and would occur in 2073 or later. Decommissioning would be completed in three phases: Phase 1 would involve shutting down the systems and removing hazardous materials and wiring; Phase 2 would include removing the PV modules, inverters, substation(s), switching station, and energy storage system; Phase 3 would include removing site fencing and driveways and the final soils reclamation process. Decommissioning and reclamation activities are anticipated to require approximately 200 workers, generating 800 maximum daily worker trips and 40 daily truck trips.

Because it is anticipated that the intensity of project decommissioning and reclamation activities would be similar to or less than project construction activities, the resulting off-road equipment traffic noise for decommissioning would be assumed to be similar to or less than that resulting from project construction. As discussed in above, construction traffic noise levels would not result in a significant increase in ambient noise levels and noise for off-road equipment use would be exempt from the noise standards in the County Noise Control Ordinance. Therefore, project decommissioning and reclamation noise would not result in a temporary increase in ambient noise levels in excess of standards, and the impact would be less than significant.

## Operation

### Maintenance Noise

Operational sources of noise for the project would include periodic equipment maintenance, PV panel washing, and vegetation management that could require the use of off-road equipment including all-terrain vehicles, small tractors, portable generators, and portable water trailers with a pump. These periodic operational activities would occur for a few days per year and equipment use would be sporadic and would move throughout the project site. In addition, the use off-road equipment for maintenance is not anticipated to exceed the noise level of equipment currently used for agriculture and vegetation management (based on use intensity or duration) on the project site and in the project vicinity.

### Stationary Source Noise

The project's electrical equipment and building HVAC system noise was modeled as described in Section 4.12.1.4, Methodology and Assumptions, above. The results of the project substation electrical equipment noise modeling for each of the modeled receptor locations is shown in Table 4.12-3, Operational Substation Noise. The results of the project string inverter station and energy storage building noise modeling (combined noise of all sources) is shown in Table 4.12-4, Operational Inverter Station and Energy Storage Noise. See Figure 4.12-1 for modeled receptor locations.

**Table 4.12-3  
OPERATIONAL SUBSTATION NOISE**

Receiver	Receiver Type	Noise Level (dBA L <sub>EQ</sub> )		
		Estimated Noise	Standard <sup>1</sup>	Exceed Standards?
R1	Rural Residential	43.4	60	No
R2	Rural Residential	48.3	60	No
R3	Rural Residential	55.3	60	No
R4	Rural Residential	39.9	60	No
R5	Rural Residential	30.1	60	No
R6	Rural Residential	30.9	60	No
R7	Rural Residential	29.6	60	No
R8	Rural Residential	31.4	60	No
R9	Rural Residential	30.7	60	No
R10	Rural Residential	28.1	60	No

Source: HELIX 2020; County Noise Ordinance Sections 6.60.040 (E).

<sup>1</sup> 60 dBA L<sub>EQ</sub> exterior noise standard for transformers and associated electrical substation equipment per County Noise Ordinance Section 6.60.040 (E).

**Table 4.12-4  
OPERATIONAL INVERTER STATION AND ENERGY STORAGE NOISE**

Receiver	Receiver Type	Noise Level (dBA L <sub>EQ</sub> )				
		Daytime (7 a.m. to 10 p.m.)		Nighttime (10 p.m. to 7 a.m.)		Exceed Standards?
		Estimated Noise	Standard <sup>1</sup>	Estimated Noise	Standard	
R1	Rural Residential	40.4	50	34.8	45	No
R2	Rural Residential	43.9	50	42.3	45	No
R3	Rural Residential	42.0	50	39.7	45	No
R4	Rural Residential	43.4	50	26.1	45	No
R5	Rural Residential	43.7	50	19.0	45	No
R6	Rural Residential	42.4	50	18.8	45	No
R7	Rural Residential	41.2	50	17.9	45	No
R8	Rural Residential	40.9	50	20.0	45	No
R9	Rural Residential	39.5	50	19.6	45	No
R10	Rural Residential	41.4	50	29.9	45	No

Source: HELIX 2020; County Noise Ordinance Table 6.60.040A.

<sup>1</sup> 50 dBA L<sub>EQ</sub> daytime and 45 dBA L<sub>EQ</sub> exterior noise standard per County Noise Ordinance Table 6.60.040A for 30 minutes or more cumulative minutes of noise in any one hour.

As shown in Table 4.12-3, the maximum noise level from the project substation electrical equipment, measured at the closest residential property line, would be 55.3 dBA and would not exceed the County Noise Ordinance standard of 60 dBA for transformers and associated equipment in electrical substations. As shown in Table 4.12-4, the maximum combined noise level from the project's inverter stations and energy storage buildings, measured at the closest residential property line, would be 43.9 dBA during the daytime and 42.3 dBA during the nighttime. These noise levels would not exceed the County Noise Ordinance standard of 50 dBA and 45 dBA, respectively. Therefore, the project's operational stationarity source noise would not result in a permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, and the impact would be less than significant.

### Transportation Noise

Noise levels at residential properties located along the project-affected road segments were estimated using TNM and the anticipated maximum 12 peak hourly operational trips. Ninety percent of project traffic would utilize North Livermore Avenue between the project site and I-580 and 10 percent of the project traffic would utilize Manning Road. The closest NSLU to the project traffic affected road segments centerlines would be 30 feet from North Livermore Avenue (approximately 1,600 feet south of the project site), and 35 feet from Manning Road (approximately 160 feet north of the project site). The predicted traffic noise level for the project affected road segments is shown in Table 4.12-5, Operational Traffic Noise.

**Table 4.12-5  
OPERATIONAL TRAFFIC NOISE**

Roadway Segment	Distance to Nearest NSLU (feet) <sup>1</sup>	NSLU Type	dBA L <sub>DN</sub> at Nearest NSLU <sup>2</sup>		
			Existing	2011 + Project	Change in L <sub>DN</sub>
North Livermore Avenue					
Project Site to westbound I-580	30	SF	69.8	69.9	+0.1
Manning Road					
Project Site to Morgan Territory Road	35	SF	65.9	65.9	+0.0

Source: HELIX 2020.

I-580 = Interstate 580; MF = SF = Single-Family Residential.

<sup>1</sup> Distance measured from roadway centerline.

<sup>2</sup> Noise level assuming all traffic at the posted speed limit of 50 miles per hour.

As shown in Table 4.12-5, existing noise levels at all roadway segments at the closest NSLUs already exceed 60 L<sub>DN</sub> without the project. With the project traffic included, the maximum increase in noise levels would be 0.1 dBA L<sub>DN</sub> and would not exceed 3 dBA L<sub>DN</sub> along any roadway segment. Therefore, project operational traffic noise would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed for the proposed project and would require similar equipment. Therefore, as described above, permanent increases in ambient resulting from operation of interconnection facilities by PG&E would be less than significant; and temporary increases in ambient resulting from construction of interconnection facilities completed by PG&E would be potentially significant. MM NOI-1 to limit the hours of construction would be applicable to construction of interconnection facilities completed by PG&E. Implementation of MM NOI-1 would reduce potential construction off-road equipment noise impacts to a less than significant level.

**Significance without Mitigation:** Potentially significant impact.

#### **MM NOI-1**

**Construction Hourly Limits.** Prior to issuance of any project Grading Permit or Building Permit, the County shall confirm that the Grading Plan, Building Plans, and construction specifications stipulate that the following construction noise mitigation measures shall be implemented for all project construction activity:

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 7:00 a.m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays, Sundays, and County recognized public holidays; and
- Post a publicly visible sign at the primary project construction entrance listing the permitted construction days and hours, complaint procedures, and who to notify in the event of a problem. The sign shall also include a listing of telephone numbers to be used during regular

construction hours and off-hours to contact both the County and the construction contractor regarding noise complaints.

- If construction activities occur outside of the specified hours, noise levels shall be subject to the limits listed in Table 6.60.040A of the Alameda County Noise Control Ordinance.

**Significance with Mitigation:** Less than significant impact.

## **NOI-2      The proposed project would not result in the generation of excessive groundborne vibration levels.**

### **Construction Vibration**

During construction, the largest potential source of vibration during project construction would be an impact pile driver used to install PV panel rack support piers. The largest impact pile drivers could result in vibrations as high as 1.518 inches per second PPV at a distance of 25 feet (FTA 2018). The closest vibration sensitive land use to potential pile driving activity would be approximately 125 feet from the nearest PV panel location (a residence west of the project site, north of Manning Road). A 1.518 inch per second PPV vibration level would equal approximately 0.14 inch per second PPV at a distance of 125 feet.<sup>1</sup> This would be lower than the 0.2-inch per second PPV FTA threshold for non-engineered wood and masonry structures. Section 4.5, below, identifies two structures, a barn and a shed on the Stanley Ranch south of the Cayetano substation, eligible for listing as historical buildings. Potential pile driving activity could occur approximately 190 feet north of the eligible shed, A 0.644 inches per second PPV vibration level would equal approximately 0.07 inches per second PPV at a distance of 190 feet. This would be lower than the 0.12-inches per second PPV FTA threshold for buildings extremely susceptible to vibration damage.

Another potential source of vibration during project construction activities would be a vibratory roller, which may be used as close as 75 feet of the nearest off-site residence (a residence west of the project site, north of Manning Road). A vibratory roller could create vibrations as high as 0.210 inch per second PPV at a distance of 25 feet (FTA 2018). A 0.210 inch per second PPV vibration level would equal approximately 0.04 inch per second PPV at a distance of 75 feet.<sup>1</sup> This would be lower than the 0.2 inch per second PPV FTA threshold for risk of architectural damage to non-engineered wood and masonry structures.

Therefore, although vibrations from pile driving and vibratory rollers may be perceptible to nearby receptors, temporary groundborne vibration impacts associated with project construction would be less than significant.

### **Operational Vibration**

Long-term operation of the project would require the use of equipment and vehicles for periodic equipment maintenance, PV panel washing, and vegetation management. The largest potential source of vibration from off-road equipment used during project operation activities would be a loaded water truck, which could be used within 75 feet of the nearest off-site residence. A loaded heavy truck operating off-road could create vibrations as high as 0.076 inch per second PPV at a distance of 25 feet

<sup>1</sup> Equipment PPV = Reference PPV \* (25/D)<sup>n</sup> (in/sec), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.5 (the value related to the attenuation rate through typical soil); formula from FTA 2018.

(FTA 2018). A 0.076 inch per second PPV vibration level would equal approximately 0.01 inch per second PPV at a distance of 75 feet.<sup>1</sup> This would be substantially lower than the 0.2 inches per second PPV FTA threshold for risk of architectural damage non-engineered wood and masonry structures. Therefore, groundborne vibration impacts associated with project operational use of water trucks or other off-road equipment would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would require similar equipment, nor would any vibration producing equipment, such as pile drivers or vibratory rollers, be used closer to off-site structures or residences than analyzed above. Therefore, construction and operation of project interconnection facilities by PG&E would not result in the generation of excessive groundborne vibration levels, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **NOI-3      The proposed project would not expose people residing or working in the project area to excessive noise levels from public use airports or private airstrips.**

The closest airport or airstrip to the project site is the Livermore Executive Airport, approximately 3.2 miles southwest. The project is not within the Livermore Executive Airport influence area or within any of the designated airport noise compatibility zones (Alameda County 2012). Therefore, the project would not expose people residing or working in the project area to excessive noise levels from airport operations, and the impact would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The closest airport or airstrip to the project interconnection facilities is the Livermore Executive Airport, approximately 3.7 miles to the southwest. The project interconnection facilities would not be located within the Livermore Executive Airport influence area or within any of the designated airport noise compatibility zones (Alameda County 2012). Therefore, construction and operation of project interconnection facilities by PG&E would not expose people residing or working in the project interconnection facilities area to excessive noise levels from airport operations, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **4.12.4      CUMULATIVE ANALYSIS**

#### **NOI-3      The proposed project may contribute to a cumulatively considerable impact on ambient noise levels in the County.**

The project, in combination with past, present, and reasonably foreseeable projects could result in cumulative noise impacts. Due to the localized nature of noise impacts, the only identified cumulative projects would be the proposed Livermore Community Solar Farm project, located across North



Livermore Avenue from the project site, and the proposed Oasis Fund project, located adjacent to the northern section of the project site on Morgan Territory Road.

### Cumulative Construction Noise

Noise from construction activities at the Livermore Community Solar Farm and Oasis Fund projects could overlap with project construction activities. As discussed above, noise from construction equipment that occurs between the hours of 7:00 a.m. and 7:00 p. between 7:00 a.m. to 7:00 p.m., Monday through Friday, or between 8:00 a.m. to 5:00 p.m. on Saturdays would be exempt from the County Noise Ordinance exterior noise level standard. These restrictions would apply to construction of all the cumulative projects. MM NOI-1 requires the proposed project's noise generating construction activities to be limited to those hours or be subject to the specified exterior noise limits. Therefore, noise from project off-road construction equipment would result in a less than cumulatively considerable impact with mitigation incorporated.

According to the Livermore Community Solar Farm Project Draft EIR, the maximum peak hour construction traffic on North Livermore Avenue would be 25 worker vehicles and 2 trucks (Placeworks 2020). According to the Initial Study/Mitigated Negative Declaration air quality analysis for the proposed Oasis Fund project, the maximum peak hour construction traffic on North Livermore Avenue would be 23 worker trips and 1 truck trip (Raney 2019). The noise level resulting from the existing traffic plus the maximum potential combined construction traffic for the two cumulative projects and the proposed project was modeled using the TNM. The results of the cumulative construction traffic noise modeling are shown in Table 4.12-6, Cumulative Construction Traffic Noise.

**Table 4.12-6**  
**CUMULATIVE CONSTRUCTION TRAFFIC NOISE**

Roadway Segment	Distance to Nearest NSLU (feet) <sup>1</sup>	NSLU Type	dBA L <sub>DN</sub> at Nearest NSLU <sup>2</sup>		
			Cumulative	Cumulative + Project	Change in L <sub>DN</sub>
North Livermore Avenue					
Project Site to westbound I-580	30	SF	70.2	72.1	+2.1

Source: TNM 2.5; CHS 2020; Placeworks 2020; Raney 2019.

I-580 = Interstate 580; MF = SF = Single-Family Residential.

<sup>1</sup> Distance measured from roadway centerline.

<sup>2</sup> Noise level assuming all traffic at the posted speed limit of 50 miles per hour.

As shown in Table 4.12-6, with the project construction traffic included, the maximum increase in cumulative noise levels would be 2.1 dBA L<sub>DN</sub> and would not exceed 3 dBA L<sub>DN</sub>. In addition, project construction traffic would be temporary and would cease once the project is operational. Therefore, the noise from project construction traffic would result in a less than cumulatively considerable impact.

### Cumulative Operational Noise

Noise from the electrical equipment (e.g., transformers, inverters) from the proposed project, Livermore Community Solar Farm project, and existing PG&E Cayetano Substation could contribute cumulatively to ambient noise levels in the project vicinity. However, each electrical equipment noise source would be required to meet the County Noise Ordinance exterior noise level standard of 60 dBA L<sub>EQ</sub> for transformers and associated substation electrical equipment. The proposed project substation transformer would be located at least 500 feet from the existing Cayetano Substation transformer and

at least 800 feet from the proposed Livermore Community Solar Farm project transformers and inverters. With adherence to the County Noise Ordinance exterior noise standards, in combination with the anticipated distances between the proposed and existing electrical equipment, the contribution of operational noise from the project's electrical equipment to the existing noise environment would not be cumulatively considerable.

The project would generate 12 peak hour operational vehicle trips (11 on North Livermore Avenue). The proposed Livermore Community Solar Farm project is anticipated to generate a maximum of 10 daily peak hour operational trips (Placeworks 2020), and the Oasis Fund project is anticipated to generate a maximum of 11 peak hour operational trips (Raney 2019). The noise level resulting from the existing traffic plus the maximum potential combined operational traffic for the two cumulative projects and the proposed project was modeled using the TNM. The results of the cumulative operational traffic noise modeling are shown in Table 4.12-7, Cumulative Operational Traffic Noise.

**Table 4.12-7**  
**CUMULATIVE OPERATIONAL TRAFFIC NOISE**

Roadway Segment	Distance to Nearest NSLU (feet) <sup>1</sup>	NSLU Type	dBA L <sub>DN</sub> at Nearest NSLU <sup>2</sup>		
			Cumulative	Cumulative + Project	Change in L <sub>DN</sub>
North Livermore Avenue					
Project Site to westbound I-580	30	SF	70.0	70.0	+0.0

Source: TNM 2.5; CHS 2020; Placeworks 2020; Raney 2019.

I-580 = Interstate 580; MF = SF = Single-Family Residential.

<sup>1</sup> Distance measured from roadway centerline.

<sup>2</sup> Noise level assuming all traffic at the posted speed limit of 50 miles per hour.

As shown in Table 4.12-7, with the project operational traffic included, there would be no discernable increase in cumulative traffic noise levels. Therefore, the operational trips from the proposed project would not generate a perceptible increase in traffic noise in the project vicinity, over the traffic noise levels from existing traffic plus traffic from the Livermore Community Solar Farm project and the Oasis Fund project. The noise from project operational traffic would result in a less than cumulatively considerable impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed in impacts NOI-1 and NOI-2, with implementation of MM NOI-1, construction and operation of interconnection facilities under CPUC jurisdiction would not result in substantial temporary or permanent increase ambient noise levels; or result in the generation of excessive groundborne vibration levels. Therefore, the contribution to noise and vibration in the area from construction and operation of interconnection facilities under CPUC jurisdiction, in combination with the cumulative project, would be less than cumulatively considerable, and the cumulative impact would be less than significant with mitigation incorporated.

**Significance without Mitigation:** Potentially significant impact.

See MM NOI-1 under impact NOI-1, above.

**Significance with Mitigation:** Less than significant impact.

## 4.12.5 REFERENCES

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## **4.13 POPULATION AND HOUSING**

This section describes the regulatory framework and existing conditions related to population and housing, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.13.1 ENVIRONMENTAL SETTING**

#### **4.13.1.1 Regulatory Framework**

##### **Federal Regulations**

There are no relevant federal regulations for population and housing.

##### **State Regulations**

The California Department of Housing and Community Development's (HCD) Regional Housing Needs Assessment (RHNA) requirements is relevant to the project and is discussed below.

##### **Local Regulations**

###### **Association of Bay Area Governments Regional Housing Need Allocation**

The RHNA process is conducted every eight years by the ABAG. The RHNA process addresses the need for housing across a range of incomes and in all communities throughout the State. HCD, in coordination with ABAG, has been tasked to ensure that adequate housing is available for all income groups. ABAG is required to distribute the region's share of statewide need to the cities and counties within its jurisdiction.

The purpose of the RHNA is to allocate to cities and counties their fair share of the Bay Area's projected housing need by household income groups, which are categorized as very low, low, moderate, and above moderate. The RHNA allocates 1,769 units to unincorporated Alameda County (ABAG 2013). Alameda County is required to adopt a housing element in compliance with this allocation.

###### **East County Area Plan**

The ECAP contains goals and policies related to population and housing (Alameda County 2000), that are listed below. Further analysis of program consistency with ECAP goals and policies is contained in Section 4.11, Land Use and Planning.

- **Policy 14:** The County shall promote an approximate balance between jobs and housing within East County and shall further promote a range of housing types reflecting the income distribution of the local employment base.
- **Policy 15:** The County shall evaluate all proposed major projects for their effect on the East County jobs/housing ratio and the provision of housing affordable to East County workers as well as the potential impacts on adjacent counties, especially in terms of in-commuting. To the extent feasible, the County shall impose measures on projects in the unincorporated County to

reduce potential impacts arising from inadequate provision of housing and shall encourage the cities to do the same.

#### **4.13.1.2 Existing Conditions**

According to the U.S. Census Bureau, Alameda County had a population of 1,510,271 people in 2010, and as of 2019 a population of 1,671,329 people. The increase in population accounts to a 10.7 percent increase (Census 2020). According to ABAG and the MTC, the population of unincorporated Alameda County in 2015 was 151,910 people, and the population is expected to rise to a total of 168,620 people by the year 2040 (ABAG and MTC 2017).

The project site is currently used for oat and hay cultivation and cattle grazing and is generally undeveloped with the exception of the existing Stanley Ranch residence and associated structures located in the southern portion of the project site but outside of the development footprint and a concrete slab foundation occupied by a camping trailer in the northwest corner of the large central section of the project site, just south of Manning Road. The Stanley Ranch and associated structures would remain on-site, but the camping trailer and its occupants would relocate upon project construction. No housing is proposed as part of the project.

#### **4.13.2 SIGNIFICANCE THRESHOLDS**

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact to population and housing if the project would:

1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure; or
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

#### **4.13.3 IMPACT ANALYSIS**

##### **POP-1 The proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly.**

The proposed project is a solar PV energy generation and storage project and would not involve the construction of residential units. Therefore, it would not result in a direct increase in population.

Construction and operation of the project would create up to 400 short-term, temporary construction jobs as project construction is anticipated to last approximately 9 months and up to 4 long-term, permanent jobs for ongoing facility maintenance and repairs. However, both the construction and operational labor force would be based locally, and the proposed project would not induce substantial unplanned population growth in the area, either directly or indirectly. Therefore, impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The labor force for the construction and operation of the interconnection facilities under CPUC jurisdiction would not exceed the assumptions described above and would be based locally. Therefore, construction and operation of project interconnection facilities by PG&E would not induce substantial unplanned population growth in the area, either directly or indirectly, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**POP-2      The proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of housing elsewhere.**

The project site is generally undeveloped with the exception of the existing Stanley Ranch and associated structures located in the southern portion of the project site as well as a concrete slab foundation occupied by a modern camping trailer in the northwest corner of the large central section of the project site, just south of Manning Road. The residents and workers of the Stanley Ranch would not be displaced as the ranch and associated structures are outside of the project development footprint and would remain on-site and active. The camping trailer and its residents would relocate upon project construction but would not be displaced due to the mobility of their trailer. There are recreational vehicle (RV) parks in the East Bay area that allow for long-term stays including, but not limited to, the Trailer Haven Mobile Home & RV Park (approximately 27 driving miles west of the project site), Sunny Acres Mobile Home and RV Park (approximately 28 driving miles northwest of the project site), Marlin's RV Park (approximately 37 driving miles northwest of the project site), and Rodeo Mobile Home & RV Park (approximately 49 driving miles northwest of the project site). Therefore, there are ample nearby RV parks available for the camping trailer and its residents to relocate, and the proposed project would not displace substantial numbers or people or housing. Impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The proposed site for the project interconnection facilities (adjacent to the west of the Cayetano substation) is undeveloped and contains no residences. Therefore, construction and operation of project interconnection facilities by PG&E would not displace substantial numbers or people or housing, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**4.13.4      CUMULATIVE IMPACTS****POP-3      The proposed project would not result in a significant cumulative impact with respect to population and housing.**

This analysis of cumulative impacts to population and housing is based on the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects in the North Livermore area.

As discussed above, the proposed project would not induce substantial unplanned population growth in the project area, either directly or indirectly, or displace a substantial number of existing people or housing, necessitating the construction of housing elsewhere. The Livermore Community Solar Farm project is a solar PV energy generation facility, and the Oasis Fund project is a cannabis cultivation and operation project. Neither project would require the displacement of people or housing or the construction of residential units. The Livermore Community Solar Farm Project would create up to 25 short-term, temporary construction jobs and 1 long-term, permanent job. The Oasis Fund project would employ between 20 and 30 people, however, not all of the employees would be on-site concurrently. Cumulatively, the proposed project along with the other nearby projects would create up to 425 short-term, temporary construction jobs and up to 35 long-term, permanent jobs. All proposed projects anticipate that the construction and operational labor forces would be sourced locally and would not induce unplanned substantial population growth. Therefore, the proposed project would not contribute to a significant cumulative population and housing impact and would result in a less than significant impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the proposed project, including the project interconnection facilities, would not induce substantial unplanned population growth in the project area, either directly or indirectly, or displace a substantial number of existing people or housing, necessitating the construction of housing elsewhere is undeveloped and contains no residences. Construction and operation of project interconnection facilities by PG&E in combination with the cumulative projects, as described above, would source construction and operational labor forces locally and would not induce unplanned substantial population growth. Therefore, construction and operation of project interconnection facilities by PG&E would not result in a cumulatively considerable increase in population and housing needs, and the cumulative impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.13.5 REFERENCES**

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## 4.14 PUBLIC SERVICES

This section describes the regulatory framework and existing conditions related to public services, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### 4.14.1 ENVIRONMENTAL SETTING

#### 4.14.1.1 Regulatory Framework

##### Federal Regulations

There are no relevant federal regulations for public services.

##### State Regulations

###### California Fire Code

ACMC Chapter 6.04 adopts the entirety of the California Fire Code by reference. The California Fire Code adopts by reference the International Fire Code with necessary State amendments. Updated every three years, the California Fire Code includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Typical fire safety requirements include: installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

##### Local Regulations

###### East County Area Plan

The Public Services and Facilities Element and Environmental Health and Safety Elements of the ECAP contain goals, policies, and programs related to fire protection and police services. The following goals and policies are applicable to the proposed project (Alameda County 2000).

*Goal: To ensure the prompt and efficient provision of police, fire, and emergency medical facility and service roads.*

- **Policy 241:** The County shall provide effective law enforcement, fire, and emergency medical services to unincorporated areas.
- **Policy 242:** The County shall reserve adequate sites for sheriff, fire, and emergency medical facilities in unincorporated locations within East County.

*Goal: To minimize the risk to lives and property due to fire hazards*

- **Policy 324:** The County shall require the use of fire-resistant building materials, fire resistant landscaping, and adequate clearance around structures in “high” and “very high” fire hazard areas.



### **4.14.1.2 Existing Conditions**

#### **Fire Protection**

The project site is served by the ACFD in coordination with CAL FIRE. CAL FIRE is responsible for fire protection and suppression activities in the area as the project site is located within an SRA. According to the CAL FIRE FHSZ mapping, the project site is located within an area mapped as a Moderate fire hazard area (CALFIRE 2020). The nearest CAL FIRE facility (Santa Clara Sunshine Station) is approximately 15 driving miles northwest of the project site and is located at 11851 Marsh Creek Road in Clayton, CA. Although the project is located within an SRA, the ACFD would also respond to any wildland fire at the project site. ACFD Fire Station 18 is the closest station to the project site and is located in Dublin, CA at 4800 Fallon Road, approximately 10 driving miles southwest of the project site. This station is equipped with an engine company, one patrol and a bulldozer (ACFD 2020).

#### **Police Protection Services**

The Alameda County Sheriff's Office provides police protection services to unincorporated areas of Alameda County. The closest station to the project site is located approximately 11 driving miles southwest of the project site at 6289 Madigan Road in Dublin, CA (Alameda County Sheriff 2020).

#### **Schools**

The project site is located within the Livermore Valley Joint Unified School District (Livermore Valley JUSD 2020). No schools are located within 2 miles of the proposed project. The closest school to the site is Andrew Christensen Middle School located approximately 2.3 miles southeast of the proposed project.

#### **Parks**

Alameda County has numerous recreational facilities, including major parks and open space areas, local parks, and private recreational facilities. The closest parks to the project site include North Livermore Park, Christensen Park, and Altamont Creek Trail.

#### **Libraries**

The Alameda County Library System operates 10 library branches within Alameda County. The closest library to the project site is the Dublin library located at 200 Civic Plaza in Dublin, CA.

### **4.14.2 SIGNIFICANCE THRESHOLDS**

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact to public services if the project would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities.

### **4.14.3 IMPACT ANALYSIS**

#### **PS-1            The proposed project would not result in the need for new or physically altered governmental facilities.**

##### **Fire Protection**

Construction and operation of the proposed project would not be expected to result in an increase in demand of fire protection services leading to the construction of new or physically altered facilities. Although new structures would be developed as part of the proposed project, appropriate fire safety measures are proposed to minimize risk of fires. Existing CAL FIRE and ACFD facilities would be able to accommodate any increased demand for fire protection services resulting from the proposed project.

The proposed project would include a lithium-ion battery storage system that would either be housed in electrical containers or in up to four 100-foot by 180-foot buildings. The total system would cover 5 acres and would be set back from North Livermore Avenue by at least 700 feet. Low-voltage wiring from battery enclosures would be underground and converted as a bi-directional inverter station and transformed at the shared transformer. Each battery unit would be constantly monitored by a battery management system to ensure safe operations. The battery management system monitors individual cell temperature, voltage, current, charge and discharge parameters, and other metrics to ensure health and safety of the batteries. If there were to be multiple failures in this multi-level safety system, a fire suppression system would kick in.

The addition of a battery storage system could trigger additional CAL FIRE or ACFD requirements including, but not limited to, specialized, mandated training of CAL FIRE and ACFD personnel. However, the project applicant would implement fire prevention measures and work with CAL FIRE and ACFD to train workers in fire prevention and safety. Similar training and fire prevention measures would be conducted for workers employed during operation of the site, and a 250,000-gallon water storage tank for fire suppression would be located adjacent to the battery storage system, west of the PG&E Cayetano substation. Additionally, the construction of the internal access driveways within the project site would act as a fire break, thereby limiting the potential for a fire at the site to spread off-site. Therefore, project impacts related to an increase in fire protection services that would necessitate the alteration or construction of fire stations or other infrastructure to combat fire would be less than significant.

##### **Police Protection**

Construction and operation of the proposed project would not be expected to increase the demand for sheriff protection services leading to the construction of new or physically altered facilities. The project site would be protected by a 7-foot-high perimeter fence. Locked gates at the project entrances would control ingress/egress, preventing unauthorized public entry. Additionally, construction and operational employees are anticipated to reside locally or regionally and are therefore already factored into the existing demand of police services. With the security measures that would be employed by the project applicant, the proposed project is anticipated to rarely rely on police protection services. Therefore, project impacts related to an increase in demand for law enforcement services that would necessitate the alteration or construction of new or expanded facilities to maintain adequate service levels would be less than significant.

## **Parks**

Several regional parks, open space areas, local parks, and private recreational facilities are in the vicinity of the proposed project. Residential uses are not proposed as part of the project and therefore the project would not result in an increased demand for nearby park facilities requiring the expansion of existing parks or the creation of new parks. However, although not required, the project applicant proposes to dedicate land immediately west of the project site to the East Bay Regional Park District for their use to construct a public hiking trail in the future, if desired. Therefore, impacts to park facilities would be less than significant.

## **Schools**

No residential uses are proposed as part of the proposed project, and most jobs created by the proposed project would be short-term and temporary. Therefore, no new students would be generated by the proposed project. Temporary and permanent employees are anticipated to reside locally and commute into the area, and their school-aged children are assumed to be part of the existing or anticipated student population. Therefore, implementation of the project would not require the construction or expansion of school facilities, and no impact would occur.

## **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The level of construction and maintenance activity for interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not result in the need for public facilities different than described above. The proposed battery storage system would not be part of the interconnection facilities under CPUC jurisdiction. Therefore, the construction and operation of project interconnection facilities by PG&E would not require construction of new, or expansion of, fire protection services, law enforcement services, park facilities, or schools, and the impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

## **4.14.4 CUMULATIVE IMPACTS**

### **PS-2      The proposed project would not result in a significant cumulative impact with respect to public services.**

Cumulative impacts would occur when a series of actions leads to a substantial increase in the use of public services, the construction of which could cause significant environmental impacts. The analysis of cumulative impacts to public services is based on impacts of the proposed project and developments in the same service area as the proposed project for the relevant public services, and the two related projects within the service area are the Livermore Community Solar Farm and Oasis Fund projects.

The Livermore Community Solar Farm project is a solar PV energy generation facility, and the Oasis Fund project is a cannabis cultivation and operation project. Neither nearby project would involve the development of residential units, and when combined with the proposed project, would create up to 35 permanent jobs for workers that are anticipated to reside locally and commute into the area. Therefore, the proposed project, in combination with the other nearby projects, would not bring new residents to the area requiring the development or expansion of existing public service facilities. Additionally, the proposed project and other nearby projects incorporate facility security and fire

prevention measures and are anticipated to rarely rely on police or fire protection services. Therefore, the proposed project would not contribute to a significant cumulative impact to public services, and no mitigation would be required.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

As discussed above, the proposed project, including the project interconnection facilities, would not require new or expanded public facilities. Construction and operation of project interconnection facilities by PG&E in combination with the cumulative projects, as described above, would not bring new residents to the area requiring the development or expansion of existing public service facilities. Additionally, the proposed project and other nearby projects incorporate facility security and fire prevention measures and are anticipated to rarely rely on police or fire protection services. Therefore, the proposed project would not result in a cumulatively considerable increase demand for public facilities, and the cumulative impact would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.14.5 REFERENCES**

Alameda County. 2000. East County Area Plan. Adopted May 1994. Modified by passage of Measure D, effective December 22, 2000. Oakland, CA.

Alameda County Fire District (ACFD). 2020. General Information. Accessed June 19, 2020 at <https://www.acgov.org/fire/about/index.htm>.

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California Department of Forestry and Fire Protection (CAL FIRE). 2020. Fire Hazard Severity Zones Viewer. Accessed on June 25, 2020 at <https://egis.fire.ca.gov/FHSZ/>.

Livermore Valley Joint Unified School District (Livermore Valley JUSD). 2020. Livermore District's School Directory. Accessed on June 19, 2020 and available at <https://www.livermoreschools.org/schools>.

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## **4.15 RECREATION**

This section describes the regulatory framework and existing conditions related to recreation resources, evaluates the potential impacts that could occur as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.15.1 ENVIRONMENTAL SETTING**

#### **4.15.1.1 Regulatory Framework**

##### **Federal Regulations**

There are no relevant federal regulations for recreation.

##### **State Regulations**

There are no relevant State regulations for recreation.

##### **Local Regulations**

###### **Alameda County General Plan**

The Alameda County General Plan Recreation Element (Countywide Recreation Element), adopted in 1956 and last amended in 1994, provides a framework for private and public acquisition and development of recreation areas and facilities. It contains general planning objectives related to the promotion and preservation of recreational opportunities throughout the County, including the following (Alameda County 1994):

- To provide a system of parks and recreation areas for the preservation of historical buildings and unusual physical features, the promotion of health and well-being through the constructive use of leisure time, and the conservation of natural resources.
- To provide sufficient and appropriate areas for park and recreation facilities and services of county, metropolitan, or state-wide significance and use, which, in conjunction with appropriately planned local neighborhood and community parks and recreation facilities and services, will satisfy the recreation needs of the entire population of the county.
- To provide a system of public open spaces of county, metropolitan or state-wide significance and recreation use in proper relation to neighborhood, community and other recreation areas serving cities and recreation districts, to other types of land use, to other public services and facilities, and to transportation (Alameda County 1994).

###### **East County Area Plan**

The Public Services and Facilities Element of the ECAP contains goals, policies, and programs to ensure the development of local and regional parks throughout the East County area. The Land Use Element

contains various goals, policies and programs regarding Sensitive Lands and Regionally Significant Open Space that apply to recreation that include the following (Alameda County 2000):

*Goal: To protect regionally significant open space and agricultural land from development.*

- **Policy 52:** The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, wind power, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.
- **Policy 54:** The County shall approve only open space, park, recreational, agricultural, limited infrastructure, public facilities (e.g., limited infrastructure, hospitals, research facilities, landfill sites, jails, etc.) and other similar and compatible uses outside the Urban Growth Boundary.
- **Policy 70:** The County shall work with the East Bay Regional Park District (EBRPD), the Livermore Area Recreation and Park District (LARPD), and other relevant agencies to ensure that open space trails adjacent to San Joaquin, Contra Costa, and Santa Clara Counties connect with trail systems in these other counties.

#### **East Bay Regional Park District Master Plan**

The East Bay Regional Park District Master Plan (Master Plan) is a policy document that guides the district in future expansion of parks, trails, and services for its regional parks in Contra Costa and Alameda counties (EBRPD 2013). The Master Plan includes policies for conserving natural and cultural resources; providing for recreational opportunities; and providing for the balanced distribution, acquisition, protection, restoration, management, and development of the regional parks. The 2013 Master Plan map identifies the current system of regional parks, open spaces, and trails.

#### **4.15.1.2 Existing Conditions**

Alameda County contains numerous recreational facilities, including local neighborhood parks, regional parks and open space areas, and private recreational facilities. Local neighborhood parks located in the vicinity of the project site include:

- North Livermore Park (also known as the Marlin Pound Neighborhood Park), approximately 1.8 miles southeast of the site;
- Christensen Park, approximately 2.4 miles southeast of the site;
- Altamont Creek Trail, approximately 2.7 miles southeast of the site;
- Bill Clark Park, approximately 2.8 miles southeast of the site;
- Summit Park, approximately 2.9 miles southeast of the site;
- Northfront Park, approximately 3.0 miles southeast of the site.

Regional parks and open space areas in the vicinity of the project site include:

- Doolan Canyon Regional Preserve, approximately 2.1 miles west of the site;
- Brushy Peak Regional Preserve, approximately 3 miles east of the site;
- Los Vaqueros Reservoir, approximately 3 miles northeast of the project site.

### 4.15.2 SIGNIFICANCE THRESHOLDS

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact to recreation resources if the project would:

1. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

### 4.15.3 IMPACT ANALYSIS

#### **REC-1      The proposed project would not increase the use of existing neighborhood and regional parks resulting in substantial physical deterioration.**

The nearest park or recreational facility to the site is the North Livermore Park, located approximately 1.8 miles southeast of the project site. The proposed project would not introduce new residents and therefore would not increase use of parks or other recreational facilities in the vicinity of the site. Construction, operations, and maintenance workers are presumed to reside locally or regionally and, therefore, would be among the existing users of available facilities. Implementation of the proposed project is not anticipated to increase the use of existing parks or other recreational facilities such that substantial physical deterioration would result or be accelerated. Therefore, the proposed project would have no impact.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The construction and operation of project interconnection facilities by PG&E would not introduce new residents, and therefore, would not increase use of parks or other recreational facilities in the vicinity of the site. Construction, operations, and maintenance workers are presumed to reside locally or regionally and, therefore, would be among the existing users of available facilities. Construction and operation of project interconnection facilities by PG&E is not anticipated to increase the use of existing parks or other recreational facilities such that substantial physical deterioration would result or be accelerated. Therefore, construction and operation of project interconnection facilities by PG&E would have no impact.

**Significance without Mitigation:** No impact.

#### **REC-2      The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities, resulting in an adverse physical impact on the environment.**

The proposed project would not include the construction of new recreational facilities or the expansion of existing facilities. As discussed above in Section 4.15.1.2, Existing Conditions, the project applicant proposes to dedicate an easement to Alameda County (or Livermore Area Recreation and Park District) along Cayetano Creek in the project area, outside of the development footprint of the solar facility, for



their potential use to construct a public hiking trail in the future, if desired. The construction of a public hiking trail along Cayetano Creek is not proposed as part of this project. The decision to construct a trail, and the timing and design of the trail, are not controlled by the applicant and therefore any analysis of trail construction is speculative at this time. The County (or Livermore Area Recreation and Park District) would be required to undertake a separate CEQA review if trail construction is ultimately proposed by the County or Livermore Area Recreation and Park District. Because the proposed project would not result in an increased demand for recreational facilities, no new recreational facilities would need to be constructed and no existing recreational facilities would need to be expanded. Therefore, the proposed project would have no impact on recreation resources.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The construction and operation of project interconnection facilities by PG&E would not include the construction of new recreational facilities or the expansion of existing facilities. Because the construction and operation of project interconnection facilities by PG&E would not result in an increased demand for recreational facilities, no new recreational facilities would need to be constructed and no existing recreational facilities would need to be expanded. Therefore, construction and operation of project interconnection facilities by PG&E would have no impact on recreation resources.

**Significance without Mitigation:** No impact.

### **4.15.4 CUMULATIVE IMPACTS**

#### **REC-3 The proposed project would not contribute to a significant cumulative impact with respect to recreational resources.**

Cumulative impacts would occur when a series of actions leads to a substantial increase in the use of neighborhood or regional parks in the vicinity of the project, or if the construction of new recreational facilities or the expansion of existing recreational facilities resulted in a physical impact to the environment. The analysis of cumulative impacts to recreation resources is based on impacts of the proposed project and other related projects in the North Livermore area. The only related projects within the North Livermore area are the proposed Livermore Community Solar Farm and Oasis Fund projects.

The Livermore Community Solar Farm project is a solar PV energy generation facility, and the Oasis Fund project is a cannabis cultivation and operation project. Neither nearby project would involve the development of residential units, and when combined with the proposed project, would create up to 35 permanent jobs for workers that are anticipated to reside locally and commute into the area. Therefore, the proposed project, in combination with the other nearby projects, would not bring new residents to the area requiring the development of new recreational facilities or the expansion of existing recreational facilities. Therefore, the proposed project would not contribute to a significant cumulative impact to recreation resources, and no mitigation would be required.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The construction and operation of project interconnection facilities by PG&E would not increase use of parks or other recreational facilities in the vicinity of the site or include the construction of new

recreational facilities or the expansion of existing facilities. Therefore, the construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative impact to recreational resources, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.15.5 REFERENCES**

Alameda County. 2000. East County Area Plan. Adopted May 1994. Modified by passage of Measure D, effective December 22, 2000. Oakland, CA.

1994. General Plan Recreation Element. Accessed on April 1, 2020 at [http://www.acgov.org/cda/planning/generalplans/documents/The\\_Recreation%20 Plan.pdf](http://www.acgov.org/cda/planning/generalplans/documents/The_Recreation%20Plan.pdf).

East Bay Regional Park District (EBRPD). 2013. East Bay Regional Park District Master Plan. Accessed on April 1, 2020 at <https://www.ebparks.org/civicax/filebank/blobdload.aspx?BlobID=23499>.

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## **4.16 TRANSPORTATION**

This section describes the regulatory framework and existing transportation and traffic conditions related to the proposed project, evaluates the potential impacts that could occur as a result of implementation of the proposed project, including potential impacts to intersections, roadway segments, pedestrian and bicycle facilities, and transit service, and details mitigation measures needed to reduce significant impacts, as necessary. A project-specific Transportation Impact Study (TIS) was completed for the Aramis Solar Energy Generation and Storage Project and is included as Appendix I to this Draft EIR (CHS Consulting 2020). The results of the TIS are summarized below.

### **4.16.1 ENVIRONMENTAL SETTING**

#### **4.16.1.1 Regulatory Framework**

This section describes local environmental laws and policies that are relevant to the CEQA review process for transportation and circulation. These policies provide context for the impact discussion related to the proposed project's consistency with the applicable regulatory conditions. There are no federal, State, or regional environmental laws or policies applicable to the proposed project's transportation analysis.

#### **Local Regulations**

##### **Alameda County General Plan**

The Alameda County General Plan consists of three area plans that contain the Land Use and Circulation Elements for their respective geographic areas, as well as area-specific goals, policies and implementation actions for circulation, open space, conservation, safety, and noise. Other than the Scenic Route goals and policies that are discussed in Section 4.1, Aesthetics, there are no countywide circulation policies related to the project. Countywide transportation plans, such as the Countywide Transportation Plan, and policies are primarily developed and maintained by the Alameda County Transportation Commission (CTC), which serves as Alameda County's Congestion Management Agency (CMA).

##### **Alameda County East County Area Plan**

The ECAP contains goals and policies to maintain an efficient circulation network in the eastern portion of Alameda County. These goals include creating and maintaining a balanced multimodal transportation system, cooperating with other regional transportation planning agencies, integrating pedestrian infrastructure into the transportation system, and mitigating exceedances of LOS standards. The ECAP standard for major intercity arterials is LOS D or better, which includes the project study intersection of Manning Road and Morgan Territory Road. Alameda County has not established designated local truck routes nor adopted specific policies regarding management of construction activities.

In 2013, the State of California passed SB 743, transitioning from automobile delay (commonly measures by LOS) to VMT method of analysis for transportation analyses under the CEQA. It should be noted that SB 743 requires CEQA lead agencies to eliminate the use of vehicular LOS as the primary transportation metric. Therefore, LOS analysis is presented for informational purposes only. The California Governor's Office of Planning and Research has mandated that all CEQA lead agencies adopt a new VMT

transportation metric by July 1, 2020. Alameda County, the CEQA lead agency for this Project, is currently in the process of transitioning to the VMT metric. Prior to July 1, 2020, jurisdictions had the option to continue using LOS analysis or converting to VMT analysis once such thresholds were adopted. As detailed in this section, VMT for the proposed project is analyzed as required by the State CEQA Guidelines and additionally an LOS analysis is provided to determine consistency with the General Plan transportation policies.

The ECAP contains transportation and traffic goals and policies applicable to the project (Alameda County 2000). Goals in the ECAP are intended to be general statements of a condition Alameda County wants to achieve, and the associated policies are the focused statements of how Alameda County will achieve these goals. The Transportation Systems goals and policies listed below are considered relevant to the project.

#### *General Transportation*

*Goal: To create and maintain a balanced, multi-modal transportation system that provides for the efficient and safe movement of people, goods, and services.*

- **Policy 179:** The County shall adhere to provisions of the RTP, Countywide Transportation Plan, and County Congestion Management Program (CMP), insofar as they are not inconsistent with the Initiative.

#### *Transportation Demand Management*

*Goal: To reduce East County traffic congestion.*

- **Policy 183:** The County shall seek to minimize traffic congestion levels throughout the East County street and highway system.
- **Policy 184:** The County shall seek to minimize the total number of Average Daily Traffic (ADT) trips throughout East County.
- **Policy 185:** The County shall seek to minimize peak hour trips by exploring new methods that would discourage peak hour commuting and single vehicle occupancy trips.
- **Policy 187:** The County shall monitor traffic levels according to ECAP and CMP objectives.
- **Policy 188:** The County shall promote the use of transit, ridesharing, bicycling, and walking, through land use planning as well as transportation funding decisions.
- **Policy 190:** The County shall require new non-residential developments in unincorporated areas to incorporate Transportation Demand Management (TDM) measures and shall require new residential developments to include site plan features that reduce traffic trips such as mixed-use development and transit-oriented development projects.
- **Policy 191:** The County shall work with cities and the CMA to coordinate land use impact analyses.

### *Streets and Highways*

*Goal: To complete County-planned street and highway improvements that are attractively designed to integrate pedestrian and vehicle use.*

- **Policy 192:** The County shall work with Caltrans to improve the interstate and state highway systems and the County road system according to the street classifications shown on the ECAP Transportation Diagram, consistent with Policy 177.
- **Policy 193:** The County shall ensure that new development pays for roadway improvements necessary to mitigate the exceedance of traffic LOS standards caused directly by the development. The County shall further ensure that new development is phased to coincide with roadway improvements so that (1) traffic volumes on intercity arterials significantly affected by the project do not exceed LOS D on major arterial segments within unincorporated areas, and (2) that traffic volumes on CMP designated roadways (e.g., Interstate Highways 580 and 680 and State Highway 84) significantly affected by the project do not exceed LOS E within unincorporated areas. If LOS E is exceeded, Deficiency Plans for affected roadways shall be prepared in conjunction with the CMA. LOS shall be determined according to CMA adopted methodology. The County shall encourage cities to ensure that these LOS standards are also met within unincorporated areas.

### *Bicycle and Pedestrian Paths*

*Goal: To include a comprehensive network of bicycle and pedestrian paths in the local and sub regional transportation network.*

- **Policy 211:** The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.
- **Policy 214:** The County shall require that circulation and site plans for individual developments minimize barriers to access by pedestrians, the disabled, and bicycles (e.g., collectors or arterials separating schools or parks from residential neighborhoods).

### *Aviation*

*Goal: To ensure the efficient, safe, and economically beneficial operation of the Livermore Municipal Airport.*

- **Policy 217:** The County shall require that, where conflicts between a new use and the airport that could interfere with the airport's operations are anticipated, the burden of mitigating the conflicts will be the responsibility of the new use.

### **Alameda County Congestion Management Program**

The Alameda CTC is a joint powers authority that plans, funds and delivers transportation programs and projects that expand access and improve mobility to foster a vibrant and livable Alameda County. It was formed in 2010 from the merger of the Alameda County Transportation Improvement Authority and the Alameda County CMA.

As required by state law, Alameda CTC updates its CMP every two years by monitoring the operational performance of the designated County CMP road network. The current CMP was adopted in September 2019. The Alameda CTC is currently in the process of transitioning to VMT as the primary metric for traffic impacts. The Alameda CTC current CMP minimum standard for monitored roads and freeways in the CMP network of LOS E. As detailed in this section, VMT for the proposed project is analyzed as required by the State CEQA Guidelines and additionally this section provides analysis of the Alameda CTC CMP standard. The study intersections include two County CMP network roadways, North Livermore Avenue and I-580.

It is noted that Alameda CTC CMP standards and travel demand measures are focused on traffic impacts associated with future development, and as such do not apply to construction activities such as the project in which there are temporary, short-term traffic increases that are eliminated once construction is completed. CMP-designated roadways in the vicinity of the project include Livermore Ave between I-580 and Tesla Road, Vasco Road between Tesla Road and the County line, I-580 between I-680 and I-205, and Fallon Road between I-580 and Tassajara Road (ACTC 2019).

### **Alameda Countywide Transportation Plan**

The Alameda Countywide Transportation Plan is a long-range policy document that guides transportation funding decisions for Alameda County's transportation system through 2040. The plan lays out a strategy for meeting transportation needs for all users in Alameda County. The plan identifies projects and other improvements to new and existing freeways, local streets and roads, public transit (paratransit, buses, rails, ferries), and facilities and programs to support bicycling and walking (ACTC 2016). The plan sets the following goals for Alameda County's transportation system.

- Accessible, affordable and equitable for people of all ages, incomes, abilities and geographies.
- Integrated with land use patterns and local decision-making.
- Connected across the county, within and across the network of streets, highways and transit, bicycle and pedestrian routes.
- Multimodal.
- Cost effective.
- Safe.
- Reliable and efficient.
- Well maintained.
- Supportive of a healthy and clean environment.

These goals are aligned with one or more performance categories and performance measurements. The plan also identifies land use and conservation development strategies.

### **Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas**

The Bicycle and Pedestrian Master Plan describes existing conditions for bicycling and walking, identifies capital and program improvements to support these modes, and recommends projects to enhance bicycling and walking in the unincorporated areas (Alameda County 2012). The plan identifies high-priority projects that meet the short-term community needs, as well as strategies for education, funding, and implementation of the recommended projects and programs. This plan provides a vision for bicycling and walking in Alameda County as important alternative transportation modes. The plan

also identifies implementable projects that will contribute to a more bicycle and pedestrian-friendly environment in the unincorporated areas.

The Bicycle and Pedestrian Master Plan contains goals and policies for developing and implementing a bikeway system and pedestrian improvements that meet Alameda County’s vision for safe, attractive, and convenient opportunities for bicycling and walking for all types of trips and user groups.

- **Goal 1:** Improve bicycle and pedestrian access and circulation for all users as a means to meet the goals of the Alameda County Unincorporated Areas Climate Action Plan.
- **Goal 2:** Create and maintain a comprehensive system of bicycle and pedestrian facilities in the local and sub-regional transportation network in order to establish a balanced multi-modal transportation system.
- **Policy 2.8:** Routinely maintain bicycle and pedestrian facilities and amenities.
- **Goal 3:** Maximize the use of public and private resources for implementing bicycle and pedestrian improvements.
- **Goal 4:** Provide a safer bicycling and walking environment
- **Policy 4.1:** Monitor bicycle and pedestrian-involved collisions in the Unincorporated Areas and target the high incidence locations for bicycle and pedestrian improvements.
- **Policy 4.4:** Work with law enforcement officials on education and enforcement programs that increase safety awareness of all road users for bicyclists and pedestrians and that reduce bicycle and pedestrian-involved collisions.
- **Goal 5:** Promote land uses and urban design that support a pleasant environment for bicycling and walking.
- **Policy 5.2:** Design new development and redevelopment projects to facilitate bicycle and pedestrian access, reduce bicycling and walking trip lengths, and avoid adverse impacts to the bicycle and pedestrian safety, access, and circulation.
- **Policy 5.3:** Consider options for commercial and industrial development projects to include bicycle storage facilities for employees and customers, shower/locker areas, and other facilities identified in this plan for employees that commute by bicycle. This could include on-site facilities or services available through local partnerships. Encourage including bicycle parking and shower/locker areas in new construction or major remodel projects.
- **Policy 5.7:** Require that all traffic impact studies and analyses of proposed street changes address impacts on bicycling and pedestrian transportation. Specifically, the following should be considered:
  - Consistency with General Plan and the Bicycle and Pedestrian Master Plan policies;
  - Impact on the existing and future Bicycle and Pedestrian Master Plan Bikeway System;



- Permanent travel pattern or access changes including the degree to which bicycle and pedestrian travel patterns are altered or restricted due to any change to the roadway network; and
  - Conformity to accepted bicycle and pedestrian facility design standards and guidelines.
- **Goal 6:** Support agency coordination for the improvement of bicycle and pedestrian access.

### **California Department of Transportation**

Caltrans is a State agency overseeing State highway, bridge, and rail transportation planning, construction, maintenance and operation. Caltrans' 2002 Guide for the Preparation of traffic impact studies provides the fundamental criteria and guidelines for conducting such studies. In terms of state highway LOS standards, Caltrans "endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D'... on State highway facilities." (Caltrans 2002:1). However, Caltrans recognizes that this may not always be feasible and invites lead agencies to consult with the agency to determine appropriate levels of service for particular state highway facilities. It should also be noted that the study intersections of North Livermore Avenue and the I-580 eastbound and westbound ramps are under Caltrans jurisdiction.

#### **4.16.1.2 Existing Conditions**

The existing setting includes descriptions of the roadways and documentation of existing vehicular traffic, local and regional transit service, pedestrian, and bicycle access conditions.

### **Roadway Network**

The following includes a discussion of existing roadways in the vicinity of the project. The functional designation of each roadway was obtained from the Alameda County General Plan and the ECAP.

The Alameda County roadway system is comprised of freeways, arterials, collector, and local streets. The General Plan defines freeways as high-speed, high-capacity transportation facilities serving regional and countywide travel; arterials as high mobility, high-capacity roadways that provide access to regional transportation facilities, accommodate intra-community travel, and connect the rest of the countywide collector system; collectors as low-speed, low-volume streets with two lanes that provide for circulation within and between neighborhoods, and support relatively short trips and are meant to collect vehicles from local streets and distribute them to the arterial network; and local streets as roadways that provide access to individual properties, primarily residences and businesses, and connect to the County's network of arterial and collector streets.

### **Regional Access**

I-580 is an eight- to ten-lane east-west freeway that runs from the San Francisco-Oakland Bay Bridge, traveling through the Eden Area in Ashland, before turning east to Castro Valley, Livermore, and the Central Valley. Access to I-580 from the project site is provided via North Livermore Avenue (approximately 2 miles south of the project site).

## Local Access

Local access is provided by several roadways near the project site and all designated as collector roadways in the ECAP. Descriptions of these roadways are presented below.

**North Livermore Avenue** is a north-south roadway that runs from Manning Road to I-580 and continues south through downtown Livermore to Tesla Road in the south Livermore area. This roadway operates with one travel lane in each direction in the vicinity of the project site. On-street parking is prohibited at all times along both sides of the roadway. Class II bike lanes are provided on both sides of the street, between Manning Road and the I-580 westbound ramps. The General Plan identifies North Livermore Road as an arterial roadway within the Livermore city limits and as a collector route north of I-580.

**May School Road** is an east-west roadway that extends eastward from North Livermore Avenue, and connects in sequence to Dagnino and Raymond Roads, Ames Street and Dalton Avenue, by which vehicles can connect to Vasco Road, an expressway connecting the Tri-Valley area to eastern Contra Costa County. Hartford Avenue and Lorraine Street functionally parallel the connection of May School and Dagnino Roads to Raymond Road about a mile to the south.

**Manning Road** is an east-west roadway that extends westward from the terminus of North Livermore Avenue to various roads that lead into Contra Costa County and a mixture of farms, estate properties and other agricultural uses in both Alameda and Contra Costa Counties, served by Morgan Territory, Highland, Collier Canyon and Carneal Roads. Camino Tassajara and the rural residential community of Tassajara in Contra Costa County is approximately six miles west of the North Livermore Avenue terminus.

**Morgan Territory Road** is a north-south roadway that runs from Manning Road to Marsh Creek Road. This roadway operates with one travel lane in each direction in the vicinity of the project site. There are no pedestrian or bicycle facilities provided on Morgan Territory Road. The General Plan identifies Morgan Territory Road as a collector street.

## Intersection Traffic Volumes

The three study intersections were counted on Thursday, February 26, 2020 during weekday a.m. (7-9 a.m.) and p.m. (4-6 p.m.) peak periods. The intersections and their traffic controls are listed below. Collected vehicle, bicycle, and pedestrian volumes for the weekday a.m. and p.m. peak periods are presented in Appendix I of this Draft EIR.

1. Morgan Territory Road / Manning Road (One-Way Stop Controlled)
2. North Livermore Avenue / I-580 Westbound Ramps (Signalized)
3. North Livermore Avenue / I-580 Eastbound Ramps (Signalized)

Existing lane configurations and weekday a.m. and p.m. peak hour vehicle turning movements for the study intersections are presented in Appendix I of this Draft EIR.

## Level of Service Methodology

Based on Alameda County General Plan, Alameda CTC, and Caltrans LOS criteria, analysis of the ECAP LOS standards for major intercity arterials (LOS D or better) is provided for the study intersection of Manning and Morgan Territory roads, and analysis of the Alameda County CMA standards for key roads

and freeways in the CMP network (LOS E or better) is provided for the study intersections of North Livermore Avenue and I-580 westbound ramps and North Livermore Avenue and I-580 eastbound ramps.

Traffic operational LOS conditions were evaluated for traffic during weekday a.m. (7-9 a.m.) and p.m. (4-6 p.m.) peak periods, and this analysis is provided for informational purposes only. LOS is a qualitative description of an intersection's performance based on the average delay per vehicle. Intersection LOS range from LOS A, which indicates free flow conditions with minimal delays, to LOS F, which indicates congested conditions with considerably long delays.

The study intersections were evaluated using the 2000 Highway Capacity Manual operations methodology. This method determines the capacity for each directional approach to an intersection. LOS is calculated based on the average stopped delay (seconds per vehicle) for the various approaches at the intersection. For signalized intersections, current Caltrans signal timing cards were incorporated.

### Level of Service Analysis – Existing Conditions

Table 4.16-1 presents the LOS and delay analysis results for the study intersections during the weekday a.m. and p.m. peak hours under Existing Conditions. Existing Conditions intersection LOS calculations are provided in Appendix I. As shown in Table 4.16-1, all the study intersections are currently operating at LOS C or better under Existing Conditions.

**Table 4.16-1**  
**EXISTING CONDITIONS: PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS**

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Morgan Territory Rd./Manning Rd.	One-Way Stop Controlled	9.9	A	10.7	B
2. North Livermore Ave./I-580 WB Ramps	Signalized	16.9	B	16.5	B
3. North Livermore Ave./I-580 EB Ramps	Signalized	10.7	B	26.6	C

Source: CHS Consulting Group, 2020

Notes:

1. Delay reported as seconds per vehicle. For signalized and all-way stop controlled intersections, a weighted average delay and LOS based on all intersection approaches is reported. For unsignalized intersections (1-way and 2-way stop controlled), delay and LOS for the worst stop-controlled approach is reported.
2. WB = westbound; EB = eastbound; LOS = Level of Service

### 95th Percentile Vehicle Queue Length Analysis – Existing Conditions

Peak hour 95th percentile queue lengths were also reviewed and compared with the existing storage capacity of turn lanes at study intersections where project-generated traffic is expected to be added. These intersections included the southbound right-turn lane at the North Livermore Avenue and I-580 westbound ramp intersection, and the southbound left-turn and eastbound shared left, through, and right-turn lane at the North Livermore Avenue and I-580 eastbound ramp intersection. Existing a.m. and p.m. peak hour intersection queue analysis results are summarized in Table 4.16-2, which shows that the 95th percentile vehicle queue lengths at study intersections are currently accommodated within existing storage capacity for both peak hours under Existing Conditions. Furthermore, field analysis for the TIS was completed prior to the Shelter-in-Place order due to the COVID-19 pandemic that has

resulted in substantially lower traffic volumes both locally and regionally, and thus represents a conservative worst-case condition that may not reflect actual conditions at the time of construction.

**Table 4.16-2**  
**EXISTING CONDITIONS: PEAK HOUR INTERSECTION QUEUE ANALYSIS RESULTS**

Intersection	Turn Lane	Storage Capacity (feet)	95 <sup>th</sup> Percentile Queue Length (feet)	
			AM Peak Hour	PM Peak Hour
North Livermore Ave./I-580 WB Ramps	SBR	140	40	0
North Livermore Ave./I-580 EB Ramps	EBLTR	530	66	454
	SBL	240	16	8

Source: CHS Consulting Group, 2020

Notes:

1. Results for the a.m. peak hour queue analysis can be reasonably expected based on field observations of existing a.m. peak hour vehicle queues conducted on Thursday, February 26, 2020 (pre-COVID Shelter-in-Place orders).
2. Bold text indicates 95th percentile queue length exceeds existing turn pocket capacity
3. WB = westbound; EB = eastbound; EBLTR = eastbound shared left, thru, right lane; SBL = southbound left-turn lane; SBR = southbound right-turn lane

## Vehicle Miles Traveled – Existing Conditions

VMT is a measurement of miles traveled by vehicles within a specified region for a specified time period. The project site is located in a rural setting and the site is currently used for cultivation and grazing. Consequently, the project site generates minimal vehicle trips, and proportionally minimal VMT that cannot be feasibly quantified.

## Transit Conditions

The project site is not currently served by local public transit service, nor is any such service anticipated to be established in the area in the foreseeable future. The Livermore Amador Valley Transit Authority (LAVTA) operates the WHEELS bus service, which provides local public transit to the cities of Dublin, Livermore, Pleasanton, and unincorporated areas of Alameda County. LAVTA also provides connecting service to Bay Area Rapid Transit (BART), Altamont Commuter Express (ACE), and Central Contra County Transportation Authority (County Connection). The closest WHEELS route, Route 580X, operates through two study intersections (North Livermore Avenue/I-580 eastbound ramps and North Livermore Avenue/I-580 westbound ramps). The nearest transit stops are located on North Livermore Avenue just south of the intersection with Las Positas Road (approximately 2.2 miles south of the Project site). No bus stops directly serve the project site. Route 580X operates two-way express service between 5:57 a.m. and 8:26 a.m., and between 4:29 p.m. and 7:28 p.m. with 30-minute headways. This route provides service between the Livermore Transit Center and East Dublin/Pleasanton BART Station.

## Walking/Accessibility Conditions

The project site is located in a rural setting in unincorporated Alameda County. Generally, there are no pedestrian facilities surrounding the project site or at any of the study intersections in the project vicinity. Such facilities may include pedestrian crosswalks, curb-ramps, and pedestrian signal heads.

CHS collected pedestrian counts at each study intersection on Thursday, November 7, 2019 during the a.m. (7-9 a.m.) and p.m. (4-6 p.m.) peak periods (see Appendix I). Indicative of the rural project vicinity, existing peak hour pedestrian volumes are generally very low, with three during the a.m. peak hour and

two during the p.m. peak hour at the Morgan Territory/Manning intersection. No pedestrian crossings were observed at the intersections of North Livermore Avenue and the I-580 ramps.

## **Bicycle Conditions**

Bicycle facilities include bicycle lanes, trails, and paths. On-street bicycle facilities include:

- Class I bikeways (shared-use paths with two-way paved facilities, physically separated from vehicular traffic for use by bicyclists, pedestrians, or other non-motorized users and includes trails that are unpaved paths accessible by bicycles and pedestrians, which are not considered accessible by Americans with Disabilities Act (ADA) standards);
- Class II bikeways (bike lanes striped within the paved areas of roadways and established for the exclusive use of bicycles; and includes buffered bicycle lanes that provide an additional painted buffer between the striped bicycle lane and adjacent travel lane);
- Class III bikeways (signed bicycle routes that allow bicycles to share travel lanes with vehicles on low-speed residential and rural roadways where bicyclists have priority); and
- Class IV separated bikeways (on-street bike facilities that are physically separated from traffic by curbs, plant boxes, bollards, grade separation, or parked cars for exclusive rights-of-way for use by bicyclists).

## **Existing Bikeways**

According to the Alameda County Bicycle and Pedestrian Master Plan for Unincorporated Areas (Bike Plan), unincorporated Alameda County currently has approximately 65.8 miles of bikeways including Class I (4.4 miles), Class II (40.8 miles), Class III (20.6 miles). There are currently no Class IV bikeways in unincorporated Alameda County.

Adjacent to the project site, there are Class II bike lanes that run in both the north and south directions along North Livermore Avenue, beginning north of Cayetano Court (north of I-580) and ending at Manning Avenue. There are no other existing bikeways in proximity to the project site. Indicative of the minimal area bicycle facilities, no a.m. and p.m. peak hour bicycle trips were observed at the study intersections (see Appendix I). However, it is noted that bicycle routes in the study area would typically not serve a conventional bicycle commuter function, but primarily are intended for recreational and inter-regional access routes. As a result, bicycle traffic on study roadways is typically higher during the weekends and outside of the typical weekday peak commute periods. Furthermore, the area is host to several annual spring, summer, and fall bicycle touring, racing, and charity events that use these rural bike routes.

## **Future Bikeway Improvements**

In terms of future bikeways, the Bike Plan recommends an additional 200 miles of bicycle facilities that would increase the system-wide total mileage of bikeways to 265.9 miles, including Class I shared use paths (32.2 miles), Class II bike lanes (58.9 miles), Class III bike routes (164.8 miles), and Class IV separated bikeways (10 miles).

South of the project site, future Class III bike routes are proposed along Hartford Avenue, May School Road, and Manning Avenue. Further south, the Livermore Bicycle, Pedestrian, and Trail Active Transportation Plan (Livermore Active Transportation Plan) proposes Class II bike lanes along North Livermore Avenue, between the I-580 westbound ramps and Las Positas Road.

#### **4.16.2 SIGNIFICANCE THRESHOLDS**

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant transportation impact if the project would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
4. Result in inadequate emergency access.

#### **4.16.3 IMPACT ANALYSIS**

**TRA-1            The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system including transit, roadway, bicycle, and pedestrian facilities.**

While SB 743 eliminates LOS as a basis for determining significant transportation impacts under CEQA and provides VMT as the new performance metric, the County General Plan and traffic study guidelines still require transportation impact analysis utilizing the LOS methodology. As such, the following analysis evaluates the project's consistency with these plans utilizing the LOS methodology. Refer to Impact TRA-2 for an analysis of the project's potential transportation impacts utilizing the VMT methodology.

##### **Project Trip Generation**

Typically, most transportation studies focus on impacts after a project is constructed and in operation, as the expected traffic generation once in operation is usually higher than that generated under any construction phase or combination of phases. For this project, however, the reverse is true. As such, the transportation analysis presented below focuses on construction-related impacts as operation of the proposed project would generate minimal to no peak hour trips and minimal VMT.

The project's vehicular trip generation analysis is based on data provided by the project applicant on proposed construction activities. Specific data used include the anticipated construction schedule, maximum number of workers on-site during each construction phase, and truck haul trips required to complete each phase. The proposed project would be constructed over a nine-month period and generally completed in four phases. The peak of construction activity is anticipated to occur when Phases 2, 3, and 4 overlap for approximately 50 days. Worker vehicle trips and truck haul trips are

estimated separately as they represent distinct trip types. See Appendix I for detailed project trip generation calculations.

#### *Worker Trips*

The total number of daily construction workers would vary depending on the specific phases and their overlap. Construction workers are expected to generate approximately four trips per person on a daily basis, including two commute trips (one a.m. peak hour inbound and one p.m. peak hour outbound) and two auxiliary trips (one inbound and one outbound) during the midday for off-site trips. For conservative (worst-case) calculation purposes and given the lack of transit access to the site, it was assumed that all workers would drive alone. Table 4.16-3 shows the maximum number of workers anticipated on-site per day during each construction phase.

**Table 4.16-3  
WORKER TRIPS BY CONSTRUCTION PHASE**

Construction Phase	Maximum Workers Onsite	Worker Trips						
		Daily	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Phase 1	100	400	100	0	100	0	100	100
Phase 2	250	1,000	250	0	250	0	250	250
Phase 3	125	500	125	0	125	0	125	125
Phase 4 <sup>1</sup>	0	0	0	0	0	0	0	0
<b>Peak Construction<sup>2</sup></b>	<b>375</b>	<b>1,500</b>	<b>375</b>	<b>0</b>	<b>375</b>	<b>0</b>	<b>375</b>	<b>375</b>

Source: Intersect Power; CHS Consulting Group, 2020

Notes:

1. No additional worker trips are expected for Phase 4, as all Phase 4 activities would use available workers associated with Phases 1, 2, and 3.
2. Peak construction includes the overlap of Phases 2, 3, and 4 for up to 50 days in duration.

As shown in Table 4.16-3, during the peak overlap of Phases 2, 3, and 4, up to 375 workers would be on-site during a typical workday. This would equate to approximately 1,500 daily worker trips, including 375 trips inbound during the a.m. peak hour and 375 trips outbound during p.m. peak hour.

#### *Truck Haul Trips*

Similar to worker trips, the total number of truck haul trips generated at the project site would vary depending on the construction phase and any overlap. Trucks would deliver construction materials and remove refuse material from the site on a continual basis on weekdays from 8 a.m. to 5 p.m. with an even 50/50, inbound/outbound split each hour. Based on these assumptions, the maximum number of truck haul trips were divided by the total number of workdays in each phase to estimate the maximum daily trips for each phase. Table 4.16-4 shows the maximum number of daily truck haul trips to/from the project site during each construction phase.

**Table 4.16-4**  
**TRUCK HAUL TRIPS BY CONSTRUCTION PHASE**

Construction Phase	Truck Haul Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		Inbound	Outbound	Total	Inbound	Outbound	Total
Phase 1	46	3	2	5	2	3	5
Phase 2	52	3	3	6	3	3	6
Phase 3	10	1	1	2	1	1	2
Phase 4	59	3	3	6	3	3	6
<b>Peak Construction<sup>1</sup></b>	<b>121</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>

Source: Intersect Power; CHS Consulting Group, 2020

Notes:

1. Peak construction includes the overlap of Phases 2, 3, and 4 for up to 50 weeks duration.

As shown in Table 4.16-4, during the peak overlap of Phases 2, 3, and 4, up to 121 daily truck haul trips would be generated, including 14 trips (seven inbound and seven outbound) during both the a.m. and p.m. peak hours.

#### *Composite of Project Trips*

To estimate the maximum number of total project trips, the preceding trip generation analysis of worker and truck haul trips were combined to estimate the maximum number of total trips per phase for use in the subsequent traffic analysis. Table 4.16-5 shows the composite maximum number of trips to/from the project site during each construction phase.

**Table 4.16-5**  
**TOTAL PROJECT TRIPS BY CONSTRUCTION PHASE**

Construction Phase	Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
<b>Phase 1</b>	Worker	400	100	0	100	0	100	100
	Truck	46	3	2	5	2	3	5
	<b>Total</b>	<b>446</b>	<b>103</b>	<b>2</b>	<b>105</b>	<b>2</b>	<b>103</b>	<b>105</b>
<b>Phase 2</b>	Worker	1,000	250	0	250	0	250	250
	Truck	52	3	3	6	3	3	6
	<b>Total</b>	<b>1,052</b>	<b>253</b>	<b>3</b>	<b>256</b>	<b>3</b>	<b>253</b>	<b>256</b>
<b>Phase 3</b>	Worker	500	125	0	125	0	125	125
	Truck	10	1	1	2	1	1	2
	<b>Total</b>	<b>510</b>	<b>126</b>	<b>1</b>	<b>127</b>	<b>1</b>	<b>126</b>	<b>127</b>
<b>Phase 4<sup>1</sup></b>	Worker	0	0	0	0	0	0	0
	Truck	59	3	3	6	3	3	6
	<b>Total</b>	<b>59</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>Peak Construction<sup>2</sup></b>	Worker	1,500	375	0	375	0	375	375
	Truck	121	7	7	14	7	7	14
	<b>Total</b>	<b>1,621</b>	<b>382</b>	<b>7</b>	<b>389</b>	<b>7</b>	<b>382</b>	<b>389</b>

Source: Intersect Power; CHS Consulting Group, 2020

Notes:

1. No additional worker trips are expected for Phase 4, as all Phase 4 activities would use available workers associated with Phases 1, 2, and 3.
2. Peak construction includes the overlap of Phases 2, 3, and 4 for up to 50 days in duration.



As shown in Table 4.16-5, during the peak overlap of Phases 2, 3, and 4, up to 1,621 trips would be generated (1,500 worker and 121 truck haul trips), including 389 trips (382 inbound and seven outbound) during the a.m. peak hour and 389 trips (seven inbound and 382 outbound) during the p.m. peak hour.

The peak of project construction activities would generate 389 a.m. and 389 p.m. peak hour vehicle trips, and approximately 350 a.m. and 350 p.m. peak hour vehicle trips would occur via I-580. However, project construction activities would be temporary (approximately nine-months in duration) and the project would generate fewer than 100 vehicle trips on the CMP network during the a.m. or p.m. peak hour once in operation. Therefore, the project would not be required to conduct a quantitative analysis for project impacts related to freeway mainline segments (i.e., I-580) or ramps in the CMP network. For these reasons, the project would result in less-than-significant impacts related to the CMP network. Additionally, most maintenance and construction activities associated with the proposed project would be contained within the project site and are not expected to result in the long-term closures of travel lanes or roadway segments, permanently alter the public access roadways, create new public roadways that could substantially change the travel patterns of vehicles and bicycles on surrounding roadways, or conflict with the policies and plans regarding bicycle facilities.

There are no transit or pedestrian facilities adjacent to the project site that would be impacted by project-generated construction traffic. Although the project would add vehicular traffic to intersections used by WHEELS bus route 580X, these study intersections would continue to operate at the same LOS as existing conditions and thus would not affect transit operations in the vicinity of the project site. There are Class II bike lanes along North Livermore Avenue adjacent to the project site where there were no observed bicycle trips during the weekday a.m. and p.m. peak hours. However, the rural roadways in the study area are generally used for recreational and inter-regional travel that typically occurs outside of the typical weekday peak commute periods and on weekends. During construction, slow-moving oversized trucks could potentially disrupt the movement of bicycles on North Livermore Avenue and Manning Road in the study area. However, project construction activities would primarily occur between 7:00 a.m. and 7:00 p.m. on weekdays with the highest concentration of construction-generated traffic occurring during the typical a.m. and p.m. peak commute periods when bicycle volumes are low, and no weekend work is anticipated. No lane or road closures are anticipated during project construction that could temporarily disrupt bicycle access on these roads. However, standard traffic control, such as signage and use of orange cones and flaggers, would be implemented on the roadway, if necessary. Furthermore, the analyzed project-generated traffic would be related to temporary construction whose short-term traffic increases end when construction activities are completed.

Typically, most transportation studies focus on impacts after a project is constructed and in operation, as the expected traffic generation once in operation is usually higher than that generated under a construction phase or combination of phases. For this project, however, the reverse is true. Once the proposed project is in operation, an average of 4 workers would be on-site each weekday and up to 12 workers would access the site once annually for scheduled module washing, which would result in daily vehicle volumes below any threshold of measurable or adverse effect, and operation impacts on traffic would be less than significant.

During decommissioning, approximately 200 average daily worker trips and 40 average daily construction truck trips would take place. This would take place over a 6-month time period and

conditions would return to normal upon removal of the facility. Based on the temporary nature of these trip increases, decommissioning impacts on traffic would be less than significant.

Therefore, the project would not conflict with any applicable plan, ordinance, or policies establishing measures of effectiveness for the performance of the circulation system, and impacts would be less than significant.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity of the interconnection facilities under CPUC jurisdiction would not be greater than that anticipated for construction and operation of the project. Therefore, construction and operation of project interconnection facilities by PG&E would not result in transportation impact conclusions different or more severe than analyzed in the project specific TIS, as described above. Construction and operation of project interconnection facilities by PG&E would not conflict with any applicable plan, ordinance, or policies establishing measures of effectiveness for the performance of the circulation system, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

## **TRA-2      The proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).**

### **Project VMT Analysis Methodology**

Project-generated daily VMT was estimated separately for each project trip type, based on project-specific data for each of the four phases of construction. Project trip types are discussed individually below.

#### *Daily Worker Commute Trips*

Project-specific worker home-origin data provided by the project applicant, assumed that the workforce would be based in the cities of Oakland, San Leandro, Hayward, Fremont, and Tracy.

For the purpose of assigning a distance for daily worker commute trips, a Google Maps measurement was utilized to approximate a centroid location for each of the worker origin cities. Based on Google Maps city centroid distance measurements to the project site, the daily VMT analysis assumed a distance of 31.7 miles for worker commute trips to/from Oakland, 25.7 miles to/from San Leandro, 24.5 miles to/from Hayward, 37.5 miles to/from Hayward, and 21.9 miles to/from Tracy. This analysis represents a conservative worst-case scenario, as some workers may originate from the Tri-Valley area and other communities to the north that are closer in proximity to the project site. The worker commute analysis assumed one daily round-trip per worker, with all workers arriving to the project site during the a.m. peak hour and departing the project site during the p.m. peak hour.

#### *Daily Worker Off-Site Midday Trips*

It is anticipated that each project construction worker would take a midday off-site round trip for lunch or other work purposes. In order to conservatively estimate the daily VMT associated with these trips, it was assumed that each worker would take one round-trip to/from downtown Livermore, approximately

4.6 miles south of the project site. For the peak overlap of Phases 2, 3, and 4, the number of worker off-site trips would be 750 (375 inbound and 375 outbound). These assumptions represent a conservative worst-case scenario, as some workers may find closer lunch options or bring their lunch and eat at the project site.

#### *Daily Truck Haul Trips*

Per project-specific truck haul trip data provided by the project applicant, during the peak overlap of Phases 2, 3, and 4, up to 121 daily truck haul trips would be generated. It is anticipated that all project truck haul trips would travel to and from the Port of Oakland, approximately 34.1 miles west of the project site.

### **Project-Generated VMT Analysis Results**

In order to calculate the daily VMT for the peak of project construction (the 50-day duration of overlap between Phases 2, 3, and 4), daily VMT was first estimated for each individual project construction phase.

The daily VMT for worker commute trips for each phase was estimated by multiplying the number of daily trips by the assumed distance for worker commute trips from the cities described earlier. The VMT results for each city were then multiplied by each city's American Community Survey construction workforce population percentage. The resulting daily VMT for each city was then combined for the total daily worker commute trip VMT per phase.

The daily VMT for worker off-site trips per phase was estimated by multiplying the number of daily trips by the assumed distance from the project site to the commercial and dining locations in downtown Livermore (4.6 miles). Daily VMT for construction truck haul trips per phase was estimated by multiplying the total daily truck haul trips by the distance between the project site and the Port of Oakland (34.1 miles). The total daily VMT for each trip type during Phases 2, 3, and 4 of project construction was then combined to estimate the total daily VMT for a typical workday during the peak of project construction. Table 4.16-6 shows the resulting total daily VMT and daily per capita VMT generated by the project during the peak of construction activities.

**Table 4.16-6  
PROJECT CONSTRUCTION VMT**

<b>Trip Type</b>	<b>Total Daily VMT (miles)</b>	<b>Daily per Capita VMT (miles)</b>	
Worker Commute Trips (Home/Site)	21,616	57.6	66.9
Worker Midday Trips (Site and back)	3,454	9.2	66.9
Truck Haul Trips	4,127	68.2	68.2

The TIS estimated that on a typical workday, the project would generate 29,197 VMT during construction. The worker VMT (21,616 miles for commute trips and 3,454 miles for midday trips) was divided by the number of anticipated workers on site during the peak of project construction (375 workers), resulting in a daily per capita VMT of 66.9 miles. The number of peak daily truck haul trips (121) was divided by two (one worker driving two one-way trips to and from the Port of Oakland). The total daily truck haul VMT of 4,127 miles was then divided by 60.5 trips, resulting in a daily per capita VMT of 68.2 miles for truck haul trips. These VMT estimates also represent the net VMT increase at the site, given there is minimal VMT currently generated.

The project would represent an increase in VMT during the nine-month construction period compared with the existing agricultural cultivation and cattle grazing uses at the project site. The project at the construction peak would generate a daily per capita VMT of 66.9 miles for workers and 68.2 miles for truck haul trips. However, once the project is constructed and in operation, an average of four workers would be onsite each weekday and up to 12 workers would access the site once annually for scheduled module washing. This would result in fewer than 110 trips per day to the project site. As per Office of Planning and Research guidance, projects that generate or attract fewer than 110 trips per day result in a less-than-significant transportation impact (OPR 2018). Therefore, the proposed project would result in less-than-significant impacts related to VMT.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that anticipated for construction and operation of the project. Therefore, construction and operation of project interconnection facilities by PG&E would not result in VMT impact conclusions different or more severe than analyzed in the project specific TIS, and above. Construction and operation of project interconnection facilities by PG&E would result in less-than-significant impacts related to VMT.

**Significance without Mitigation:** Less than significant impact.

#### **TRA-3      The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

The proposed project would not permanently alter any roadways that would result in a design feature that could substantially increase hazards. The proposed project would construct a total of seven new access points along North Manning Road, North Livermore Avenue, and Hartman Road that would be constructed to conform to County sight distance standards and would not introduce new hazards. Refer to Appendix C for detailed plans showing the locations of the proposed access points. Additionally, all solar arrays and other structures would be set back from public roadways and would avoid any sight distance hazards. During construction, slow-moving oversized trucks could potentially disrupt the movement of slow-moving farm equipment on North Livermore Avenue and Manning Road in the project area. However, standard traffic control, such as signage and use of orange cones and flaggers, would be implemented on the roadway, if necessary.

The project land use is considered a compatible use as discussed in Section 4.11, Land Use and Planning, of this Draft EIR. Therefore, the proposed project would result in less-than-significant impacts related to increased hazards due to design features or incompatible uses.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that anticipated for construction and operation of the project. Therefore, construction and operation of project interconnection facilities by PG&E would not result in design feature hazards conclusions different or more severe than analyzed in the project specific TIS,

and above. Construction and operation of project interconnection facilities by PG&E would result in less-than-significant impacts related to increased hazards due to design features or incompatible uses.

**Significance without Mitigation:** Less than significant impact.

#### **TRA-4      The proposed project would not result in inadequate emergency access.**

The proposed project may require the use of large equipment on adjacent roadways during project construction and decommissioning. However, standard traffic control measures, such as signage and use of orange cones and flaggers, would be implemented on the roadway to maintain emergency access. Although the project proposes seven new access points along North Manning Road, North Livermore Avenue, and Hartman Road, the proposed project would not permanently alter roadways or create any traffic conditions that would impede emergency access. The proposed project would not impact private driveways or access to residences in the area. Furthermore, the analyzed project-generated traffic would be related to temporary construction whose short-term traffic increases would end when construction is completed. Therefore, the proposed project would result in a less-than-significant impact related to emergency access.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The intensity of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that anticipated for construction and operation of the project. Therefore, construction and operation of project interconnection facilities by PG&E would not result in emergency access conclusions different or more severe than analyzed in the project specific TIS, and above. Construction and operation of project interconnection facilities by PG&E would result in a less-than-significant impact related to emergency access.

**Significance without Mitigation:** Less than significant impact.

### **4.16.4      CUMULATIVE ANALYSIS**

#### **TRA-5      The proposed project would not contribute to a significant cumulative impact with respect to transportation.**

This analysis of cumulative impacts to transportation and traffic is based on the effects of the proposed project in combination with projects proposed in the North Livermore area which include Livermore Community Solar Farm and Oasis Fund projects.

As discussed above under impact TRA-1, peak construction activities would generate 389 a.m. and 389 p.m. peak hour vehicle trips, and construction, operation, and decommissioning traffic generated by the proposed project would result in less than significant transportation impacts as the vehicle trips associated with construction and operation of the project would not substantially degrade major arterials and CMP designated roadways and would not impact pedestrian facilities, bicycle facilities, or public transit. The proposed project would also have less than significant impacts to VMT generation, hazards due to geometric design or incompatible uses, and would not result in inadequate emergency access. Neither of the other two projects considered in this cumulative analysis analyzed project impacts to VMT generation because both of the CEQA documents that were prepared for those project were

circulated for public review prior to July 1, 2020, which is when the requirement to analyze VMT impacts became effective. However, the Livermore Community Solar Farm project is a smaller-scale solar facility compared to the proposed project and the Oasis Fund is a less than one-acre cannabis cultivation operation, and it is assumed that impacts to VMT generation would be less than that for the proposed project. Impacts to VMT generation would not be cumulatively considerable.

Construction of the Livermore Community Solar Farm is anticipated to occur over a 12-month period, and the Draft EIR for the project stated that construction of the project was anticipated to be completed by the end of year 2020. The project has not yet been approved, so for this cumulative analysis, it is assumed that project construction of the Livermore Community Solar Farm project would be complete by the end of 2021, if approved. Construction of Phase 1 of the Livermore Community Solar Farm is estimated to generate up to 63 trips per day (50 worker commute trips and 13 haul trips), and construction of Phase 2 is anticipated to generate up to 54 trips per day (50 commute trips and 4 haul trips). It is anticipated that the majority of construction workers would arrive at the project site before the a.m. peak hour and leave midafternoon before the p.m. peak hour traffic (Placeworks 2020). Construction of the Oasis Fund project is anticipated to occur over a 23-month period with the project anticipated to be operational by 2021. Construction of the proposed project would commence as early as October 2021 or as late as February 2022 and would take approximately 9 months. Therefore, prolonged overlap of construction between the three projects is not anticipated, if at all, and transportation-related impacts from construction of the three projects would not be cumulatively considerable.

Operation of the proposed Oasis Fund project would generate a total of 110 daily trips with 11 a.m. peak hour and 11 p.m. peak hour trips (Raney 2020). Because the Livermore Community Solar Farm project would only employ one full-time employee and the proposed project would employ up to four full-time employees, trips generated from operation of both projects would be minimal (approximately 20 daily trips assuming 4 one-way trips per day, per employee). Therefore, transportation-related impacts from operation of the three projects would not be cumulatively considerable.

Therefore, in combination with the nearby projects, the proposed project would not contribute to a significant cumulative transportation impact, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The interconnection facilities are within the scope of the project transportation-related cumulative impact analysis, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. Therefore, construction and operation of project interconnection facilities by PG&E would not contribute to a cumulatively considerable transportation-related impact, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### 4.16.5 REFERENCES

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## **4.17 UTILITIES AND SERVICE SYSTEMS**

This section describes the regulatory framework and existing conditions related to utilities and service systems, evaluates the potential impacts to water, sanitary sewers, storm drainage, solid waste facilities, and energy systems as a result of implementation of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.17.1 ENVIRONMENTAL SETTING**

#### **4.17.1.1 Regulatory Framework**

##### **Federal Regulations**

###### **Clean Water Act**

Section 304 of the CWA establishes primary drinking water standards and requires states to ensure that potable water retailed to the public meets these standards. State primary and secondary drinking water standards are promulgated in California Code of Regulations Title 22, Sections 64431–64501. Secondary drinking water standards incorporate non health risk factors including taste, odor, and appearance. The NPDES regulates the discharge of drainage to surface waters. Federal NPDES regulations are administered by the SWRCB and through RWQCBs. Because the proposed project area drains to San Francisco Bay, it is under the jurisdiction of the San Francisco Bay RWQCB.

Municipal storm drainage is required to meet board standards under waste discharge regulations and NPDES permits.

##### **State Regulations**

###### **Porter-Cologne Water Quality Control Act (Section 13000 et seq.)**

The Porter-Cologne Water Quality Control Act directs the SWRCB and RWQCBs to prepare water quality control plans (basin plans) that establish water quality objectives and beneficial uses for each body of water, including groundwater basins, within the regional boundaries. The Porter-Cologne Act empowers the SWRCB and RWQCBs to protect the beneficial use of California waters, thereby providing broader authority than offered by the CWA alone. The SWRCB and RWQCBs adopt regulations to protect surface water quality.

###### **California Energy Commission**

The CEC regulates the provision of natural gas and electricity within the state. The CEC is the state's primary energy policy and planning agency and has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing the state response to energy emergencies.



### **California Integrated Waste Management Board**

The California Integrated Waste Management Board is the State agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. The California Integrated Waste Management Board develops laws and regulations to control and manage waste; enforcement authority is typically delegated to the local government. The board works jointly with local government to implement regulations and fund programs.

Pursuant to the California Integrated Solid Waste Management Act of 1989, all cities in California are required to reduce the amount of solid waste disposed in landfills. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source-reduction, reuse, and recycling programs. Contractors are urged to manage solid waste to divert waste from landfills (particularly Class III landfills) and to maximize source reduction, reuse, and recycling of construction and demolition debris.

### **Department of Water Resources**

In June 1991, the California Department of Water Resources (DWR) published Bulletin 74-90 as a supplement to Bulletin 74-81, Water Well Standards: State of California, December 1981. Together, the two bulletins form the complete minimum Well Standards for the construction, maintenance, abandonment and destruction of water wells, monitoring wells and cathodic protection wells. DWR requires that wells be in good working order with adequate protection measures in place to protect persons/animals if the intent is to use the well in the future. If the well is not to be used, DWR requires the well be abandoned within one year after it was last used.

### **California Water Code Section 10912**

Section 10912 of the Water Code requires a city or county that determines that a project, as defined, is subject to the CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified WSA. The proposed project is an industrial project occupying 40 acres of land and therefore qualifies as a project requiring preparation of a WSA.

## **Local Regulations**

### **East County Area Plan**

Relevant components of the ECAP related to utilities and service systems are listed below (Alameda County 2000).

*Goal: To achieve a balanced subregion featuring compact communities, a diverse economic base, affordable housing, and a full complement of public facilities and amenities.*

- **Policy 13:** The County shall not provide nor authorize public facilities or other infrastructure in excess of that needed for permissible development consistent with the Initiative. This policy shall not bar 1) new, expanded or replacement infrastructure necessary to create adequate service for the East County, 2) maintenance, repair or improvements of public facilities which do not increase capacity, and 3) infrastructure such as pipelines, canals, and power transmission lines which have no excessive growth-inducing effect on the East County area and have permit

conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative. “Infrastructure” shall include public facilities, community facilities, and all structures and development necessary to the provision of public services and utilities.

*Goal: To provide efficient and cost-effective utilities.*

- **Policy 285:** The County shall facilitate the provision of adequate gas and electric service and facilities to serve existing and future needs while minimizing noise, electromagnetic, and visual impacts on existing and future residents.
- **Policy 287:** The County shall require new developments to locate utility lines underground, whenever feasible.

### **Zone 7 Water Agency**

The Zone 7 Water Agency is responsible for all well permitting activities for Eastern Alameda County and manages all drilling permit applications within its service area. Zone 7 Water Agency is the Administering Agency for Alameda County's "Water Wells Ordinance" (General Ordinance Number 0-2015-20) in eastern Alameda County. The purpose of the code is to prevent pollution or contamination of groundwater such that water obtained from water wells will be suitable for the beneficial uses intended and shall not jeopardize the health, safety, or welfare of the people of the County. The County also regulates the destruction of abandoned wells or wells found to be public nuisances.

#### **4.17.1.2 Existing Conditions**

##### **Water**

The project site is located within the service area of the Zone 7 Water Agency. The project site does not have existing water supply infrastructure, such as water tanks or water conveyance systems.

##### **Wastewater**

The project site does not have existing wastewater facilities or connections to wastewater conveyance systems. At this time, on-site septic systems are used in the project vicinity.

##### **Stormwater Drainage**

Existing stormwater drainage at the project site is natural overland flow and infiltration into on-site soils. No man-made stormwater drainage facilities occur on the project site.

##### **Electric Power**

PG&E's Cayetano 230 kV substation is located adjacent to the project site near the intersection of North Livermore Avenue and May School Road.

An existing underground power utility easement is located along North Livermore Avenue and Manning Road (see Sheet C201\_B and C202\_B Existing Conditions Plan – South in Appendix C) and extends 60 feet

from the roadway right-of-way. An overhead electrical power easement is also located along North Livermore Avenue.

### **Natural Gas**

No natural gas utility connections are at the project site.

### **Telecommunications**

No telecommunications infrastructure is present within the project site.

### **Solid Waste**

Alameda County is primarily served by the Vasco Road Sanitary Landfill and the Altamont Landfill and Resource Recovery. The Vasco Road landfill has a permitted capacity of 2,518 tons of solid waste per day and a remaining permitted capacity of 7,379,000 cubic yard with an estimated “cease of operation date” of December 31, 2022. The Altamont Landfill and Resource Recovery has a permitted capacity of 11,150 tons of solid waste per day and a remaining permitted capacity of 124,400,000 cubic yard with an estimated “cease of operation date” of January 1, 2025.

#### **4.17.2 SIGNIFICANCE THRESHOLDS**

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered in establishing the significance of utilities and service systems:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments;
4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

### 4.17.3 IMPACT ANALYSIS

**UTIL-1      The proposed project would not require or result in the relocation or expansion of water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. However, the project may require or result in the construction of new water, wastewater treatment or storm water drainage, or electric power of which may result in a significant impact.**

#### Water

During project construction and decommissioning, it is anticipated that up to 50,000 gallons of water would be used daily and that a total of up to 42-acre-feet would be used for dust suppression. During the project's 50-year O&M period, water demands include annual washing of the solar PV panels to clean accumulated dust and debris to maintain efficiency, potential wastewater associated with water treatment, potential on-site emergency fire suppression storage water, operation of the project's O&M building, and water provided in on-site troughs for sheep grazing. Water for the solar facility would either be obtained via an on-site well or off-site water purveyor and trucked to the site. If an on-site well is constructed, then a well construction permit would be required from the Zone 7 Water Agency, and if the water is to be used for drinking water, then approval would be required from the Alameda County Department of Health. The on-site well would be within the impact footprint analyzed in this Draft EIR, and there would be no tie-ins to existing water facilities outside the project footprint. Because the project applicant would be required to obtain the appropriate permits and approvals from Zone 7 Water Agency and the Alameda County Department of Health and adhere to agency guidelines, and because the well would be located within the disturbance footprint analyzed by this Draft EIR, construction of an on-site well would have less than significant environmental impacts. If water would be obtained via an off-site water purveyor and trucked in, water providers would be permitted and licensed businesses and, correspondingly, in compliance with regulatory requirements, and no new or relocated water facilities would be required. Therefore, the project would not require the relocation or construction of new water facilities that would result in significant environmental impacts.

#### Wastewater

The project site does not have existing wastewater facilities or connections to wastewater conveyance systems and, therefore, would not require the relocation of existing wastewater facilities. Portable restrooms would be used for the duration of project construction and would be removed upon completion of construction. During project operation, wastewater would be held in a septic tank system and removed routinely. No septic leach system is planned for on-site wastewater treatment.

The proposed project would install an on-site septic system, and no connection to the region's wastewater treatment systems would be required. As discussed in Section 4.10, Hydrology and Water Quality, the project boundary overlaps with the May School Subbasin which has been identified as an Area of Concern for high nitrate levels by Zone 7. Therefore, a special OWTS permit would be required for the construction of a new OWTS to limit or reduce the amount of nitrogen loading from OWTS in the area. Approval of an OWTS permit from the County Department of Environmental Health for the septic system would require compliance with special requirements identified in the Nutrient Management Plan prepared by Zone 7 and would be installed and maintained in compliance with all applicable regulations to ensure containment and protection of groundwater quality (Zone 7 2015). Therefore, the proposed

project would not require the relocation or construction of new wastewater facilities that would result in significant environmental impacts.

### **Storm water drainage**

The proposed project includes the construction of two drainage basins, one along the southern boundary of the central section and one in the southwest section of the project site, and additional overland flow would be accommodated with existing onsite drainages to the new drainage basins. As discussed in Section 4.10, Hydrology and Water Quality, the detention basins would be appropriately sized to the site-specific hydrology (98.5 percent of the ground surface of the project site would remain pervious), and the proposed project would not increase stormwater conveyance off-site.

Additionally, during construction, coverage under the State's Construction General Permit would be required since the project would disturb more than 1 acre. As part of the permit, a project-specific SWPPP would be prepared and implemented. Impacts from the construction of the two stormwater detention basins would be less than significant.

### **Electric Power**

As a solar facility, the proposed project would be a new component of the local electric power utility and service system, and the project would interconnect with the nearby electricity grid at PG&E's existing Cayetano 230 kV substation located adjacent to the project site. The individual PV modules would be arranged in rows onto a single-axis tracker racking system, which would in turn be affixed to steel piles. The arrays would be connected by low-voltage underground and/or above-ground electrical wiring to a central inverter station or to string inverters located throughout the facility, where the electricity would be converted from direct current to alternating current. The power output from the inverter station would be conveyed to the on-site substation via collection cables. The northern section of the project site (north of Manning Road) would be electrically connected to the central section via medium-voltage distribution lines. An encroachment permit would be obtained for the crossing of Manning Road, as necessary. Medium-voltage lines would be buried for a majority of their length, but would emerge above-ground and be mounted on up to two overhead wooden utility poles on either side of Manning Road and up to 10 additional wooden poles to cross Cayetano Creek and its tributaries, to cross an access driveway, and if an overhead connection to the PG&E Cayetano substation is required. The average height of the electrical poles would be 50 feet and the maximum height would be up to 100 feet for poles adjacent to the PG&E Cayetano substation.

The project substation would be located adjacent to the west of the PG&E Cayetano substation, allowing the gen-tie to be short and overhead with a possibility of underground construction as well. The project substation would provide the necessary circuit breakers, switches, protection relays, and other necessary equipment to reliably and safely protect both the project's and PG&E's electrical infrastructure. Overhead lines would be constructed on either tubular steel poles or wood H-frames and may be constructed to be single-circuit or double-circuit. The heights of the overhead poles could vary from 30 to 100 feet, depending on the entry angle required by PG&E.

The proposed project would not require the expansion of the existing PG&E Cayetano substation or relocation of existing utility lines. As discussed above, the proposed project would underground power lines to the maximum extent feasible but could include the installation of up to 10 additional electrical power lines to cross Manning Road, Cayetano Creek and its tributaries, an access driveway, and to

connect to the existing PG&E Cayetano substation if an overhead connection is required. Although impacts to birds due to collisions with the proposed overhead electrical lines is not anticipated to be a significant source of mortality or result in a significant impact, implementation of MM BIO-7e identified in Section 4.4, Biological Resources, would reduce any such impacts to a less-than-significant level.

## **Natural Gas**

No natural gas utility connections are proposed or would be impacted by the proposed project.

## **Telecommunications**

The proposed project would not require the construction of new or modifications to existing telecommunication infrastructure.

In summary, the proposed project would not require the relocation or expansion of existing utilities in the project area. The proposed project would include the installation of underground utility lines, up to 10 overhead power lines, and an OWTS and could include the construction of an on-site well for water supply if needed. Acquisition of the appropriate permits noted above, compliance with all applicable regulations and requirements of those permits, and implementation of MM BIO-7e would reduce any potential impacts from the construction of new utilities to a less-than-significant level.

## **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The level of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not require the relocation or construction of new water facilities, wastewater facilities, or telecommunication facilities. Construction and operation of interconnection facilities under CPUC jurisdiction would not involve natural gas utility connections. Construction and operation of the interconnection facilities would be required to meet all requirements of the project specific SWPPP. Construction of the interconnection facilities by PG&E could require the installation of overhead powerlines between the project substation and the Cayetano substation. Although impacts to birds due to collisions with the potential overhead electrical lines is not anticipated to be a significant source of mortality or result in a significant impact, implementation of MM BIO-7e identified in Section 4.4, Biological Resources, would be applicable to construction and operation of the project interconnection facilities by PG&E and would reduce any such impacts to a less-than-significant level.

**Significance without Mitigation:** Potentially significant impact.

### **MM BIO-7e: Avian Effects During Operation of the Solar Facility**

MM BIO-7e: In compliance with the Avian Power Line Interaction Committee's (APLIC) guidance, Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC, 2012), transmission lines and all electrical components shall be designed, installed, and maintained in accordance with APLIC (2012) guidance to reduce the likelihood of large bird electrocutions and collisions.

**Significance with Mitigation:** Less than significant.

**UTIL-2      The proposed project would not have a significant impact on water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.**

During project construction and decommissioning, it is anticipated that up to 50,000 gallons of water would be used daily and that a total of up to 42-acre-feet would be used for dust suppression. During the project's 50-year O&M period, water demands include annual washing of the solar PV panels to clean accumulated dust and debris to maintain efficiency, potential wastewater associated with water treatment, potential on-site emergency fire suppression storage water, operation of the project's O&M building, and water provided in on-site troughs for sheep grazing. It is conservatively estimated that up to 12.85 AFY of water would be needed for project operation. See Appendix G of this Draft EIR for more detailed information on the water demand calculation and assumptions.

Water supplies considered in the WSA for project construction, operation, and decommissioning include groundwater pumped from the Livermore Valley Groundwater Basin via an on- or off-site groundwater well, surface water imported to the project area and distributed via the Zone 7 Water Agency, and local groundwater banking operations that receive surplus water supplies during wet years and provide supply reliability during dry years.

The project's amortized annual water demand is 13.97 AFY; this is the project's total maximum water demand averaged over all phases of the project, accounting for 52 years to capture construction and decommissioning or repowering occurring during years that O&M activities also may occur, in addition to 50 full years of project O&M. During a normal O&M year for the project, water demands would include a minimum of 5 AFY for panel washing activities to maintain maximum efficiency of the project's technology. In order to provide a conservative analysis of water supply availability and reliability, the WSA considers a maximum operational water demand of up to 12.85 AFY, which accounts for factors including a possible need to treat water for high TDS concentrations before it is used for panel washing, and accounts for the option of storing a supply of emergency fire suppression water on-site (see Appendix G of this Draft EIR for more information).

Long-term water supply availability projections provided in the Zone 7 2015 UWMP were reviewed and assessed in the WSA in comparison to the anticipated water demands of the proposed project. Zone 7's UWMP projects a surplus water supply under all considered drought scenarios, including normal-year, single-dry year, and multiple dry year conditions. This is likely due to Zone 7's diversified water supply portfolio consisting of local groundwater recharge and banking efforts as well as imported surface water supplies, in addition to other proactive management efforts including salt and nutrient management of the local groundwater resources, to maximize their potential for future use. Consistent with ongoing activities, it is anticipated that Zone 7 will respond to anticipated dry-year water shortages by pumping banked groundwater that is actively managed for this purpose, and by implementing management actions including but not limited to conservation actions.

The water supply planning efforts discussed above, including Zone 7's UWMP, rely upon General Plan land use designations and zoning in order to predict water demands based upon known and anticipated land uses. In this case, the project site is designated and zoned for agriculture, and although agriculture would continue to occur on the project site in the form of sheep grazing and apiary uses, the site's primary land use after project implementation would be solar energy development, which is generally less water intensive than agricultural land uses. Therefore, with implementation of the proposed project, the actual water demands that would occur on the project site would likely be lower than

planned for the project site in the UWMP for the area. This suggests that the water demands that would occur on the project site with implementation of the project are accounted for in the supply availability projections provided in the UWMP (Rincon 2020).

The WSA concludes that sufficient water supply is available to meet the project's maximum potential water demands over a 20-year projection, and that water supply is reliable under normal year, single-dry-year, and multiple-dry-year conditions. This conclusion is based upon conservative water demand factors assumed for the proposed project, and allows for the project's use of local groundwater pumped from the underlying Livermore Valley Groundwater Basin, which is managed by Zone 7 in accordance with SGMA, and/or the project's use of imported surface water purchased from Zone 7 or from one of the four local water purveyors that receive their imported surface water supply through Zone 7 (California Water Service Company – Livermore District, Dublin San Ramon Services District, City of Livermore, and City of Pleasanton). Although regional water shortages may occur during the project's lifetime, such conditions may occur regardless of the proposed project and are accounted for in UWMP water supply availability projections. Therefore, it is anticipated that sufficient water would be available to serve the project and reasonably foreseeable future development, and impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The level of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and would not result in an anticipated increase of water demand for construction or operation compared to that analyzed in the WSA. Therefore, it is anticipated that sufficient water would be available to serve the project, including construction and operation of project interconnection facilities by PG&E, and reasonably foreseeable future development, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**UTIL-3      The proposed project would result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.**

The project site is outside of the service areas of local wastewater treatment providers including City of Livermore Amador Valley Water Management Agency, and Dublin San Ramon Services District. The proposed project would include the installation of an on-site septic system, and connection to the region's wastewater treatment systems would not be necessary. Therefore, the proposed project would have no impact on the projected demand and service of local wastewater treatment providers.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities would be outside of the service areas of local wastewater treatment providers including City of Livermore Amador Valley Water Management Agency and Dublin San Ramon Services District. The project interconnection facilities would not require connection to a



wastewater treatment system. Therefore, construction and operation of project interconnection facilities by PG&E would have no impact on the projected demand and service of local wastewater treatment providers.

**Significance without Mitigation:** No impact.

**UTIL-4      The proposed project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.**

Alameda County is primarily served by the Vasco Road Sanitary Landfill and the Altamont Landfill and Resource Recovery. The Vasco Road landfill has a permitted capacity of 2,518 tons of solid waste per day and a remaining permitted capacity of 7,379,000 cubic yard with an estimated “cease of operation date” of December 31, 2022. The Altamont Landfill and Resource Recovery has a permitted capacity of 11,150 tons of solid waste per day and a remaining permitted capacity of 124,400,000 cubic yard with an estimated “cease of operation date” of January 1, 2025.

The proposed project would not demolish any structures, and the project components would all be delivered for on-site assembly. The proposed Project would generate small quantities of construction debris from site preparation activities and during installation of the solar arrays and associated infrastructure. Refuse generated during project construction would be disposed of at either the Vasco Road Sanitary Landfill or the Altamont Landfill and Resource Recovery, both of which service Alameda County.

Because the proposed project is a solar energy generation and storage facility and would have few employees regularly on-site, operation of the proposed project would generate a small amount of solid waste, which would be a negligible increase in solid waste generation on-site. Therefore, the proposed project would not exceed State or local standards or exceed the capacity of the receiving landfills, and impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The level of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed and result in a negligible increase in solid waste generation on-site. Therefore, construction and operation of project interconnection facilities by PG&E would not exceed State or local standards or exceed the capacity of the receiving landfills, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**UTIL-5      The proposed project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste.**

The proposed project would be required to comply with federal, State, and local management and reduction statutes and regulations related to solid waste. As described under Section 3.5.4, Hazardous

Materials and Waste Management, construction materials would be sorted on-site throughout construction and recyclable materials would be separated from non-recyclable items to be transported to a designated recycling facility. Wooden construction waste (such as wood from wood pallets) would be sold, recycled, or chipped and spread on the project site for weed control and other compostable materials might also be composted off-site. All contractors and workers would be educated about waste sorting, appropriate recycling storage areas, and how to reduce landfill waste. As a result, the proposed project would have a less than significant impact regarding management and reduction statutes and regulations related to solid waste.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The level of construction and maintenance activity for the interconnection facilities under CPUC jurisdiction would not be greater than that analyzed, and PG&E would be required to comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Therefore, construction and operation of project interconnection facilities by PG&E would have a less than significant impact regarding management and reduction statutes and regulations related to solid waste.

**Significance without Mitigation:** Less than significant impact.

### **4.17.4 CUMULATIVE IMPACTS**

#### **UTIL-6      The proposed project would not contribute to a significant impact related to utilities and service systems.**

Cumulative impacts would occur when a series of actions leads to a substantial increase in the use of utilities and service systems, the construction of which could cause significant environmental impacts. The cumulative study area is based on the service area for each of the utilities described above, which includes demands for water, wastewater, stormwater drainage, and solid waste disposal service. Physical impacts to utilities and service systems are usually associated with population in-migration and growth in an area, which increases the demand for a particular service, leading to the need for expanded or new facilities. There is little to no population growth associated with the proposed project and other nearby solar energy and cannabis cultivation and operation projects, thereby limiting the potential to significantly contribute to demand for a particular utility service. The analysis of cumulative impacts to utilities and service systems is based on impacts of the proposed project and developments in the North Livermore area which includes the Livermore Community Solar Farm and Oasis Fund projects.

The Livermore Community Solar Farm project is also a solar PV energy generation facility and would be located east of the project site, northeast of the intersection of North Livermore Avenue and May School Road. The Draft EIR prepared for the project stated that the solar PV facility would connect to the 21 KV circuit on the subject property, which would be connected to the PG&E Cayetano substation. Three standard size distribution poles would be required for this connection, but no road crossings would be required. The proposed landscaping for the project would be irrigated via on-site water storage tank, and the construction of wastewater facilities is not necessary for this project. The Oasis Fund project is a cannabis cultivation operation project located on the parcel adjacent to the north of the northern section of the proposed project site. Water for cannabis irrigation of the proposed project

would be provided via four existing on-site wells, and no electrical facilities are proposed to support the cannabis cultivation operation project. However, an on-site septic tank and leach field would be constructed to support the project. Therefore, the proposed project, in combination with the other nearby projects, would not require the relocation or expansion of utilities. The projects would have no impacts to existing stormwater drainage, natural gas, or telecommunication infrastructure. When combined, the projects would result in the cumulative construction of up to 13 new overhead utility poles, two OWTs, and potentially one on-site water well across a cumulative area of nearly 600 acres. Acquisition of the appropriate OWT permits from Alameda County Department of Environmental Health, compliance with all applicable regulations and requirements of those permits, and project implementation of MM BIO-7e to deter avian collisions with proposed overhead power lines would reduce any cumulatively considerable impacts from the construction of new utilities to a less-than-significant level.

All three projects would occur in areas overlying the Livermore Valley Groundwater Basin and would depend on the basin for groundwater supply. As discussed above, the water supply planning efforts rely upon General Plan land use designations and zoning in order to predict water demands based upon known and anticipated land uses. The other cumulative projects considered are designated and zoned for agriculture, and although agriculture would continue to occur on the Oasis Fund project site for cannabis cultivation and on the Livermore Community Solar Farm project site in the form of sheep grazing, the sites' primary land use after project implementation would be less than one acre of cannabis cultivation and a solar energy development, which are generally less water intensive than agricultural land uses assumed for the entire project parcels. Therefore, the actual water demands that would occur on the project sites would likely be lower than planned for the project sites in the UWMP for the area and that the water demands for the project sites are accounted for in the supply availability projections provided in the UWMP.

Therefore, with implementation of MM BIO-7e to deter avian collisions with potential overhead power lines, the proposed project would not contribute to a significant cumulative impact on utilities, and the cumulative impacts would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project interconnection facilities are within the geographic scope of impacts and the analysis of cumulative impacts regarding utilities and service systems, and within the scope of the proposed project in combination with the proposed Livermore Community Solar Farm and Oasis Fund projects, as described above. Therefore, implementation of MM BIO-7e to deter avian collisions with potential overhead power lines constructed by PG&E for the project interconnection facilities would reduce any cumulatively considerable impacts from the construction of new utilities to a less-than-significant level.

**Significance without Mitigation:** Potentially significant impact.

See impact BIO-1 for MM BIO-7e.

**Significance with Mitigation:** Less than significant impact.

#### **4.17.5 REFERENCES**

Placeworks. 2020. Livermore Community Solar Farm Draft Environmental Impact Report. State Clearinghouse Number: 2018092012. March.

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Rincon Consultants, Inc. (2020). Water Supply Assessment – Aramis Solar Energy Generation and Storage Project. September.

Zone 7 Water Agency (Zone 7). 2015. Nutrient Management Plan, Livermore Valley Groundwater Basin. Accessed June 18, 2020. Available at:  
[http://www.zone7water.com/images/pdf\\_docs/groundwater/nmp-2015\\_final.pdf](http://www.zone7water.com/images/pdf_docs/groundwater/nmp-2015_final.pdf).

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## **4.18 WILDFIRE**

This section describes the regulatory framework and existing conditions related to wildfire hazards and risks in the vicinity of the proposed project, evaluates the potential impacts to wildfire hazards and risks that could occur as a result of the proposed project, and details mitigation measures needed to reduce significant impacts, as necessary.

### **4.18.1 ENVIRONMENTAL SETTING**

#### **4.18.1.1 Regulatory Framework**

##### **Federal Regulations**

###### **Disaster Mitigation Act of 2000**

The Disaster Mitigation Act of 2000 provides the legal basis for the FEMA's mitigation planning requirements for state, local, and tribal governments as a precursor to mitigation grant assistance. The Disaster Mitigation Act of 2000 requires that local governments prepare a Local Hazard Mitigation Plan that must be reviewed by the State Mitigation Officer, approved by FEMA, and renewed every 5 years. The plan must include a planning process, a risk assessment, a mitigation strategy, and plan maintenance and updating procedures to identify the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government. Natural hazards include earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires.

###### **Federal Energy Regulatory Commission**

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the FERC requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation Standards as the electric safety standard for the State (CPUC).

##### **State Regulations**

###### **Senate Bill 1241 (Statutes of 2012, Kehoe)**

Senate Bill 1241 revised the safety element requirements for SRAs and very high FHSZs. The bill requires that any revisions of general plans' housing element after January 2014 must also include the revision and updating of the safety element, as necessary, to address the risk of fire in SRAs and very high FHSZs.

###### **California Fire Code**

The California Fire Code (CFC) is Part 9 of Title 24. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, fire hydrant locations and distribution, and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

Chapter 49 of the CFC requirements for Wildland-Urban Interface Fire Areas, prescribes construction materials and methods in fire hazard severity zones; requirements generally parallel CBC Chapter 7A. The CFC is updated on a three-year cycle; the current 2016 CFC took effect in January 2017; the 2019 CFC will take effect in 2020.

### **California Public Resources Code**

California PRC Sections 4291 et seq. requires that brush, flammable vegetation, or combustible growth within 100 feet of buildings be removed. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability, may be maintained; as may single specimens of trees or other vegetation that is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Requirements regarding hazardous vegetation and fuel management are also contained in Sections 4906 and 4907 of the CFC.

California PRC Section 4290 requires CAL FIRE to adopt regulations implementing minimum fire safety standards for defensible space that would be applicable to lands within the SRA and lands within very high FHSZs.

SRAs are defined by California PRC Section 4102 as areas of the State in which the CAL FIRE has determined that the financial responsibility for preventing and suppressing fires lies with the State of California. SRAs are lands in California where the CAL FIRE has legal and financial responsibility for wildfire protection. SRA lands typically are unincorporated areas of a county, are not federally owned, have wildland vegetation cover, have housing densities lower than three units per acre, and have watershed or range/forage value. Where SRAs contain built environment or development, the local government agency assumes responsibility for fire protection.

Local Responsibility Areas (LRAs) include lands that do not meet criteria for SRAs or federal responsibility areas, or are lands in cities, cultivated agricultural lands, and nonflammable areas in the unincorporated parts of a county. LRAs can include flammable vegetation and wildland-urban interface areas. LRA fire protection is provided by the local fire departments, fire protection districts, county fire departments, or by contract with CAL FIRE.

### **Very High Fire Hazard Severity Zones Government Code 51177**

Very high FHSZs are defined by Government Code Section 51177 as areas designated by the Director of Forestry and Fire Protection as having the highest possibility of having wildfires. These zones are based on consistent statewide criteria and the severity of fire hazard that is expected to prevail in those areas. The zones are also based on fuel loading, slope, fire weather, and other factors, such as wind, that have been identified by the Department of Forestry and Fire Protection as a major cause of the spreading of wildfires. FHSZ maps are produced and maintained for each county.

### **2018 California Strategic Fire Plan**

The Board of Forestry and Fire Protection's Strategic Fire Plan provides an overall vision for a built and natural environment that is more fire resilient through the coordination and partnerships of local, state, federal, tribal, and private entities. First developed in the 1930s, the Strategic Fire Plan is periodically updated; the current plan was prepared in 2018. The Plan analyzes and addresses the effects of climate

change, overly dense forests, prolonged drought, tree mortality, and increased severity of wildland fires through goals and strategies. The primary goals of the 2018 Strategic Fire Plan are to do the following.

- Improve the availability and use of consistent, shared information on hazard and risk assessment.
- Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities.
- Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans.
- Increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management.
- Integrate implementation of fire and vegetative fuels management practices consistent with the priorities of landowners or managers.
- Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression and related services.
- Implement needed assessments and actions for post-fire protection and recovery.

### **California Public Utilities Commission General Order 95**

General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for a given location's conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment.

## **Local Regulations**

### **Alameda County General Plan**

The Safety Element of the Alameda County General Plan (Alameda County 2014) contains goals, policies, and actions the County might take related to non-natural hazards and fire hazards. Many of the principles and actions refer to new development and a goal and policy relevant to the proposed project is presented below.

Goal 2. To reduce the risk of urban and wildland fire hazards.

- **Policy 3.** Development should generally be discouraged in areas of high wildland fire hazard where vegetation management programs, including the creation and maintenance of fuel breaks to separate urban uses would result in unacceptable impacts on open space, scenic and ecological conditions.



### **East County Area Plan**

The Environmental Health and Safety Elements of the ECAP contain two programs related to wildland fire hazards (Alameda County 2000).

- **Program 117:** The County shall work with CAL FIRE to designate “very high fire hazard severity zones” in conformance with AB 337 (1992). The County shall ensure that all zones designated as such meet the standards and requirements contained in this legislation.
- **Program 118:** The County shall prepare a comprehensive wildland fire prevention program including fuel breaks, brush management, controlled burning, and access for fire suppression equipment.

### **Alameda County Emergency Operations Plan**

The Alameda Emergency Operations Plan (EOP), adopted in December 2012, establishes policies and procedures, in addition to assigning responsibilities to ensure the effective management of emergency operations within the Alameda Operational Area. Cities and towns within the County participate in the Alameda Office of Emergency Services coordination of emergency management activities. Emergency operations are split in to five phases: 1) Prevention Phase, 2) Preparedness Phase, 3) Response Phase, 4) Recovery Phase, and 5) Mitigation Phase.

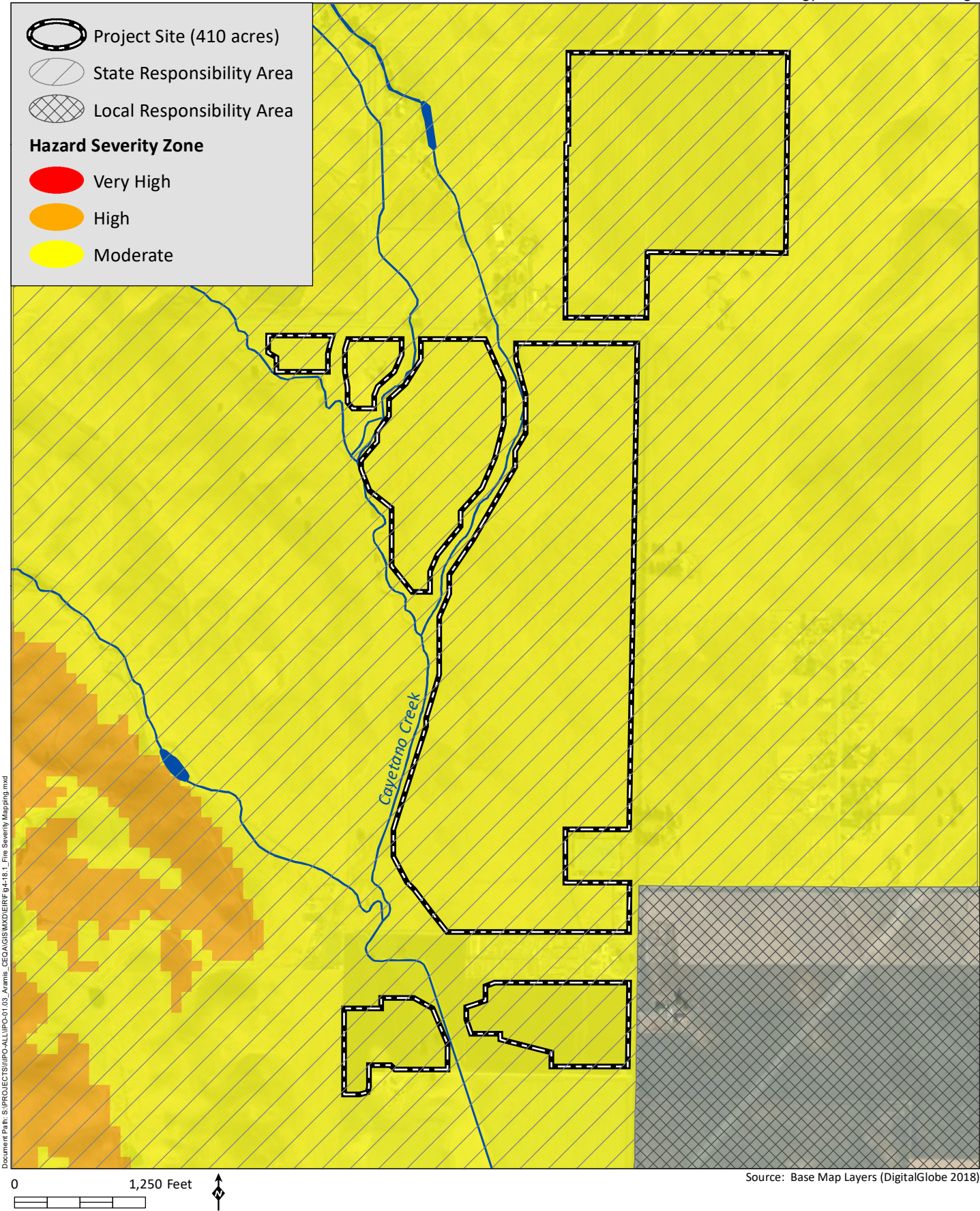
### **Community Wildfire Protection Plan**

The Community Wildfire Protection Plan (CWPP) for Alameda County, adopted in May 2012, provides a comprehensive analysis of wildfire hazards and risks in the wildland-urban interface of Alameda County. The CWPP contains an action plan, which identifies wildfire mitigation measures. These measures are organized into four broad categories, including education planning priorities, enhanced suppression capability and emergency preparedness, fuel reduction treatments, and improving survivability of structures.

#### **4.18.1.2 Existing Conditions**

The environmental setting for wildfire describes the existing conditions within the project area. The project site is within an SRA and is designated as a moderate FHSZ, as shown in Figure 4.18-1 (CAL FIRE 2020).

The proposed project would develop a total of approximately 410 acres of privately-owned land in four noncontiguous development areas that are split into the following sections: the northern section, measuring approximately 103 acres; the central section, measuring approximately 269 acres; the southeastern section, measuring approximately 23 acres; and the southwestern section, measuring approximately 15 acres. The northern, southeastern, and southwestern sections of the project site are agricultural lands vegetated with non-native grassland. The central section of the site is agricultural land vegetated primarily with non-native grassland, contains patches of isolated valley oak trees, and is bisected by Cayetano Creek and its tributaries. The topography of the project site is generally flat with rolling hills to the north and west. Prevailing winds typically come from the west, and June is the windiest month with an average hourly wind speed of 9.6 miles per hour (Weather Spark 2020).



## 4.18.2 SIGNIFICANCE THRESHOLDS

According to Appendix G of the State CEQA Guidelines, the following criteria may be considered for lands located in or near SRAs or areas classified as very high FHSZs in establishing the significance of Wildfire:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan;
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;
4. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

## 4.18.3 IMPACT ANALYSIS

**FIRE-1            The proposed project would be located in a State Responsibility Area but would not impair an adopted emergency response plan or emergency evacuation plan.**

The proposed project would not involve any changes to public streets, roads, or evacuation infrastructure and would not include the construction of any features that would impair the implementation of the Alameda County EOP or CWPP. Construction staging would be located on site and would not affect access to adjacent public streets or private driveways. Therefore, the proposed project would not impair an adopted emergency evacuation plan or access routes within Alameda County, and no impact would occur.

### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction would not involve any changes to public streets, roads, or evacuation infrastructure and would not include the construction of any features that would impair the implementation of the Alameda County EOP or CWPP. Construction staging would be located on-site and would not affect access to adjacent public streets or private driveways. Therefore, construction and operation of project interconnection facilities by PG&E would not impair an adopted emergency evacuation plan or access routes within Alameda County, and no impact would occur.

**Significance without Mitigation:** No impact.

**FIRE-2      The proposed project would be located in a State Responsibility Area but would not exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire.**

As stated in Section 4.18.1.2, Existing Conditions, the project site is generally flat agricultural land vegetated with primarily non-native grassland. Prevailing winds in and surrounding the City of Livermore (the nearest City to the project site) derive from the west from February to November, and from the north from November to February, with the windier part of the year occurring from April to September with wind speeds averaging 7.9 miles per hour. June is the windiest month with an average hourly wind speed of 9.6 miles per hour (Weather Spark 2020).

According to the CAL FIRE FHSZ mapping viewer, the project site is located in an SRA and is designated as a moderate FHSZ and not in an area classified as very high or high fire severity zone (CAL FIRE 2020). Construction of the proposed project would involve the installation of PV solar arrays and construction of associated infrastructure. Sparks generated from the operation of heavy equipment and vehicles used during construction, operation, and decommissioning have the potential to start a fire, particularly in the presence of vegetation or other combustible materials. Heavy construction equipment would be equipped with spark arrestors or turbo chargers (which eliminate sparks in exhaust), and construction equipment and vehicles would be parked in the designated construction laydown areas that would be cleared of dried vegetation or other materials that could serve as fuel combustion (see Figure 3-1 for locations of construction laydown areas). Additionally, on-site vegetation would be managed through sheep grazing to minimize fire risk, and as described in Section 3.8.7, Fire Protection and Coordination, the project applicant would coordinate with the ACFD to ensure firefighter access and personnel training in case of an emergency. None of the materials that would be used in project construction, such as solar modules and foundations, are considered flammable; in addition, potential electrical arcing and sparking from wiring between panels would be addressed by installing collector lines underground to the maximum extent feasible.

The project substation would be constructed to provide the necessary circuit breakers, switches, protection relays, and other necessary equipment to reliably and safely protect the electrical infrastructure. Additionally, each battery unit in the battery storage system would be constantly monitored by a battery management system to ensure safe operations. The battery management system monitors individual cell temperature, voltage, current, charge and discharge parameters, and other metrics to ensure the health and safety of the batteries. If there were to be multiple failures in this multi-level safety system, an automatic fire suppression system would kick in. Emergency fire kits would be kept on site during construction and operation, and a 250,000-gallon water storage tank for fire suppression would be located adjacent to the battery storage system, west of the PG&E Cayetano substation. Additionally, the proposed project would be required to comply with the 2016 CFC, which provides specific regulations to prevent hazards to life and property from fire or explosion. Therefore, the proposed project would have a fire prevention and management system in place and would not expose workers and the surrounding neighborhoods to pollutant concentrations or the uncontrolled spread of wildfire. Impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Construction and operation of interconnection facilities under CPUC jurisdiction could result in changes in the construction schedule and maintenance operations for those facilities if PG&E is assigned

responsibility. However, the fire safety procedures and equipment described above would apply to work completed by PG&E, and/or equipment installed by PG&E for facilities under CPUC jurisdiction. Therefore, the construction and operation of project interconnection facilities by PG&E would have a fire prevention and management system in place and would not expose workers and the surrounding neighborhoods to pollutant concentrations or the uncontrolled spread of wildfire. Impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**FIRE-3      The proposed project would be located in a State Responsibility Area but would not require the installation or maintenance of associated infrastructure that may exacerbate fire risks.**

The proposed project includes the construction of all-weather, internal access roads within the project fence lines, two stormwater detention basins, PV solar arrays, supporting electrical infrastructure, a project substation, battery storage system, and an O&M building. The project site would be constructed on four noncontiguous development areas, and the large central section of the project area is bisected by Cayetano Creek and its tributaries. Distribution lines would be underground to the maximum extent feasible. Medium-voltage lines would be buried for a majority of their length but would emerge above-ground on either side of Manning Avenue, to cross Cayetano Creek and its tributaries, and if an overhead connection to the existing PG&E Cayetano substation is necessary. Overhead lines would be constructed on either tubular steel poles or wood H-fames and may be constructed to be single-circuit or double-circuit. The heights of the overhead poles could vary from 30 to 100 feet, depending on the entry angle required by the interconnecting utility. Damage to the overhead distribution lines from fallen trees or high wind and storm conditions could cause live wires to fall onto nearby dry grass and potentially start a fire. As noted above in Section 4.18.1.2, Existing Conditions, the project site is generally flat agricultural land with few on-site trees, and the average wind speed during the windiest month of the year is 9.6 miles per hour. On-site vegetation would be managed by sheep grazing, and the proposed internal access roads would act as fuel breaks in the event of a fire. Furthermore, the proposed overhead lines would be designed and maintained in accordance with General Order 95, which was updated in January 2020 (CPUC 2020) and includes requirements to ensure overhead lines are constructed safely and appropriately to prevent wildfires. Therefore, the construction and operation of the proposed project is not anticipated to exacerbate fire risks in the area, and impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project site conditions and construction and operation of the interconnection facilities under CPUC jurisdiction would not be different than described above. Therefore, the construction and operation of project interconnection facilities by PG&E is not anticipated to exacerbate fire risks in the area, and impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

**FIRE-4      The proposed project would be located in a State Responsibility Area but would not expose people or structures to significant risks, including downstream or downslope landslides or flooding as a result of runoff, post-fire slope instability or drainage changes.**

Due to the relatively flat topography of the project site, on-site stormwater detention basins, and lack of change in topography and vegetation, the proposed project would not result in substantial runoff, post-fire slope instability or drainage changes and therefore would not expose people or structures to significant risks from flooding or slope instability in the aftermath of a wildland fire. Therefore, impacts would be less than significant.

**Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

Due to the relatively flat topography of the project substation site and the existing PG&E Cayetano substation, on-site stormwater detention basins, and lack of change in topography and vegetation, construction and operation of project interconnection facilities by PG&E would not result in substantial runoff, post-fire slope instability, or drainage changes, and therefore, would not expose people or structures to significant risks from flooding or slope instability in the aftermath of a wildland fire. Therefore, impacts would be less than significant.

**Significance without Mitigation:** Less than significant impact.

#### **4.18.4      CUMULATIVE IMPACTS**

**FIRE-5      The proposed project would be located in a State Responsibility Area but would not contribute to a significant cumulative impact with respect to wildfire.**

For emergency response, the cumulative study area would be the ACFD jurisdictional boundary. The proposed project site and adjacent projects (Livermore Community Solar Farm and Oasis Fund) are located within an SRA in an area designated as a moderate FHSZ. The proposed and nearby projects would not involve the addition of new residents to the area, nor would the projects include components that would exacerbate wildfire risk, resulting in less than significant impacts regarding wildfire risk.

The Livermore Community Solar Farm was also analyzed in an EIR and would be required to coordinate with the ACFD to ensure firefighter access in an emergency, manage on-site vegetation to minimize fire risk, and keep emergency fire kits on-site during construction and operation of the solar facility. A SWPPP would be prepared to ensure that off-site stormwater issues would not occur. The Oasis Fund project was analyzed in an Initial Study/Mitigated Negative Declaration and would be required to install and maintain a fire prevention and automatic sprinkler system in compliance with the Uniform Fire Code. Additionally, similar to the proposed project, both nearby projects would be required to comply with the CFC, California Building Code, the California PRC, CWPP for Alameda County, Alameda County EOP, and other State and local regulations that would ensure adequate evacuation capabilities in the area. Neither the Livermore Community Solar Farm nor the Oasis Fund project would not exacerbate wildfire risks during construction and operation of the projects or cause downstream flooding or slope instability.

Compliance with these requirements would reduce cumulative impacts relating to wildfire hazards and emergency response. Accordingly, the cumulative development would not result in a cumulatively significant impact to wildfire hazards and impacts from the proposed project would not be cumulatively considerable. The proposed project would not contribute to a significant cumulative increase in wildland fire hazards in the immediate vicinity of the project site or throughout the region, and the potential for cumulative impacts associated with wildfire hazards would be less than significant.

#### **Impacts from Construction and Operation of Interconnection Facilities Under Existing or Potential CPUC Jurisdiction**

The project site conditions and construction and operation of the interconnection facilities under CPUC jurisdiction would require the implementation of the same wildfire hazard reduction requirements as described above. Therefore, the construction and operation of project interconnection facilities by PG&E would not contribute to a significant cumulative increase in wildland fire hazards in the immediate vicinity of the project site or throughout the region, and the potential for cumulative impacts associated with wildfire hazards would be less than significant.

**Significance without Mitigation:** Less than significant impact.

### **4.18.5 REFERENCES**

Alameda County. 2014. Alameda County General Plan Safety Element. Accessed on April 2, 2020 at <https://www.acgov.org/cda/planning/generalplans/documents/SafetyElementAmendmentFinal.pdf>.

2000. Alameda County East Area Plan.

California Department of Forestry and Fire Protection (CAL FIRE). 2020. Fire Hazard Severity Zones Viewer. Accessed on June 25, 2020 at <https://egis.fire.ca.gov/FHSZ/>.

California Public Utilities Commission (CPUC). 2020. General Order 95: Rules for Overhead Electric Line Construction. Updated January 2020. Accessed June 29, 2020 and available at: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M338/K730/338730245.pdf>.

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## 5.0 PROJECT ALTERNATIVES

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This section of the EIR evaluates whether there may be feasible alternatives to the proposed project that could avoid or substantially lessen any of the identified significant effects of the project as proposed. Section 15126.6(a), Consideration and Discussion of Alternatives to the Project, of the State CEQA Guidelines states that:

An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

The following discussion is intended to inform the public and decision makers of a reasonable range of feasible alternatives to the proposed project that would avoid or substantially lessen any significant effect of the proposed project. This section describes the purpose of the alternative's discussion; provides a summary of the reasonable range of alternatives, including a summary of potentially significant impacts and the relationship of each alternative to the project objectives; and, as required, identifies the environmentally superior alternative.

### 5.1 RATIONALE FOR ALTERNATIVE SELECTION

Section 15126.6(c) of the State CEQA Guidelines states:

The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

According to the State CEQA Guidelines Section 15364, feasibility is defined as:

[The capability] of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

## **5.2 PROJECT OBJECTIVES AND SIGNIFICANT IMPACTS**

As described in Section 3.0, Project Description, the following objectives have been established for the proposed project:

- Assist California residents in meeting their renewable energy generation goals under Senate Bill 100, requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045;
- Create up to 400 living-wage, all union construction jobs and up to four permanent jobs in the San Francisco Bay Area;
- Minimize environmental impacts associated with renewable energy development by siting a renewable energy facility on previously disturbed lands, in proximity to a high-voltage substation with available capacity to facilitate grid interconnection;
- Dedicate land to accommodate a potential future public hiking trail, in the event the County decides to construct a public trail on the project site;
- Deploy industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, including making use of single-axis tracking technology and 4-hour battery storage duration technology to provide local resource adequacy capabilities to the Bay Area;
- Achieve economies of scale to generate, store, and transmit up to 100 MW affordable, local, wholesale solar electricity to Bay Area residents;
- Help Bay Area Community Choice Aggregators in fulfilling their local renewable energy procurement goals.

As described in Sections 4.1 and 4.11, the proposed project results in significant and unavoidable impacts to Aesthetics and Land Use and Planning. The proposed project would degrade the visual quality and character of the project area and would slightly impede views of scenic vistas. Although MM AES-1, which requires long-term maintenance of the proposed landscape screening, would be implemented to reduce this impact, no feasible mitigation measures have been identified to reduce the impact to a less than significant level. This Draft EIR concludes that the proposed project would not be consistent with the long-term preservation of open space intent of the RM ECAP land use designation. Conflict with the RM land use designation would be significant and unavoidable, and no feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

## **5.3 ALTERNATIVES CONSIDERED BUT REJECTED AS INFEASIBLE**

### **5.3.1 Alternative Location: Formerly Proposed Solar Development Sites and Other Large-Scale Sites**

Development of the proposed project at alternative locations in the County was considered and rejected because it would not accomplish most of the basic objectives of the proposed project, would be infeasible, and would not substantially lessen or avoid any significant environmental impacts.

Alternative sites considered include the previously approved 62-acre GreenVolts Utility-Scale Solar Field project site (CUP PLN2010-00120) and the previously approved 140-acre Cool Earth Solar Facility project site (CUP PLN2011-00009) which are both located in Byron, California near the Tracy Substation.

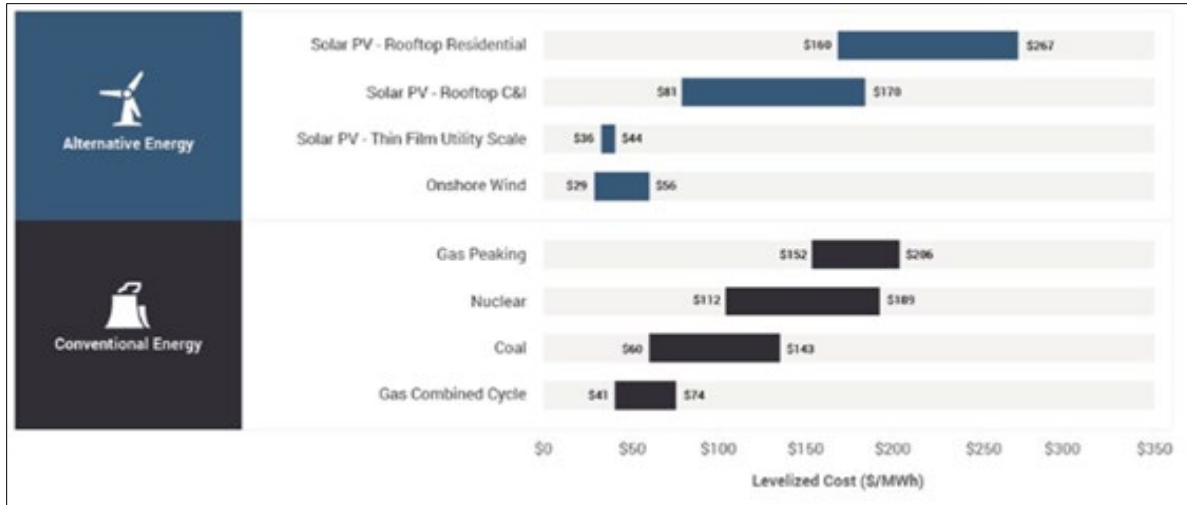
The GreenVolts Project, a proposed solar facility located in Byron on APN 099B-7200-001-00 in northeastern Alameda County, was approved by the County in 2008 (State Clearinghouse Number 2008052076). The project proposed to develop a 20.5-acre portion of a larger 62-acre parcel with a high-capacity PV solar array system on lands designated for Large Parcel Agriculture in the ECAP and in the Agricultural zoning district. The County approved a Conditional Use Permit in 2008. In 2010, a subsequent CEQA document was prepared to allow for an expansion of the previously proposed project within the 20.5-acre lease area to allow for the use of a new system of solar tracker arrays that would increase output capacity from 2 MW to 3 MW. The project site was chosen for its proximity to the nearby Tracy Substation of the Western Area Power Administration.

In December 2011, the County approved the development of the Altamont Solar Energy Center proposed by Cool Earth Solar, Inc. The Altamont Solar Energy Center site is located at 17499 Kelso Road, Byron, CA near the intersection of Kelso Road and Patterson Park Road in northeast Alameda County. The 140 acre-project site consists of portions of APN 099B-7175-5-4 and 099B-7175-005-01. The General Plan designated land use is Large Parcel Agriculture and these parcels are in the Agricultural zoning district. The project proposed to develop the 140-acre site with a solar energy generation facility that would produce up to 10 MW annually once operational on lands designated for Large Parcel Agriculture in the ECAP and in the Agricultural zoning district. The CEQA Initial Study/Mitigated Negative Declaration for the Altamont Solar Energy Center project was circulated for public comment in August 2011, and the project was approved in December 2011. In 2012, the County denied an appeal by the Tri-Valley Conservancy and upheld the decision to approve the project. Construction of the project commenced but only a pole barn was constructed on-site, and the rest of the solar facility was never constructed.

The two project sites are approximately 0.5 mile apart and would total approximately 200 acres combined. The alternative project sites, neither individually or combined, would allow for a 100 MW solar energy generation and storage facility. Additionally, the project applicant does not currently own or control these other potential sites for the proposed project in Alameda County nor can the project applicant reasonably acquire or otherwise have access to such alternate sites (refer to Section 15126.6(f) of the State CEQA Guidelines). Finally, other large-scale sites in Alameda County are likely to pose the same issues identified for the proposed project and would not be expected to reduce or avoid significant impacts, therefore, no additional alternative locations were evaluated in detail for the proposed project, and no further discussion is warranted.

### **5.3.2 Alternative Location: East Bay Community Energy Solar Sites**

The Clean Coalition's EBCE Solar Siting Survey identified over 650 MW of technical solar siting potential on over 250 discrete sites in Alameda County. Each site identified has the potential to host at least 1 MW on rooftops, parking lots, and parking structures located at the site. More than 30 percent of the siting potential was determined to be on parking lots and parking structures, and the other 70 percent was on aggregate sites consisting largely of business and shopping structure rooftops (EBCE 2017). To meet the objective to generate up to 100 MW of solar energy, numerous discrete sites would need to be aggregated which is not physically or economically feasible.



As shown in the graphic above, out of all the alternative energy sources listed (solar PV – rooftop residential, solar PV – rooftop commercial/industrial, solar PV – thin film utility-scale, and on-shore wind), leveled costs for commercial and industrial rooftop solar PV range from \$81 to \$170 per MWh and residential rooftop solar PV range from \$160 to \$267 per MWh. In comparison, leveled costs for utility-scale solar PV's range from \$36 to \$44 per MWh generated (Solar Power World 2018). On a per MW basis, commercial and industrial rooftop solar is substantially more expensive than utility-scale solar. The cost of generating the electricity would go up substantially, deeming the EBCE rooftop sites infeasible.

Because this alternative assumes that rooftop solar development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations, the solar energy generated would likely be for commercial and industrial consumption and on-site use only. Additionally, this distributed alternative would only provide renewable energy during the peak energy generation period (daylight hours) and not include energy storage. Therefore, it would not provide renewable energy during the peak load period which is typically between 4:00 PM and 10:00 PM.

The siting survey did identify a relatively large site near the Livermore Municipal Airport with a generation potential of 44 MW; however, it would require more land area to generate an adequate 100 MW and still would not provide for energy storage. With the needed development of other sites and lack of energy storage, economies of scale and benefits of the larger site would be lost.

## 5.4 ALTERNATIVES ANALYSIS

In addition to the No Project Alternative, this Draft EIR analyzes two development project alternatives in detail to compare to the proposed project because of their potential to reduce the potential impacts of the proposed project. The three alternatives are discussed in more detail in the following subsections.

### 5.4.1 No Project Alternative: No Development

This alternative is required under Section 15126.6(e) of the State CEQA Guidelines and represents a possible scenario that could occur if the proposed project is not approved. According to Section 15126.6(e)(3)(B) of the State CEQA Guidelines, if the project is other than a land use or regulatory plan, for

example a development project on identifiable property, the “no project” alternative is the circumstance under which the project does not proceed. The No Project Alternative would result in no changes to the project site, and no construction or operation of the proposed solar energy generation and storage facility would take place. It is assumed that the existing land use would continue.

#### **5.4.2 Resource Management Avoidance Alternative**

Under the Resource Management Avoidance Alternative, 385 acres would be developed for the solar facility, a reduction of 25 acres compared to the proposed project. The same parcels would be developed; however, the footprint would be reduced by not developing the northern portion of the northern section of the project site that is designated for RM by the ECAP. Similar to the proposed project, the Resource Management Avoidance Alternative would include an approximately 5,000-sf project substation in the same 0.9-acre dedicated area, battery storage system on a 5-acre portion of the site, and a 400-sf O&M building. The Resource Management Avoidance Alternative is depicted on Figure 5-1, Site Plan: Resource Management Avoidance Alternative.

#### **5.4.3 Reduced Footprint Alternative**

Under the Reduced Footprint Alternative, 359 acres would be developed for the solar facility, a reduction of 51 acres compared to the proposed project. The same parcels would be developed, however, the footprint would be reduced by not developing the northern portion of the northern section of the project site (22 acres) that is designated for RM by the ECAP and locating the solar PV modules and internal access roads outside of the lands designated for WM within the central section of the project site (21 acres). Similar to the proposed project, the Reduced Footprint Alternative would include an approximately 5,000-sf project substation in the same 0.9-acre dedicated area, battery storage system on a 5-acre portion of the site, and a 400-sf O&M building. The Reduced Footprint Alternative is depicted on Figure 5-2, Site Plan: Reduced Footprint Alternative.

#### **5.4.4 Assumptions and Methodology**

The alternatives analysis compares the impacts of the alternatives to the proposed project. The No Project Alternative assumes no change and no new development at the project site. The overall project design for the Resource Management Avoidance Alternative is similar to the proposed project, but the alternative footprint for the solar PV facility would avoid development in land designated for RM. The overall project design for the Reduced Footprint Alternative is similar to the proposed project, but the alternative footprint for the solar PV facility would avoid development in lands designated for RM or WM in the ECAP. As described in Section 4.1, Aesthetics, Section 4.3, Air Quality, Section 4.4, Biological Resources, Section 4.5, Cultural and Tribal Cultural Resources, Section 4.7, Geology, Soils, Mineral Resources, and Paleontological Resources, Section 4.10, Hydrology and Water Quality, Section 4.12, Noise, and Section 4.17, Utilities and Service Systems, mitigation measures would be required to reduce potentially significant construction and operation related impacts for the proposed project. Additionally, this Draft EIR concluded in Section 4.1, Aesthetics (for substantially altering the visual character and quality of public view points along County-designated scenic corridors) and Section 4.11, Land Use and Planning (for conflicting with the RM designation in the ECAP) that the proposed project would result in significant and unavoidable impacts. This alternatives analysis assumes that all applicable regulations and all mitigation measures identified in this Draft EIR for the proposed project would be implemented for the Resource Management Avoidance and Reduced Footprint alternatives, except for MM BIO-8.

The following analysis compares the potentially significant environmental impacts of the project alternatives with the project-related impacts for each of the environmental topics analyzed in detail in Sections 4.1 through 4.18 of this Draft EIR. Table 5-1 summarizes the impacts of each of the alternatives compared to the proposed project.

**Table 5-1  
COMPARISON OF PROJECT ALTERNATIVES**

Topic	No Project Alternative	Resource Management Avoidance Alternative	Reduced Footprint Alternative
Aesthetics	-	=	=
Agriculture and Forestry Resources	-	=	=
Air Quality	=	=	=
Biological Resources	-	-	-
Cultural and Tribal Cultural Resources	-	=	=
Energy	+	=	=
Geology, Soils, Mineral Resources, and Paleontological Resources	-	=	=
Greenhouse Gas Emissions	-	=	=
Hazards and Hazardous Materials	-	=	=
Hydrology and Water Quality	-	=	=
Land Use and Planning	-	-	-
Noise	=	=	=
Population and Housing	=	=	=
Public Services	-	=	=
Recreation	=	=	=
Transportation	-	=	=
Utilities	-	=	=
Wildfire	=	=	=

Notes:

- Reduced impact in comparison to the proposed project.
- = Similar impacts in comparison to the proposed project.
- + Greater impact, or loss of beneficial impact, in comparison to the proposed project.

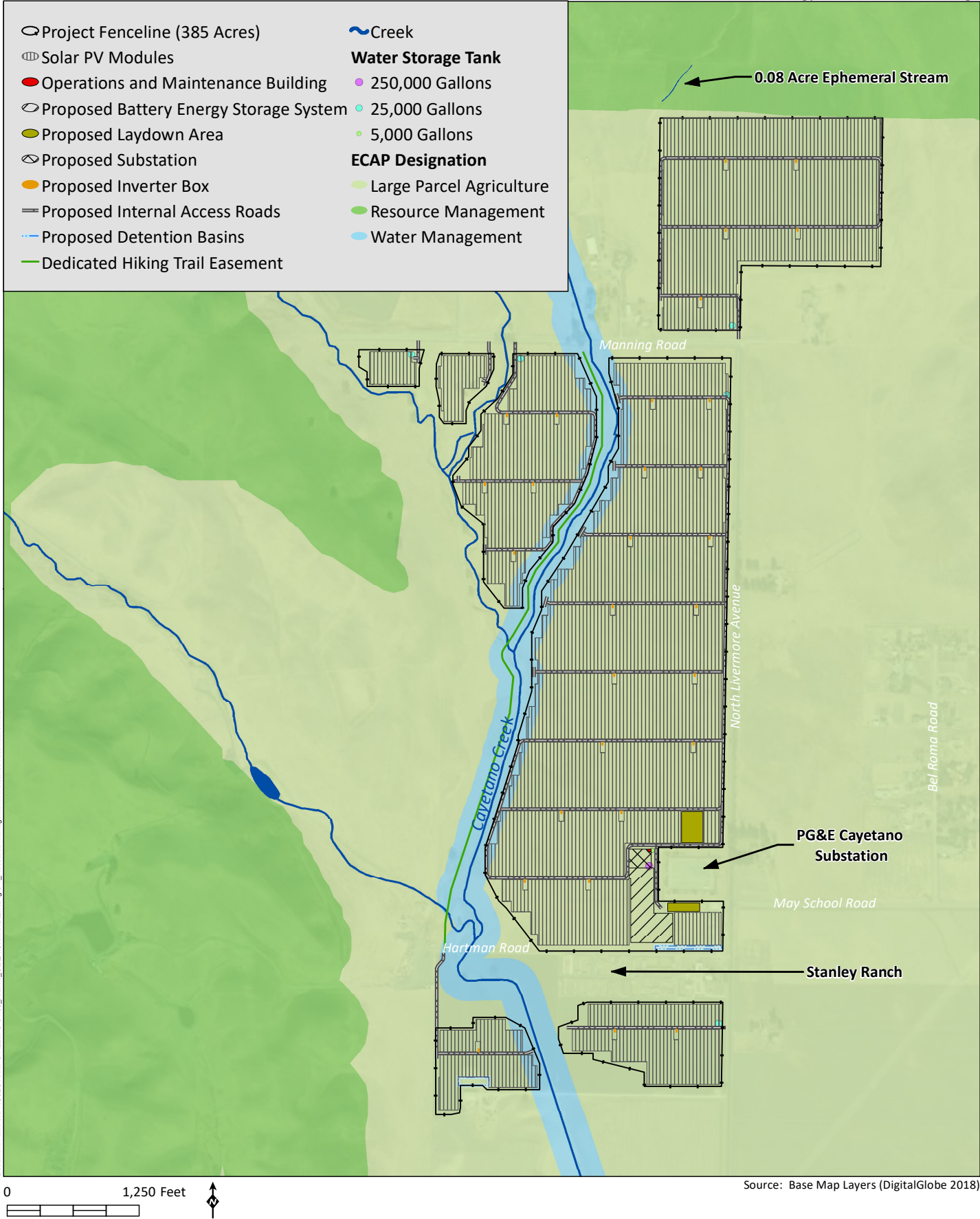
## 5.5 COMPARATIVE IMPACT ANALYSIS

### 5.5.1 No Project Alternative: No Development

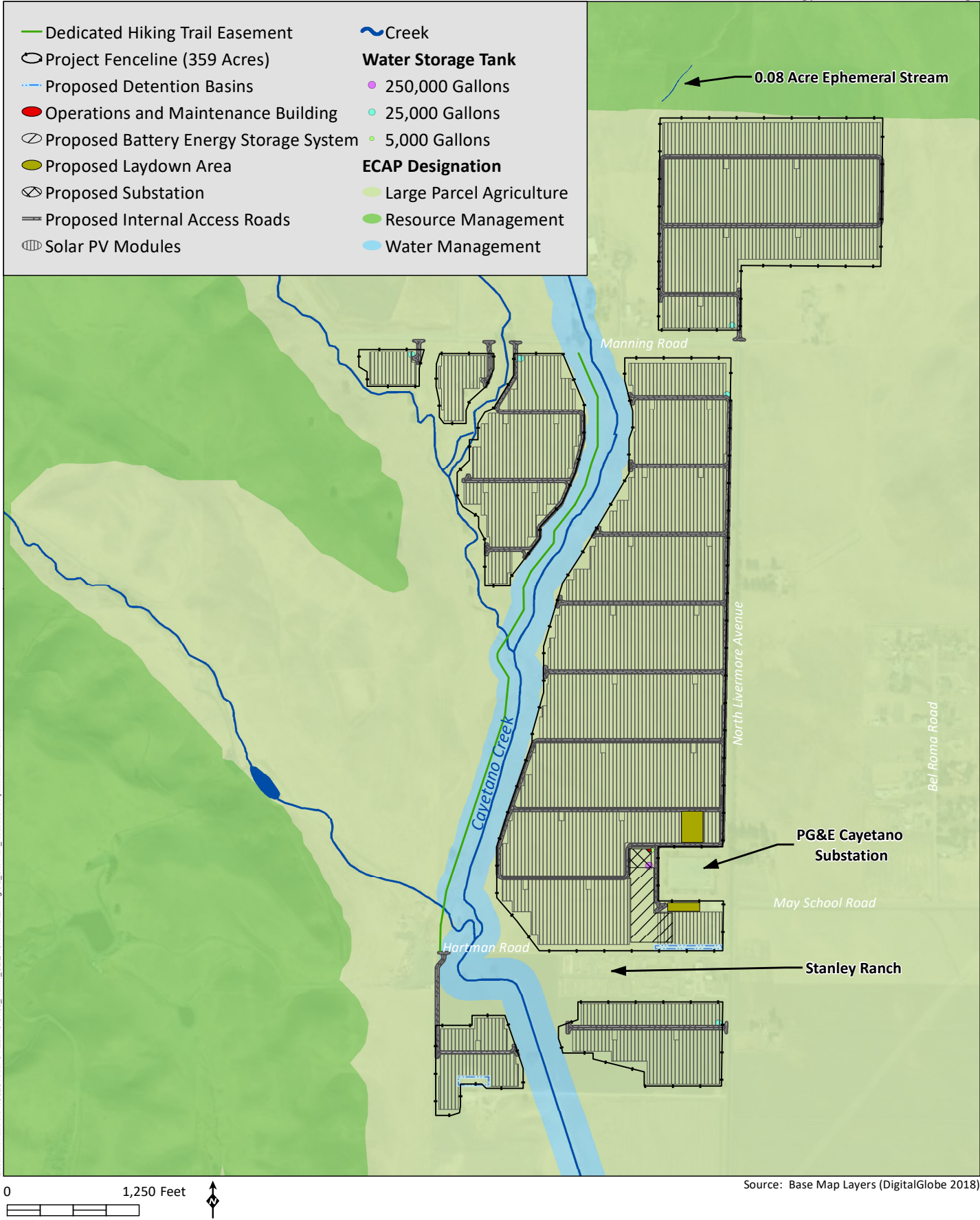
Under the No Project Alternative, the proposed project would not be developed with a solar energy generation and battery storage facility, and the project site would remain in agricultural use for oat and hay cultivation and cattle grazing.

#### 5.5.1.1 Aesthetics

The proposed project would result in a significant and unavoidable impact on the visual character or quality of public views due to the project's visible contrast with its rural setting. No direct impacts on trees, rock outcroppings, or historic buildings would take place and there would be a less than significant impact on glare.









Under the No Project Alternative, the solar facility would not be constructed and there would be no impacts on scenic vistas, visual character or quality, trees, rock outcroppings, or historic buildings. Therefore, the No Project Alternative would avoid the impacts of the proposed project.

#### **5.5.1.2 Agriculture and Forestry Resources**

The proposed project would not result in a significant impact on agricultural or forestry resources. Although the project site is designated as Large Parcel Agricultural by the ECAP and has been historically utilized for cattle grazing and oat and hay cultivation, it is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Significance. Pursuant to the Williamson Act contract that covers 38 acres in the southeastern and southwestern sections of the project site, grazing activities would continue on-site as part of operation of the proposed project. Therefore, the proposed project would not result in the conversion of farmland to non-agricultural uses or forest land to non-forest use. Additionally, the Alameda County Uniform Rules for the Williamson Act includes photovoltaic power generation as a use compatible with on-site agricultural uses.

Overall, neither the No Project Alternative nor the proposed project would result in a significant impact to agriculture or forestry resources. However, implementation of the proposed project would alter the existing agricultural use of the site from cattle grazing and oat and hay cultivation to sheep grazing concomitantly with a solar facility. Therefore, the No Project Alternative would have less impacts than the proposed project.

#### **5.5.1.3 Air Quality**

As discussed in Section 4.3, Air Quality, the proposed project would have a less than significant impact on net increase of criteria pollutants for which the project region is in non-attainment for operational or decommissioning impacts; with mitigation, the proposed project would have a less than significant impact on net increase of criteria pollutants for which the project region is in non-attainment for construction impacts. The proposed project would have a less than significant impact related to implementation of the BAAQMD's 2017 Clean Air Plan, exposure of sensitive receptors to DPM, CO, or odors.

Under the No Project Alternative, the solar facility would not be constructed, and air quality impacts from the No Project Alternative would be limited to dust emissions from tilling the land for oat and hay cultivation from continued agricultural use of the site under this alternative. While the proposed project would result in greater air quality impacts in the short-term during project grading and construction activities, the proposed project would generate negligible air quality impacts once the solar facility is operational. Therefore, the ongoing dust emissions impacts from the No Project Alternative would offset the short-term impacts from construction of the proposed project, and overall, the No Project Alternative would have similar air quality impacts to the proposed project.

#### **5.5.1.4 Biological Resources**

The proposed project would result in significant impacts to biological resources that would be mitigated to below a level of significance. As discussed in Section 4.4, Biological Resources, there is potential that the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS including CRLF, CTS, burrowing owl, American badger, San Joaquin kit fox, and several special-status bird species including grasshopper sparrow,

golden eagle, long-eared owl, northern harrier, white-tailed kite, loggerhead shrike, and other nesting raptors and nesting birds. However, with implementation of mitigation identified in Section 4.4, the impact that project construction may have on special-status species would be reduced to a less than significant level. Other significant impacts that would be mitigated below a level of significance include impacts to sensitive natural communities/ jurisdictional waters of the State, interference with movement of native resident wildlife species or with established native resident or migratory wildlife corridors, and conflicts with local policies or ordinances protecting biological resources. The proposed project could result in the fill of approximately 0.08-acre of waters of the State, but impacts would be reduced to a less than significant level with implementation of MM BIO-8. The proposed project could impede the use of the site by native resident wildlife or dispersing wildlife, however, a gap will be maintained between the perimeter fence and the ground to allow passage of small to mid-sized mammals as included in the recommended fencing guidelines for CTS and CRLF in MM BIO-2 and San Joaquin kit fox in MM BIO-5. The proposed project could also conflict with local policies or ordinances protecting biological resources, however, the project includes avoidance, minimization, and mitigation measures (BIO-1 through BIO-7) that would reduce impacts to special-status species and allow for continued use of the site by special-status species for dispersal, refugia, and foraging once the solar facility is operational. The proposed project does not fall under the purview of any HCPs and therefore would not conflict with any provisions of an adopted HCP.

The No Project Alternative would not involve any construction activities that would increase impacts to biological resources beyond current on-site impacts from continued agricultural use. This alternative would not increase potential impacts to special-status species (listed above), sensitive natural communities/ jurisdictional waters of the State, movement of native resident wildlife species or with established native resident or migratory wildlife corridors, or conflicts with local policies or ordinances protecting biological resources.

Therefore, the No Project Alternative would have a reduced level of biological resources impacts compared to the proposed project.

#### **5.5.1.5 Cultural and Tribal Cultural Resources**

As discussed in Section 4.5, Cultural and Tribal Cultural Resources, the CRA found that the 4400 North Livermore Avenue property is eligible for listing in the NRHP, CRHR, and the local County register, and the barn and shed are considered historical resources under CEQA. Although the barn and shed footprints are outside of the project area and would be preserved in place, disruption of the integrity of the setting and feeling would cause a potentially significant impact under CEQA without mitigation. The proposed project would disrupt the setting and feeling of an historical resource and would involve ground disturbance that could inadvertently damage unknown archaeological resources, human remains, and/or tribal cultural resources; such impacts would be less than significant with mitigation.

Unlike the proposed project, the No Project Alternative would not involve construction, and therefore, this alternative would not include an increase in ground disturbance that could impact archaeological or tribal resources or human remains that may be buried in site soils.

Therefore, the No Project Alternative would avoid the cultural resources impacts created by the proposed project.

#### **5.5.1.6 Energy**

The proposed project would include the installation of solar arrays, which would produce 100 MW of renewable solar energy for distribution through the PG&E distribution system. The proposed project would use typical construction equipment and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Additionally, the proposed project serves to directly advance State and local plans for renewable energy by increasing renewable energy generation in the region. Therefore, the project would not conflict with or obstruct State or local plans for renewable energy or energy efficiency and would generate renewable energy for local consumption.

Under the No Project Alternative, a solar energy generation and storage project would not be constructed, and the project site would remain as agricultural land with seasonal cattle grazing, which requires minimal energy use. However, the No Project Alternative would not generate renewable energy or advance State and local plans relating to renewable energy and efficiency. Therefore, the No Project Alternative would not result in beneficial energy impacts when compared to the proposed project in that the No Project Alternative would not produce renewable energy.

#### **5.5.1.7 Geology, Soils, Mineral Resources, and Paleontological Resources**

The proposed project, with implementation of mitigation measures, would have a less than significant impact involving rupture of known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction or landslides; expansive soils; and paleontological resources. The proposed project would have a less than significant impact involving soil erosion or loss of topsoil; unstable geologic or soil units; soils to adequately support septic tanks or alternative wastewater disposal; and mineral resources.

Under the No Project Alternative, there would be no construction on the project site and potential impacts due to earthquake faults, strong seismic ground shaking, or seismic-related ground failure including liquefaction or landslides, soil erosion or loss of top soil, unstable geologic or soil units, expansive soils, soils adequately supporting septic tanks or alternative wastewater disposal, mineral resources, or paleontological resources would be avoided. Therefore, the No Project Alternative would avoid the impacts of the proposed project in the areas of geology, soils, mineral resources, and paleontological resources.

#### **5.5.1.8 Greenhouse Gas Emissions**

As discussed in Section 4.8, Greenhouse Gas Emissions, the proposed project would have a less than significant impact on direct or indirect GHG emissions and plans, policies, and regulations related to GHG emission reductions.

Under the No Project Alternative, the solar facility would not be constructed and no increase in GHG emissions would be generated. Therefore, the No Project Alternative would have less GHG impacts than the proposed project.

#### **5.5.1.9 Hazards and Hazardous Materials**

The proposed project, with mitigation, would have a less than significant impact on hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into

the environment. The proposed project would have no impact regarding hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, hazardous materials sites pursuant to Section 65962.5 of the California Government Code. The proposed project would have a less than significant impact regarding airport related safety hazards or excessive noise and adopted emergency response plan or emergency evacuation plans.

Under the No Project Alternative, there would be no construction on the project site and no increase in the potential impact on accidental conditions involving the release of hazardous materials, hazardous materials, substances, or waste within one-quarter mile of existing or proposed schools, hazardous sites pursuant to Section 65962.5 of the California Government Code, airport-related safety hazards or excessive noise, and adopted emergency response plans or emergency evacuation plans. Therefore, the No Project Alternative would avoid the impacts associated with hazards and hazardous materials compared to the proposed project.

#### **5.5.1.10 Hydrology and Water Quality**

The proposed project, with mitigation, would have a less than significant impact regarding water quality standards, waste discharge requirements or degradation of surface or groundwater quality. The proposed project would have a less than significant impact on groundwater supplies or interference with groundwater recharge or the alteration of the drainage patterns on site. It would have no impact on release of pollutants due to flood hazard, tsunami, or seiche, and it would have less than significant impact regarding water quality control plans or sustainable groundwater management plan.

Under the No Project Alternative, there would be no construction on the project site and no increase in impacts involving water quality standards; waste discharge requirements; degradation of surface or groundwater quality; groundwater supplies or recharge; alteration of the drainage pattern; release of pollutants due to flood hazard, tsunami, or seiche; or water quality control plans and sustainable groundwater management plans. The No Project Alternative would not construct new impervious surfaces or an on-site septic system. Therefore, the No Project Alternative would have less impacts on hydrology and water quality compared to the proposed project.

#### **5.5.1.11 Land Use and Planning**

The proposed project would have no impact on dividing an established community, but it would have a significant and unavoidable conflict with the ECAP for allowing development within lands designated RM.

Under the No Project Alternative, the project site would remain in its current use for cattle grazing and oat and hay cultivation. The No Project Alternative would not divide an established community or conflict with a land use plan, policy, or regulation. Overall, the No Project Alternative would avoid the project's significant and unavoidable impact to land use and planning.

#### **5.5.1.12 Noise**

Exposure of people to excessive groundborne vibrations or noise levels, substantial permanent increase in ambient noise levels in the project vicinity, and cumulative impacts would be less than significant with the proposed project. Construction activities under the proposed project could expose people to unacceptable noise levels during the construction periods; however, these impacts would be reduced to less than significant levels with the implementation of mitigation measures.

Unlike the proposed project, the No Project Alternative would not create temporary, short-term construction noise, and operational noise levels under the No Project Alternative would be similar to the proposed project, with the exception that the increase in traffic noise from the periodic maintenance worker and water truck delivery trips for the proposed project would be offset by the reduction in noise from the periodic use of agricultural equipment for oat and hay cultivation at the project site under the No Project Alternative.

Overall, the No Project Alternative would result in similar impacts to noise compared to the proposed project.

#### **5.5.1.13 Population and Housing**

The proposed project would have a less than significant impact on population and housing. The construction labor force is anticipated to be based locally and commute into the project area, and the proposed project would not induce substantial unplanned population growth or housing in the area.

Under the No Project Alternative, there would be no construction on the project site and no potential impact on population and housing. Therefore, the No Project Alternative would have similar impacts compared to the proposed project.

#### **5.5.1.14 Public Services**

The proposed project would have a less than significant impact on the need for new or physically altered governmental facilities. There would be a less than significant impact related to fire protection due to the proposed fire protection measures, fire prevention and safety training, and internal access driveways acting as fire breaks; there would be no impact related to demand for sheriff protection services based on security measures proposed by the project applicant; land dedication for a public hiking trail in the future would have a less than significant impact related to parks; and no impact on schools would occur.

Under the No Project Alternative, there would be no change to the project site and no potential impact on public services. Therefore, the No Project Alternative would have less impacts compared to the proposed project.

#### **5.5.1.15 Recreation**

The proposed project would have no impact on existing neighborhood or regional parks nor would it require the construction or expansion of recreational facilities. However, the project applicant proposes to dedicate an easement to Alameda County for their potential use to construct a public hiking trail in the future, if desired. The easement would allow for public access on private land to foster public enjoyment of the open space to the west of the project site.

No neighborhood or regional parks currently exist on or adjacent to the project site. Although the No Project Alternative would not provide a land easement through the privately-owned land to allow for public use of open space adjacent to the project site, impacts to recreation resources would be similar when compared to the proposed project.

#### **5.5.1.16 Transportation**

The peak of project construction activities would generate 389 a.m. and 389 p.m. peak hour vehicle trips, approximately 350 a.m. and 350 p.m. peak hour vehicle trips would occur via I-580. However, project construction activities would be temporary (approximately nine months in duration) and the project would generate fewer than 100 vehicle trips on the congestion management program (CMP) network during the a.m. or p.m. peak hour once in operation.

These trips are anticipated to be sporadic and nominal and would not affect the capacity of the roadway system. It is not expected that traffic from project operation would substantially degrade the level of service on roadways and intersections such that it would exceed County standards.

The proposed project would not conflict with any CMP policies at or near the project site. Additionally, the proposed project would not result in inadequate emergency access or conflict with adopted policies and plans regarding public transit, bicycle, or pedestrian facilities.

The No Project Alternative would not increase vehicle trips to or from the project site. Like the proposed project, the No Project Alternative would not result in inadequate emergency access or conflict with adopted policies and plans regarding public transit, bicycle, or pedestrian facilities. Therefore, the No Project Alternative would have less impacts to transportation and traffic compared to the proposed project.

#### **5.5.1.17 Utilities and Service Systems**

Construction of the proposed project would result in less than significant or no impact to water supply, wastewater treatment, solid waste, storm drainage, and energy utilities. The proposed project would not generate wastewater that would be treated by public wastewater treatment facilities and would not exceed the San Francisco Bay RWQCB wastewater standards. Accordingly, the proposed project would not exceed the capacity of a wastewater treatment provider nor require the construction of new water or wastewater treatment facilities or expansion of existing facilities. The proposed project would not substantially alter the drainage patterns on the subject property and no connections to municipal water or sewer service are proposed. Water for project construction and operation would be obtained via an on-site well, off-site well, or procured from a local water authority.

The No Project Alternative would not increase demand or require the construction or expansion of water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities. Overall, the No Project Alternative would have less impacts to utilities and service systems when compared to the proposed project.

#### **5.5.1.18 Wildfire**

The project site is located within an SRA and is designated as a moderate FHSZ. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan. Additionally, the proposed project would have less than significant impacts to exposing workers and the surrounding neighborhood to pollutant concentrations or the uncontrolled spread of wildfire due to slope, winds, or other factors. The proposed project would include installation of a fire prevention system in the battery storage facility, internal access roads as fire breaks, irrigated landscaping along North Manning Road and North Livermore Road, and stormwater retention features and would have a less than significant impact

on exacerbating fire risks or exposing people or structures to significant risks such as downslope or downstream flooding due to post-fire runoff or slope instability.

Under the No Project Alternative, there would be no changes at the project site or increase in project occupants on-site, and therefore this alternative would not impair an adopted emergency response plan or emergency evacuation plan. However, the No Project Alternative would not be required to comply with fire safe landscaping requirements or the 2016 CFC and would not have fire prevention and management measures. Additionally, the No Project Alternative would not include the installation of water storage tanks or stormwater retention ponds. Although the No Project Alternative would not provide the wildfire prevention measures when compared to the proposed project, impacts related to wildfire risks would be similar when compared to the proposed project.

#### **5.5.1.19 Conclusion and Relationship to Project Objectives**

The No Project Alternative would avoid the proposed project's significant and unavoidable impacts to Land Use and Planning by avoiding development within land designated for RM in the ECAP and to Aesthetics by avoiding development along the County-designated scenic corridors. However, the No Project Alternative would not fulfill any of the project objectives for meeting renewable energy generation goals, job creation, siting a solar facility in previously disturbed lands, dedicating land to accommodate a potential future public hiking trail, deploying industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, achieving economies of scale to generate, store, and transmit 100 MW of solar electricity, and helping Bay Area Community Choice Aggregators in fulfilling local renewable energy procurement goals as described in Section 3.3, Project Objectives, because it would not allow the project applicant to construct or operate the proposed solar facility. In addition, the No Project Alternative would not dedicate land to accommodate a potential future public hiking trail.

### **5.5.2 Resource Management Avoidance Alternative**

As discussed in Section 5.4.2, Resource Management Avoidance Alternative, this project alternative would avoid development of the solar facility and associated infrastructure within land designated for RM in the ECAP which would allow for the development of 385 acres instead of the proposed 410 acres (see Figure 5-1 for the site plan of the Resource Management Avoidance Alternative).

The Resource Management Avoidance Alternative would reduce the energy generation production at the same solar PV module ground cover ratio as the proposed project. However, up to 100 MW of power could potentially be achieved at a higher ground cover ratio (by constructing a higher density of solar PV modules within the reduced footprint area), but at an impaired performance level as the density and close proximity of modules would reduce production from panel shading. Lower sun angles in the early morning and late afternoon would result in modules casting shadows on one another, and energy generation during these time periods would be impaired. Therefore, generation 100 MW of energy within the reduced footprint with the same number of solar PV panels but at a higher ground cover ratio would not be as efficient or effective as the proposed project.

#### **5.5.2.1 Aesthetics**

The view of the Resource Management Avoidance Alternative at representative viewpoints discussed in Section 4.1, Aesthetics, would be similar to the proposed project. Although the development footprint would be reduced, the change in footprint would be from the northernmost portion of the northern

section of the project site. Correspondingly, the change to viewers from North Livermore Avenue, Manning Road, and other publicly accessible viewpoints would be negligible when compared to the proposed project.

Overall, the Resource Management Avoidance Alternative would have similar aesthetic impacts to that of the proposed project. Impacts would be at the same level of significance as the proposed project and would remain significant and unavoidable for impacts to the existing visual character or quality of the public views.

#### **5.5.2.2 Agriculture and Forestry Resources**

The Resource Management Avoidance Alternative would have similar impacts to agriculture resources as those discussed for the proposed project in Section 4.2, Agriculture and Forestry Resources. Although the footprint would be reduced, this project alternative would similarly propose solar development on 38 acres of land under Williamson Act contract and maintain a majority of the site in limited agricultural operation for the duration of the life of the solar facility. Therefore, the Resource Management Avoidance Alternative would have similar agriculture and forestry resource impacts to that of the proposed project.

#### **5.5.2.3 Air Quality**

The Resource Management Avoidance Alternative would have slightly less, but still similar and less-than-significant, impacts to air quality as those discussed for the proposed project in Section 4.3, Air Quality. Because the Resource Management Alternative would require less ground disturbance and a shorter construction schedule by approximately 4 weeks, there would be less fugitive dust associated with construction. The Resource Management Avoidance Alternative would have a less than significant impact on the net increase of criteria pollutants for which the project region is in non-attainment for operational or decommissioning impacts; applying the same mitigation identified for the proposed project, this project alternative would have a less than significant impact on net increase of criteria pollutants for which the project region is in non-attainment for construction impacts. This project alternative would have a less than significant impact related to implementation of the BAAQMD's 2017 Clean Air Plan, exposure of sensitive receptors to DPM, CO, or odors. Overall, the Resource Management Avoidance Alternative's impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.

#### **5.5.2.4 Biological Resources**

Development of the Resource Management Avoidance Alternative would avoid development in land designated for RM, which would result in the avoidance of a portion of the northern parcel north of Manning Road. Avoidance of development in this area would reduce potential impacts to burrowing owl using burrows east of the project boundary by reducing construction related disturbance in proximity to burrows and leaving more undeveloped land for foraging. This area is also prime foraging habitat for common and special-status raptors such as red-tailed hawk, northern harrier, and golden eagle due to the abundance of ground squirrels in this area and less habitat would be developed under this alternative. Impacts to the 0.08-acre ephemeral stream in the northwest corner of the northern parcel of the project site (see Figure 5-1) would also be avoided under this alternative. Therefore, the Resource Management Avoidance Alternative would have no potential impacts to waters of the State, and



implementation of MM BIO-8 identified in Section 4.4 for proposed project would not be necessary for this project alternative.

Overall, the Resource Management Avoidance Alternative would result in a reduced level of biological resources impacts when compared to the proposed project, however, impacts under both the proposed project and the Resource Management Alternative would be less than significant with mitigation.

#### **5.5.2.5 Cultural and Tribal Cultural Resources**

The Resource Management Avoidance Alternative would result in similar impacts to cultural and tribal cultural resources as those discussed for the proposed project in Section 4.5, Cultural and Tribal Cultural Resources. Although the footprint would be reduced, the Resource Management Avoidance Alternative would result in indirect impacts to historical resources identified on the Stanley Ranch near the southwestern and southeastern sections of the project site by disrupting the integrity of setting and feeling, similar to the proposed project. Overall, the Resource Management Avoidance Alternative would result in similar cultural and tribal cultural resources impacts when compared to the proposed project, and impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.

#### **5.5.2.6 Energy**

The Resource Management Avoidance Alternative would have similar impacts to energy as those discussed in Section 4.6, Energy. The Resource Management Avoidance Alternative would produce renewable solar energy for distribution through the PG&E distribution system. This project alternative would use typical construction equipment and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Additionally, this project alternative would serve to directly advance State and local plans for renewable energy by increasing renewable energy generation in the region. Therefore, the Resource Management Avoidance Alternative would not conflict with or obstruct State or local plans for renewable energy or energy efficiency.

Overall, consumption of energy may be less than the proposed project due to a reduced construction footprint, however, the production and efficiency of the solar energy generated by this project alternative would be slightly reduced when compared to the proposed project because the arrangement of the panel arrays necessary to produce 100 MWs of renewable energy in a reduced footprint is less efficient. Overall, the Resource Management Avoidance Alternative would result in similar energy impacts as the proposed project.

#### **5.5.2.7 Geology, Soils, Mineral Resources, and Paleontological Resources**

The Resource Management Avoidance Alternative would have similar impacts to those discussed for the proposed project in Section 4.7, Geology, Soils, Mineral Resources, and Paleontological Resources. With implementation of the mitigation identified in Section 4.7 for the proposed project, this project alternative would have a less than impact related to rupture of known earthquake fault, strong seismic ground shaking, or seismic-related ground failure and expansive soils. Similar to the proposed project, this project alternative would have less than significant impacts on soil or topsoil erosion; unstable geologic units or soils; soils related to septic tanks or alternative wastewater disposal systems; and no impact on mineral resources.

Since this project alternative would result in less ground disturbance during construction, the potential to encounter paleontological resources would be slightly reduced. However, this project alternative would still require the same mitigation identified in Section 4.7 for the proposed project (GEO-2: Avoid and Minimize Impacts to Paleontological Resources) to reduce potential impacts to paleontological resources. Overall, the Resource Management Avoidance Alternative would result in similar impacts to geology, soils, mineral resources, and paleontological resources when compared to the proposed project, and the same mitigation measures would apply.

#### **5.5.2.8 Greenhouse Gas Emissions**

The Resource Management Avoidance Alternative would have slightly less impacts than those discussed for the proposed project in Section 4.8, Greenhouse Gas Emissions. Due to the reduced footprint, construction of this project alternative would result in similar or slightly less GHG emissions, and this alternative would have a less than significant impact on direct or indirect GHG emissions and related to plans, policies, and regulations related to GHG emission reductions. Overall, the Resource Management Avoidance Alternative would result in similar GHG impacts when compared to the proposed project.

#### **5.5.2.9 Hazards and Hazardous Materials**

The Resource Management Avoidance Alternative would result in similar impacts as those discussed for the proposed project in Section 4.9, Hazards and Hazardous Materials. With mitigation, the Resource Management Avoidance Alternative would have a less than significant impact on hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This alternative would have no impact regarding hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, hazardous materials sites pursuant to Section 65962.5 of the California Government Code. This alternative would have a less than significant impact regarding airport related safety hazards or excessive noise and adopted emergency response plan or emergency evacuation plans. Overall, the Resource Management Avoidance Alternative's impacts would result in similar hazards and hazardous materials impacts when compared to the proposed project and the same mitigation measures would apply.

#### **5.5.2.10 Hydrology and Water Quality**

The Resource Management Avoidance Alternative would have slightly less impacts than those discussed for the proposed project in Section 4.10, Hydrology and Water Quality. Due to the reduced footprint, construction of this alternative would result in less ground disturbance and reduced impervious surfaces. With mitigation identified in Section 4.10, this project alternative would have less than significant impact regarding water quality standards or waste discharge requirements or degradation of surface or groundwater quality. This project alternative would have a less than significant impact on groundwater supplies or interference with groundwater recharge, alteration of the drainage pattern on site, and regarding water quality control plans or sustainable groundwater management plans. It would have no impact on release of pollutants due to flood hazard, tsunami, or seiche.

Overall, the Resource Management Avoidance Alternative would have slightly less impacts on hydrology and water quality as those discussed for the proposed project; however, impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.

#### **5.5.2.11 Land Use and Planning**

The Resource Management Avoidance Alternative would result in less impacts than those discussed for the proposed project in Section 4.11, Land Use and Planning. This alternative would have no impact on dividing an established community, and it would have a less than significant impact on conflict with land use plan, policy, or regulation as it would only develop lands designated for LPA in the ECAP. Avoidance of development in land designated for RM would eliminate the significant and unavoidable impact identified for the proposed project. Therefore, the Resource Management Avoidance Alternative would not result in significant impacts to land use and planning when compared to the proposed project.

#### **5.5.2.12 Noise**

The proposed project would not expose people residing or working in the vicinity of the project site to excessive aircraft noise levels or excessive noise levels within the vicinity of a private air strip. The proposed project would also not expose people to excessive groundborne vibrations or noise levels or substantial permanent increase in ambient noise levels in the project vicinity. Construction activities under the proposed project could expose people to unacceptable noise levels; however, these impacts would be reduced to less than significant levels with the implementation of mitigation measures identified in Section 4.12, Noise.

The Resource Management Avoidance Alternative would also result in temporary, short-term construction noise impacts. Operational noise levels under the Resource Management Avoidance Alternative would be similar to the proposed project. Overall, the Resource Management Avoidance Alternative would result in similar impacts to noise when compared to the proposed project.

#### **5.5.2.13 Population and Housing**

The Resource Management Avoidance Alternative would have the same impacts as those discussed for the proposed project in Section 4.13, Population and Housing. Residential units would not be constructed, and there would be no direct or indirect increase in population. Although project construction would create 400 short-term, temporary construction jobs and up to 4 long-term permanent jobs, the labor force is anticipated to be based locally, and the Resource Management Avoidance Alternative would not induce substantial unplanned population growth or housing in the area. Similar to the proposed project, the camping trailer located in the northwest corner of the central section of the project site and its residents would relocate upon project construction. Overall, the Resource Management Avoidance Alternative would result in similar impacts on population and housing as those discussed for the proposed project.

#### **5.5.2.14 Public Services**

The Resource Management Avoidance Alternative would result in similar impacts as those discussed for the proposed project in Section 4.14, Public Services. This project alternative would have a less than significant impact related to fire protection demand due to proposed fire protection measures, fire prevention and safety training, and internal access driveways acting as fire breaks; there would be no impact related to demand for sheriff protection services based on security measures proposed by the project applicant; land dedication for a public hiking trail in the future would have a less than significant impact related to parks; and no impact on schools would occur. Overall, the Resource Management Avoidance would result in similar impacts on public services when compared to the proposed project.

#### **5.5.2.15 Recreation**

The Resource Management Avoidance Alternative would result in similar impacts on recreation resources as those discussed for the proposed project in Section 4.15, Recreation. This project alternative would not increase the use of existing neighborhood and regional parks and would not include recreational facilities or require the construction or expansion of recreational facilities. Additionally, the land to be dedicated for a potential future public hiking trail (if desired) would not differ from the proposed project. Overall, the Resource Management Avoidance Alternative would result in similar impacts on recreation resources when compared to the proposed project.

#### **5.5.2.16 Transportation**

The Resource Management Avoidance Alternative would result in similar impacts on transportation as those discussed for the proposed project in Section 4.16, Transportation. Although the project footprint would be reduced by 25 acres in this project alternative, the number of workers during construction would not be substantially reduced and a temporary, less-than-significant increase in local traffic would still result during project construction, though for a shorter duration. The Resource Management Avoidance Alternative would not reduce the number of employees needed during operation of the solar facility nor would it decrease the number of access points proposed. Overall, the Resource Management Avoidance Alternative would result in similar impacts on transportation as those discussed for the proposed project.

#### **5.5.2.17 Utilities and Service Systems**

Construction of the proposed project would result in less than significant or no impact to water supply, wastewater treatment, solid waste, storm drainage, and energy utilities. The proposed project would not generate wastewater that would be treated by public wastewater treatment facilities and would not exceed the San Francisco Bay RWQCB wastewater standards. Accordingly, the proposed project would not exceed the capacity of a wastewater treatment provider nor require the construction of new water or wastewater treatment facilities or expansion of existing facilities. The proposed project would not substantially alter the drainage patterns on the subject property, and no connections to municipal water or sewer service are proposed. Water for project construction and operation would be obtained via an on-site well, off-site well, or procured from a local water authority.

The Resource Management Avoidance Alternative would result in similar impacts on utilities as those discussed for the proposed project in Section 4.17, Utilities and Service Systems. Impacts to water supply, wastewater treatment, stormwater drainage, and solid waste would be similar as the same number of panels would be installed on site but at a higher density than the proposed project. Although the project footprint would be reduced, the Resource Management Avoidance Alternative would require the same overhead electrical crossings at Manning Road and the tributaries to Cayetano Creek, and the proposed project substation gen-tie connection to the existing PG&E Cayetano substation would be unchanged. Overall, the Resource Management Avoidance Alternative would result in similar impacts to utilities and service systems when compared to the proposed project.

#### **5.5.2.18 Wildfire**

The Resource Management Avoidance Alternative would result in similar impacts to wildfire risks as those discussed for the proposed project in Section 4.18, Wildfire. Although the footprint would be reduced, the project site would be at the same location and the same fire prevention measures would

be applied for this project alternative. Therefore, the Resource Management Avoidance Alternative would result in similar impacts to wildfire risks when compared to the proposed project.

#### **5.5.2.19 Conclusion and Relationship to Project Objectives**

The Resource Management Avoidance Alternative would result in mostly similar and slightly reduced impacts as compared to the proposed project, and it would eliminate the significant and unavoidable impacts regarding Land Use and Planning by avoiding development of lands within the RM designation.

Overall, the Resource Management Avoidance Alternative would meet the objectives of assisting California reach its renewable energy generation goals under Senate Bill 100, requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045, creating up to 400 living wage jobs and up to four permanent jobs in the San Francisco Bay Area; minimize environmental impacts by siting a facility on disturbed lands in proximity to a high-voltage substation with available capacity to facilitate grid interconnection; dedicating land to accommodate a potential future public hiking trail; deploying industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, including making use of single-axis tracking technology and 4-hour battery storage duration technology to provide local resource adequacy capabilities to the Bay Area; achieving economies of scale to generate, store, and transmit up to 100 MW affordable, local, wholesale solar electricity to Bay Area residents; and helping Bay Area Community Choice Aggregators in fulfilling their local renewable energy procurement goals. Overall, the Resource Management Avoidance Alternative would meet all seven of the project objectives.

### **5.5.3 Reduced Footprint Alternative**

As discussed in Section 5.3.3, Reduced Footprint Alternative, this project alternative would avoid development of the solar facility and associated infrastructure within lands designated for RM and WM in the ECAP which would allow for the development of 359 acres instead of the proposed 410 acres (see Figure 5-2 for the site plan of the Reduced Footprint Alternative).

The Reduced Footprint Alternative would reduce the energy generation production from 100 MW to 75 MW at the same solar PV module ground cover ratio as the proposed project.

#### **5.5.3.1 Aesthetics**

The view of the Reduced Footprint Alternative at representative viewpoints discussed in Section 4.1, Aesthetics, would be similar to the proposed project. Although the development footprint would be reduced, the change in footprint would be from the interior of the central section of the project site along Cayetano Creek and the northernmost portion of the northern section of the project site. Correspondingly, the change to viewers from North Livermore Avenue, Manning Road, and other publicly accessible viewpoints would be negligible when compared to the proposed project.

Overall, the Reduced Footprint Alternative would have similar aesthetic impacts to that of the proposed project. Impacts would be at the same level of significance as the proposed project and would remain significant and unavoidable for impacts to the existing visual character or quality of the public views.

### **5.5.3.2 Agriculture and Forestry Resources**

The Reduced Footprint Alternative would have similar impacts to agriculture resources as those discussed for the proposed project in Section 4.2, Agriculture and Forestry Resources. Although the footprint would be reduced, this project alternative would similarly propose solar development on 38 acres of land under Williamson Act contract and maintain a majority of the site in limited agricultural operation for the duration of the life of the solar facility. Therefore, the Reduced Footprint Alternative would have similar agriculture and forestry resource impacts to that of the proposed project.

### **5.5.3.3 Air Quality**

The Reduced Footprint Alternative would have slightly less, but similar and still less-than-significant impacts, to air quality as those for the proposed project discussed in Section 4.3, Air Quality. Because the Resource Management Alternative would require less ground disturbance and a shorter construction schedule by approximately 4 weeks, there would be less fugitive dust associated with construction. The Reduced Footprint Alternative would have a less than significant impact on the net increase of criteria pollutants for which the project region is in non-attainment for operational or decommissioning impacts; applying the same mitigation identified for the proposed project, this project alternative would have a less than significant impact on net increase of criteria pollutants for which the project region is in non-attainment for construction impacts. This project alternative would have a less than significant impact related to implementation of the BAAQMD's 2017 Clean Air Plan, exposure of sensitive receptors to DPM, CO, or odors. Overall, the Reduced Footprint Alternative's impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.

### **5.5.3.4 Biological Resources**

Development of the Reduced Footprint Alternative would avoid development in lands designated for RM and WM in the ECAP and have a 51-acre reduction in the project impact area. Avoidance of development in lands designated for WM would provide a greater buffer between the PV solar arrays and Cayetano Creek and its tributaries reducing the potential for impacts to these habitats and the wildlife that use them for dispersal, foraging, and nesting. Specifically, providing a greater buffer between the solar development and Cayetano Creek and its tributaries would reduce impacts to potential dispersal habitat for CRLF and CTS, foraging and dispersal habitat for burrowing owl (this species was documented using the creek corridor during biological surveys), foraging and dispersal habitat for common native wildlife species as well as special-status species, and impacts to the potential nesting habitat for common and special-status birds within the creek corridor. Avoidance of development in lands designated for WM would also leave more open space on the site for foraging raptors and other native birds and would provide a wider corridor that could be used by species such as American badger and San Joaquin kit fox for foraging or denning. This would reduce the area for potential significant-but-mitigable impacts to biological resources.

The Reduced Footprint Alternative would also avoid development in lands designated for RM, which would result in the avoidance of a portion of the northern parcel north of Manning Road. Avoidance of development in this area would reduce potential impacts to burrowing owl using burrows east of the project boundary by reducing construction related disturbance in proximity to burrows and leaving more undeveloped land for foraging. This area is also prime foraging habitat for common and special-status raptors such as red-tailed hawk, northern harrier, and golden eagle due to the abundance of ground squirrels in this area and less habitat would be developed under this alternative. Impacts to the

0.08-acre ephemeral stream in the northwest corner of the northern parcel of the project site (see Figure 5-2) would also be avoided under this alternative. Therefore, the Reduced Footprint Alternative would have no potential impacts to waters of the State, and implementation of MM BIO-8 identified in Section 4.4 for proposed project would not be necessary for this project alternative.

Overall, the Reduced Footprint Alternative would result in a reduced level of biological resources impacts when compared to the proposed project.

#### **5.5.3.5 Cultural and Tribal Cultural Resources**

The Reduced Footprint Alternative would result in similar impacts to cultural and tribal cultural resources as those discussed for the proposed project in Section 4.5, Cultural and Tribal Cultural Resources. Although the footprint would be reduced, the Reduced Footprint Alternative would result in indirect impacts to historical resources identified on the Stanley Ranch near the southwestern and southeastern sections of the project site by disrupting the integrity of setting and feeling, similar to the proposed project. Overall, the Reduced Footprint Alternative would result in similar cultural and tribal cultural resources impacts when compared to the proposed project, and impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.

#### **5.5.3.6 Energy**

The Reduced Footprint Alternative would have similar impacts to energy as those discussed in Section 4.6, Energy. The Reduced Footprint Alternative would produce renewable solar energy for distribution through the PG&E distribution system. This project alternative would use typical construction equipment and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Additionally, this project alternative would serve to directly advance State and local plans for renewable energy by increasing renewable energy generation in the region. Therefore, the Reduced Footprint Alternative would not conflict with or obstruct State or local plans for renewable energy or energy efficiency.

Overall, consumption of energy may be less than the proposed project due to a reduced construction footprint, however, the production and efficiency of the solar energy generated by this project alternative would be reduced when compared to the proposed project. Overall, the Reduced Footprint Alternative would result in similar energy impacts as the proposed project.

#### **5.5.3.7 Geology, Soils, Mineral Resources, and Paleontological Resources**

The Reduced Footprint Alternative would have similar impacts to those discussed for the proposed project in Section 4.7, Geology, Soils, Mineral Resources, and Paleontological Resources. With implementation of the mitigation identified in Section 4.7 for the proposed project, this project alternative would have a less than impact related to rupture of known earthquake fault, strong seismic ground shaking, or seismic-related ground failure and expansive soils. Similar to the proposed project, this project alternative would have less than significant impacts on soil or topsoil erosion; unstable geologic units or soils; soils related to septic tanks or alternative wastewater disposal systems; and no impact on mineral resources.

Since this project alternative would result in less ground disturbance during construction, the potential to encounter paleontological resources would be slightly reduced. However, this project alternative would still require the same mitigation identified in Section 4.7 for the proposed project (GEO-2: Avoid

and Minimize Impacts to Paleontological Resources) to reduce potential impacts to paleontological resources. Overall, the Reduced Footprint Alternative would result in similar impacts to geology, soils, mineral resources, and paleontological resources when compared to the proposed project, and the same mitigation measures would apply.

#### **5.5.3.8 Greenhouse Gas Emissions**

The Reduced Footprint Alternative would have slightly less impacts than those discussed for the proposed project in Section 4.8, Greenhouse Gas Emissions. Due to the reduced footprint, construction of this project alternative would result in similar or slightly less GHG emissions, and this alternative would have a less than significant impact on direct or indirect GHG emissions and related to plans, policies, and regulations related to GHG emission reductions. Overall, the Reduced Footprint Alternative would result in similar GHG impacts when compared to the proposed project. The Reduced Footprint Alternative would result in less renewable energy being generated for the California grid.

#### **5.5.3.9 Hazards and Hazardous Materials**

The Reduced Footprint Alternative would result in similar impacts as those discussed for the proposed project in Section 4.9, Hazards and Hazardous Materials. With mitigation, the Reduced Footprint Alternative would have a less than significant impact on hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This alternative would have no impact regarding hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, hazardous materials sites pursuant to Section 65962.5 of the California Government Code. This alternative would have a less than significant impact regarding airport related safety hazards or excessive noise and adopted emergency response plan or emergency evacuation plans. Overall, the Reduced Footprint Alternative's impacts would result in similar hazards and hazardous materials impacts when compared to the proposed project and the same mitigation measures would apply.

#### **5.5.3.10 Hydrology and Water Quality**

The Reduced Footprint Alternative would have slightly less impacts than those discussed for the proposed project in Section 4.10, Hydrology and Water Quality. Solar PV modules and internal access roads would be set back further from Cayetano Creek to avoid development in land designated for WM in the ECAP, resulting in less ground disturbance during construction and reduced impervious surfaces. With mitigation identified in Section 4.10, this project alternative would have less than significant impact regarding water quality standards or waste discharge requirements or degradation of surface or groundwater quality. This project alternative would have a less than significant impact on groundwater supplies or interference with groundwater recharge, alteration of the drainage pattern on site, and regarding water quality control plans or sustainable groundwater management plans. It would have no impact on release of pollutants due to flood hazard, tsunami, or seiche.

Overall, the Reduced Footprint Alternative would have slightly less impacts on hydrology and water quality as those discussed for the proposed project; however, impacts would be at the same level of significance as the proposed project and the same mitigation measures would apply.



#### **5.5.3.11 Land Use and Planning**

The Reduced Footprint Alternative would result in less impacts than those discussed for the proposed project in Section 4.11, Land Use and Planning. This alternative would have no impact on dividing an established community, and it would have a less than significant impact on conflict with land use plan, policy, or regulation as it would only develop lands designated for LPA in the ECAP. Avoidance of development in land designated for RM would eliminate the significant and unavoidable impact identified for the proposed project. Therefore, the Reduced Footprint Alternative would not result in significant impacts to land use and planning when compared to the proposed project.

#### **5.5.3.12 Noise**

The proposed project would not expose people residing or working in the vicinity of the project site to excessive aircraft noise levels or excessive noise levels within the vicinity of a private air strip. The proposed project would also not expose people to excessive groundborne vibrations or noise levels or substantial permanent increase in ambient noise levels in the project vicinity. Construction activities under the proposed project could expose people to unacceptable noise levels; however, these impacts would be reduced to less than significant levels with the implementation of mitigation measures identified in Section 4.12, Noise.

The Reduced Footprint Alternative would also result in temporary, short-term construction noise impacts. Operational noise levels under the Reduced Footprint Alternative would be similar to the proposed project. Overall, the Reduced Footprint Alternative would result in similar impacts to noise when compared to the proposed project.

#### **5.5.3.13 Population and Housing**

The Reduced Footprint Alternative would have the same impacts as those discussed for the proposed project in Section 4.13, Population and Housing. Residential units would not be constructed, and there would be no direct or indirect increase in population. Although project construction would create 400 short-term, temporary construction jobs and up to 4 long-term permanent jobs, the labor force is anticipated to be based locally, and the Reduced Footprint Alternative would not induce substantial unplanned population growth or housing in the area. Similar to the proposed project, the camping trailer located in the northwest corner of the central section of the project site and its residents would relocate upon project construction. Overall, the Reduced Footprint Alternative would result in similar impacts on population and housing as those discussed for the proposed project.

#### **5.5.3.14 Public Services**

The Reduced Footprint Alternative would result in similar impacts as those discussed for the proposed project in Section 4.14, Public Services. This project alternative would have a less than significant impact related to fire protection demand due to proposed fire protection measures, fire prevention and safety training, and internal access driveways acting as fire breaks; there would be no impact related to demand for sheriff protection services based on security measures proposed by the project applicant; land dedication for a public hiking trail in the future would have a less than significant impact related to parks; and no impact on schools would occur. Overall, the Reduced Footprint Alternative would result in similar impacts on public services when compared to the proposed project.

### **5.5.3.15 Recreation**

The Reduced Footprint Alternative would result in similar impacts on recreation resources as those discussed for the proposed project in Section 4.15, Recreation. This project alternative would not increase the use of existing neighborhood and regional parks and would not include recreational facilities or require the construction or expansion of recreational facilities. It would also not contribute to a significant cumulative impact to recreation resources. The footprint would be reduced by avoiding development within land designated for WM in the ECAP and thereby increasing the setback between the solar PV modules and Cayetano Creek. Additionally, the land to be dedicated for a potential future public hiking trail (if desired) would not differ from the proposed project. Overall, the Reduced Footprint Alternative would result in similar impacts on recreation resources when compared to the proposed project.

### **5.5.3.16 Transportation**

The Reduced Footprint Alternative would result in similar impacts on transportation as those discussed for the proposed project in Section 4.16, Transportation. Although the project footprint would be reduced by 51 acres in this project alternative, the number of workers during construction would not be substantially reduced and a temporary, less-than-significant increase in local traffic would still result during project construction, though for a shorter duration. The Reduced Footprint Alternative would not reduce the number of employees needed during operation of the solar facility nor would it decrease the number of access points proposed. Overall, the Reduced Footprint Alternative would result in similar impacts on transportation as those discussed for the proposed project.

### **5.5.3.17 Utilities and Service Systems**

Construction of the proposed project would result in less than significant or no impact to water supply, wastewater treatment, solid waste, storm drainage, and energy utilities. The proposed project would not generate wastewater that would be treated by public wastewater treatment facilities and would not exceed the San Francisco Bay RWQCB wastewater standards. Accordingly, the proposed project would not exceed the capacity of a wastewater treatment provider nor require the construction of new water or wastewater treatment facilities or expansion of existing facilities. The proposed project would not substantially alter the drainage patterns on the subject property, and no connections to municipal water or sewer service are proposed. Water for project construction and operation would be obtained via an on-site well, off-site well, or procured from a local water authority.

The Reduced Footprint Alternative would result in similar impacts on utilities as those discussed for the proposed project in Section 4.17, Utilities and Service Systems. Impacts to water supply, wastewater treatment, stormwater drainage, and solid waste would be similar as the same number of panels would be installed on site but at a higher density than the proposed project. Although the project footprint would be reduced, the Reduced Footprint Alternative would require the same overhead electrical crossings at Manning Road and the tributaries to Cayetano Creek, and the proposed project substation tie into the existing PG&E Cayetano substation would be unchanged. Overall, the Reduced Footprint Alternative would result in similar impacts to utilities and service systems when compared to the proposed project.

### **5.5.3.18 Wildfire**

The Reduced Footprint Alternative would result in similar impacts to wildfire risks as those discussed for the proposed project in Section 4.18, Wildfire. Although the footprint would be reduced, the project site would be at the same location and the same fire prevention measures would be applied for this project alternative. Therefore, the Reduced Footprint Alternative would result in similar impacts to wildfire risks when compared to the proposed project.

### **5.5.3.19 Conclusion and Relationship to Project Objectives**

The Reduced Footprint Alternative would result in mostly similar and slightly reduced impacts as compared to the proposed project, and it would eliminate the significant and unavoidable impacts to Land Use and Planning by avoiding development of lands within the RM designation. However, the Reduced Footprint Alternative would reduce the energy generation production from 100 MW to 75 MW at the same solar PV module ground cover ratio as the proposed project. This reduction would lessen the proposed project's contribution to assisting California reach its renewable energy generation goals under Senate Bill 100, requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045 and would not meet the objectives to deploy industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, including making use of single-axis tracking technology and 4-hour battery storage duration technology to provide local resource adequacy capabilities or achieve economies of scale to generate, store, and transmit up to 100 MW affordable, local, wholesale solar electricity to the Bay Area residents. The Reduced Footprint Alternative would, however, meet the objectives of creating up to 400 living wage jobs and up to four permanent jobs in the San Francisco Bay Area; minimize environmental impacts by siting a facility on disturbed lands in proximity to a high-voltage substation with available capacity to facilitate grid interconnection; dedicating land to accommodate a potential future public hiking trail; and helping Bay Area Community Choice Aggregators in fulfilling their local renewable energy procurement goals. Overall, the Reduced Footprint Alternative would meet four of the seven project objectives.

## **5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

The environmentally superior alternative is the alternative expected to generate the least amount of significant impacts. In addition to the discussion and comparison of impacts of the project and the alternatives, Section 15126.6 of the State CEQA Guidelines requires that an "environmentally superior" alternative be identified. Identification of the environmentally superior alternative is an informational procedure and the alternative identified may not be the alternative that best meets the goals or needs of the project applicant or Alameda County.

As shown in Table 5-1, the No Project Alternative would result in fewer impacts than the proposed project as all impacts would be less than significant and it is the environmentally superior alternative. The No Project Alternative, however, would not meet the objectives of the proposed project. In accordance with State CEQA Guidelines Section 15126.6(e)(2), if the environmentally superior alternative is the "No Project" alternative, the Draft EIR shall also identify an environmentally superior alternative among the other alternatives.

As discussed elsewhere in this Draft EIR, the proposed project would result in significant and unavoidable impacts to land use and planning for conflicting with the RM designation in the ECAP and to

aesthetics for significantly altering the visual character and quality of public view points along County-designated scenic corridors. Compared to the proposed project, both the Resource Management Avoidance Alternative and Reduced Footprint Alternative would avoid development in land designated for RM in the ECAP which would reduce the significant and unavoidable land use impact from the proposed project to a less than significant land use impact. The Reduced Footprint Alternative would result in similar or slightly reduced impacts to other resource areas where the impacts are less than significant under both the proposed project and the Resource Management Avoidance Alternative. Therefore, the Reduced Footprint Alternative is the environmentally superior project alternative per State CEQA Guidelines Section 15126.6(e)(2).

However, as noted above, the Reduced Footprint Alternative does not meet the project objectives as well as the proposed project. The Reduced Footprint Alternative would reduce the energy generation production from 100 MW to 75 MW. This reduction would lessen the proposed project's contribution to assisting California reach its renewable energy generation goals under Senate Bill 100, requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045 and would not meet the objectives to deploy industry-leading solar and storage technology to generate 100 MW of solar capacity on less than 500 acres of land, including making use of single-axis tracking technology and 4-hour battery storage duration technology to provide local resource adequacy capabilities or achieve economies of scale to generate, store, and transmit up to 100 MW affordable, local, wholesale solar electricity to the Bay Area residents. The Reduced Footprint Alternative would, however, meet the objectives of creating up to 400 living wage jobs and up to four permanent jobs in the San Francisco Bay Area; minimize environmental impacts by siting a facility on disturbed lands in proximity to a high-voltage substation with available capacity to facilitate grid interconnection; dedicating land to accommodate a potential future public hiking trail; and helping Bay Area Community Choice Aggregators in fulfilling their local renewable energy procurement goals. Overall, the Reduced Footprint Alternative would meet four of the seven project objectives.

## **5.7 REFERENCES**

East Bay Community Energy (EBCE). 2017. Solar Siting Survey. Draft Final Summary Report: Solar Photovoltaic (PV) Commercial-Scale Sites for 1,000 kW (AC) and Larger. August. Available at: <https://clean-coalition.org/solar-siting-survey-east-bay-community-energy/>.

Solar Power World. 2018. Latest Lazard LCOE analysis finds utility-scale solar now at or below cost of conventional generation. November 8. Available at: <https://www.solarpowerworldonline.com/2018/11/latest-lazard-lcoe-analysis-finds-utility-scale-solar-now-at-or-below-cost-of-conventional-generation/>.

## **6.0 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES**

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Section 15126.2(c) of the State CEQA Guidelines requires an EIR to discuss the extent to which a proposed project or plan would commit nonrenewable resources to uses that future generation would probably be unable to reverse. The three CEQA-required categories of irreversible changes are discussed below.

### **6.1 LAND USE CHANGES THAT COMMIT FUTURE GENERATIONS**

Although the project site is currently undeveloped and used for oat and hay cultivation and cattle grazing, the proposed project would not implement a land use change that commits future generations to uses that are not already prevalent in the project vicinity because the proposed solar panels and associated infrastructure are able to be decommissioned, and the site could revert back to agricultural and grazing land.

As described in Section 3.0, Project Description, the proposed project includes the construction, operation, and maintenance of a solar PV energy generation and storage facility for at least 50 years. Once the operating life of the facility has been reached, it would be either repowered or decommissioned. If repowering were to be pursued, it would require the facility owner to obtain all required permit approvals. Project decommissioning would occur in accordance with the expiration of the CUP and would involve the removal of above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a project-specific Decommissioning Plan.

All driveways and other areas compacted during original construction or by equipment used for operation or decommissioning would be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Low areas would be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, locally-sourced topsoil would be placed to a depth and density consistent with adjacent properties. Locally-sourced compost would be applied to the topsoil, and the entire site would be tilled to further loosen the soil and blend in the compost. If requested by the landowner, an appropriate seed mixture would be broadcast or drilled across the site, and a weed-free mulch would be applied to stabilize the soil and retain moisture for seedling germination and establishment.

As mentioned above, a project-specific Decommissioning Plan would be prepared and submitted to the County that discusses steps required for restoring the site to pre-project conditions to the extent feasible and would include an estimate for reclamation costs.

### **6.2 IRREVERSIBLE DAMAGE FROM ENVIRONMENTAL ACCIDENTS**

Potential environmental accidents of concern include those that would have adverse effects on the environment or public health due to the nature or quantity of material released during an accident and the receptors exposed to that release. Construction activities associated with development of the proposed project would involve some risk for environmental accidents. However, the risk of accidental release of hazardous materials would be reduced by compliance with County, State, and federal

regulations, including the County-approved HMBP. Additionally, the land use proposed by the proposed project would not include any uses or activities that are likely to contribute to or be the cause of a significant environmental accident. As a result, the proposed project would not pose a substantial risk of irreversible damage from environmental accidents.

### **6.3 LARGE COMMITMENT OF NON-RENEWABLE RESOURCES**

Consumption of non-renewable resources includes issues related to increased energy consumption, conversion of agricultural lands, and loss of access to mining reserves. During construction, oil, gas, and other fossil fuels and non-renewable resources would be consumed and irreversible commitments of small quantities of non-renewable resources would occur as a result of long-term operations. However, the use of non-renewable resources for the project is not substantial, and once operational, the proposed project would create a new source of renewable energy to offset the use of non-renewable energy.

## 7.0 GROWTH INDUCEMENT

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Section 15126.2(d) of the State CEQA Guidelines requires that an EIR discuss the ways in which a proposed project or plan could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal of other major barriers to development. This section evaluates the proposed project's potential to create such growth inducement. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only when the projected growth would cause adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct and indirect. Direct growth-inducing impacts are generally associated with providing urban services to an undeveloped area. Indirect, or secondary growth-inducing impacts, consist of growth induced in the region by additional demands for housing, goods, and services associated with the population increase caused by, or attracted to, a new project.

The proposed project would not create any growth in population. No residential uses are proposed as part of the proposed project, and most jobs created by the proposed project would be short-term and temporary. Construction and operation of the project would create up to 400 short-term, temporary construction jobs as project construction is anticipated to last approximately 9 months and up to 4-long-term, permanent jobs for ongoing facility maintenance and repairs. However, both the construction and operational labor force would likely be based in the region and workers would commute each day into the project area. Also, the proposed project would not induce substantial unplanned population growth in the area, either directly or indirectly. Additionally, the proposed project would not include the extension of utility infrastructure or construction of new roadways that could induce development in the area. The proposed project would assist California in meeting its air quality and GHG emissions reduction goals. As such, the proposed project would not directly induce growth related to provision of additional electric power. Rather, energy demand, as determined by the CPUC with input from the CEC, drives generation procurement; procurement does not drive an increase in either utility customers or energy consumption. Furthermore, implementation of the proposed project would not permit any investor-owned utility to expand its service territory. For these reasons, the proposed project would not directly or indirectly induce substantial population growth. As such, construction and operation of the proposed project is not expected to have substantial adverse growth-inducing impacts.

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## 8.0 SIGNIFICANT UNAVOIDABLE IMPACTS

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### 8.1 BACKGROUND

Sections 21067, 15126(b), and 15126.2(b) of the State CEQA Guidelines require that an EIR describe any significant impacts, including those that can be mitigated but not reduced to a less than significant level. Furthermore, where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should also be described.

### 8.2 PROJECT SIGNIFICANT AND UNAVOIDABLE IMPACTS

This Draft EIR identified the following significant and unavoidable impacts:

- **Aesthetics Impact:** The proposed project would result in a significant adverse impact to a County-designated scenic corridor. As shown in Figures 4.1-4, 4.1-6, 4.1-8, and 4.1-10, and discussed in Section 4.1, Aesthetics, views of the surrounding ridgelines at all KOPs would remain unimpeded but not unaffected. The proposed would slightly reduce the visual quality at KOPs B and C and would degrade the visual quality at KOP A from high to moderate and at KOP D from moderately-high to moderate. The proposed project would include the planting and maintenance of honeybee forage foliage that would be strategically planted in locations that can be viewed from public vantage points from North Livermore Avenue and North Manning Road to minimize the contrasting post-project views. However, even with the proposed planting plan, the degradation of the visual quality from project implementation would be a significant and unavoidable impact. Although MM AES-1 would be implemented to reduce this impact, no feasible mitigation measures have been identified to reduce the impact to a less than significant level.
- **Cumulative Aesthetics Impact:** The cumulative impact analysis to aesthetic resources is based on the effects of the proposed project in combination with projects proposed in the North Livermore area which includes Livermore Community Solar Farm and Oasis Fund projects. Although the proposed solar facility may someday be decommissioned and all project features would be removed from the site, it is anticipated that the proposed project, combined with the Livermore Community Solar Farm and Oasis Fund projects, would be simultaneously operational for many years. Therefore, the proposed project would contribute to a cumulatively significant and unavoidable impact on the visual quality of public views (public views are those that are experienced from publicly accessible vantage point) of the site and its surroundings. Although MM AES-1 would be implemented to reduce this impact, no feasible mitigation measures have been identified to reduce the cumulative impact to a less than significant level.
- **Land Use and Planning Impact:** The proposed project as designed would be consistent with the “A” district and lands designated for LPA and WM in the ECAP. However, the proposed project would not be consistent with the long-term preservation of open space intent of the RM ECAP land use designation. Conflict with the RM land use designation would be significant and unavoidable, and no feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

- **Cumulative Land Use and Planning Impact:** This analysis of cumulative impacts to land use and planning is based on the proposed project in combination with other projects proposed in the North Livermore area which includes the Livermore Community Solar Farm and Oasis Fund projects. The proposed project would not be consistent with the long-term preservation of open space intent of the RM ECAP land use designation. Approval of project development within the RM ECAP land use designation would set a precedence in Alameda County to conditionally allow utility-scale solar developments in lands designated RM. This action could contribute to a cumulatively considerable land use and planning impact, and the impact would be significant and unavoidable. No feasible mitigation measures have been identified to reduce the impact to a less-than-significant level.

## 9.0 LIST OF PREPARERS

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This document has been completed by the County of Alameda, as CEQA Lead Agency for the proposed project, with support from the following organizations and professional staff:

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