APPENDICES
Feather Ranch Project Draft EIR

Appendix 1.0 – Notice of Preparation and Initial Study, Comment Letters

Appendix 3.1 – Air Quality & Greenhouse Gas Emissions Assessment, for the feather Ranch Project, January 2023

Appendix 3.2 – Biological Resources Assessment, February 2023, and Wetlands Delineation, March 2021

Appendix 3.4 – Energy Consumption Assessment - Feather Ranch Project, January 2023

Appendix 3.9 – Noise Impact Assessment for the Feather Ranch Project, February 2023

Appendix 3.12 – Traffic Impact Study for the Feather Ranch Project, January 2023

APPENDIX 1.0 A1

Notice of Preparation and initial Study, November 2022

City of Oroville

Community Development Department
1735 Montgomery Street Oroville, CA 95965 | Tel: (530) 538-2401 | Fax: (530) 538-2426

NOTICE OF PREPARATION

To: State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

From: City Of Oroville, Community Development Department
1735 Montgomery Street
Oroville, California 95965

To: Interested Parties; Responsible and Trustee Agencies

Subject: Notice of Preparation **of an Environmental Impact Report** for the Proposed Feather **Ranch Subdivision Project (APN 030-230-098)**

The City of Oroville will be the Lead Agency and will prepare an environmental impact report for the Feather Ranch Project.

Section 15063(b) of the State Guidelines for the California Environmental Quality Act (CEQA) requires that, if during the Initial Study analysis, the lead agency determines that there is substantial evidence that any aspect of the project may cause a significant effect on the environment, the lead agency shall prepare an EIR. The City determined that an EIR level of analysis was required for specific impact areas based on the Initial Study. Those areas include air quality, biological resources, cultural resources, energy, greenhouse gas emissions, hazards and hazardous materials, noise, paleontological resources, transportation, and tribal cultural resources. A copy of the Initial Study (O is fi is not) attached but is available at the City at the address above or on the City's website at: https://www.cityoforovil1e.orfi/about-us/news-updates

Project Title: Feather Ranch Protect

Project Applicant: M03 Investments

Date: November 1, 2022

Signature: W. J. E

Title: Principal Planner

Telephone: 530-538-2408

PUBLIC REVIEW PERIOD:

The 30-day public review period for the Initial Study will begin on November 1, 2022 and end on Friday December 2, 2022 for any interested and concerned individuals and public agencies to submit written comments on the document.

The City is inviting public comments regarding the scope and content of the environmental information to be included in the EIR. Any comment from a public agency shall address the scope and content of environmental information that is relevant to the agency's statutory responsibilities, as required by Section 15082(b) of the CEQA Guidelines.

PUBLIC SCOPING MEETING AND COMMEN'1' SUIIMITTAL

A scoping meeting open to the public will be held to receive public comments and suggestions on the scope of the EIR. At this meeting, staff will give a brief presentation of the EIR process and will take public comment on the scope of the proposed EIR and alternatives. The scoping meeting will be open to the public and held online using the following Zoom information:

Date: Thursday, November 17, 2022

Time: 9:00 a.m.

Zoom Link:
https://us06web.zoom.us/j/84292711787?pwd=ZmZqOUFFQW9IUTRaazA4SIRZSmsrUT09

The purpose of the EIR is to provide information about potential significant physical environmental impacts of the proposed project, to identify possible ways to minimize those significant impacts, and to describe and analyze possible alternatives to the proposed project if potential significant impacts are identified. Preparation of an NOP or EIR does not indicate a decision by the City to approve or disapprove the project. However, prior to making any such decision, the Planning Commission and City Council must review and consider the information contained in the EIR.

Written comments on the scope of the EIR are encouraged. Please submit **comments by 5:00** PM **on Friday, December 2, 2022.** Written comments should be sent to Wes Ervin, Planner, at 1735 Montgomery Street, Oroville, CA 95965, or via email at wervin@cityoforoville.org.

Questions concerning the environmental review of the proposed project should be directed to Wes Ervin at (530) 538-2408; however, please note that comments on the scope of the Draft EIR cannot be accepted over the phone. To be considered during preparation of the EIR, comments must be received in writing by the deadline identified above.

PROJECT DESCRIPTION:

The Project is the subdivision of a 44.97-acre site into 172 single-family lots (APN 030-230-098). Current General Plan land use designation is Airport Business Park (ABP) and zoning district is Airport Business Park (ABP) with an Airport Influence Area Overlay (AIA-O). None of these designations allow the development of residential uses at the densities requested of 3.82 units/acre for the proposed Project. Therefore, a General Plan amendment and rezone will be required to

approve the Project. The Proposed Project includes a request to change the General Plan land use designation to Residential-Single Family and a request to rezone the property to the Single Family Residential (R-1) zoning district.

The Site is within the B1 and B2 compatibility zones for the Oroville Municipal Airport Compatibility Land Use Plan (Butte County, 2000). This compatibility zone does not allow residential development at the density proposed for the Project.

The Site is currently vacant undeveloped land. Elevations range from 230 feet above mean sea level (AMSL) at the southwest corner of the Site to 190 feet AMSL at the northeast comer, generally sloping from west to east.


Map Contents
Project Site
Thermalito Forebay
Rural Residential
Vacant Land
Vacant Land
Vacant Land
Vacant Land
Single Family Residential
Rural Residential
Oroville Dam Blvd W
Feet
0
1,000
Map Date: 9/21/2022

Initial Study
FEATHER RANCH PROJECT

City of Oroville, California

Lead Agency:

City of Oroville
1735 Montgomery Street
Oroville, California 95965

Prepared by:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
55 Hanover Lane, Suite A
Chico, California 95973

November 2022

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FEATHER RANCH PROJECT INITIAL STUDY

Lead Agency:	City of Oroville
Project Proponent:	MD3 Investments
Project Location:	The Project is located at the southwest corner of 20th Street and Feather Avenue, City of Oroville, California. The Proposed Project is located on approximately 44.97-acres of land identified as Butte County assessor's parcel number APN 030-230-098. (Figures 1 and 2). The site is in Section 14, Township 19 North, Range 3 East (Mount Diablo Base and Meridian). The approximate center of the site is located at latitude 39.504872º and longitude -121.611459º.

Project Description:

MD3 Investments proposes to subdivide the 44.97-acre site into 172 single-family lots. Current General Plan land use designation is Airport Business Park (ABP) and zoning district is Airport Business Park (ABP) with an Airport Influence Area Overlay (AIA-O). None of these designations allow the development of residential uses at the densities requested of 3.82 units/acre for the proposed Project. Therefore, a General Plan amendment and rezone will be required to approve the Project. The Proposed Project includes a request to change the General Plan land use designation to Residential-Single Family and a request to rezone the property to the Single Family Residential (R-1) zoning district.

The Site is within the B1 and B2 compatibility zones for the Oroville Municipal Airport Compatibility Land Use Plan (Butte County, 2000). These compatibility zones do not allow residential development at the density proposed for the Project.

The Site is currently vacant undeveloped land. Elevations range from 230 feet above mean sea level (AMSL) at the southwest corner of the Site to 190 feet AMSL at the northeast corner, generally sloping from west to east.

Public Review Period: November 3, 2022 to December 5, 2022

CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

Term	Description
˚F	Degrees Fahrenheit
AB	Assembly Bill
ABP	Airport Business Park
AF	acre feet
AIA-O	Airport Influence Area Overlay
ALUCP	Airport Land Use Compatibility Plan
AMSL	Above mean sea level
APN	Assessor's Parcel Number
BCAG	Butte County Association of Governments
BCAQMD	Butte County Air Quality Management District
BCFD	Butte County Fire Department
BMP	Best Management Practice
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code

Term	Description
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geologic Survey
CH_4	Methane
CNEL	Community noise equivalent level
CNRA	California Natural Resources Agency
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
dBA	A-weighted decibels
DIF	Development Impact Fees
DMR	Division of Mine Reclamation
DOC	Department of Conservation
DOF	Department of Finance
DOJ	Department of Justice
DSOD	Division of Safety of Dams
DTSC	Department of Toxic Substance Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
EMFPD	El Medio Fire Protection District
ESA	Endangered Species Act
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
FRRPD	Feather River Recreation and Park District
FY	Fiscal Year
GHG	Greenhouse Gas
gpd	gallons per day
gpcd	gallons per capita per day
GSP	Groundwater Sustainability Plan
KWh	Kilowatt-Hours
mgd	million gallons per day
MRZ	Mineral Resource Zones
MSW	Municipal Solid Waste
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NOI	Notice of Intent
NO_x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSVAB	Northern Sacramento Valley Air Basin
OFD	Oroville Fire Department

Term	Description
OPD	Oroville Police Department
OUHSD	Oroville Union High School District
PFAS	Per- And Poly-Fluoroalkyl Substances
PG&E	Pacific Gas and Electric Company
PI	Plasticity index
PM_{10}	Particulate Matter Less than 10 Microns in Diameter, Coarse Particulate Matter
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns in Diameter
ROG	Reactive Organic Gas
RWQCB	Regional Water Quality Control Board
SAFER	Staffing for Adequate Fire and Emergency Response
SB	Senate Bill
SC-OR	Sewerage Commission – Oroville Region's
SOI	Sphere of Influence
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TUSD	Thermalito Union School District
TWSD	Thermalito Water and Sewer District
UCMP	University of California Museum of Paleontology
USACE	United States Army Corp of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	Vehicle miles traveled
WTF	Wastewater Treatment Facility

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1.0 BACKGROUND

1.1 Summary

Project Title:	Feather Ranch Project
Lead Agency Name and Address:	City of Oroville 1735 Montgomery Street Oroville, California 95965
Contact Person and Phone Number:	Wes Ervin, Principal Planner, (530) 538-2408
Project Location:	The Project is located at the southwest corner of 20th Street and Feather Avenue, City of Oroville, California. The Proposed Project is located on approximately 44.97-acres of land identified as Assessor's Parcel Number (APN) 030-230-098. (Figures 1 and 2). The site is located in Section 14, Township 19 North, Range 3 East (Mount Diablo Base and Meridian). The approximate center of the site is located at latitude 39.504872º and longitude -121.611459º.
General Plan Designation:	Current: Airport Business Park Proposed: Residential - Single Family
Zoning:	Current: Airport Business Park (ABP), Airport Influence Area Overlay (AIA-O). Proposed: Single Family Residential (R-1)

1.2 Introduction

This Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Feather Ranch Project (Project or Proposed Project). The City of Oroville is the Lead Agency for this Initial Study.

This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Public Resources Code, § 21000 et seq.) and State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of Projects over which they have discretionary authority before acting on those Projects. A CEQA Initial Study is generally used to determine which CEQA document is appropriate for a Project (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report [EIR]). Based on existing conditions and knowledge of the site, it has already been determined that an EIR will be required

for the Project. The purpose of the Feather Ranch Project Initial Study is to eliminate from further analysis those areas listed in CEQA Guidelines *Appendix G* shown as having no impact or a less than significant impact, from further consideration in the EIR.

1.3 Lead Agency

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Based on the criteria above, the City of Oroville (City) is the lead agency for the Proposed Project.

1.4 Purpose and Document Organization

The purpose of this Initial Study is to evaluate the potential environmental impacts of the proposed Feather Ranch Housing Project. This document is divided into the following sections:

1.0 Introduction – This section provides an introduction and describes the purpose and organization of the document. This section provides general information regarding the Project, including the Project title, lead agency and address, contact person, brief description of the Project location, General Plan land use designation, zoning district, identification of surrounding land uses.

2.0 Project Description – This section provides a detailed description of the proposed Project, as well as the identification of other public agencies whose review, approval, and/or permits may be required. Also listed in this section is a checklist of the environmental factors that are potentially affected by the Project.

3.0 Environmental Factors Potentially Affected and Determinations – This section is a summary of the environmental topic areas that were found to potentially impact the environment.

4.0 Environmental Checklist and Discussion – This section describes the environmental setting and overview for each of the environmental subject areas, evaluates a range of impacts classified as "no impact," "less than significant impact," "less than significant impact with mitigation incorporated," and "potentially significant impact" in response to the environmental checklist.

5.0 List of Preparers – This section lists the names of documents preparers.

6.0 Bibliography – This section identifies documents, websites, people, and other sources consulted during the preparation of this Initial Study.

7.0 List of Attachments – This section provides a list of document appendices.

1.5 Project Location and Surrounding Land Uses

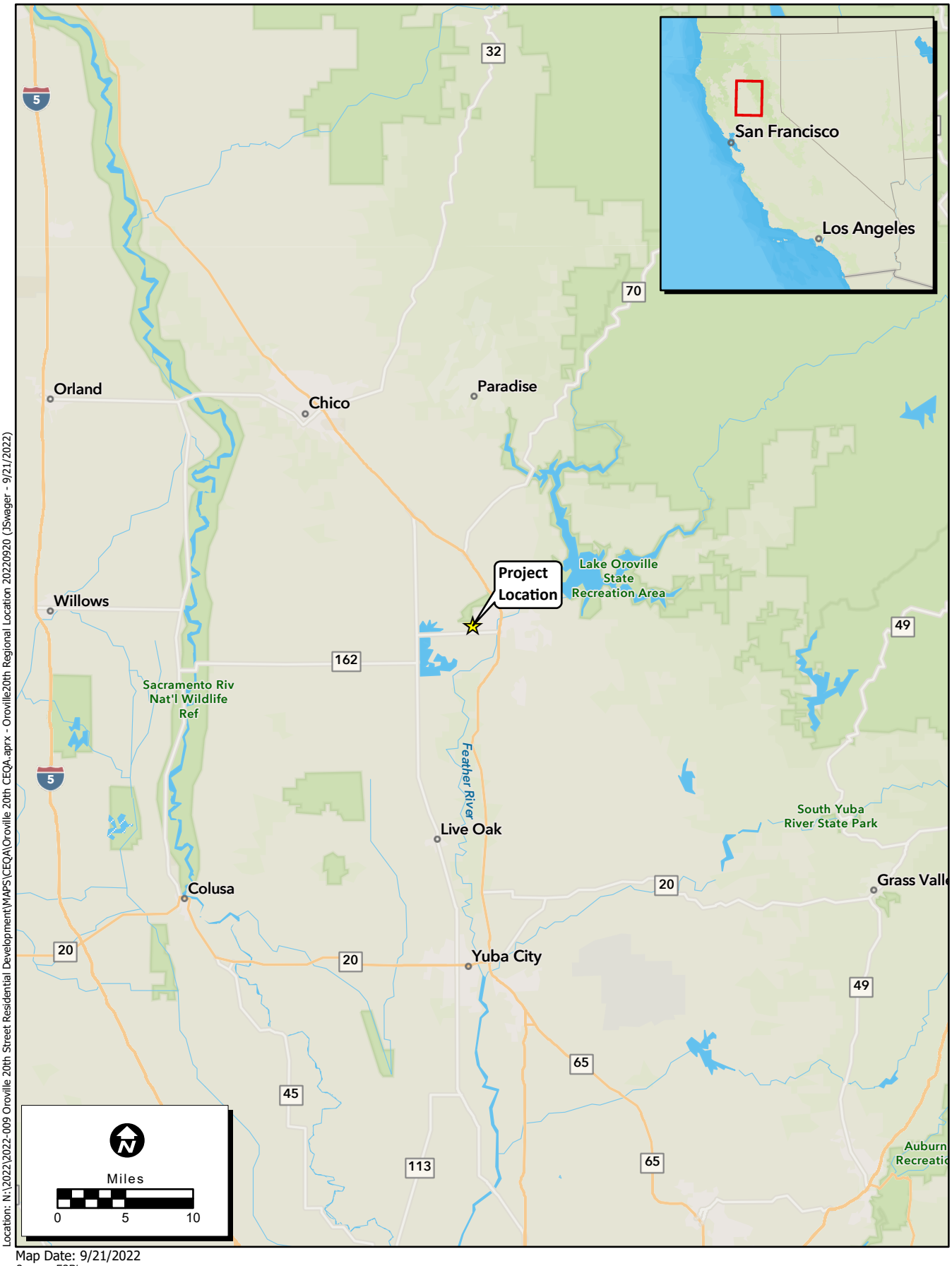
The Project is located directly southwest of the Feather Avenue/20th Street intersection in City of Oroville, California. See Figures 1 and 2. The Project is 44.97 acres in size. The APN of the site is 030-230-098. Surrounding uses include single-family homes and vacant land to the east of the Project Site. To the north

are rural residential uses and vacant land. To the west of the site is vacant land and to the south is rural residential uses and vacant land. Approximately 0.75 mile to the south of the site is the Oroville Municipal Airport and a 0.5 mile to the north is the Thermalito Forebay (Figure 3).

1.6 Environmental Setting

The Project Site is located within gently rolling terrain situated at an elevational range of approximately 190 to 230 feet Above Mean Sea Level (AMSL) in the Sacramento Valley District of the California floristic province. The average winter low temperature in the vicinity of the Study Area is 39.4 degrees Fahrenheit (˚F) and the average summer high temperature is 92.2˚F; average annual precipitation is approximately 31.52 inches (National Oceanic and Atmospheric Administration 2022).

The Project Site is currently undeveloped and idle rangeland. The vegetation community is a mixture of native and nonnative herbaceous plants. There are no trees or shrubs present. There are no perimeter fences, so this site is not used for livestock grazing but may have been in the past. Undeveloped dirt roads and a disced fire-break path surround the Site.



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Regional Location 20220920 (JSwager - 9/21/2022)

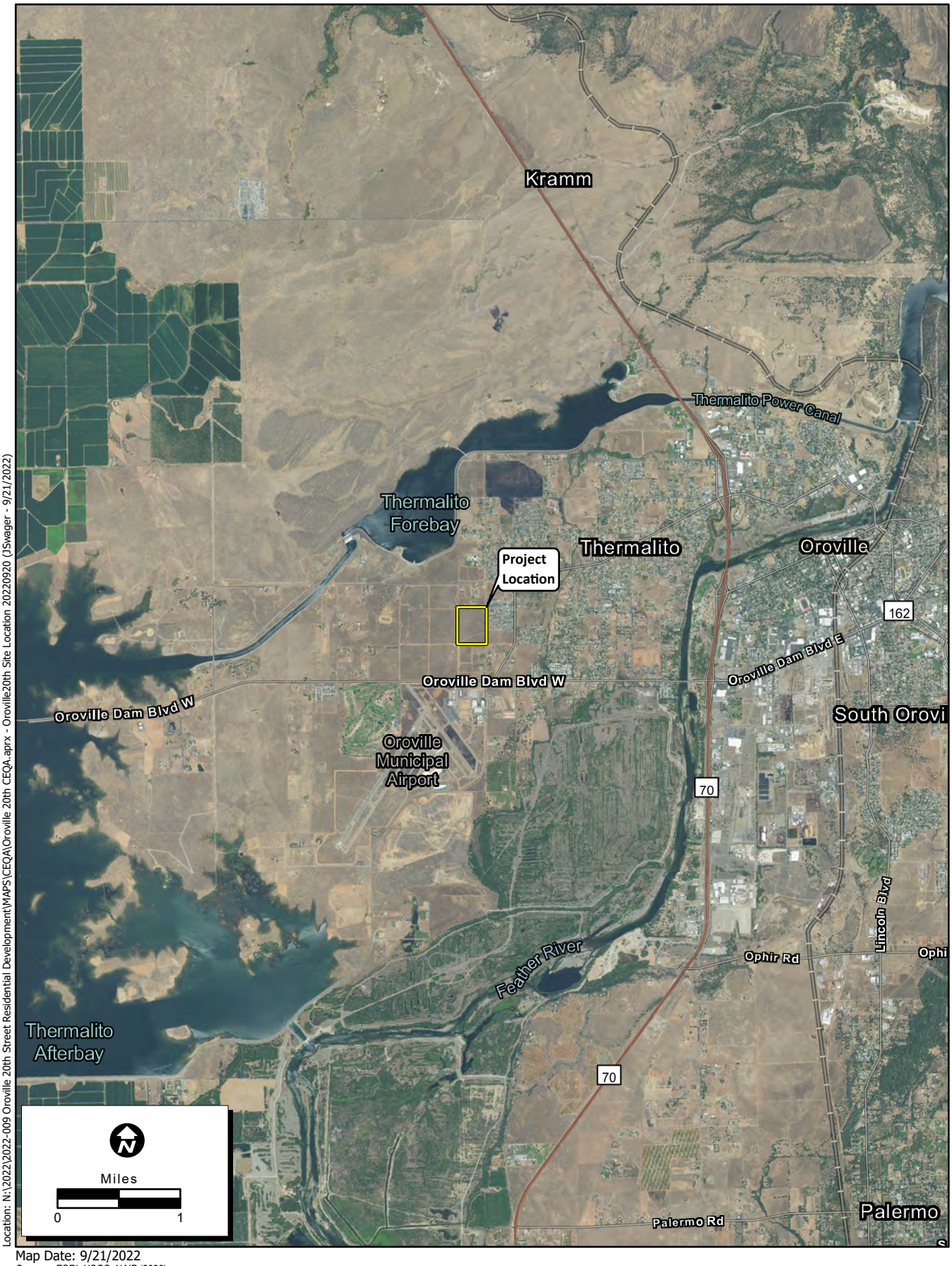
Map Date: 9/21/2022

Sources: ESRI

Figure 1. Regional Project Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Site Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 2. Site Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Surrounding LandUse 202209201 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 3. Surrounding Uses

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

2.0 PROJECT DESCRIPTION

2.1 Project Description

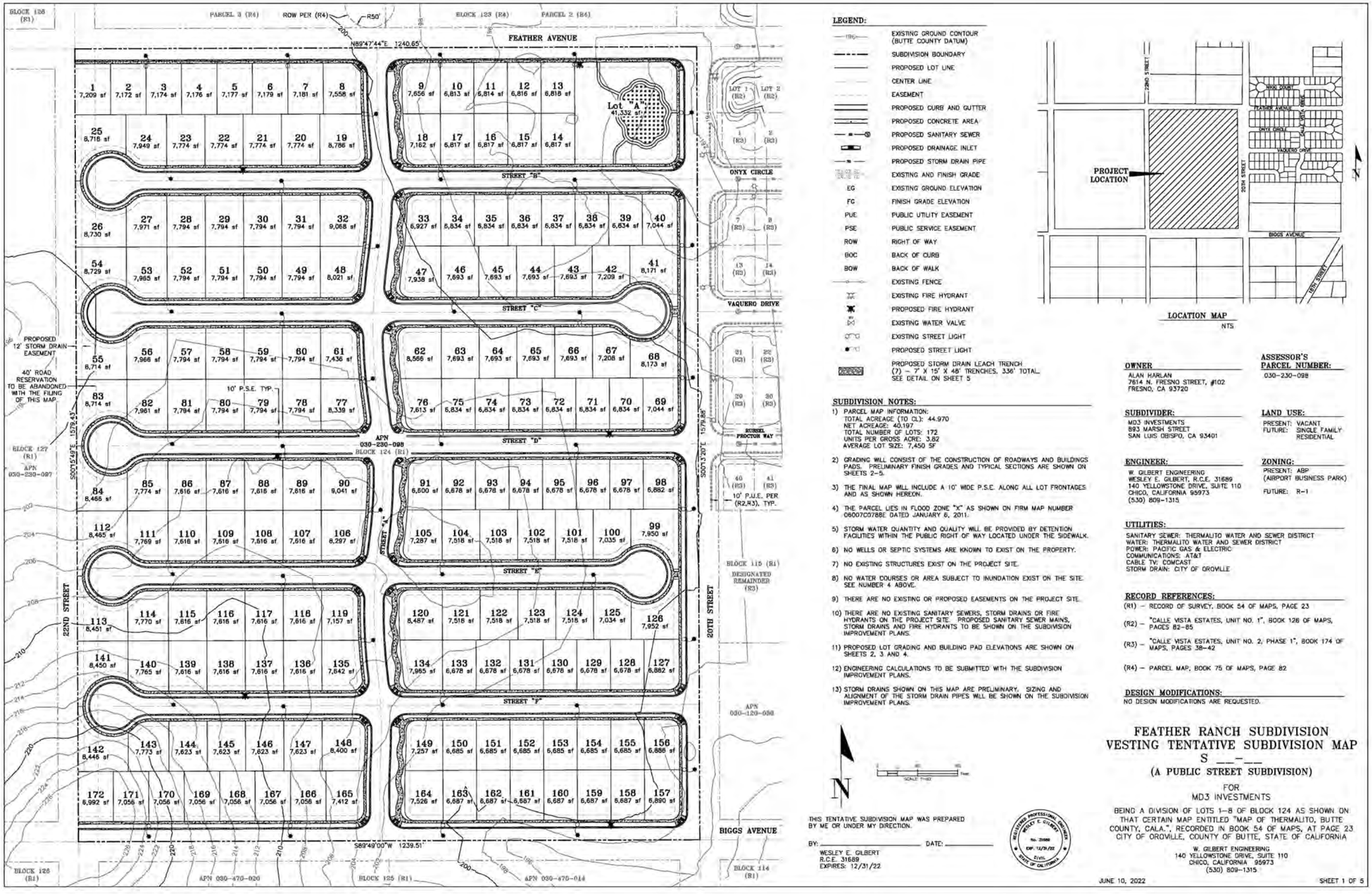
The Proposed Project is the subdivision of a 44.97-acre site into single-family lots located at the southwest corner of the Feather Avenue/20th Street intersection in the City of Oroville, California. The 44.97-acre Project Site is currently within the City of Oroville General Plan land use designation of *Airport Business Park (ABP)* and zoning district of *Airport Business Park (ABP)* with an Airport Influence Area Overlay (AIA-O). None of these designations allow the development of residential uses at the density of 3.82 units per acre requested for the Proposed Project. Therefore, a General Plan amendment and rezoning will be required to approve the Project. The development will consist of 172 single-family lots (Figure 4). The Proposed Project includes a request to change the General Plan land use designation to *Residential Single-Family* and a rezoning to *Single Family Residential (R-1)*.

The Project Site is within the B1 and B2 compatibility zones for the Oroville Municipal Airport Compatibility Land Use Plan. These compatibility zones do not allow residential development at the density proposed for the Project.

The Project Site is currently vacant undeveloped land. Elevations range from 230 feet AMSL at the southwest corner of the Project Site to 190 feet AMSL at the northeast corner, generally sloping from west to east.

Improvements to 20th Street and abutting Project Vicinity roadways include curbs, gutters and sidewalks adjacent to the Project Site. Sidewalks would front 20th Street, Biggs Street, and Feather Avenue as well as along all internal proposed roadways. Greenway space will be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project Site, and fronting 20th and Biggs streets. Storm drainage facilities are proposed throughout the Project Site, with connections tying in together internally, prior to tying into storm drainage facilities located within 20th Street.

City-required approvals include a General Plan amendment, rezone, and a tentative subdivision map.



LEGEND:

- EXISTING GROUND CONTOUR (BUTTE COUNTY DATUM)
- SUBDIVISION BOUNDARY
- PROPOSED LOT LINE
- CENTER LINE
- EASEMENT
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE AREA
- PROPOSED SANITARY SEWER
- PROPOSED DRAINAGE INLET
- PROPOSED STORM DRAIN PIPE
- EXISTING AND FINISH GRADE
- EG — EXISTING GROUND ELEVATION
- FG — FINISH GRADE ELEVATION
- PUE — PUBLIC UTILITY EASEMENT
- PSE — PUBLIC SERVICE EASEMENT
- ROW — RIGHT OF WAY
- BOC — BACK OF CURB
- BOW — BACK OF WALK
- EXISTING FENCE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT
- PROPOSED STORM DRAIN LEACH TRENCH (7) – 7' X 15' X 48' TRENCHES, 336' TOTAL. SEE DETAIL ON SHEET 5

LOCATION MAP
NTS

SUBDIVISION NOTES:

1) PARCEL MAP INFORMATION:
TOTAL ACREAGE (TO CL): 44.970
NET ACREAGE: 40.197
TOTAL NUMBER OF LOTS: 172
UNITS PER GROSS ACRE: 3.82
AVERAGE LOT SIZE: 7,450 SF

2) GRADING WILL CONSIST OF THE CONSTRUCTION OF ROADWAYS AND BUILDINGS PADS. PRELIMINARY FINISH GRADES AND TYPICAL SECTIONS ARE SHOWN ON SHEETS 2–5.

3) THE FINAL MAP WILL INCLUDE A 10' WIDE P.S.E. ALONG ALL LOT FRONTAGES AND AS SHOWN HEREON.

4) THE PARCEL LIES IN FLOOD ZONE "X" AS SHOWN ON FIRM MAP NUMBER 06007C0788E DATED JANUARY 6, 2011.

5) STORM WATER QUANTITY AND QUALITY WILL BE PROVIDED BY DETENTION FACILITIES WITHIN THE PUBLIC RIGHT OF WAY LOCATED UNDER THE SIDEWALK.

6) NO WELLS OR SEPTIC SYSTEMS ARE KNOWN TO EXIST ON THE PROPERTY.

7) NO EXISTING STRUCTURES EXIST ON THE PROJECT SITE.

8) NO WATER COURSES OR AREA SUBJECT TO INUNDATION EXIST ON THE SITE. SEE NUMBER 4 ABOVE.

9) THERE ARE NO EXISTING OR PROPOSED EASEMENTS ON THE PROJECT SITE.

10) THERE ARE NO EXISTING SANITARY SEWERS, STORM DRAINS OR FIRE HYDRANTS ON THE PROJECT SITE. PROPOSED SANITARY SEWER MAINS, STORM DRAINS AND FIRE HYDRANTS TO BE SHOWN ON THE SUBDIVISION IMPROVEMENT PLANS.

11) PROPOSED LOT GRADING AND BUILDING PAD ELEVATIONS ARE SHOWN ON SHEETS 2, 3 AND 4.

12) ENGINEERING CALCULATIONS TO BE SUBMITTED WITH THE SUBDIVISION IMPROVEMENT PLANS.

13) STORM DRAINS SHOWN ON THIS MAP ARE PRELIMINARY. SIZING AND ALIGNMENT OF THE STORM DRAIN PIPES WILL BE SHOWN ON THE SUBDIVISION IMPROVEMENT PLANS.

N

SCALE: 1"=60'

THIS TENTATIVE SUBDIVISION MAP WAS PREPARED BY ME OR UNDER MY DIRECTION.

BY: _____ DATE: _____

WESLEY E. GILBERT
R.C.E. 31689
EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER WESLEY E. GILBERT No. 31689 EXP. 12/31/22 CIVIL STATE OF CALIFORNIA

OWNER
ALAN HARLAN
7614 N. FRESNO STREET, #102
FRESNO, CA 93720

SUBDIVIDER:
MD3 INVESTMENTS
893 MARSH STREET
SAN LUIS OBISPO, CA 93401

ENGINEER:
W. GILBERT ENGINEERING
WESLEY E. GILBERT, R.C.E. 31689
140 YELLOWSTONE DRIVE, SUITE 110
CHICO, CALIFORNIA 95973
(530) 809-1315

ASSESSOR'S PARCEL NUMBER:
030-230-098

LAND USE:
PRESENT: VACANT
FUTURE: SINGLE FAMILY RESIDENTIAL

ZONING:
PRESENT: ABP (AIRPORT BUSINESS PARK)
FUTURE: R-1

UTILITIES:
SANITARY SEWER: THERMALITO WATER AND SEWER DISTRICT
WATER: THERMALITO WATER AND SEWER DISTRICT
POWER: PACIFIC GAS & ELECTRIC
COMMUNICATIONS: AT&T
CABLE TV: COMCAST
STORM DRAIN: CITY OF OROVILLE

RECORD REFERENCES:
(R1) – RECORD OF SURVEY, BOOK 54 OF MAPS, PAGE 23
(R2) – "CALLE VISTA ESTATES, UNIT NO. 1", BOOK 126 OF MAPS, PAGES 82–85
(R3) – "CALLE VISTA ESTATES, UNIT NO. 2, PHASE 1", BOOK 174 OF MAPS, PAGES 38–42
(R4) – PARCEL MAP, BOOK 75 OF MAPS, PAGE 82

DESIGN MODIFICATIONS:
NO DESIGN MODIFICATIONS ARE REQUESTED.

FEATHER RANCH SUBDIVISION
VESTING TENTATIVE SUBDIVISION MAP
S ___-___
(A PUBLIC STREET SUBDIVISION)

FOR
MD3 INVESTMENTS

BEING A DIVISION OF LOTS 1–8 OF BLOCK 124 AS SHOWN ON THAT CERTAIN MAP ENTITLED "MAP OF THERMALITO, BUTTE COUNTY, CALA.", RECORDED IN BOOK 54 OF MAPS, AT PAGE 23 CITY OF OROVILLE, COUNTY OF BUTTE, STATE OF CALIFORNIA

W. GILBERT ENGINEERING
140 YELLOWSTONE DRIVE, SUITE 110
CHICO, CALIFORNIA 95973
(530) 809-1315

JUNE 10, 2022 SHEET 1 OF 5

Source: W. Gilbert Engineering

Figure 4. Site Plan
Feather Ranch Project

2.2 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project.

2.2.1 Lead Agency Approval

As the lead agency, the City of Oroville has the ultimate authority for Project approval or denial. The Proposed Project may require the following discretionary approvals and permits by the City for actions proposed as part of the Project:

Certification of the EIR

Approval of Tentative Subdivision Map

Adoption of General Plan Amendment

Adoption of Rezone

In addition to the above City actions, the Project may require approvals, permits, and entitlements from other public agencies for which this Initial Study and the EIR may be used, including, without limitation, the following:

California Department of Fish and Wildlife (CDFW), Region 2

California Regional Water Quality Control Board (RWQCB), Region 5

Butte County Air Pollution Control District

Butte County Airport Land Use Commission

United States Army Corp of Engineers (USACE)

2.2.2 Relationship of Project to Other Plans and Projects

2.2.2.1 City of Oroville 2030 General Plan

The Proposed Project would be located in City of Oroville. The City of Oroville 2030 General Plan was adopted by the City Council on March 31, 2015. The 2030 General Plan provides the fundamental basis for the City's land use, development and conservation policy, and represents the basic community values, ideals and aspirations that will govern the City through 2030. This General Plan addresses all aspects of development, including land use; community character; economic development; circulation and transportation; open space, natural resources and conservation; public facilities and services; safety; and noise (City of Oroville 2015a).

2.2.2.2 City of Oroville Municipal Code Title 17 Zoning

The Proposed Project is required to comply with the City's Municipal Code, including Title 17 Zoning (City of Oroville 2022a). The purpose of this title is to provide specific guidelines for the development of the

city in such a manner as to achieve progressively the general arrangement of land uses and implement the policies depicted in the General Plan. More specifically, this title is intended to achieve the following objectives:

A. To regulate and limit the height, number of stories and size of buildings and other structures hereafter designed, erected or altered

B. To regulate and determine the size of building setbacks and other open spaces

C. To regulate and limit the density of the city's residential population

D. To divide the city into zoning districts of whatever number, shape and area are deemed best suited to carry out these regulations and provide for their enforcement

E. To protect, conserve, stabilize and enhance real property values and the city's natural assets

F. To provide adequate open space for light and air, and to minimize the risk of fires and other hazards to public safety

G To promote a safe, effective traffic circulation system and provide for appropriate off-street parking and loading facilities

H. To promote, protect and preserve the general public health, safety and welfare, and to implement the goals and objectives of the general plan for the City of Oroville

2.2.3 Consultation with California Native American Tribe(s)

Assembly Bill (AB) 52 requires that prior to the release of a CEQA document for a project, an agency begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the Proposed Project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the Lead Agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe and (2) the California Native American tribe responds in writing, within 30 days of receipt of the formal notification, and requests the consultation. The City's consultations with Native Americans about the Project will be discussed as a part of the EIR analysis.

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☐
I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☒
I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.	☐

Signature Date

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4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

The Project Site is currently vacant and located in the western portion of the City within an area of relatively low density development and vacant land. The Project Site is bordered by 20th Street to the east and unimproved extensions (currently dirt roads) of Feather Avenue to the north and Biggs Avenue to the south. Surrounding uses include single-family homes and vacant land to the east of the Project Site. To the north is rural residential uses and vacant land. To the west of the site is vacant land and to the south is rural residential uses and vacant land. Approximately 0.75 mile to the south of the Site is the Oroville Municipal Airport and the Thermalito Forebay is 0.5 mile to the north.

The 2030 General Plan Open Space, Natural Resources, and Conservation Element identifies a number of scenic resources available in the form of prominent land formations and preserves. These scenic resources include views of Table Mountain, the Feather River, and the foothills to the east. Additionally, land preserves are considered scenic resources in the city. These are discussed below.

Feather River Nature Center and Native Plant Park

The Feather River Nature Center and Native Plant Park is a stone structure located on Old Ferry Road on the south bank of the Feather River across the river from the Feather River Fish Hatchery. Constructed in the 1930s, it operated as a Works Progress Administration bathhouse and has been restored and converted into a Nature Center.

Oroville Dam Area Preserve

This area includes the steeply sloped hillsides around the dam. This area could provide passive open space recreation opportunities for Oroville residents.

Feather River Waterfront Preserve

The waterfront is located between Highway 70 and the Feather River. Riverbend Park is part of this preserve. This area contains other active and passive recreation opportunities.

Oroville Wildlife Refuge Preserve

The refuge begins at Highway 162, between the Feather River to the west and the Oroville Municipal Airport and Thermalito Afterbay to the east, continuing south to the Planning Area boundary. Mine tailings from Oroville's past fill much of the Wildlife Refuge.

North and South Thermalito Forebay Preserve

The North and South Thermalito Forebay receive water diverted from Lake Oroville as part of the State Water Project, one of the largest water and power systems in the world. North Thermalito Forebay offers

recreation opportunities including swimming, boating and picnicking. South Thermalito Forebay also provides recreational opportunities including boating and fishing. Flat rice fields and grazing land surround the forebays.

Thermalito Afterbay Preserve

Thermalito Afterbay also receives water diverted from Lake Oroville as part of the State Water Project. The Afterbay includes opportunities for boating, swimming and fishing. The Afterbay is adjacent to the Oroville Wildlife Area and the Feather River Fish Hatchery Annex.

The City does not necessarily consider changes to the existing visual character through urban development to be an adverse change. However, the 2030 General Plan Policy P5.3 requires new development projects to be designed to maintain the scenic view of the Feather River and Table Mountain. These local scenic resources are located throughout the City and within 1 to 6 miles of the Project Site. However, only the distant foothills can be seen from the Project Site. All other scenic resources cannot be seen for the site due to the hilly terrain surrounding the Site and existing urban uses. According to California Department of Transportation (Caltrans), there are no officially designated state scenic highways within the City. State Route (SR) 70) within the Feather River Canyon is listed as an eligible scenic highway. However, this portion of SR 70 is not in the area of the Project Site nor is it listed as an *official* scenic highway at this time by the state (Caltrans 2022).

The Project Site is currently vacant. There are no existing substantial light or glare sources on the site. Any light and glare sources found in the area consist of mainly urban sources including nighttime interior and exterior lighting related to the adjacent single-family residences to the east and north, lighting associated with vehicles traversing roadways within the Project vicinity (i.e., headlights, brake lights); and illumination from various streetlamps on roadways within residential areas to the east.

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Less than significant impact.

A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. As previously described, the City of Oroville considers views of Table Mountain, the Feather River, the foothills to the east, and the various preserve areas significant and should be protected. However, the only policy in the 2030 General Plan designed to protect and enhance scenic views is Policy P5.3 which states, "Maintain the scenic view of the Feather River and Table Mountain."

As previously discussed, the City emphasizes the importance of protecting and promoting the resources associated with scenic views and preserves. These resources are scattered throughout the City, and most are either partially or completely blocked by the existing terrain surrounding the Project Site or by City's

urban development. The Project would allow for the future construction of single-family homes and roadways on the Project Site.

The Project proposes to subdivide the 44.97-acre site into 172 single-family lots. Current General Plan land use designation is Airport Business Park (ABP) and zoning district is Airport Business Park (ABP) with an Airport Influence Area Overlay (AIA-O). None of these designations allow the development of residential uses at the densities requested of 3.82 units per acre for the proposed Project. Therefore, a General Plan amendment and rezone will be required to approve the Project. Section 17.28.020 of the City of Oroville Municipal Code establishes that maximum height of 30 feet in the R-1 zoning district. A maximum height of 30 feet in the R-1 zoning district would allow for the development of a two-story building. With the construction of two-story buildings, views of Table Mountain to the northeast, currently experienced by the single-family residences east of the Project Site, would not experience any degradation of views of such resource as the Project is not located between these homes and Table Mountain. Additionally, the 2030 General Plan Policy P5.3 requires new development projects to be designed to maintain the scenic view of the Feather River and Table Mountain. Although views of the Feather River would not be possible due to the location of the Project Site being 1.6 miles east of the Project Site, distant views of Table Mountain would be available but may be partially blocked by existing urban uses. Additionally, the Project would be subject to the City's site plan and architectural review process in accordance with Chapter 16.16.010 of the City Municipal Code (City of Oroville 2022a). This review process ensures Project compatibility with the surrounding land uses and conformity with the City's goals of providing and enhancing views of local scenic resources. Therefore, the Proposed Project would not have a substantial adverse effect on local scenic vista resources, and impacts would be less than significant.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

No impact.

The Proposed Project is not located within the vicinity of an officially designated scenic highway. **No impact** would occur.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐

Less than significant impact.

CEQA Guidelines Section 15387 defines an urban area as:

> "Urbanized area" means a central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile. A Lead Agency shall determine whether a particular area meets the criteria in this section either by examining the area or by referring to a map prepared by the U.S. Bureau of the Census which designates the area as urbanized. Maps of the designated urbanized areas can be found in the California EIR Monitor of February 7, 1979. The maps are also for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The maps are sold in sets only as Stock Number 0301-3466. Use of the term "urbanized area" in Section 15182 is limited to areas mapped and designated as urbanized by the U.S. Bureau of the Census."

The U.S. Census identifies the Project Site as being outside of the Oroville urbanized area (U.S. Census 2010). Therefore, based on the CEQA definition of an urbanized area provided above, the Project Site is considered non-urbanized with regard to this resource area.

As previously stated, approval of the Project would allow the development of 172 single-family homes on the 44.97-acre site. While there are no formal public viewing areas near the site, the site can be seen by the general public from 20th Street. However, the site does not offer any distinctive or extraordinary characteristics that would make the site different from any of the other surrounding vacant land in the area. The site is not located adjacent to or near any of the scenic views or preserve areas identified by the 2030 General Plan.

Approval of the Project would allow for urban development on a currently undeveloped piece of land which, in and of itself, would be a change in visual character. However, all new development would be required to comply with the General Plan Community Design Element policies. Policies related to the proposed residential development are as follows:

> *P1.1* *Require quality architectural and landscaping design as well as durable and efficient materials for all projects.*

P1.3 *Require compliance with the City of Oroville Design Guidelines as part of any project approval process.*

P2.1 *Encourage livable street design standards for new roadway development and for improvements or rehabilitation of existing roadways. Livable Street Design Standards for Arterials, Commercial Collectors, Residential Collectors and Local Streets are illustrated in Figure CD-2 and Figure CD-3.*

P2.6 *Encourage the planting of trees and other landscape features along Oroville's corridors to make them interesting, appealing, and inviting.*

P2.11 *New development shall provide evenly spaced street trees planted between the curb and the adjacent sidewalk in park strips. Street trees shall be species that will provide a canopy of shade over the public right-of-way when the trees reach maturity, and the species of trees planted on a given street shall be consistent. In developed areas with an existing and prevailing species of street trees, new street trees shall be consistent with the prevailing species.*

P2.15 *Encourage the development and installation of unique gateway features and landmarks for distinct neighborhoods, districts, and corridors in order to make them more easily identifiable, provide better city orientation, and contribute to developing a sense of place.*

Development of the Proposed Project would be subject to the above-listed policies, which would assist in promoting the visual character of the City. In addition, the Project is subject to the City's Design Guidelines. The purpose of the Design Guidelines is to provide design guidance for projects within the City, promoting an improved aesthetic and functional quality of the community. The guidelines are intended to serve as recommendations focusing on the design of developments. The Design Guidelines provides direction for site planning, building design, landscape design, accessory structures, and lighting (City of Oroville 2015b).

The City's 2030 General Plan policies and the Design Guidelines would be effective in reducing the visual prominence and aesthetic impact of new development. Therefore, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. As such, this impact is considered **less than significant**.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less than significant impact.

The current Project Site is on vacant land with no existing sources of light or glare. Surrounding land uses and infrastructure provide sources of light experienced within the Project Site; sourced from interior and exterior residential lighting, street lighting, and ambient area lighting. However, approval of the Project would introduce future new sources of daytime glare and may change nighttime lighting and illumination levels. Lighting nuisances typically are categorized by the following:

Glare – Intense light that shines directly or is reflected from a surface into a person's eyes.

Skyglow/Nighttime Illumination – Artificial lighting from urbanized sources that alters the rural landscape in sufficient quantity to cause lighting of the nighttime sky and reduction of visibility of stars and other astronomical features.

Spillover Lighting – Artificial lighting that spills over onto adjacent properties, which could interrupt sleeping patterns or cause other nuisances to neighboring residents.

The main sources of daytime glare in the Project vicinity are from sunlight reflecting from structures with reflective surfaces such as windows. Development under the Proposed Project would include residential structures and other potential sources of glare; including possible glare associated with future solar panels mounted to rooftops as all newly constructed single-family homes must be solar-ready pursuant to the California Energy Code. Building materials (e.g., reflective glass and polished surfaces) are the most substantial sources of glare. The amount of glare depends on the intensity and direction of sunlight, which is more acute at sunrise and sunset because the angle of the sun is lower during these times.

Artificial light is a source of glare during the nighttime hours. The sources of new and increased nighttime lighting and illumination include, but are not limited to new residential development, lighting from nonresidential uses, lights associated with vehicular travel (e.g., car headlights), street lighting, parking lot lights, and security-related lighting. Increased nighttime lighting and illumination could result in adverse effects to adjacent land uses through the light trespass into these areas and contribute to skyglow conditions.

Activities associated with Project construction have the potential to increase lighting and glare within and around the Project Site. Sources of additional light and glare would emanate from area lighting during any nighttime work, headlights from construction equipment, and the glare from construction equipment reflective surfaces. Although there is a potential to increase lighting and glare within and around the Project Site during construction, these sources would be temporary and would cease upon completion of the Project. During operations, interior and exterior lighting associated with the residential units, cars driving in and out of the parking lots, ambient area lighting in outdoor common spaces and walkways, and frontage signs and security lighting would all be the primary sources within and around the Project Site.

Project development would be subject to existing development and design standards outlined in the City's Municipal Code. For instance, Section 17.12.010C states the following:

a. Light fixtures, excluding illuminated signs, shall have a maximum height of 25 feet above grade, or the height of the nearest main building on the site, whichever is less. Additional height shall be allowed where necessary to provide adequate clearance for vehicular

circulation, provided that the light fixture's height is no greater than necessary to provide this clearance.

b. All light sources, excluding illuminated signs, shall include appropriate shielding to direct light away from the sky, surrounding properties and streets. Reflections or glare outside of the subject property shall be minimized.

c. For sites that are within or adjacent to a residential district, or are separated by a street from a residential district, no light source shall produce an illumination level in the residential district greater than one-quarter footcandle at any point measured 25 feet horizontally from the subject property. This requirement shall not apply to illuminated signs.

In addition, the City's Design Guidelines provide the following standards for lighting:

2. Lighting Height Intent: To prevent light fixtures from creating excessive illumination on the site and its surroundings.

    2.1.1 Lighting sources should be kept as low to the ground as possible while ensuring safe and functional levels of illumination.

    2.1.2 Area lighting should be directed downward or employ control features so as to avoid light being directed offsite as well as to avoid lighting of the night sky.

3. Lighting Levels Intent: To ensure that lighting choices meet the site's needs while avoiding excessive illumination.

    3.1.1 The light source for externally-illuminated signs should be positioned so that light does not shine directly on adjoining properties, cause glare, or shine in the eyes of motorists or pedestrians.

    3.1.2 Lighting should be located so as to minimize the impact of lighting upon adjacent buildings and properties, especially residential uses.

    3.1.3 In general, the location of lighting should respond to the anticipated use and not exceed the amount of illumination required by users. Lighting directed downward.

    3.1.4 Illumination over an entire area or the use of overly bright lighting is strongly discouraged. The use of a number of smaller lights is preferable to larger, more intense lights.

    3.1.5 Lighting for pedestrian movement should illuminate changes in grade, path intersections and other areas along paths which, if left unlit, would create a perception that the area is not secure. The recommended minimum level of illumination along pedestrian paths between destinations is 0.5 foot-candles. At pedestrian destination points such as entryways, plazas and courtyards, lighting levels should typically achieve illumination of 1 foot-candle.

3.1.6 The placement of light standards, whether for street lights or garden lights, should not interfere with pedestrian movement.

Adherence to the Design Guidelines and Municipal Code would reduce the impacts of daytime glare and nighttime lighting by requiring design to limit lighting leakage and glare. Therefore, this impact would be **less than significant**.

4.1.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

While the site may have been used for agricultural purposes in the past, according to Google Earth images, the site has been vacant, undeveloped land since at least 1985.

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program, which identifies and maps significant farmland. Farmland is classified using a system of five categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service (NRCS). The DOC manages the California Important Farmland Finder, an interactive website program that identifies the Project Site as being within an area of *Grazing Land* (DOC, 2022b).

According to the Butte County Geographical Information Systems mapping, none of the land within the Project Site or vicinity is under a Williamson Act contract (Butte County 2022a).

The Project Site is located in an area that does not contain possible forest or timber resources.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☐	☒

No impact.

The DOC identifies the Project Site as Grazing Land. According to the California Important Farmland Finder, there is currently no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the Project Site, nor within the Project vicinity (DOC 2022a). Therefore, the Proposed Project would not result in the conversion of any Important Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) to any uses other than agriculture, and **no impact** would occur.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No impact.

According to the Butte County Geographical Information Systems mapping, none of the land within the Project Site or vicinity is under a Williamson Act contract (Butte County 2022a). The closest Williamson Act Contract Land is located approximately 1.3 miles northwest of the Project Site. The Project would have **no impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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))?	☐	☐	☐	☒

No impact.

The Project Site is not located in a forestland protected or timber production area. The Project would have **no impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No impact.

No identified forest lands exist on the Project Site or within the vicinity of the Project. The Project would have **no impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) 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?	☐	☐	☐	☒

No impact.

As previously addressed, the Project Site is not located within lands designated as forest land, timberland, or agricultural land. The closest area identified as Prime Farmland by the DOC is located approximately 0.9 mile southeast of the Project Site. The closest Farmland of Statewide Importance is approximately 0.3 mile northeast of the Project Site (DOC 2022a). As such, the Proposed Project would not involve other changes in the existing environment that would result in the conversion of farmland to a non-agricultural use or the conversion of forestland to a non-forest use. **No impact** would occur.

4.2.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.3 Air Quality

4.3.1 Environmental Setting

The Proposed Project is located in Butte County, which is in the Northern Sacramento Valley Air Basin (NSVAB). The NSVAB consists of a total of seven counties: Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada range. These mountain ranges reach heights in excess of 6,000 feet AMSL, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as that transported northward on prevailing winds from the Sacramento metropolitan area.

The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) designate air basins or portions of air basins and counties as being in *attainment* or *nonattainment* for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, Coarse Particulate Matter (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The California Ambient Air Quality Standards are not to be exceeded during a 3-year period.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for

determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ (CARB 2020).

The Butte County Air Quality Management District (BCAQMD) is the air pollution control agency for Butte County, including the Project Site. The agency's primary responsibility is ensuring that the federal and state ambient air quality standards are attained and maintained in the Butte County portion of the NSVAB. The BCAQMD, along with other air districts in the NSVAB, has committed to jointly prepare and implement the *NSVAB Air Quality Attainment Plan* for the purpose of achieving and maintaining healthful air quality throughout the air basin. The BCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐

Potentially significant impact.

The *2018 Air Quality Attainment Plan* constitutes the current State Implementation Plan for the Butte County portion of the NSVAB and is the most recent air quality planning document covering Butte County. Air quality attainment plans are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling, permitting), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards. State law makes CARB the lead agency for all purposes related to the *Air Quality Attainment Plan*. Local air districts prepare air quality attainment plans and submit them to CARB for review and approval. The *2018 Air Quality Attainment Plan* includes forecast Reactive Organic Gas (ROG) and Oxides of Nitrogen (NO_X) emissions (O_3 precursors) for the entire NSVAB through the year 2020. The plan also includes control strategies necessary to attain the California O_3 standard at the earliest practicable date, as well as developed emissions inventories and associated emissions projections for the region showing a downtrend for both ROG and NO_X.

The consistency of the Project with the *2018 Air Quality Attainment Plan* is determined by Project-induced development's consistency with air pollutant emission projections in the plan. The *2018 Air Quality Attainment Plan* is based on information derived from projected growth in Butte County in order to

project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by Butte County. As such, projects that propose development consistent with the growth anticipated by the respective general plan and zoning classification of the jurisdiction in which the proposed development is located would be consistent with the *2018 Air Quality Attainment Plan*. In the event that a project would propose a development that is less dense than that associated with the general plan and zoning code, the project would likewise be consistent with the *Air Quality Attainment Plan*. However, If a project proposes a development that is denser than that assumed in the general plan and zoning code, the project may be in conflict with the *Air Quality Attainment Plan* and could therefore result in a significant impact on air quality.

The Project is proposing a General Plan amendment to change the current land use designation from Airport Business Park to Residential Single-family. Thus, the Project is inconsistent with the current General Plan land use designation. This would be inconsistent with the population or job growth projections used by the BCAQMD to develop its air quality attainment plans as these plans are based on General Plan land uses. As such, this is considered a potentially significant impact and will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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 impact.

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

The Proposed Project could result in the emission of criteria air pollutants during construction and operation. Since an air quality analysis has not yet been completed for the Proposed Project, it is not possible to determine the impact the Project would have on any criteria pollutant. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐

Potentially significant impact.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project Site are residences located adjacent to the Project Site.

The Proposed Project could result in the emission of criteria air pollutants during construction and operation. Since an air quality analysis has not yet been completed for the Proposed Project, it is not possible to determine the impact the Project would have on sensitive receptors. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

Potentially significant impact.

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

While generally residential uses are not considered large sources of offensive odors, the Proposed Project could result in emissions causing unpleasant odors during construction. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

4.3.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.4 Biological Resources

The U.S. Fish and Wildlife Service (USFWS), CDFW, and California Native Plant Society document species that may be rare, threatened, or endangered. Federally listed species are fully protected under the mandates of the federal Endangered Species Act (ESA). *Take* of listed species incidental to otherwise lawful activity may be authorized by either the USFWS or the National Marine Fisheries Service, depending on the species.

Under the California ESA, the CDFW has the responsibility for maintaining a list of threatened and endangered species. The CDFW also maintains lists of *candidate species* and *species of special concern*, which serve as *watch lists*. State-listed species are fully protected under the mandates of the California ESA. Take of protected species incidental to otherwise lawful management activities may be authorized under Section 2081 of the California Fish and Game Code.

Under Section 3503.5 of the California Fish and Game Code, it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (raptors) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

The Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) prohibits the take, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the CDFW. Project impacts on these species would not be considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with the project.

4.4.1 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐		☐

Potentially significant impact.

The Project Site has not yet been evaluated for the potential to affect candidate, sensitive, or special status species. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐

Potentially significant impact.

The Project Site has not yet been evaluated for the potential to affect any riparian habitat or other sensitive natural community. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	☒	☐	☐	☐

Potentially significant impact.

The Project Site has not yet been evaluated for the potential to affect wetlands. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐

Potentially significant impact.

The Project Site has not yet been evaluated for the potential to affect native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐

No impact.

The Project Site has not yet been evaluated for the potential to conflict with any local policies or ordinances protecting biological resources. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

No impact.

There are no adopted habitat conservation plans, natural community conservation plans, or any adopted biological resources recovery or conservation plans in the Proposed Project area. As such, **no impact** would occur.

4.4.2 Mitigation Measures

To be determined as a part of the EIR analysis.

4.5 Cultural Resources

4.5.1 Environmental Setting

The current Project Site falls within the ethnographic tribal territory of the Maidu, located in the lower foothills of the western slopes of the Sierra Nevada and in the periphery of the Northern Sacramento Valley. The Maidu, on the basis of cultural and linguistic differences, have been differentiated into three major related divisions: the Northeastern (Mountain Maidu), Northwestern (Konkow), and Southern (Nisenan). Because many believe the Mountain Maidu and Konkow to be so closely related, ethnographers tended to group them as one.

The Konkow occupied territory located immediately adjacent and to the southwest of the Mountain Maidu, along the Feather and Sacramento rivers, to their southern boundary at the Sutter Buttes. The Konkow were primarily located in the lower elevations of the Sierra Nevada and along the valley floor. Tribal territories adjacent to the Maidu and Konkow included the Atsugewi and Yana to the north, the Nomlaki and Patwin to the west, the Paiute and Washoe to the east, and the Nisenan to the south.

The Project Site is located in the central portion of Butte County. Butte County was one of the original 27 counties in California, and originally encompassed a much larger area than it does today. It was named for the landform now known as the Sutter Buttes, located in present-day Sutter County to the south (Kyle 2002). In the latter part of the 19th century, the County land was primarily agricultural, with timber and mineral lands encompassing less than half the County area. Captain Luis A. Argüello led an expedition to the region in 1820 and was likely the earliest nonnative to explore the area. Fur trappers of the Hudson Bay Company followed and traversed the region as early as 1828. Other hunters and settlers in the Sacramento Valley began to travel on the Hudson Bay Trail to Oregon and then south to California. John Bidwell came to Sutter's Fort in California using this route. He mapped the upper reaches of the Sacramento Valley. People used Bidwell's maps to identify land when applying for land grants from the Mexican Government.

4.5.2 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐

Potentially significant impact.

A cultural resources survey has not been completed for the Project Site. As such, there is a potential for the Project to impact historical resources on the on the site. The extent of this potential impact has not been determined at this time. As such, this will be discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐

Potentially significant impact.

A cultural resources survey has not been completed for the Project Site. As such, there is a potential for the Project to impact archaeological resources on the on the site. The extent of this potential impact has not been determined at this time. As such, this will be discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☒	☐	☐	☐

Potentially significant impact.

A cultural resources survey has not been completed for the Project Site. As such, there is a potential for the Project to impact unknown human remains on the on the site. The extent of this potential impact has not been determined at this time. As such, this will be discussed in the EIR.

4.5.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.6 Energy

4.6.1 Environmental Setting

Energy consumption is analyzed in this Initial Study due to the potential direct and indirect environmental impacts associated with the Project. Such impacts include the depletion of nonrenewable resources (i.e., oil, natural gas, coal) and emissions of pollutants during the construction and operational phases. The impact analysis focuses on the three sources of energy relevant to the Proposed Project: electricity, the equipment-fuel necessary for Project construction, and the automotive fuel and natural gas necessary for Project operations.

4.6.1.1 Electricity/Natural Gas Services

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas to the Project Area. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield to almost the Oregon and Nevada state lines. It provides 5.2 million households with electricity and natural gas across 70,000 square miles. In 2017, PG&E announced that 80 percent of the company's delivered electricity comes from greenhouse gas emission-free sources, including renewables, nuclear, and hydropower.

4.6.1.2 Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., of gasoline, diesel fuel, or aviation fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all residential uses in Butte County from 2016 to 2020 is shown in Table 4.6-1. As indicated, the demand has fluctuated since 2016.

Table 4.6-1. Residential Electricity Consumption in Butte County 2015-2019	
Year	**Electricity Consumption (kilowatt hours)**
2020	736,395,940
2019	662,643,253
2018	721,603,925
2017	764,450,593
2016	725,366,331

Source: California Energy Commission (CEC) 2020

The natural gas consumption associated with all residential uses in Butte County from 2016 to 2020 is shown in Table 4.6-2. As indicated, the demand for natural gas has fluctuated in the County since 2016.

Table 4.6-2. Residential Natural Gas Consumption in Butte County 2015-2019	
Year	**Natural Gas Consumption (therms)**
2020	21,816,990
2019	22,698,185
2018	24,989,481
2017	27,189,926
2016	25,328,217

Source: CEC 2020

Automotive fuel consumption in Butte County from 2016 to 2020 is shown in Table 4.6-3. As shown, automotive fuel consumption has decreased since 2016.

Table 4.6-3. Automotive Fuel Consumption in Butte County 2016-2020	
Year	**Total Fuel Consumption (gallons)**
2020	98,166,772
2019	112,460,842
2018	116,603,614
2017	117,448,303
2016	115,075,780

Source: CARB 2021

4.6.2 Energy (VI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐

Potentially significant impact.

The impact analysis focuses on the four sources of energy relevant to the Proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations. The amount of energy necessary to construct and operate the Project and whether it is a wasteful, inefficient, or unnecessary consumption of energy resources has not been determined and as such this area will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

Potentially significant impact.

As discussed under Item a), the amount of energy necessary to construct and operate the Project and whether or not it is a wasteful, inefficient, or unnecessary consumption of energy resources has not been determined. How this will affect a state plan for renewable energy or energy efficiency has also not been determined at this time. For these reasons, this area will be further discussed in the EIR.

4.6.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.7 Geology and Soils

This section addresses the potential impact of the Proposed Project on geological and soil resources within the Project Area.

4.7.1 Environmental Setting

4.7.1.1 Geomorphic Setting

The Project Site is located in the north-central portion of the Great Valley geomorphic province of California. The Great Valley province is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and

its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Period (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor (California Geologic Survey [CGS] 2002).

4.7.1.2 Site Soils

According to the U.S. Department of Agriculture's NRCS via the Web Soil Survey database, the Project Site is composed of one soil unit: Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes, as shown in Table 4.7-1. The Web Soil Survey also identifies, among other things, drainage, flooding, erosion, runoff, frost action, plasticity, and the linear extensibility potential for the Project soil. According to this survey, the Project soil is poorly drained, has a high runoff potential, and has no potential for flooding or frost action. Also, the Project Site soils also have a slight erosion potential and high linear extensibility (shrink-swell) and plasticity rating of 26.9 percent (NRCS 2022).

Table 4.7-1. Project Site Soil Characteristics

Soil (Map Unit Name, Map Unit Symbol)	Percentage of Site	Drainage	Flooding Frequency Class	Frost Action[1]
Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes, 603	100%	Poorly drained	None	None
	Runoff Potential[2]	**Linear Extensibility[3]**	**Erosion Hazard[4]**	**Plasticity Rating[5]**
Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes, 603	D (high)	6.7% (high)	Slight	26.9 (high)

Source: NRCS 2022

Notes:

1. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.
2. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation.
   Group A: Soils having a high infiltration rate (low runoff potential) when thoroughly wet.
   Group B: Soils having a moderate infiltration rate when thoroughly wet.
   Group C: Soils having a slow infiltration rate when thoroughly wet.
   Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.
3. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3%, moderate if 3 to 6%, high if 6 to 9%, and very high if more than 9%. If the linear extensibility is more than 3%, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.
4. The ratings are both verbal and numerical. The hazard is described as *slight*, *moderate*, *severe*, or *very severe*. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe*"

indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.

5. Plasticity index (PI) is a measure of the plasticity of a soil. The plasticity index is the size of the range of water contents where the soil exhibits plastic properties. The PI is the difference between the liquid limit and the plastic limit (PI = LL-PL). Soils with a high PI tend to be clay, those with a lower PI tend to be silt, and those with a PI of 0 (non-plastic) tend to have little or no silt or clay.
   Soil descriptions based on PI:
   - (0) – Non-plastic
   - (<7) – Slightly plastic
   - (7-17) – Medium plastic
   - (>17) – Highly plastic

4.7.1.3 Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the act. The board defined an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault was considered to be any fault that showed evidence of surface displacement during Quaternary time (the last 1.6 million years). Because of the large number of potentially active faults in California, the State Geologist adopted additional definitions and criteria in an effort to limit zoning to only those faults with a relatively high potential for surface rupture. Thus, the term *sufficiently active* was defined as a fault for which there was evidence of Holocene surface displacement. This term was used in conjunction with the term *well-defined*, which relates to the ability to locate a Holocene fault as a surface or near-surface feature (CGS 2011).

According to the 2030 General Plan, while less seismically active than some areas of the state, Oroville is subject to hazards associated with earthquake fault activity. One known active fault is found within the General Plan Planning Area; other active faults outside the Planning Area but in the region have the potential to affect the City of Oroville.

Figure SAF-1 of the 2030 General Plan identifies that the Cleveland Hills Fault[1] is about 6 miles southeast of Oroville. This fault is classified as an Alquist-Priolo Special Studies Zone, to which special development regulations apply. Seismic activity associated with the Cleveland Hills Fault resulted in a 5.7 magnitude earthquake in August 1975; studies estimate a maximum credible earthquake of 6.5 to 6.7 on the Richter Scale could occur on this fault in the future.

Other mapped, active faults in the wider region, outside of Butte County, have the potential to generate seismic activity that could be felt in Oroville. These include:

The Midland-Schweitzer Fault, an approximately 80-mile-long fault found about 60 miles southwest of Oroville.

[1] Identified as the Bangor Fault in the latest DOC Alquist-Priolo Fault Hazard Zone mapping (DOC 2022b)

The northern section of the 350-mile-long San Andreas Fault, located about 115 miles west of Oroville.

The Hayward-Calaveras Fault complex in the San Francisco Bay Area, located approximately 120 miles southwest of Oroville.

The Russell Fault, located about 70 miles east of Oroville, which was associated with a major earthquake of up to magnitude 6.5 in 1966.

The Last Chance-Honey Lake Fault, located along the California-Nevada border to the east of Oroville.

The Willows fault is located about 30 miles west of the Oroville, and the Coast Ranges thrust zone is located about 60 miles west of the City.

In addition to mapped known faults, there are a large number of other faults within Butte County and in neighboring areas that could be considered potentially active, based on criteria developed by the California Department of Mines and Geology (City of Oroville 2015a).

Within Butte County, faults considered by some geologists to be potentially active include the Big Bend fault, thought to be capable of generating an earthquake of up to magnitude 7.0 in Butte County; the Foothill shear zone, which extends into southern Butte County, and the Chico monocline fault, which could produce an earthquake of up to magnitude 7.0, having the most significant impacts in the Chico area but which could also severely affect other parts of the County, including Oroville (City of Oroville 2015a).

There are a number of potentially active faults outside of Butte County; those with the greatest potential to cause damage within Butte County include the Coast Ranges thrust zone, to the west and the Willows fault. There may also be seismic risk presented by the numerous faults present in the Sierra Foothills to the east and southeast, but their status is uncertain and subject to debate among geologists (City of Oroville 2015a).

4.7.1.4 Paleontological Resources

A paleontological records search was completed using the University of California Museum of Paleontology (UCMP) Locality Search website on January 27, 2022. The search included a review of the institution's paleontology specimen collection records for Butte County, including the Project Site and vicinity. The purpose of the assessment was to determine the sensitivity of the Project Site, whether known occurrences of paleontological resources are present within or immediately adjacent to the Project Site, and whether implementation of the Project could result in significant impacts to paleontological resources. Paleontological resources include mineralized (fossilized) or unmineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that 406 paleontological specimens were recorded from 318 identified localities and 88 unidentified localities in Butte County indicating that there is a potential for paleontological discoveries in the City. The vast majority of the fossilized remains are invertebrates, however, some plant fossilized remains are recorded for Butte County (UCMP 2022).

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause 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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

a) Less than significant impact.

i) Less than significant impact.

The Proposed Project Site is not located within an Alquist-Priolo Earthquake Zone (CGS 2011, 2020). The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active or potentially active faults are known to pass directly beneath the Site. By CGS definition, an active fault is one with surface displacement within the last 11,000 years. A potentially active fault has demonstrated evidence of surface displacement with the past 1.6 million years. Faults that have not moved in the last 1.6 million years are typically considered inactive.

The 2030 General Plan includes several policies that address the potential for geological hazards within the General Plan Planning Area. Policies applicable to the proposed residential development are as follows:

P1.1 *Group and locate new residential development in such a way as to avoid areas of geologic hazard, including steep slopes and areas of unstable soils.*

P1.2 *Require all new developments to be subjected to a geotechnical study prior to development approval and to mitigate any identified hazards to a level of insignificance. If mitigation is not possible, do not approve the development.*

P1.4 Ensure that new development incorporates design and engineering that minimizes the risk of damage from seismic events and landsliding, consistent with state Building Codes and Historic Building Codes.

The Project Site is not located within an Alquist-Priolo Earthquake Zone. In addition, compliance with General Plan policies shown above would assure that any new construction would incorporate the construction standards necessary for the protection of people and structures from seismic events. There would be a **less than significant impact** related to fault rupture.

ii) Less than significant impact.

According to CGS's Earthquake Shaking Potential for California mapping, the Proposed Project Site is located in an area that will experience lower levels of ground-shaking less frequently. In most earthquakes, only weaker masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking in the area (CGS 2016). The Proposed Project includes the development of a single family subdivision. The Project would be required to comply with the City of Orland Improvement Standards, including any required seismic mitigation standards. Because of the required compliance and the distance from active faults, the Proposed Project would have a less than significant impact related to strong ground shaking.

All future construction on the Project would be required to comply with the engineering standards associated with the California Building Code (CBC). The City reviews all design elements of the Project for conformance with CBC parameters, as part of the permit review process. These standards are in place to reduce damage associated with ground-shaking as a result of potential earthquakes. Because of the required compliance with the CBC seismic mitigation standards, the Proposed Project would have a **less than significant impact** related to strong ground shaking.

iii) Less than significant impact.

Liquefaction occurs when loose sand and silt saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:

Loss of bearing strength – soils liquefy and lose the ability to support structures

Lateral spreading – soils slide down gentle slopes or toward stream banks

Flow failures – soils move down steep slopes with large displacement

Ground oscillation – surface soils, riding on a buried liquefied layer, are thrown back and forth by shaking

Flotation – floating of light buried structures to the surface

Settlement – settling of ground surface as soils reconsolidate

Subsidence – compaction of soil and sediment

Liquefaction potential has been found to be greatest where the groundwater level and loose sands occur within a depth of about 50 feet or less. According to Figure SAF-1 of the 2030 General Plan, the Project Site is located in an area identified for a low risk of liquefaction (City of Oroville 2015a). Finally, because of the required compliance with the CBC seismic mitigation standards and General Plan Policies P1.1, P1.2 and P1.4, the Proposed Project would have a **less than significant impact** related to liquification.

iv) Less than significant impact.

Steep slopes, in conjunction with certain soil types, can be prone to soil erosion and landslides. Landslides occur as a result of topographical and soil conditions, where loose soils move down steep slopes. Some of the natural causes of this instability are earthquakes, weak soils, erosion, and heavy rainfall. Human activities such as poor grading that undercuts steep slopes or overloads them with fill, excessive irrigation, and removal of vegetation can also contribute to ground failure.

Earthquakes can also induce landslides by initiating strong ground motion. 2030 General Plan Figure SAF-1 indicates several areas of steep slopes (greater than 30 percent), and hills prone to landslides are found within the Oroville Planning Area. These are primarily concentrated on hillsides and bluffs in the northern part of the Planning Area. However, while the Project is located in an area of relatively small hills, the Project Site is not located within an area identified in Figure SAF-1 as having a potential for landslides. Finally, compliance with General Plan Policy P1.4 would ensure that the Project would have a **less than significant impact** for the potential for landslides.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less than significant impact.

As shown in Table 4.7-1, the Project Site's soils have a slight erosion potential. The Proposed Project includes the construction of new residential structures, with construction involving grading, excavation, and soil hauling, which would disturb soils and potentially expose them to wind and water erosion. However, the 2030 General Plan policies that address erosion, including General Plan Policy P1.2, which requires new development to be subjected to a geotechnical study prior to development approval and to mitigate any identified hazards to a level of insignificance. Additionally, all development occurring as a result of the Proposed Project must comply with the CBC, which contains specific regulations for erosion control.

Any development involving clearing, grading, or excavation that causes soil disturbance of one or more acres, or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to National Pollutant Discharge Elimination System (NPDES) State General Permit (Order No. 2009-0009-DWQ) provisions. Any development of this size in the City of Oroville, including the Project Site, would be required to prepare and comply with an approved Stormwater Pollution Prevention Plan (SWPPP) that provides a schedule for the implementation and

maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule. The SWPPP would consider the full range of erosion control BMPs including any additional site-specific and seasonal conditions. Erosion control BMPs include, but are not limited to, the application of straw mulch, hydroseeding, the use of geotextiles, plastic covers, silt fences, and erosion control blankets, as well as construction site entrance/outlet tire washing. The State General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that would demonstrate the skills, knowledge, and experience necessary to implement SWPPPs. NPDES requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development. In addition, the Proposed Project would be required to use BMPs to control runoff from all new development and thus limit erosion.

Since erosion impacts are often dependent on the type of development, intensity of development, and amount of lot coverage of a particular Project Site, impacts can vary. However, compliance with NPDES and SWPPP requirements, as well as implementation of the General Plan Policies P1.2 and the CBC, would ensure that soil erosion and related impacts would be **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	☐	☐	☒	☐

Less than significant impact.

As discussed previously, the Project Site has little potential for landslides.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other *free* face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. Frost action is one indicator of potential lateral expansion. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2022). As indicated in Table 4.7-1, the Web Soil Survey identifies the Project Site as having soils with no frost action potential. Additionally, as discussed in Item a) iii) above, the Project Site is in an area identified as having a low probability of liquefaction. Construction as proposed by the Project would be required to comply with the CBC and General Plan Policy P1.2, which require new developments to prepare a geotechnical site investigation prior to construction. As such, the potential for impacts due to lateral spreading would be less than significant.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within

competent rock.[2] This can occur as a result of high-volume water, oil, or gas extraction operations. No oil, gas, or high-volume water extraction wells are known to be present in the Project vicinity. According to the U.S. Geological Survey (USGS) Areas of Land Subsidence in California webpage, the City of Oroville, including the Project Site, is not located in an area of land subsidence (USGS 2022a). The closest area of land subsidence is located approximately 15 miles east of the Project Site and is an area prone to peat loss. As such, the potential for impacts due to subsidence would be less than significant.

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. Collapsible soils will settle without any additional applied pressure when sufficient water becomes available to the soil. Water weakens or destroys bonding material between particles that can severely reduce the bearing capacity of the original soil. The collapse potential of the Project Site soil must be determined for consideration in the foundation design.

Because of the required compliance with General Plan Policy P1.2, the CBC Code seismic mitigation standards and the distance from active faults the potential for that settlement/collapse at the site is considered unlikely. As such, the potential for impacts due to collapse would be **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) 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?	☐	☐	☒	☐

Less than significant impact.

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive. The shrink-swell potential is low if the soil has a linear extensibility of less than three percent, moderate if three to six percent, high if six to nine percent, and very high if more than nine percent. If the linear extensibility is more than three, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As shown in Table 4.7-1, the Project Site soils exhibit a linear extensibility value of 6.7 percent. Soils with linear extensibility at this range correlate to having a high expansion potential, respectively.

[2] The processes by which loose sediment is hardened to rock are collectively called lithification.

Plasticity is also an indicator of expansive soils. The plasticity index (PI) is a measure of the plasticity of a soil. The plasticity index is the size of the range of water contents where the soil exhibits plastic properties. The Project Site has a PI of 26.9 percent and is therefore considered highly plastic.

Finally, according to General Plan Figure SAF-2. The Project Site is located in an area having a high potential for expansion. However, despite the shrink-swell potential identified for Project Site soils, standard procedures used in the construction of concrete footings as required by the CBC, and adherence General Plan Policy P1.2 requiring a site-specific geotechnical report, will reduce this potential impact.

Soils reports must evaluate the shrink-swell potential of sites and recommend measures to minimize such hazards through recommended geotechnical special provisions. Such geotechnical special provisions would address any site-specific expansive soil hazards for development under the Proposed Project. As such, the potential for the Proposed Project to be affected by expansive soils is **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) 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?	☐	☐	☐	☒

No impact.

The Project Site is located within the Thermalito Water and Sewage District service area. General Plan Policy P7.3 requires all development in areas that are currently served or could be feasibly served by sewers to be connected to a sewer conveying wastewater to the Sewerage Commission – Oroville Region's (SC-OR) treatment plant. Policy P7.4 requires that approval of new urban development shall be conditioned on the availability of adequate long-term capacity for wastewater conveyance, treatment and disposal sufficient to service the proposed development. Thus, there is **no impact** associated with Project Site soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

Potentially significant impact.

ECORP conducted a search of the UCMP's Specimen Search program in January 2022. A search of the UCMP failed to indicate the presence of paleontological resources in the Project Area. Although paleontological resources sites were not identified in the Project Area, there is the possibility that

unanticipated paleontological resources will be encountered during ground-disturbing Project-related activities. As such, this would be considered a **potentially significant impact** and shall be discussed further in the EIR.

4.7.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

Greenhouse Gas (GHG) emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Estimates of GHG emissions are often presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐

Potentially significant impact.

GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts and as such is addressed only as a cumulative impact.

The Proposed Project would result in GHG emission during construction and operation. Since a greenhouse gas analysis has not yet been completed for the Proposed Project, it is not possible to

determine the impact the Project would have on the environment because of greenhouse gas emissions. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

The City of Oroville Community Climate Action Plan was adopted on March 31, 2015. However, as identified under Issue a), Project-generated GHG emissions has not yet been determined, therefore, it is not possible to determine if the Project would conflict with California GHG reduction goals or the City's Community Climate Action Plan. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

4.8.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, § 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in Title 22, Section 662601.10, of the CCR as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

The release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Most hazardous materials regulation and enforcement in Butte County is managed by the Environmental Health Division of the Butte County Department of Resource Management. Environmental Health is charged with the responsibility of enforcement of pertinent California health laws, rules, and regulations, and is responsible for responding to incidents involving any release or threatened release of hazardous materials. Environmental Health programs and services strive to prevent human injury and illness and promote well-being by identifying and evaluating environmental sources and hazardous agents; and limiting exposures to hazardous physical, chemical, and biological agents in air, soil, food, and other environmental media or settings that may adversely affect human health. Environmental Health is also responsible for requiring all business that use hazardous materials to comply with the State-required hazardous materials business plan submittal and registration with the California Environmental Reporting System.

Under Government Code § 65962.5, both the California Department of Toxic Substance Control (DTSC) and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC (2022) and the SWRCB (2022) identified no open cases of hazardous waste violations on the Project Site. The SWRCB list identified one open case of hazardous waste violations within 0.5 mile of the Project Site. This case, located at the Oroville Municipal Airport, involved an airplane crash at the airport in August 2019. A preliminary site investigation was performed to evaluate the presence of Per- And Poly-Fluoroalkyl Substances (PFAS) in soil near the crash site. PFAS was suspected to be present in site soils as a result of the use of Aqueous Film-Forming Foam during fire suppression activities. In August 2020, soil samples were collected to serve as an initial effort to evaluate presence or absence of PFAS in surface soil. Additionally, samples were analyzed for Jet Fuel A to determine if residual petroleum hydrocarbons remain in soil as a result of the release to the ground surface that also occurred at the time of the crash. This is an open remediation case as of March 2021. No further cleanup status is available at this time (SWRCB 2022).

4.9.2 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less than significant impact.

The Project proposes the subdivision of land resulting in the future construction of 172 single-family homes and associated infrastructure; with the potential for construction-related hazards that could be created during the course of construction in the Project Site. The Project Site does not contain any existing structures for demolition, and therefore would not pose a hazard regarding asbestos- and/or lead-containing materials that would trigger a hazardous building materials analysis. Construction may include the use of hazardous materials, given that construction activities involve the use of heavy

equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

Residential uses are not typically associated with routine transport, use, or disposal of hazardous materials and do not present a reasonably foreseeable release of hazardous materials. While some hazardous materials may be used for residential purposes such as household cleaners and lawn care equipment and chemicals, the amount of these materials is small and the potential for hazardous releases is minute.

Regulatory requirements for the transport of hazardous wastes in California are specified in Title 22 of the CCR, Division 4.5, Chapters 13 and 29. In accordance with these regulations, transport of hazardous materials must comply with the California Vehicle Code, California Highway Patrol regulations (contained in Title 13 of the CCR); the California State Fire Marshal regulations (contained in Title 19 of the CCR); U.S. Department of Transportation regulations (Title 49 of the Code of Federal Regulations [CFR]); and USEPA regulations (contained in Title 40 of the CFR). The use of hazardous materials is regulated by the DTSC (Title 22, Division 4.5 of the CCR). Therefore, potential residential impacts for creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials from residential uses would be **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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 impact.

As discussed in Issue a), the Project proposes the subdivision of one parcel into 172 single-family lots. This would allow for the future construction of 172 single-family homes. Residential uses are not typically associated with routine transport, use, or disposal of hazardous materials and do not present a reasonably foreseeable release of hazardous materials. However, in the case of reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment, any use of large amounts of hazardous materials would require the hazardous materials to be utilized, stored, and transported pursuant to state and federal safety regulations. Therefore, the Project would have a **less than significant impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Less than significant impact.

The Project Site is located 0.38 mile south of Poplar Elementary School in the City of Orville. The Proposed Project does not involve the development of a use that would emit hazardous materials, substances, or waste during operations. The use of heavy equipment and activities involving hazardous materials would be limited to the construction phase, would be confined to construction areas and within existing roadways, and would cease upon completion of the Project. The use, transport, storage, and disposal of hazardous materials during the Project's construction phase would be regulated by health and safety requirements under federal, state, and local laws; including handling, storage, and disposal of the materials, as well as emergency spill response. The construction and operation of the Proposed Project would not pose a significant threat to human health, and impacts related to the emission or handling of hazardous materials within 0.25 mile of an existing or proposed school would be **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No impact.

Under Government Code § 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified that the Proposed Project Site is not located on, or directly adjacent to, a hazardous materials site. However, a search of the SWRCB list identified one open case of hazardous waste violations within 0.5 mile of the Project Site. This was a result of an aircraft crash in August 2019 at the Oroville Municipal Airport. This site is currently undergoing remediation. Given there are no existing hazardous waste sites within or directly adjacent to the Project Site, and that the closest hazardous waste site is undergoing cleanup, the Project will have **no impact** in this area.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) 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 or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐

Potentially significant impact.

The Project Site is within the B1 and B2 compatibility zones for the Oroville Municipal Airport Compatibility Land Use Plan. These compatibility zones do not allow residential development at the densities proposed for the Project. As such, further investigation is required for this impact area. This will occur as a part of the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Less than significant impact.

All communities face the possibility of disasters and emergency situations, whether they are of natural or human-related causes. Citizens and first responders must be prepared to react to such an emergency. The Butte County Office of Emergency Services is charged with emergency management for the County, including City of Oroville, and is responsible for maintaining situational awareness of threats that may necessitate an evacuation of citizens. The Butte County Emergency Operations Plan addresses the County planned response to extraordinary emergency situations associated with natural disasters, technological incidents and national security emergencies in or affecting the Butte County Operational Area, which includes the unincorporated areas of the County of Butte and the incorporated areas of the cities of Chico, Oroville, Gridley, Biggs and the Town of Paradise (Butte County 2022b). The City of Oroville Fire Department and Police Department are equipped to provide a first line of emergency response in the unlikely event of a major disaster.

While the Proposed Project is located directly north of a roadway that may be used during an emergency evacuation, the Project does not include any actions that would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. No construction activities would impede the use of surrounding roadways in an emergency evacuation. The Project involves the future construction of a single-family subdivision and would not interfere with any emergency response or evacuation plans. Implementation of the Proposed Project would result in **no impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by California Department of Forestry and Fire Protection (CAL FIRE 2022) as a Fire Hazard Severity Zone (FHSZ). Furthermore, no Very High FHSZs are located nearby. Finally, the location of the Project Site makes it readily accessible by emergency personnel and vehicles in the event of a wildland fire. For these reasons, this impact would be **less than significant**.

4.9.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

4.10.1.1 Regional Hydrology

Surface Water

According to the California Natural Resources Agency (CNRA), the state has been subdivided into 10 hydrologic regions (CNRA 2022). The Project Site is located in the Sacramento River Hydrologic Region, which includes the entire California drainage area of the Sacramento River (California's largest river) and its tributaries. The region extends from Chipps Island in Solano County north to Goose Lake in Modoc County. It is bounded by the Sierra Nevada on the east, the Coast Ranges on the west, the Cascade and Trinity mountains on the north, and the Sacramento-San Joaquin River Delta on the south. The Sacramento River Basin actually begins in Oregon, north of Goose Lake, a near-sink that intercepts the Pit River drainage at the California-Oregon border (California Department of Water Resources [DWR] 2014).

The Project Site is located in the Lower Feather River watershed, which begins downstream of Lake Oroville and includes that area tributary to the Feather River as it flows approximately 60 miles north to south before entering the Sacramento River at Verona. The Lower Yuba and Bear rivers also join the Lower Feather within this river reach. The Lower Feather River Watershed encompasses approximately 803 square miles of Sutter, Yuba, and Butte counties. River flows are regulated for water supply and flood control by the State Water Project through releases at Oroville Dam. The river is almost entirely contained within a series of levees as it flows through the fertile agricultural lands of the Sacramento Valley (Sacramento River Watershed Program 2022). More specifically, the Project Site is located in the Thermalito Afterbay watershed which includes North Forebay Creek, Thermalito Forebay, Robinsons Riffle Pond, and Thermalito Afterbay (USEPA 2022).

Groundwater

The Project Site overlies the Sacramento Valley – Wyandotte Creek groundwater subbasin, one of three groundwater subbasins within Butte County, as defined by DWR (2022a). The Wyandotte Creek Subbasin lies in the eastern central portion of the Sacramento Groundwater Basin. The north and east subbasin boundary is generally defined where the Plio-Pleistocene non-marine sediments of the subbasin contact the Jurassic-Triassic meta-volcanic rocks of the Sierra Nevada. The subbasin is defined on the south by the Butte-Yuba county line; and on the west by the Feather River and Thermalito Afterbay. The Wyandotte Creek subbasin aquifer system is comprised of continental deposits of Quaternary to Late Tertiary (Pliocene) age. The cumulative thickness of these deposits increases from a few hundred feet near the Sierra Nevada foothills on the east to more than 1,000 feet along the western margin of the basin. (adapted from B118 2006, North Yuba Subbasin) (DWR 2018).

In February 2021, the Butte County Department of Water and Resource Conservation completed the *Groundwater Status Report 2020 Water Year* (Butte County 2021). This report presents the status of groundwater conditions and ground surface elevation monitoring based on data collected by Butte County and the DWR from 2012 to 2020. Based on this data, while precipitation has varied during the 8-year span from critical to wet years, the average cumulative groundwater elevation change has decreased by 3 feet from 2012 to 2020. However, according to the Status Report, it is important to note that this is a broad picture of how Butte County's groundwater levels have changed. This is due to the fact that the data depicts an average change for all wells throughout the county and there can be wide variations in how groundwater levels respond to water year conditions over different areas of the county, between individual wells in the same area, amongst different types of wells and amongst wells with varying depths and screening intervals amongst other factors (Butte County 2021).

4.10.1.2 Project Site Hydrology and Onsite Drainage

In March 2021, a Jurisdictional Waters and Wetlands Delineation was completed for the Project Site by Rincon Consultants, Inc (2021). This reports indicates that the Project Site has delineated aquatic features that include 78 depressional seasonal wetlands that all meet the U.S. Army Corps of Engineers' (USACE) three-parameter definition of wetlands. These wetlands do not connect to and are not adjacent to other potentially federally jurisdictional waters or wetlands as defined in 33 CFR 328.3 and are considered isolated. Therefore, these wetlands are not considered potentially USACE-jurisdictional. However, as isolated wetlands, they are considered potentially RWQCB-jurisdictional pursuant to the Porter-Cologne Act. There are no waters delineated on the site, i.e., no features with a bed and bank or ordinary high water mark. Therefore, there are no features on site considered to be under the jurisdiction of the CDFW (Rincon 2021).

The Project Site is located on somewhat hilly terrain situated at an elevational range from 190 to 230 feet AMSL. The average winter low temperature in the City of Oroville is 41˚F in December and the average summer high temperature is 95˚F in July. In Oroville, the rainy period of the year lasts for 8.9 months, from September 16 to June 13, with a sliding 31-day rainfall of at least 0.5 inch. February is the month with the most rain in Oroville, with an average rainfall of 6.2 inches. The rainless period of the year lasts for 3.1

months, from June 13 to September 16. The month with the least rain in Oroville is July, with an average rainfall of 0.1 inch (Weatherspark 2022).

As mapped by the Federal Emergency Management Agency (FEMA, 2011) National Flood Hazard Layer, the Project Site is in Flood Zone X, indicating that the Site is an area of minimal flood hazard. Flood Zone X includes areas outside the Special Flood Hazard Area and higher than the elevation of the 0.2-percent-annual-chance flood (Flood Insurance Rate Map [FIRM] 06007C0788E).

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Less than significant impact.

While no creeks, streams or rivers exist on the Project Site, a multitude of wetlands can be found on the Project Site. However, according to the Jurisdictional Waters and Wetlands Delineation, these wetlands are considered isolated (Rincon 2021).

In accordance with NPDES regulations, the State of California requires that any construction activity affecting 1 acre or more, or discharges from smaller sites that are part of a larger common plan of development or sale, obtain a General Construction Activity Stormwater Permit to minimize the potential effects of construction runoff on receiving water quality. As described previously, the Project proposes the subdivision of land resulting in the future development of 172 single-family homes. The General Permit requires the development and implementation of a SWPPP. The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project. The SWPPP must list BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs.

General Permit applicants are required to submit Permit Registration Documents for the Project to the appropriate regional board, which include a Notice of Intent (NOI), risk assessment, site map, signed certification statement, an annual fee, and a SWPPP. The SWPPP includes pollution prevention measures (i.e., erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. The SWPPP must also include implementation of BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction BMPs included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing

materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. SWPPP BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Strict SWPPP compliance, coupled with the use of appropriate BMPs, would reduce potential water quality impacts during construction activities.

According to the site plans, stormwater drainage facilities are proposed to be installed throughout the Project Site. Drainage facilities are proposed to be installed within all new internal roadways on the Project Site, with leach trenches proposed for installation toward the eastern end of each internal roadway and along Biggs Avenue. Additionally, a roughly 14,332-square-foot storm drain basin is proposed for installation in the northeastern corner of the Project Site. All storm drainage facilities tie in to 20th Street on the eastern portion of the Project Site, with two storm drain overflows proposed at the northeastern corner of the Project Site within 20th Street.

Oroville Municipal Code Section 15.88.060 *Standards for Grading, Excavation And Site Clearance* requires sedimentation and erosion control for all grading and site preparation activities. These include BMPs needed in order to meet requirements of this chapter shall be chosen from the *2003 California Storm Water Quality Construction Handbook*

The Proposed Project would be required to prepare and comply with an approved SWPPP and Municipal Code Section 15.88.060. Compliance with these requirements would reduce the potential water quality impacts to **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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 impact.

The Project Site is within the Thermalito Water and Sewer District (TWSD) service area. TWSD serves approximately 9,500 individuals and anticipates this number to increase to 15,272 by the year 2025, based on growth rates given by the Butte County Association of Governments (BCAG). TWSD has rights to approximately 8,200 acre feet (AF) of surface water from Concow Lake/Wilmore Reservoir with a 3.0 million gallons per day (mgd) backup supply coming from four wells, as needed. (City of Oroville 2015a). The Project includes the future development of 172 single-family homes. According to the RWQCB, TWSD average water demand in 2021 was 160.62 gallons per capita per day (gpcd) (RWQCB 2022). The average household size in the City of Oroville in 2021 was 2.5 persons per household (DOF 2022). This results in an

average water demand of 401.55 gallons per day per housing unit[3] or 69,067 gallons per day (gpd) for the Project as a whole[4]. 69,067 gpd for the Project calculates to approximately 25.2 million gallons per year or 79.48 AF per year (AFY)[5] of water use. According to the RWQCB (2022), TWSD had a total demand of 2,295.75 af of water in 2021. The addition of 79.48 AF from the Proposed Project would not result in an exceedance of the TWSD surface water supply of 8,200 AF. As such, the use of groundwater would not be necessary to serve the Project. Therefore, the Project would not substantially decrease groundwater supply and therefore result in a less than significant impact in this area.

The Proposed Project would have the potential to remove a portion of the Project Site's surface area available for groundwater recharge due to the increase in impervious surfaces on the site. Impervious surfaces on the Project Site would include buildings, streets, and sidewalks. However, according to the Butte County Groundwater Management Plan (2004), Figure 2-7, the Project Site is not located in an area of substantial groundwater recharge. Therefore, the Project would have a less than significant impact on groundwater recharge.

The Project will have a **less than significant impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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 that 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?	☐	☐	☐	☒

[3] 160.62 gpd per capita x 2.5 persons per household = 401.55 gpd per housing unit.
[4] 401.55 gpd X 172 housing units = 69,066.6 gallons per day
[5] One AF = 326,000 gallons. 69,066.6 gpd x 365 days per year = 25,209,309 gallons per year/326,000 gallons per AF = 79.48 AFY.

i-iii) Less than significant impact.

There are no creeks, streams or rivers on or nearby the Project Site. As such, siltation of on- or offsite waterways would not occur.

Construction activities within the Project Site would result in soil disturbances. For those activities that disturb 1 acre or more of land, a NPDES Construction General Permit would be required prior to the start of construction. To comply with the requirements of the NPDES Construction General Permit, these projects will be required to file an NOI with the State of California and submit a SWPPP defining BMPs for construction and post-construction-related control of the Proposed Project Site runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs. SWPPPs generally include the following applicable elements:

Diversion of offsite runoff away from the construction area

Prompt revegetation of proposed landscaped areas

Perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site

Regular sprinkling of exposed soils to control dust during construction during the dry season

Installation of a minor retention basin(s) to alleviate discharge of increased flows

Specifications for construction waste handling and disposal

Erosion control measures maintained throughout the construction period

Preparation of stabilized construction entrances to avoid trucks from imprinting debris on city roadways

Contained wash out and vehicle maintenance areas

Training of subcontractors on general construction area housekeeping

Construction scheduling to minimize soil disturbance during the wet weather season

Regular maintenance and storm event monitoring

Preparation of, and compliance with a required SWPPP will reduce potential runoff, erosion, and siltation associated with construction and operation. As such, the effects of the Proposed Project on- and offsite erosion and siltation would be less than significant.

Implementation of the Proposed Project may result in the substantial increase of the rate or amount of surface runoff as the Project is developed. 2030 General Plan policies designed to address stormwater runoff and applicable to the Proposed Project are as follows:

P8.2 *Encourage project design that minimizes the potential for wind and water erosion to occur. Where necessary, require the preparation and implementation of a soil erosion plan, including soil erosion mitigation during construction.*

P8.3 *Encourage the utilization of Best Engineering Practices for stormwater collection and disposal.*

P8.4 *Require local storm drainage improvements be built to carry appropriate design-year flows resulting from buildout of the General Plan. Design storm drainage facilities for 2-, 10-, and 100-year discharges.*

P8.5 *Require that developers pay their fair share for construction of off-site drainage improvements, as determined by a site-specific stormwater drainage plan or the stormwater drainage master plan to be prepared under A8.1.*

P8.6 *Implement all necessary measures to regulate runoff from urban uses to protect the quality of surface and groundwater.*

P8.7 *Require new development to identify and adequately mitigate its stormwater impacts.*

P8.9 *Require installation of temporary drainage facilities as necessary during construction activities in order to adequately mitigate stormwater impacts.*

P8.10 *Require the installation of stormwater collection systems concurrently with construction of new roadways to maximize efficiency and minimize disturbance due to construction activity.*

Additionally, the Oroville Municipal Code Title 16 Subdivisions Section 16.16.130 Storm Runoff requires the following:

A. Increased storm runoff that results from development of a subdivision shall be retained within the subdivision, so as not to exceed the natural runoff rate that occurred prior to development. The natural runoff rate shall be retained for the 2-, 10- and 100-year storm events.

The design of stormwater detention and retention systems, and hydraulic studies necessary to support such designs shall be in accordance with the city's engineering design standards.

B. Storm runoff from streets shall be conveyed using paved curbs and gutters, or another conveyance system approved by the city engineering design standards. The conveyance system shall conform to the requirements of the city engineering design standards.

C. Storm runoff from streets may be detained in planted areas, including, but not limited to, tree wells and traffic roundabouts, provided that each planted area provides a drainage system that meets the requirements of the city engineering design standards.

D. In the event that the subdivision is traversed by any watercourse, channel, lake, stream or creek, the subdivider shall provide rights-of-way or easements for storm drainage

purposes either conforming substantially with the lines of the watercourse, channel, lake, stream or creek, or the subdivider shall provide necessary rights-of-way or easements for any changes in the channel. (Ord. 1749 § 3)

Project compliance with General Plan policies and Section 16.16.130 of the Municipal Code would require stormwater facilities that would restrict stormwater flows from the Project Site. As described above, stormwater drainage facilities are proposed to be installed throughout the Project Site. Drainage facilities are proposed to be installed within all new internal roadways on the Project Site, with leach trenches proposed for installation toward the eastern end of each internal roadway and along Biggs Avenue. Additionally, a roughly 14,332-square-foot storm drain basin is proposed for installation in the northeastern corner of the Project Site. All Storm drainage facilities tie in to 20th Street on the eastern portion of the Project Site, with two storm drain overflows proposed at the northeastern corner of the Project Site within 20th Street.

Thus, the Proposed Project would have a less than significant impact related to erosion or flooding on- or off-site or exceeding the capacity of an existing or planned stormwater drainage system.

iv) No impact.

FEMA flood hazard map 06007C0788E indicates that the entire Project Site is in unshaded Zone X. The Project Site is not located within a flood zone. Therefore, implementation of the Proposed Project have **no impact** related to impeding or redirecting flood flows

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐

Less than significant impact.

Tsunamis typically affect coastlines and areas up to 0.25 mile inland. The Project Site is over 110 miles from the nearest coastline. The Project would not be affected by a tsunami.

Seiches generally affect locations adjacent to larger water bodies such as lakes or reservoirs. The Project Site is located approximately about 0.5 mile south of the Thermalito Forebay. Due to the distance and somewhat hilly ground between the Project Site and the Thermalito Forebay, the Project would not be susceptible to impacts resulting from a seiche.

According to Figure SAF-3 of the 2030 General Plan, the Project Site is within the inundation area of Lake Oroville and failure of the Oroville Dam could result in release of water held behind the dam, and inundation of much of the city and surrounding area. A major seismic event would be the most likely cause of dam failure (City of Oroville 2015a). The General Plan Draft Supplemental EIR (City of Oroville 2015c) identifies that dam inundation due to a failure of the Lake Oroville Dam would result in a significant and unavoidable impact related to exposure of people and structures to risks from flooding as a result of dam failure.

Lake Oroville Dam is under the jurisdiction of the California DWR Division of Safety of Dams (DSOD). Since August 14, 1929, the State of California has regulated dams to prevent failure, safeguard life, and protect property. DSOD provides oversight to the design, construction, and maintenance of more than 1,200jurisdictional sized dams in California, including Lake Oroville. DSOD ensures dam safety by:

- reviewing and approving dam enlargements, repairs, alterations, and removals to ensure that the dam appurtenant structures are designed to meet minimum requirements;
- performing independent analyses to understand dam and appurtenant structures performance. These analyses can include structural, hydrologic, hydraulic, and geotechnical evaluations;
- overseeing construction to ensure work is being done in accordance with the approved plans and specifications;
- inspecting each dam on an annual basis to ensure it is safe, performing as intended, and is not developing issues. Roughly one third of these inspections include in-depth instrumentation reviews of the dam surveillance network data;
- Periodically reviewing the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California (DSOD 2022a).

On February 7, 2017, while the Oroville Dam the service spillway chute suddenly experienced failure and removal of a section of the concrete slab about halfway down the chute. This was immediately followed by rapid erosion of the foundation and adjacent ground, and progressive failure and removal of the chute slab in the upstream and downstream directions. Emergency evacuation of Oroville and areas within the Oroville Dam inundation area was ordered on February 12. The evacuation order was reduced to a warning on February 14 and residents returned home. Starting in May 2017, DWR and its construction contractors began repairing and rebuilding Oroville's main and emergency spillways. To ensure public safety, the main spillway was successfully repaired by November 1, 2017 in order to function as a flood control outlet if needed that winter. In 2018, the main spillway was fully reconstructed to final design and the emergency spillway was completed (DWR 2022b).

In 2017, the DSOD established the Spillway Reevaluation Program to assess dam appurtenant structures, including spillways, to confirm they meet minimum safety standards. This is an ongoing screening process and reevaluation of spillways at dams, starting with these that potentially pose the highest hazard. This evaluation includes the assessment of the spillway's design and construction and geologic attributes while concurrently reviewing the dam owner's maintenance and inspection program, the spillway's historical performance, and any previous spillway repairs. DSOD is working closely with dam owners to expedite the development of the required assessments and restore any known areas of disrepair (DSOD 2022b).

As shown by the 2017 Oroville Dam spillway incident, the potential for dam failure can occur due to negligence and inadequate maintenance. DWR is continually assessing Oroville Dam; the Oroville Dam is formally inspected multiple times a year by various entities. The dam is inspected twice a year by the California Department of Water Resources' Division of Safety of Dams (DSOD) and annually by the Federal Energy Relicensing Commission Dam Safety Program. Further, the Dam is also inspected by an

independent board of expert consultants every 5 years (DWR 2022c). As of September 2021, the condition of Oroville Dam is listed as *fair* by the DSOD. Fair is defined as "[n]o existing dam safety deficiencies are recognized for normal operating conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency." (DSOD 2021).

Therefore, an event such as the failure of Lake Oroville Dam has a low probability of occurring and is not considered to be a reasonably foreseeable event. Based on the discussion above, there would be a **less than significant impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

No impact.

The California Groundwater Management Act, or AB 3030, was adopted by the California legislature in 1992, which created provisions in the California Water Code Sections 10750 et. seq. to manage the safe production, quality and proper storage of groundwater. Though adoption of a Groundwater Management Plan is not required by law it is encouraged. AB 3030 is applicable to local agencies, including counties, to develop a county-wide groundwater management plan for portions of the groundwater basin not presently covered by another groundwater management plan (Butte County 2004). The Project Site is located within the Butte County Groundwater Management Plan area.

The Sustainable Groundwater Management Act, passed in fall 2014, establishes a new structure for managing groundwater resources in California and requires adoption of a Groundwater Sustainability Plan (GSP) by January 31, 2022. There are three subbasins in Butte County, each preparing a single GSP (Butte County 2022c). The Project Site is located within the Wyandotte Creek Subbasin Groundwater Sustainability Plan area (Wyandotte Creek Groundwater Sustainability Agency 2021).

All water to the Project would be supplied by TWSD and no new Project-related groundwater wells are necessary to provide water to the Project. Once completed, all single-family residences would be required to comply with any water conservation requirements, when and if these requirements are obligatory, and as such, would not be inconsistent with any water conservation measures listed in the Butte County Groundwater Management Plan or the Wyandotte Creek Subbasin Groundwater Sustainability Plan. Therefore, the Proposed project would have **no impact** in this area.

4.10.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

The 44.97-acre site is within the City of Oroville 2030 General Plan land use designations of Airport Business Park and is zoned ABP with a zoning overlay of AIA-O. The 2030 General Plan identifies the Airport Business Park as:

> "This designation allows for light manufacturing, limited industrial, food processing, wholesale trade and offices. Retail businesses and public services are permitted to a lesser extent and would generally be allowed as an accessory use. Outdoor storage is only permitted in limited amounts if heavily screened. Projects must maintain architectural and landscape standards normally associated with the term *business park* rather than *industrial area*. FAR range in this designation ranges from 0.20 to 0.35. Maximum FAR is 0.30 in the area bounded by Feather Avenue on the north, Oroville Dam Boulevard West on the south, 20th Street on the east and 24th Street on the west. Maximum FAR is 0.35 in all other areas (City of Oroville 2015a)."

The Oroville Municipal Code Title 17 Zoning Section 17.36.030 ABP—Airport Business Park, describes the purpose ABP zone as:

> "To provide for business and commercial opportunities near the Oroville Airport that will neither be detrimental to the airport's growth, efficiency and safety nor create substantial conflict with the development of other industrial lands in the city, and that will be consistent with the general plan land use designation of Airport Business Park (City of Oroville 2022a)".

Section 17.44.050 AIA-O—Airport influence area overlay, describes the intent of the AIA-O district as:

> "This section identifies limitations on the density, intensity, height, and other aspects of the use of property within the Oroville Municipal Airport overflight area that are necessary to protect persons on the ground and in the air from adverse impacts that may result from operation of an airport, in the manner described in the 1990 Master Plan for the Oroville Municipal Airport. The limitations established in this section are consistent with Airport Compatibility Criteria described in the Butte County Airport Land Use Commission's 2000 Airport Land Use Compatibility Plan." (City of Oroville 2022a)

The site is within the Oroville Municipal Airport B1 and B2 compatibility zones. Public Utilities Code Section 21676 requires the Oroville 2030 General Plan land use designations to be in conformance with the land use plans and policies of the adopted Airport Land Use Compatibility Plan (ALUCP) (City of Oroville 2015a).

Surrounding uses include single-family homes and vacant land to the east of the Project Site. Rural residential uses and vacant land lie to the north. To the west of the Project Site is vacant land and to the south is rural residential uses and vacant land. Approximately 0.75 mile to the south of the Project Site is the Oroville Municipal Airport and a 0.5 mile to the north is the Thermalito Forebay (Figure 3).

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

No impact.

The Project Site is located in the western area of the City. The only established residential community near the Project is a small subdivision located on the eastern boundary of the site. The Project would be accommodated by existing roadways and would not require construction of new roadways that would preclude access to the surrounding area. As such, the Proposed Project would not physically divide an established community, and **no impact** would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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?	☒	☐	☐	☐

Potentially significant impact.

The Project requests a General Plan amendment and rezone to allow for 172 single-family lots. Single-family residential units are not allowed in the ABP zoning district, nor are they a prescribed use in the General Plan land use designation of Airport Business Park; thus a General Plan amendment and rezone to a residential land use is required. Additionally, the site is within the Oroville Municipal Airport B1 and B2 compatibility zones. For those areas of the Project within the B1 zone, the Project's proposed density of 3.74 dwelling units per acre is inconsistent with the B1 Compatibility Zone density (0.1 or more dwelling units per acre). Additionally, for those areas of the Project that are within the B2 zone, the project's proposed density of 4.15 dwelling units per acre is inconsistent with the B2 Compatibility Zone density (0.2 dwelling units per acre). Finally, the City's the AIA-O zone only allows residential uses at one unit per 5 acres. The Proposed Project is inconsistent with the existing land use plans. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

4.11.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.12 Mineral Resources

4.12.1 Environmental Setting

The state-mandated Surface Mining and Reclamation Act of 1975 requires the identification and classification of mineral resources in areas within the state subject to urban development or other irreversible land uses that could otherwise prevent the extraction of mineral resources. These designations categorize land as Mineral Resource Zones (MRZ, MRZ-1 through MRZ-4).

Neither the City, the USGS' Mineral Resources Data System, nor the California DOC Division of Mine Reclamation (DMR) identify the Project Site as a mineral resource zone (DMR 2022; City of Oroville 2015a, USGS 2022b).

4.12.2 Mineral Resources (XII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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.

As discussed above, the Project Site is not identified as having mineral resources. Therefore, the Project would have **no impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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.

The Project Site is not identified as a mineral resource recovery site by the City or DMR. There would be **no impact** in this area.

4.12.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

4.13.1.1 Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels (in L_{dn}/CNEL).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources such as highways, and hard and flat surfaces such as concrete or asphalt, have an attenuation rate of 3.0 A-weighted decibels (dBA) per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (USEPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the *line of sight* between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

4.13.1.2 Vibration

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.2 Noise (XIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in 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?	☒	☐	☐	☐

Potentially significant impact.

It is difficult to specify noise levels that are generally acceptable to everyone; what is annoying to one person may be unnoticed by another. Standards may be based on documented complaints in response to documented noise levels or based on studies of the ability of people to sleep, talk, or work under various noise conditions. However, all such studies recognize that individual responses vary considerably. Standards usually address the needs of the majority of the general public.

A comprehensive noise analysis has not yet been completed for the Project. As such, the potential for noise related impacts cannot be determined. Therefore, this area will be discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐

Potentially significant impact.

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to potential future development would be primarily associated with short-term construction-related activities. Construction at the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

The Proposed Project could result in excessive groundborne vibration in the vicinity of the Project Site during construction. Since a comprehensive noise analysis has not yet been completed for the Project, the potential for noise related impacts cannot be determined at this time. Therefore, this area will be discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	☐	☐	☒	☐

Less than significant impact.

The Project Site is located within the overflight area of the Oroville Municipal Airport. However, according to Exhibit 5E of the Butte County ALUCP for the Oroville Municipal Airport, the Project Site is outside of the 65-, 60-, and 55-CNEL noise contours for the airport (Butte County 2017). Based on this information, the persons residing in the Project would not be exposed to excessive noise levels from airport operations. As such, implementation of the Proposed Project would neither affect airport operations nor result in increased exposure of noise-sensitive receptors to aircraft noise. For this reason, a **less than significant** impact would occur.

4.13.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.14 Population and Housing

4.14.1 Environmental Setting

According to the California Department of Finance (DOF), which provides estimated population and housing unit demographics by year throughout the state, the City's population increased 21.3 percent between 2010 and 2022, from 15,546 to 18,863. DOF estimates that there were 7,783 total housing units in the City, and a 7.1 percent vacancy rate as of January 1, 2022 (DOF 2022).

4.14.2 Population and Housing (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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)?	☒	☐	☐	☐

Potentially significant impact.

The Project poses both direct and indirect potential to substantially increase population within the City. As discussed previously, the 44.97-acre site would potentially result in the construction of 172 single-family homes. Based on the 2021 DOF average number of persons per household of 2.5, the projected population increase from the Proposed Project would be approximately 430 residents. However, it is likely that some of the future residents may already be living within the City limits, which would not have an effect on population increase City-wide. With the addition of 430 new residents, the Proposed Project could increase the population by 2.8 percent when compared to the 2021 estimated population for the City.

The Project Site's current General Plan land use designation of Airport Business Park and zoning district of ABP do not allow the construction of residential units, with the exception of a caretaker's home in the ABP zone. Additionally, the site is within the Oroville Municipal Airport B1 and B2 compatibility zones. For those areas of the Project within the B1 zone, the Project's proposed density of 3.74 dwelling units per acre is inconsistent with the B1 Compatibility Zone density (0.1 or more dwelling units per acre). Additionally, for those areas of the Project that are within the B2 zone, the project's proposed density of 4.15 dwelling units per acre is inconsistent with the B2 Compatibility Zone density (0.2 dwelling units per acre). Finally, the City's the AIA-O zone only allows residential uses at one unit per 5 acres. The Proposed Project is inconsistent with the existing land use plans and therefore would be considered an unplanned population growth. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No impact.

As previously discussed, the Project Site is currently vacant. No persons or residences would be displaced or removed as a result of the Proposed Project, and the Project would have **no impact** in this area.

4.14.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.15 Public Services

4.15.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Generally, impacts in these areas are related to an increase in population from a residential development. Levels of service are generally based on a service-to-population ratio, except for fire protection, which is usually based on a response time.

4.15.1.1 Fire Services

The greater Oroville area receives fire protection and emergency services from three separate fire departments; the City of Oroville Fire Department (OFD), and the CAL FIRE/Butte County Fire Department (BCFD). CAL FIRE/BCFD is the primary service provider for the unincorporated area.. OFD is the primary service provider within the Oroville incorporated area including the Project Site (City of Oroville 2021). OFD operates out of Station 1 located at 2055 Lincoln Street, approximately 3 miles west of the Project Site.

Staffing for the City's Fire Department during Fiscal Year (FY) 2019-2020consisted of 18 personnel, which included seven firefighters and six fire engineers. This number of personnel is slightly less than previous years. As of FY 20-21, the City budgeted for 21 OFD personnel in funded positions, including five fire engineers, four Staffing for Adequate Fire and Emergency Response (SAFER) fire fighters, three fire captains, and three fire lieutenants. Two OFD engines are staffed out of Station 1. OFD has five pieces of apparatus:

Engine-1: a 2009 Smeal Type I firetruck;

Engine-2: a 2009 Smeal Type I firetruck;

Engine-5: a 2002 E-ONE Type I firetruck,

Engine-10: a 2017 HME HXR Type III wildland firetruck; and

Truck-1: a 2001 American LaFrance 105ft aerial ladder truck (City of Oroville 2021).

Based on the General Plan, OFD is committed to meeting the needs of Oroville citizens' by maintaining the service levels listed below. The times referenced are OFD's Standards of Cover Guidelines that were adopted by the City Council and placed into the Safety Element of the General Plan.

Placing a first-due unit at a scene within 5 minutes of travel time for 90 percent of the city's population.

Locating and staffing department units so that an effective response of four units with, at minimum, eight personnel is available to all areas of the City within a maximum travel time of 10 minutes for 90 percent of all structure fires.

4.15.1.2 Police Services

Police protection services in the City are provided by the City of Oroville Police Department (OPD). OPD operates out of a single police station located at 2055 Lincoln Street, approximately 3 miles west of the Project Site. OPD provides a wide range of services for the City of Oroville. OPD investigates suspected criminal activity, suspicious situations, mediates civil issues, effects arrests, conducts traffic enforcement, responds to traffic accidents and other calls for service, and routinely patrols the City. OPD is also responsible for animal control (via contract) within the Oroville City limits. Additionally, the OPD participates in a multi-agency narcotics task force, school resource officer program, drug awareness and gang education, and other types of community outreach programs (City of Oroville 2021).

According to the General Plan, the OPD has a response time goal of less than 4 minutes for all emergency responses and 20 minutes for non-emergencies (City of Oroville 2015a). There were a total of 37 persons, including 21 officers and 16 civilians, employed by the OPD in 2020 (Federal Bureau of Investigation [FBI] 2021). The City has 42 funded positions for OPD in its budget for FY 20-21. This is a decrease of 1.09 full-time equivalent position from the previous fiscal year. Of OPD's total staff, 27.5 are sworn officers which equates to 1.41 officers per 1,000 City residents. Comparatively speaking, the sworn officer to resident ratio was 1.31 in 2014. The City has not established a staffing standard or goal regarding a desired officer-to-resident ratio. The City reports existing staff levels are sufficient to meet demand (City of Oroville 2021).

The California Department of Justice (DOJ) tracks crimes in the state including the City of Oroville. According to the DOJ, there were 147 violent crimes and 588 property crimes reported in 2020 (DOJ 2022).

4.15.1.3 Schools

The Project Site is served by the Thermalito Union School District (TUSD) and the Oroville Union High School District (OUHSD). TUSD serves students from pre-school to 8th grade at three elementary schools, one middle school, and a day school. OUHSD contains two comprehensive high schools, one charter high school, a community day school, and a continuation high school.

The nearest elementary school is Poplar Avenue Elementary School, located at 2075 Poplar Street, approximately 0.36 mile north of the Project Site. Nelson Middle School is 2.1 miles northeast of the Project Site at 2255 6th Street and Oroville High School is approximately 3.5 miles east of the Project Site at 1535 Bridge Street.

4.15.1.4 Parks

The City of Oroville Department of Parks and Trees works with the Feather River Recreation and Park District (FRRPD) and the California Department of Parks and Recreation to coordinate open space corridor connections where possible and provide regional recreation opportunities in the Oroville area. The largest parks in the city are Riverbend Park (on the Feather River), Mitchell Park (south of Downtown) and Nelson Park and Recreational Center (north of Thermalito), all of which are owned and operated by the FRRPD. Some of the parks located within Oroville City limits are owned by the City but are operated and maintained by the FRRPD (City of Oroville 2015a).

The City of Oroville encompasses approximately 430 acres of parklands and recreational facilities within the City limits. There are additional open spaces under the protection of state agencies or conservation trusts. Additionally, there are 83 square miles of land that lie within the recreation planning area but outside the City limits. Of that land, roughly 35 percent has been designated for parks and recreation, environmental conservation and safety, resource management, and the State Water Project (City of Oroville 2021).

4.15.1.5 Other Public Facilities

Other local public facilities located within the Project Area include the Oroville City Hall, the Oroville Branch of the Butte County Library, and the Oroville Municipal Airport, Superior Court of California, County of Butte, Butte County Jail, and a variety of Butte County offices.

4.15.2 Public Services (XV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☒	☐
Other Public Facilities?	☐	☐	☒	☐

Potentially significant impact.

4.15.2.1 Fire Protection

<u>Fire Protection</u>

Development of the Project Site would result in a need for fire protection services to respond to any potential incidents that may occur at the site. The Project Site is located in a somewhat sparsely developed part of the City but receives fire service. However, according to the 2020 City of Oroville Municipal Services Review:

> "In evaluating the efficiency and effectiveness of present operations for future growth, the most pressing need is that of a second fire station at the Airport Business Park (also referred to as the west side safety facility), based on continued development throughout the City and within the SOI. This station will alleviate growing and unevenly distributed service demands and potential occupancy risk through an increased concentration of personnel in this area. In 2008, the City approved a number of small to moderately sized subdivisions and the Oro Bay Specific Plan, which will include up to 2,400 dwellings, just

> west of the airport. This westernmost portion of the City is outside the OFD five-minute response contour. Currently, the low call volume for this area does not affect the goal of responding to 90 percent of its calls within 5 minutes but as the population increases this will become an issue" (City of Oroville 2021).

With regard to the CEQA standard of significance, the Proposed Project would increase the need for fire protection services; however, it has not yet been determined that this need would necessitate the construction of a new fire station or expansion of an existing fire station by the OFD. As such, this is considered a **potentially significant impact** and will be further discussed in the EIR.

4.15.2.2 Police Services

Development of the Project Site would potentially result in a need for police protection services to respond to any potential incidents that may occur at the site. The number of sworn officers per capita is a traditional indicator of service level. However, the 2030 General Plan does not identify the police officer-to-capita service ratio. There are no universally recognized staffing standards for law enforcement. For comparison purposes, the FBI's Uniform Crime Report annually compares per capita staffing levels in law enforcement agencies throughout the nation based upon geographic region and population served. For communities the size of Oroville, in this part of the country, the average per capita staffing levels are 1.5 sworn police officers per 1,000 population and 0.5 non-sworn employees per 1,000 population. By comparison OPD had 1.41 sworn police officers per 1,000 residents and 0.98 non-sworn employees per 1,000 population (City of Oroville 2021).

However, the Project Site is located in a somewhat sparsely developed part of the City but is within the OPD service area. Based on the 2021 average household size of 2.5 persons per household for the City of Oroville (DOF 2021), development of the Project would increase the City's population by 430 persons. While this factor assumes that all future residents of the Project would be new to the City, which will most likely not be the case, it does provide the potential population increase for the site and provides a basis for the officer per capita ratio. As such, a Project-related population growth of 430 persons would require 0.75 sworn officers and 0.25 non-sworn employees to serve the Project based on the FBI ratios above. This small increase of police personnel would not result in the need for additional police facilities. Therefore, while the Project would require police services, it would not result in the need for new facilities, as services can adequately be provided out of existing facilities. The OPD will review the Project proposal as a standard part of Project development and provide recommendations that would ensure adequate access and community surveillance. Therefore, this impact is **less than significant**.

4.15.2.3 Schools

As discussed previously, the Proposed Project development would consist of the future development of 172 single-family homes. As stated previously, the Project would increase City population by approximately 430 persons. Table #.# shows the increase of school-age persons resulting from the Project.

Table 4.15-1. Increase in School-Age Persons Resulting from Project		
Age	**Number Residents**	**Percent Increase**
5-9	31	7.1
10-14	24	5.6
15-19	26	6.0
Total:	81	

Source: 2019 American Community Survey (U.S. Census 2019)

Senate Bill 50 (SB 50), known as the Leroy F. Greene School Facilities Act of 1998 allows schools to require the payment of impact fees for the future construction of school facilities of residential development projects. Both the TUSD and OUHSD, and in accordance with SB 50, developments such as that proposed by the Project, would be subject to pay school impact fees as a condition of approval. Such fees go toward ensuring adequate school and related facilities would be available. Thus, payment of impact fee as compliance and with SB 50, the Project would not directly result in the need for the construction or expansion of schools. This impact would be less than significant.

4.15.2.4 Parks

There are approximately 430 acres of parklands and recreational facilities within the Oroville City limits. 2030 General Plan Open Space, Natural Resources, and Conservation Element Policy P3.1 requires new development to provide adequate parkland at a ratio of 5 acres per 1,000 residents in accordance with the Quimby Act (California Code 66477). Golf course development shall not be counted toward park acreage requirements. Oroville Municipal Code Section 16.16.185 requires, as conditions of approval of a final map or parcel map, the dedication of land, the payment of in-lieu fees, or both for the establishment of parkland.

Based on the ratio of 5 acres per 1,000 residents, the Project would require approximately 2.15 acres of parkland[6]. The Project Proposes two areas of parkland/open space within the subdivision: Lot *A* in the northeastern corner of the Project Site; and a greenway along the central street running north to south (Street *A* in the Project Site Plan). The Lot *A*, which is to remain as open space to protect the wetland feature, is 0.94 acre in size, and the greenway along Street *A* totals approximately 1.1 acres for a combined Proposed Project total parkland/open space of 2.0 acres. The Project would additionally be subject to Section 16.16.185 of the City's Municipal Code that requires the dedication of land, or the payment of in-lieu park fees, or both in order to be approved by the City Council. Therefore, Project impacts relating to parks would be less than significant.

[6] Based on a projected number of residents for the Project of 430 as discussed in *Section 4.14. Population and Housing*, Parkland = 5 ac/1000 population. 430 population/1000 population = 43%, 5 ac / 43% = 2.15 acres. Open space is considered to be parkland as identified in the General Plan.

4.15.2.5 Other Public Facilities

Other local public facilities located within the Project Area include the Oroville City Hall, the Oroville Branch of the Butte County Library, and the Oroville Municipal Airport, Superior Court of California, County of Butte, Butte County Jail, and a variety of Butte County offices Each of these public facilities are funded through local, state, and federal fees and taxes. For example, projects would be subject to the City's Development Impact Fees (DIF). There are DIFs for general government, fire, law enforcement, and parks. These fees are required by state law through the Mitigation Fee Act to not be used for maintenance or operating costs but only for expansion of existing facilities or establishment new facilities. Payment of the DIF would offset the costs of other public facility demands associated with the Project and would go toward funding public facility projects. The Project itself would not require new or expanded public facilities. Therefore, the Proposed Project would not directly result in the construction or expansion of other public facilities, and this impact would be **less than significant**.

4.15.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.16 Recreation

4.16.1 Environmental Setting

Recreational opportunities for both youth and adults are varied in the City of Oroville. A well-rounded variety of programs and activities are available to residents at city, school, and private recreational facilities. The Department of Parks and Trees and FRRPD administer and implement programs to maintain and beautify the City's parklands and recreational facilities. The District FRRPD also offers leisure service programs such as recreational camps, fitness programs, gymnastics, field and track programs, nature festivals, basketball, softball, and many other programs. As stated previously, there are approximately 430 acres of parklands and recreational facilities within the Oroville City limits. This includes museums such as the Pioneer Museum, Bolt's Antique Tool Museum, and the Chinese Temple and Museum, and a nature center. Additionally, Lake Oroville State Recreation Area, the Thermalito Forebay and Afterbay, and the Feather River offer many recreational opportunities to city residents.

4.16.2 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☒	☐

Less than significant impact.

The Proposed Project is anticipated to house an additional 430 residents within the City limits. The addition of 430 residents to the City would increase the use of parks and recreational facilities to some extent. Whether this use would result in a substantial physical deterioration of the facility would occur or be accelerated cannot be fully determined as the amount of park/recreational activity use from the Project's residents would be purely speculative. However, the 430 new residents represent a growth of 2.8 percent over the existing City population of 17,863. A 2.8 percent use of the existing parkland would not be considered substantial and would not result in a substantial physical deterioration or accelerated deterioration of a park or recreation facility. Additionally, the Project would also be subject to Conservation Element Policy P3.1 requiring the dedication of land, the payment of in-lieu fees, or both. Therefore, Project impacts relating to parks and recreational facilities would be **less than significant**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

No impact.

The Project does not include any recreational facilities onsite. However, the Project would be subjected to Chapter 3.20 Park Improvement Program of the City Municipal Code, which imposes park improvement program fees to contribute toward current and future park and recreational facilities (City of Oroville 2022a). Therefore, Project impacts relating to the inclusion, construction, or expansion of recreational facilities would be **less than significant**.

4.16.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.17 Transportation

4.17.1 Environmental Setting

4.17.2 Existing Street and Highway System

Access to the Proposed Project will be provided by Feather Avenue and 20th Street. Feather Avenue terminates at the eastern boundary of the Project Site where it connects to 20th Street. Regional access is provided by SR 70 and SR 163 (Oro Dam Boulevard), which links the site with the other communities to the north and south of the City of Oroville.

4.17.3 Alternative Transportation Modes

4.17.3.1 Sidewalks

There are concrete and asphalt sidewalks at various locations along most City of Oroville streets, but they become less prevalent in sparsely developed areas such as the Project Site. There are sidewalks on both sides of Feather Avenue and on the eastern side of 20th Street adjacent to the Project Site. Currently, there are no sidewalks on the Project Site.

4.17.3.2 Bicycle Facilities

The City Of Oroville Bicycle Transportation Plan was adopted by the City on August 3, 2010. This Plan identifies numerous existing and proposed bike trails and on-street lanes throughout the City. There are currently no bike lanes on the streets surrounding the Project Site. However, 20th Street from Oro Dam Boulevard to Nelson Street is identified as a *second priority bikeway*. According to the Bicycle Transportation Plan, paths listed as first priority are considered necessary to facilitate bicycle transportation in the City limits. Second-priority bikeways will be added to create connectivity in the regional area. All proposed bikeways are Class I or Class II, unless noted otherwise (City of Oroville 2010).

4.17.3.3 Public Transit

Public transportation in Oroville is provided through the area's public bus service, commercial bus services, shuttle service, taxi service and park-and-ride facilities. The BCAG operates the B-Line of the Butte Regional Transit system, which serves the residents of Oroville and provides intercity/regional and local fixed-route services. Oroville's B-Line service includes four local fixed transit routes within Oroville and three intercity/regional routes that provide commuter route service to Biggs, Chico, and Paradise. Commercial bus service is provided by Greyhound. Greyhound provides a limited-service bus stop in Oroville at the ARCO gas station located at 410 Oroville Dam Boulevard. Greyhound provides connections from Oroville to full-service stations located in the San Francisco Bay Area and the greater Sacramento area. Commercial bus service is also provided by Amtrak. Amtrak offers daily bus service between Medford (Oregon), Redding, Sacramento and Stockton. Commercial shuttle service is provided by the North Valley Shuttle with service to Sacramento International Airport. Taxi services are provided by Yellow Cab Company of Oroville and are available on demand or by reservation. Park-and-Ride lots provide a

place for commuters in single-occupant vehicles to transfer to public transit or carpools. Oroville has one park-and-ride facility, which is owned by Butte County, on Highway 70 at Grand Avenue (City of Oroville 2015a).

4.17.4 Transportation (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐

Potentially significant impact.

The Proposed Project is anticipated to increase roadway traffic and may affect the local roadways including bicycle and pedestrian facilities. A traffic/transportation study is being required by the City for the Project; however this study has not yet been completed. Therefore, this potential impact will be discussed further in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☒	☐	☐	☐

Potentially significant impact.

CEQA Guidelines Section 15064.3, subdivision (b) provides criteria for analyzing transportation impacts based on a vehicle miles traveled (VMT) methodology instead of the now superseded (as of January 1, 2019) Level Of Service methodology. Pertinent to the Proposed Project are those criteria identified in Section 15064.3(b)(1) Land Use Projects. According to this section:

> "Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor[7] should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact."

[7] *High-quality transit corridor* means an existing corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. For the purposes of this Appendix, an *existing stop along a high-quality transit corridor* may include a planned and funded stop that is included in an adopted regional transportation improvement program.

A traffic/transportation study is being required by the City for the Project, which will also include a VMT analysis; however this study has not yet been completed. Therefore, this potential impact will be discussed further in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐

Potentially significant impact.

Modifications to roadways may be required to allow for access to the Site. Possible modifications to the local roadways may result in a **potentially significant impact**. As such, how the Proposed Project will affect these roadways will be discussed further in the EIR.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☐	☒	☐

Less than significant impact.

Access to the Project Site will be provided via direct connection to Feather Avenue and 20th Street through multiple onsite streets. All onsite streets and intersections will be required to be designed to meet City roadway standards. These streets and intersections would provide emergency access redundancy. A **less than significant impact** would occur.

4.17.5 Mitigation Measures

To be determined as a part of the EIR analysis.

4.18 Tribal Cultural Resources

4.18.1 Environmental Setting

The Project area falls within the ethnographic tribal territory of the Maidu, located in the lower foothills of the western slopes of the Sierra Nevada and in the periphery of the Northern Sacramento Valley. The Maidu have been differentiated into three major related divisions on the basis of cultural and linguistic differences (Dixon 1905; Kroeber 1925; Powers 1877): the Northeastern (Mountain Maidu), Northwestern (Konkow), and Southern (Nisenan). Because many believe the Mountain Maidu and Konkow to be so closely related, ethnographers tended to group them as one.

The Konkow-occupied territory is located immediately adjacent and to the southwest of the Mountain Maidu, along the Feather and Sacramento rivers, to their southern boundary at the Sutter Buttes. The Konkow were primarily located in the lower elevations of the Sierra Nevada and along the valley floor (Riddell 1978). Tribal territories adjacent to the Maidu and Konkow included the Atsugewi and Yana to the north, the Nomlaki and Patwin to the west, the Paiute and Washoe to the east, and the Nisenan to the south.

4.18.2 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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 geographically 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:				
i) 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	☒	☐	☐	☐
ii) 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.	☒	☐	☐	☐

Potentially significant impact.

A cultural resources survey, and City/tribal consultation pursuant to AB 52, has not been completed for the Project Site. As such, there is a potential for the Project to impact Tribal cultural resources on the Project Site. The extent of this potential impact has not been determined at this time. As such, this will be discussed in the EIR.

4.18.3 Mitigation Measures

To be determined as a part of the EIR analysis.

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

4.19.1.1 Water Service

As stated in Section 4.10.2 above, Project Site would receive water from the TWSD. TWSD serves approximately 9,500 individuals and anticipates this number to increase to 15,272 by the year 2025, based on growth rates given by the BCAG. TWSD has rights to approximately 8,200 AF) of surface water from Concow Lake/Wilnore Reservoir with a 3.0 mgd backup supply coming from four wells, as needed. (City of Oroville 2015a). The Project includes the future development of 172 single-family homes. According to the RWQCB, TWSD served 10,911 persons in 2021. While water use varies from a low of 78.43 gpcd in January to a high of 267.81 gpcd in July, the average water demand in 2021 was 160.62 gpcd (RWQCB 2022).

In order to provide water for future residents and irrigation management, the Project proposes connecting to the existing water main within 20th Street for both domestic and fire water supply. Water utility connections and onsite infrastructure would be subject to the City of Oroville Municipal Code, Chapter 13.04, Water, as well as compliance with TWSD design standards.

4.19.1.2 Wastewater

The City of Oroville and the Planning Area are served by three wastewater collection agencies: the City of Oroville, TWSD, and the Lake Oroville Area Public Utility District. These three agencies have a Joint Powers Agreement with the Sewerage Commission-Oroville Region (SC-OR) to handle wastewater treatment and disposal (City of Oroville 2015a).

The Project Site is within the TWSD service area for wastewater collection. Developers are required to either upgrade existing infrastructure or install new infrastructure for new development within TWSD's Sphere of Influence (SOI). TWSD provides wastewater collection services to approximately 1,985 customers or approximately 2,650 Equivalent Dwelling Units. Wastewater dry weather flows average 0.41 mgd presently and are expected to grow to 0.67 mgd within the next 20 years. Monthly instantaneous Peak Wet Weather Flows (PWWF) are 4 mgd. TWSD's collection system consists of 40 miles of sanitary sewer line with approximately 560 utility access holes and is generally in adequate condition. TWSD's collection system discharges into the SC-OR west interceptor pipe for treatment at their plant. On average, dry weather flows are at approximately 30 percent capacity and wet weather flows are at approximately 70 to 80 percent capacity. During extreme wet weather events, the system experiences the highest level of inflow and infiltration impact at the east trunk line. The east trunk line has almost overflowed during rainy days during major storm events. (City of Oroville 2015a).

SC-OR is responsible for the operation and maintenance of the wastewater treatment plant and three interceptor lines (or trunk lines) that collect wastewater discharges from the three member entities. Additionally, SC-OR is responsible for meeting the pollution discharge and water quality standard defined by the federal NPDES permit and State Regional Water Quality Waste Discharge Requirements.

The Discharger provides sewerage service for the City of Oroville, Lake Oroville Area Public Utility District, and TWSD, serving a population of approximately 40,855. The permitted average dry weather flow capacity of the SC-OR Wastewater Treatment Facility (WTF) is 6.5 mgd (RWQCB 2021). Based on the SC-OR Monthly Flows Report, the average daily wastewater flow at the treatment facility was 2.77 mgd in 2021. TWSD accounted for approximately, 0.507 mgd of this amount (SC-OR 2022). The highest daily wastewater flows during 2021 was 4.417 mgd, in December, leaving a surplus capacity of approximately 2.08 mgd under average dry weather flow (SC-OR 2021).

To plan for future growth, SC-OR recently completed a master plan, which provides for growth in Oroville over the next 20+ years. The plan calls for a $45,000,000 modification to be completed as growth occurs and as new environmental regulations are imposed. New users will pay for plant expansions via connection fees, while plant modifications required by new regulations will be paid for by existing ratepayers using State Revolving Fund loans, or bonds (SC-OR 2022).

The Proposed Project Site is currently vacant with no wastewater service infrastructure. The Project would construct internal sewage infrastructure to accommodate the increase in sewage associated with the residential units proposed. Each building onsite would consist of an underground sewer lateral, all connecting to a site-specific sewer main, prior to connecting to the existing sanitary sewer main within 20th Street, immediately east of the Project Site.

4.19.1.3 Storm Drainage

The City of Oroville currently maintains approximately 60 miles of storm water drainage pipes and trenches, thousands of utility access holes and drop inlets, plus six regional detention basins. Storm water drainage infrastructure is essential to the safety of Oroville's citizens and their property. The City's storm water infrastructure is designed and engineered to protect residents in the occurrence of an extreme hydrologic event or more commonly known as a 100-year storm event (City of Oroville 2022b).

4.19.1.4 Solid Waste

The City of Oroville is a member of the Butte County Regional Waste Management Agency. The California Department of Resources Recycling and Recovery (CalRecycle) provides solid waste disposal and recycling information for jurisdictions in the state, including the Butte County Regional Waste Management Agency.

As shown in Table 4.19-1, prior to the Camp Fire in November 2018, the majority of the Agency's solid waste was disposed of at the Neal Road Recycling and Waste Facility. As a result of the cleanup efforts from the Camp Fire devastation, solid waste reported by the Butte County Regional Waste Management Agency increased to over 700,000 tons in 2019. While the cleanup effort has been concluded, data for years 2020 and 2021 solid waste has not yet been made available to the public from CalRecycle. Table 4.19-2 shows the City of Oroville's average daily solid waste disposal by resident and employee from 2016 to 2020. As shown, while the amount of solid waste disposal has fluctuated somewhat between 2016 and 2020, it has been steadily decreasing since 2018, mainly due to recycling efforts by the City.

Table 4.19-1. Solid Waste Disposal Facilities Used by the Butte County Regional Waste Management Agency

Destination Facility	Solid Waste Disposal (tons/year)			Landfill Information		
	2017	2018	2019	Remaining Capacity (cubic yards)	Remaining Capacity Date	Cease Operation Date
Altamont Landfill and Resource Recovery	21	278	3	65,400,000	12/31/2014	1/1/2025
Anderson Landfill, Inc	-	5,769	438,291	51,512,201	9/30/2012	1/1/2045
Avenal Regional Landfill	-	-	10			
Glenn County Landfill				866,521	2/28/2015	7/1/2016
L & D Landfill	1	44	3	3,115,900	7/2/2020	12/31/2030
Neal Road Recycling and Waste Facility	88,130	77,582	99,138	20,847,970	7/1/2009	1/1/2033
North County Landfill & Recycling	1	-	-	35,400,000	12/31/2009	12/31/2048
Potrero Hills Landfill	173	59	96	13,872,000	1/1/2006	2/14/2048
Recology Hay Road	7	11	54	30,433,000	7/28/2010	1/1/2077
Recology Ostrom Road LF Inc.	9,085	5,224	163,959	39,223,000	6/1/2007	12/31/2066
Sacramento County Landfill (Kiefer)	204	78	28	112,900,000	9/12/2005	1/1/2064
West Central Landfill	-	1	3	6,589,044	12/1/2013	3/1/2032
Western Regional Landfill	12	-	3	29,093,819	6/30/2005	1/1/2058
Yolo County Central Landfill	2	14	6	33,800,218	6/1/2021	2/21/2124
Yearly Total	97,635	89,061	701,594			

Source: CalRecycle 2022a, and 2022b

Table 4.19-2. Solid Waste Disposal Per Resident and Employee – City of Oroville (lbs/day)

	2016	2017	2018	2019	2020
Average per Resident	6.6	6.8	7.3	5.8	4.1
Average per Employee	9.6	9.8	10.2	9.3	5.7

Source: CalRecycle 2022c

4.19.1.5 Electricity/Natural Gas Services

Refer to *Section 4.6. Energy*.

4.19.2 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☒	☐	☐	☐

Potentially significant impact.

4.19.2.1 Water

The Project would increase the demand for water in the City. However, all new development would be required to comply with the General Plan Public Facilities and Services Element policies. Policies related to water and applicable to the proposed residential development are as follows:

P6.4 *Require the installation of water lines concurrently with construction of new roadways to maximize efficiency and minimize disturbance due to construction activity.*

P6.6 *Ensure that all proposed developments can be adequately served by available water supplies.*

P6.7 *Ensure that all new development is consistent with and meets the requirements of Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) prior to approval of City Council.*[8]

P6.8 *Condition new development on the availability of sufficient water supply, storage, and pressure requirements for the City.*

P6.10 *Encourage the use of drought-resistant landscaping and the use of reclaimed wastewater for agriculture and landscape irrigation supply water. Ensure that all reclaimed wastewater complies with State wastewater treatment and reclamation regulations and standards.*

P6.11 *Support all efforts to encourage water conservation by Oroville residents and businesses, and public agencies, including working with water providers, to*

[8] SB 610 requires a water supply assessment for residential development of 500 units or more. SB 221 prohibits a land use agency (City of Oroville in this case) from approving a subdivision map of more than 500 units without a letter of verification that sufficient and reliable water is available. Neither of these bills apply to the Proposed Project.

implement water conservation programs and incentives that facilitate conservation efforts.

Development of the Project would increase the demand for water in the City and from TWSD due to human consumption and irrigation required for landscaping. The Project includes the future development of 172 single-family homes. According to the RWQCB, TWSD average water demand per person in 2021 was 160.62 gpcd (RWQCB 2022). As discussed in *Section 4.10 Hydrology*, the average household size in the City of Oroville in 2021 was 2.5 persons per household (DOF 2021). This results in an average water demand of 402 gallons per day per housing unit or 69,066 gpd for the Project as a whole. The 69,066 gpd for the Project calculates to approximately 25.2 million gallons per year or 77.34 AFY of water use. According to the RWQCB (2022), TWSD had a total demand of 2,295.75 AF of water in 2021. The addition of 77.34 AF from the Proposed Project would not result in an exceedance of the TWSD surface water supply of 8,200 AF. As such, there would be sufficient water supply available to adequately offset future water demands projected for the Proposed Project.

Therefore, the additional demand of 69,066 gpd would not result in a need for new or expanded water treatment facilities. All onsite water infrastructure would be the responsibility of the Proposed Project. Additionally, General Plan Policies P6.6 and P6.8 require the availability of water for approval of a project and P6.10 and P6.11 encourage the use of water conservation reducing the amount of water demand for a project. As such, the Proposed Project would not result in the relocation or construction of new or expanded water facilities. The Project would have a **less than significant impact** in this area.

4.19.2.2 Wastewater

The TWSD provides sewer collection services to Project Site which is then treated at the SC-OR Wastewater Treatment Facility (WTF). The permitted average dry weather flow capacity of the SC-OR WTF is 6.5 mgd (RWQCB 2021). Based on the SC-OR Monthly Flows Report, the average daily wastewater flow at the treatment facility was 2.77 mgd in 2021. TWSD accounted for approximately, 0.507 mgd of this amount (SC-OR 2022). The highest daily wastewater flows during 2021 was 4.417 mgd, in December, leaving a surplus capacity of approximately 2.08 mgd under average dry weather flow (SC-OR 2021). The Proposed Project is anticipated to increase wastewater flows and may affect the local collection and treatment system facilities. A study of available capacity was conducted by the SC-OR for the Project and determined the treatment facility as it stands today would not provide sufficient service for the full development of the Project.

The SC-OR would require an extension and expansion of its collection and treatment system. To provide for the orderly planning and construction of additional collection system capacity, landowners within the Collector's boundaries seeking to develop are required to conduct or provide funding for the Collector to conduct a site-specific study of the requirement for expansion or extension of Collector's system needed to serve proposed development. If the Capacity Impact Study determines that facility capacity must be increased to accommodate the development, and the developer decides to proceed with the Project, the developer will be required to negotiate a Mitigation Agreement with SC-OR that will describe tasks for the developer to complete to receive sewer service to the Project.

A site-specific Capacity Impact Study will be required and impacts will be discussed further in the EIR.

All new development would be required to comply with the General Plan Public Facilities and Services Element policies. Policies related to water and applicable to the proposed residential development are as follows:

P6.10 *Encourage the use of drought-resistant landscaping and the use of reclaimed wastewater for agriculture and landscape irrigation supply water. Ensure that all reclaimed wastewater complies with State wastewater treatment and reclamation regulations and standards.*

P7.3 *Require all development that is in areas that are currently served or could be feasibly served by sewers to be connected to a sewer conveying wastewater to the Sewerage Commission – Oroville Region's (SC-OR) treatment plant.*

P7.4 *The approval of new urban development shall be conditioned on the availability of adequate long-term capacity for wastewater conveyance, treatment and disposal sufficient to service the proposed development. The agencies that provide services to new development will be primarily responsible for making determinations regarding adequate availability.*

P7.5 *If downstream lines are determined by the City to be inadequate, the developer shall provide facilities to convey the additional sewage expected to be generated by the development. New development shall not be permitted until adequate facilities are available to convey the additional sewage associated with the development. The developer must demonstrate that adequate facilities will be available at the time of Final Map approval.*

P7.10 *Ensure that all new and repaired sewer collection and transmission systems are designed and constructed in such a manner as to minimize potential inflow and infiltration.*

P7.11 *Installation of sewer lines should occur concurrently with construction of new roadways to maximize efficiency and minimize disturbance from construction activity.*

The average wastewater per person per day for a typical home is estimated to be between 45 and 90 gpd with an average of 70 gpd based on U.S. standards for water usage and sewage strength (Pollution Control Systems, Inc. 2022). Using this information and the projected population of 430 residents for the Project, the average wastewater flow would be between 19,350 and 38,700 gpd with an average of 30,100 gpd (0.0301 mgd) from the Project. While this is an estimate, it does provide an indication of how much wastewater would be produced by the Project and if this wastewater can be accommodated by the SC-OR WTF. As discussed previously, the SC-OR WTF has a surplus capacity of approximately 2.08 mgd under

average dry weather flow. As such, the Project's wastewater can be accommodated within the existing WTF-permitted capacity.

The Proposed Project Site is currently vacant with no wastewater service infrastructure. The Project would construct internal wastewater infrastructure to accommodate the increase in sewage associated with the residential units. All future uses would connect to onsite underground sewer infrastructure, prior to connecting to the existing TWSD wastewater collection system within 20th Street, immediately east of the Project Site.

Consistent with Policies P7.3, P7.4 and P7.5, the Project is required to contribute to the implementation of system improvements to ensure wastewater collection and treatment facilities have sufficient capacity to serve the Project. Because it is unknown if SC-OR and TWSD have adequate capacity to serve the Project at this time, the Project may have an impact to wastewater. As such, the Proposed Project would have a **potentially significant impact** in this area and will be further discussed in the EIR.

4.19.2.3 Storm Drainage

There are no existing storm drains or storm drainage system on the Project Site. The Project Site exhibits a gradual slope ranging in elevation of approximately 226 feet at the southwest corner to 192 feet at the northeast corner. Curbs and gutters will be located within each street to direct storm water via gravity-fed system to seven underground storm water leach trenches beneath the curb, gutter, and sidewalk to detain and percolate runoff. Lot A, located at the northeastern most corner, would contain a 41,332-square-foot storm drain basin to accommodate excess storm wastewater during hydrologic events. The Project's storm drain system is designed to control all site storm waters and not allow an increase of offsite storm water flow. As such, the Project would have a **less than significant impact** to storm drainage facilities.

4.19.2.4 Electric Power

Electricity is provided to the Project Site by PG&E. The electricity provider's ability to provide its services concurrently for each project is evaluated during the development review process. The utility company is bound by contract to update its systems to meet any additional demand. During operation of Project-induced residential development, the ability of the electricity provider to power the site would be evaluated. As explained under *Section 4.6 Energy*, a significant energy use impact would not result. As such, no new electric facilities will be required to provide electricity to the Project. Therefore, the Project would have a **less than significant impact** in this area.

4.19.2.5 Natural Gas

PG&E is the service provider of natural gas for the City and Project Site. The Project proposes a designated utility easement area in the southeast corner of the Site, where connections to the existing utility lines traversing the Project Site within SR 12 would occur. Utility connections will be in accordance with state, local, and PG&E standards and would not result in the need for the construction or expansion of utility facilities. Therefore, impacts would be **less than significant**.

4.19.2.6 Telecommunications

Telecommunication will be through existing company and personal cell phones. No new telecommunication facilities will be required to serve the Project.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Less than significant impact.

Refer to Item a) above. The Project will have a **less than significant impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	☒	☐	☐	☐

Potentially significant impact.

Refer to Item a) above. The Project will have a **potentially significant impact** in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) 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 impact.

According to CalRecycle (2022c), the estimated solid waste generation rates for Oroville residents is 4.1 pounds per person per day. Based on this information and an anticipated 430 additional residents to the

area at full operation of the Project, the Project would produce approximately1763 lbs/day or 321.7 tons annually[9].

According to CalRecycle (2022c), the City of Oroville produced 13,986.97 tons of solid waste in 2020. The Proposed Project's annual solid waste of 321.7 tons represents a 2.3 percent increase in solid waste from the City, and a 0.42-percent increase countywide (based on 2018 solid waste amounts shown in Table 4.19-1[10]). According to the *Environmental Protection Agency Volume-to-Weight Conversion Factors*, compacted municipal solid waste (MSW) at a large landfill facility, with best management and cover practices, has an estimated 1 ton per cubic yard conversion factor. Therefore, the Proposed Project's annual waste of 321.7 tons would convert to roughly 321.7 cubic yards of MSW. The Neal Road Recycling and Waste Facility in Butte County is the major disposal site for Butte County solid wastes. This land fil has an anticipated cease operations date of January 1, 2033. Assuming the Proposed Project would be fully occupied by 2024, the Project would contribute 2,895.3 tons of solid waste to the landfill for the remaining 9 years of operation of the Neal Road landfill. This represents approximately 0.02 percent of the total remaining Neal Road Recycling and Waste Facility maximum capacity.

The Proposed Project is subject to 2030 General Plan Public facilities and Services Element policies, such as Policy P9.1, which required mandatory trash pickup and Policy P9.3, which promotes the reduction of the use of non-biodegradable and non-recyclable materials by encouraging Oroville residents, businesses, and industries to seek waste reduction at the source. Additionally, the Project is subject to Oroville Municipal Code Chapter 15.84 Recycling and Diversion of Construction and Demolition (C&D) Waste which require new developments to submit a waste management plan and submit for processing a minimum of 100 percent of the construction and demolition debris resulting from the Project. With compliance with the aforementioned 2030 General Plan policies and Chapter 15.84, the Project would not substantially increase solid waste generated and disposed of by the City or County. As such, this is a **less than significant impact**.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less than significant impact.

The Proposed Project is required to comply with all local, state, and federal statutes regarding solid waste, including Municipal Code Chapter 15.84 Recycling and Diversion of C&D Waste. No operations-generated

[9] 4.1 lbs per day x 430 persons x 365 days per year / 2,000 lbs per ton = 3,21.7 tons per year.

[10] 2018 total solid waste tonnages were used instead of 2019 as 2019 solid waste disposal amounts are an anomaly because of the Camp Fire.

acutely toxic or otherwise hazardous materials are expected to be generated by the proposed residential Project. This impact is considered **less than significant**.

4.19.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.20 Wildfire

4.20.1 Environmental Setting

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (e.g., winds, temperatures, humidity levels and fuel moisture contents), and topography (e.g., degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area-to-mass ratio and require less heat to reach the ignition point, while fuels such as trees have a lower surface area-to-mass ratio and require more heat to reach the ignition point.

The Project Site has an elevation range from 190 to 230 feet AMSL with small hills throughout the site. The site is vacant undeveloped grassland with no trees. FHSZ mapping is performed by CAL FIRE and is based on factors such as fuels, terrain, and weather. The Project Site is not in an area designated by CAL FIRE (2022) as a FHSZ. Furthermore, no Very High FHSZs are located nearby. Finally, the location of the Project Site makes it readily accessible by emergency personnel and vehicles in the event of a wildland fire.

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by CAL FIRE as a FHSZ. Furthermore, no Very High FHSZs are located nearby. Also, the Project Site is not located in a state responsibility area (SRA, CAL FIRE 2008). The Project would have **no impact** in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by CAL FIRE as a FHSZ. Furthermore, no Very High FHSZs are located nearby (CAL FIRE 2022). Also, the Project Site is not located in a SRA (CAL FIRE 2022). The Project would have **no impact** in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by CAL FIRE as a FHSZ. Furthermore, no Very High FHSZs are located nearby. Also, the Project Site is not located in a SRA (CAL FIRE 2022). The Project would have **no impact** in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by CAL FIRE as a FHSZ. Furthermore, no Very High FHSZs are located nearby. Also, the Project Site is not located in a SRA (CAL FIRE 2022). The Project would have **no impact** in this area.

4.20.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐

Potentially significant impact.

As discussed in *Sections 4.4 Biological Resources* and *4.5 Cultural Resources*, the Proposed Project may have potential impacts to these resources. These areas will be discussed in the EIR.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐

Potentially than significant.

Implementation of the Proposed Project, in conjunction with other approved or pending projects in the region, may have the potential to result in cumulatively considerable impacts to the physical environment. Cumulative impacts will be discussed in the EIR.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Potentially significant impact.

Direct and indirect impacts to human beings may occur as a result of implementation of the Proposed Project. As such, these will be discussed in the EIR.

5.0 LIST OF PREPARERS

5.1 The City of Oroville

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6.0 BIBLIOGRAPHY

Butte County. 2022a. Interactive Map Viewers – Butte County Data Search. http://gis.buttecounty.net/Public/index.html?viewer=dssearch.

_____. 2022b. Office Of Emergency Management. http://www.buttecounty.net/OEM.

_____. 2022c. Water & Resource Conservation. https://www.buttecounty.net/waterresourceconservation/Sustainable-Groundwater-Management-Act

_____. 2021. Groundwater Status Report 2020 Water Year. http://www.buttecounty.net/wrcdocs/Reports/GWStatusReports/2020/2020GWSR_COVER_FINAL.pdf.

_____. 2017. Butte County Airport Land Use Compatibility Plan. November 17, 2017. https://www.buttecounty.net/dds/Meetings/ALUC.

_____. 2004. Butte County Groundwater Management Plan. http://www.buttecounty.net/waterresourceconservation/groundwatermanagementplan.

California Air Resources Board (CARB). 2020. Maps of State and Federal Area Designations. https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations

California Department of Forestry and Fire Protection (CAL FIRE). 2022. FHSZ Viewer. https://egis.fire.ca.gov/FHSZ/

California Department of Justice (DOJ). 2022. Crime Data. https://openjustice.doj.ca.gov/data.

California Department of Resources Recycling and Recovery (CalRecycle). 2022a. SWIS Facility/Site Search. https://www2.calrecycle.ca.gov/SolidWaste/Site/Search.

_____. 2022b. Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility. https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility.

_____. 2022c. Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report. https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/DiversionDisposal

California Department of Transportation (Caltrans). 2022. Scenic Highway System Lists. January 2022. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

California Energy Commission (CEC). 2020. California Energy Consumption Data Management System. Website: Electricity and Natural Gas Consumption by County. http://www.ecdms.energy.ca.gov/.

California Geological Survey (CGS). 2020. Map Service of the Alquist-Priolo Fault Zones defined under the Alquist-Priolo Earthquake Fault Zoning Act. https://cadoc.maps.arcgis.com/home/item.html?id=ee92a5f9f4ee4ec5aa731d3245ed9f53.

_____. 2016. Earthquake Shaking Potential for California [map]. https://maps.conservation.ca.gov/geologichazards/#dataviewer.

_____. 2011. Regional Geologic Hazards and Mapping Program - Table 4 Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010. http://www.trpa.org/documents/rseis/3.7%20Geo%20soils/3.7_CGS%202010_Cities%20and%20Counties.pdf.

_____. 2002. California Geomorphic Provinces Note 36. http://www.americangeosciences.org/sites/default/files/earthcomm-edg-ca-c1a6q2r1.doc.

California Natural Resources Agency (CNRA). 2022. Hydraulic Regions. https://gis.data.cnra.ca.gov/datasets/2a572a181e094020bdaeb5203162de15_0/explore?location=39.952458%2C-120.164166%2C7.51.

City of Oroville. 2022a. City of Oroville Municipal Code. https://www.cityoforoville.org/services/community-development-department/planning-division/zoning-information.

_____. 2022b. City of Oroville Storm Water Infrastructure. https://www.cityoforoville.org/services/public-works-department/engineering-division/storm-water

_____. 2021. 2020 Municipal Services Review. Provided at the City Council Meeting of April 6, 2021. https://www.cityoforoville.org/government/agendas-minutes/city-council-agendas-and-minutes.

_____. 2015a. Oroville 2030 General Plan. Adopted March 31, 2015. https://www.cityoforoville.org/services/planning-development-services-department/planning-division/planning-documents.

_____. 2015b. City of Oroville Design Guidelines. March 31, 2015. https://www.cityoforoville.org/services/planning-development-services-department/planning-division/planning-documents.

_____. 2015c. Oroville Sustainability Updates Draft Supplemental EIR for the City of Oroville. January 30, 2015. https://www.cityoforoville.org/services/planning-development-services-department/planning-division/planning-documents.

_____. 2010. City Of Oroville Bicycle Transportation Plan. Adopted August 3, 2010. https://www.cityoforoville.org/home/showpublisheddocument/9677/635955765376170000.

Department of Conservation (DOC). 2022a. Division of Land Resource Protection . Important Farmland Finder. Available at: http://maps.conservation.ca.gov/ciff/ciff.html.

_____. 2022b. Data Viewer. https://maps.conservation.ca.gov/geologichazards/#dataviewer

Department of Finance (DOF). 2022. E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark.

https://dof.ca.gov/forecasting/Demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2022/

Department of Mine Reclamation (DMR). 2022. Mines Online. February 17, 2022. http://maps.conservation.ca.gov/mol/index.html.

Division of Safety of Dams (DSOD). 2022a. Division of Safety of Dams. https://water.ca.gov/Programs/All-Programs/Division-of-Safety-of-Dams.

_____. 2022b. FAQs. https://water.ca.gov/Programs/All-Programs/Division-of-Safety-of-Dams/FAQs.

_____. 2021. Dams Within Jurisdiction of the State Of California Listed Alphabetically by County - September 2021. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Dams-Within-Jurisdiction-of-the-State-of-California-Listed-Alphabetically-by-County-September-2021.pdf.

Department of Toxic Substances Control (DTSC). 2022. Hazardous Waste and Substance Site List. https://www.envirostor.dtsc.ca.gov/public/.

Department of Water Resources (DWR). 2014. California Water Plan 2013: Sacramento River Hydrologic Region Report. October 30, 2014. https://cawaterlibrary.net/wp-content/uploads/2017/05/CWP-Update-2013-Sacramento-River-Hydrologic-Region.pdf

_____. 2018. 5-021.69 Sacramento Valley - Wyandotte Creek Basin Boundaries Description. https://og-production-open-data-cnra-892364687672.s3.amazonaws.com/resources/4b172583-89dd-4a36-beb7-9e0f01bfbaa2/5-021.69_sacramento-valley_wyandotte-creek_basinboundarydescription.pdf?Signature=IkrGjRSUZUpVXaL%2F6V%2FdjOT3iPg%3D&Expires=1643921730&AWSAccessKeyId=AKIAJJIENTAPKHZMIPXQ

_____. 2022a. Water Management Planning Tool. https://gis.water.ca.gov/app/boundaries/.

_____. 2022b. Oroville Spillways Recovery. https://water.ca.gov/Programs/State-Water-Project/SWP-Facilities/Oroville/Oroville-Spillways.

_____. 2022c. DSOD Inspection Reports. https://water.ca.gov/Programs/State-Water-Project/SWP-Facilities/Oroville/Oroville-Spillways/DSOD-Inspection-Reports.

Dixon, R. B. 1905. The Northern Maidu. Bulletin of the Museum of Natural History 17(3):119-346. New York.

Federal Bureau of Investigation (FBI). 2021. Crime Data Explorer. https://crime-data-explorer.app.cloud.gov/pages/explorer/crime/quarterly.

Federal Emergency Management Agency (FEMA). 2011. FIRM Flood Insurance Rate Map. Map No. 06007C0788F. https://msc.fema.gov/portal/search?AddressQuery=oroville%2C%20ca#searchresultsanchor

Kroeber, A. L. 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington.

Kyle, Douglas. 2002. *Historic Spots in California*. Stanford University Press. Stanford, California.

National Oceanic and Atmospheric Administration. 2022. National Climatic Data Center 1981-2010 Climate Normals for Oroville Municipal Airport, CA U.S.. https://www.ncdc.noaa.gov/cdo-web/datatools/normals. Accessed March 2022.

Natural Resources Conservation Service (NRCS). 2022. Web Soil Survey. Custom Soil Resource Report for Butte Area, California, Parts of Butte and Plumas Counties. http://websoilsurvey.nrcs.usda.gov/. Accessed January 2022.

Pollution Control Systems, Inc. 2022. Sewage Flow Rate Estimating Guide. https://www.pollutioncontrolsystem.com/Uploads/images/Pages/SEWAGE%20FLOW%20RATE%20ESTIMATING%20GUIDE%20Nov%202014_20170105.pdf

Powers, S. 1877. Tribes of California. Contributions to North American Ethnology 3. U.S. Geographical and Geological Survey of the Rocky Mountain Region. Washington.

Regional Water Quality Control Board. (RWQCB). 2022. Water Conservation and Production Reports. https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html.

_____2021. National Pollutant Discharge Elimination System (NPDES) Ca0079235 Order R5-2021-Xxxx Waste Discharge Requirements For The Sewerage Commission – Oroville Region, Wastewater Treatment Plant, Butte County. https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/2108/12_uncon_npdes/sc_or_wwtp_npdes.pdf

Riddell, F.A. 1978. Maidu and Konkow. *Handbook of North American Indians Vol. 8: California*. Pp. 370-386. Smithsonian, Washington.

Rincon Consultants, Inc. (Rincon). 2021. 20th Street Residential Development Jurisdictional Waters and Wetlands Delineation. March 2021.

Sacramento River Watershed Program. 2022. Lower feather River Watershed. https://sacriver.org/explore-watersheds/feather-river-subregion/lower-feather-river-watershed/.

Sewerage Commission – Oroville Region (SC-OR). 2022. SC-OR: Looking Ahead Plan for the Future. https://www.sc-or.org/sc-or-looking-ahead-plan-for-the-future.

_____. 2021. Monthly Flows Report, provided as a part of B Board of Commissioners meeting packets. https://www.sc-or.org/board-meetings.

State Water Resources Control Board (SWRCB). 2022. Geotracker. http://geotracker.waterboards.ca.gov.

University of California Museum of Paleontology (UCMP). 2022. UCMP Locality Search. Available online at: https://ucmpdb.berkeley.edu/loc.html.

U.S. Census. 2010. 2010 Census – Urban Cluster Reference Map: Oroville, CA. https://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/uc/uc65944_oroville_ca/DC10UC65944.pdf.

_____. 2019. American Community Survey. https://data.census.gov/cedsci/profile?g=1600000US0654386.

_____. 2020. U.S. Census Data. https://data.census.gov/cedsci/profile?g=1600000US0654386.

U.S. Environmental Protection Agency (USEPA). 2022. How's My Waterway?. https://mywaterway.epa.gov/community/180201590201/overview.

_____. 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.

U.S. Geological Survey (USGS). 2022a. Areas of Land Subsidence in California. Accessed February 2, 2022. https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html.

_____. 2022b. Mineral Resource Data System. February 17, 2022. https://mrdata.usgs.gov/mrds/map-graded.html#home.

Weatherspark. 2022. Average Weather in Oroville, California, United States. https://weatherspark.com/y/1190/Average-Weather-in-Oroville-California-United-States-Year-Round.

Wyandotte Creek Groundwater Sustainability Agency. 2021. Wyandotte Creek Subbasin Groundwater Sustainability Plan. https://www.wyandottecreekgsa.com/groundwater-sustainability-plan-gsp-for-adoption.

APPENDIX 1.0 A2

Agency and Public Comment Letters

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November 15, 2022

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Subject: FEATHER RIVER RANCH SUBDIVISION PROJECT - DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH# 2022110054

Dear Mr. Ervin:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of an Environmental Impact Report (EIR) from the City of Oroville (City) for the Feather River Ranch Subdivision (Project) in Butte County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants, and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project site is located west of 20th Street in Thermalito, California. The 44.97-acre Project site consists of one undeveloped parcel (Assessor's Parcel Number 030-230-098), containing annual grassland. The Project consists of the subdivision of a 44.97-acre site into 172 single-family lots. Current General Plan land use designation is Airport Business Park (ABP) and zoning district is Airport Business Park (ABP) with an Airport Influence Area Overlay (AIA-O). None of these designations allow the development of residential uses at the densities requested of 3.82 units/acre for the proposed Project. Therefore, a General Plan amendment and rezone will be required to approve the Project. The proposed Project includes a request to change the General Plan land use designation to Residential-Single Family and a request to rezone the property to the Single Family Residential (R-1) zoning district.

The Project description should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.

As required by § 15126.6 of the CEQA Guidelines, the EIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations presented below to assist the City in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming EIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the

region. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends the EIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following, *The Manual of California Vegetation*, second edition (Sawyer 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A nine United States Geologic Survey 7.5-minute quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* on the Department webpage www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data). Please review the webpage for information on how to access the database to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the Project. CDFW recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

   Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the Project site. Other sources for identification of species and habitats near or adjacent to the Project area should include, but may not be limited to, State and federal resource agency lists, California Wildlife Habitat Relationship System, California Native Plant Society Inventory, agency contacts, environmental documents for other projects in the vicinity, academics, and professional or scientific organizations.

3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code § § 3511, 4700, 5050, and

5515). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. The EIR should include the results of focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be directly, indirectly, on or within a reasonable distance of the Project activities. CDFW recommends the City rely on survey and monitoring protocols and guidelines available at: www.wildlife.ca.gov/Conservation/Survey-Protocols. Alternative survey protocols may be warranted; justification should be provided to substantiate why an alternative protocol is necessary. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought or deluge.

4. A thorough, recent (within the last two years), floristic-based assessment of special-status plant and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see www.wildlife.ca.gov/Conservation/Plants). This survey should also target plant species ranked as 1B, 2A, 2B, 3, or 4 by the California Native Plant Society.

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]). Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources.

The EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the EIR:

1. The EIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The EIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed, and it must permit the significant effects of the Project to be considered in the full environmental context.

2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to

natural areas, exotic and/or invasive species occurrences, and drainages. The EIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g., National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The EIR should discuss the Project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The EIR should include a list of present, past, and probable future projects, including but not limited to urban development and agricultural land conversion, producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

Mitigation Measures for Project Impacts to Biological Resources

The EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. CDFW also recommends the environmental documentation provide scientifically supported discussion regarding adequate avoidance, minimization, and/or mitigation measures to address the Project's significant impacts upon fish and wildlife and their habitat. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (Guidelines § § 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Several Fully Protected Species (Fish & G. Code § 3511) have the potential to occur within or adjacent to the Project area, including,

but not limited to: white-tailed kite (*Elanus leucurus*), California black rail (*Laterallus jamaicensis coturniculus*), and greater sandhill crane (*Grus canadensis tabida*). . Fully protected species may not be taken or possessed at any time. Project activities described in the EIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends the EIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the City include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce indirect impacts to fully protected species.

2. *Species of Special Concern*: Several Species of Special Concern (SSC) have the potential to occur within or adjacent to the Project area, including, but not limited to: western spadefoot (*Spea hammondii*), northern harrier (*Circus cyaneus*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*) grasshopper sparrow (*Ammodramus savannarum*), and lesser sandhill crane (*Grus canadensis canadensis*). Project activities described in the EIR should be designed to avoid any SSC that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the EIR fully analyze potential adverse impacts to SSC due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends protocol level surveys are conducted to determine the absence or presence of these species onsite. CDFW also recommends the City include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce impacts to SSC.

3. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer 2009). The EIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts.

4. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the EIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

The EIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

5. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-.

6. *Nesting Birds:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection

to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and 3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 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.

Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the EIR.

CDFW recommends the EIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g., Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

7. *Moving out of Harm's Way:* The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the City should state in the EIR a requirement for a qualified biologist with the proper handling permits, will be retained to be onsite prior to and during all ground- and habitat-disturbing activities. Furthermore, the EIR should describe that the qualified biologist with the proper permits may move out of harm's way special-status species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities, as needed. The EIR should also describe qualified biologist qualifications and authorities to stop work to prevent direct mortality of special-status species. CDFW recommends fish and wildlife species be allowed to move out of harm's way on their own volition, if possible, and to assist their relocation as a last resort. It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.

8. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are generally experimental in nature and largely unsuccessful. Therefore, the EIR should describe additional mitigation measures utilizing habitat restoration, conservation, and/or preservation, in addition to avoidance and minimization measures, if it is determined that there may be impacts to rare, threatened, or endangered species.

The EIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the EIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To avoid deferring mitigation in this way, the EIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

California Endangered Species Act

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in "take" (Fish & G. Code § 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the Project.

State-listed species with the potential to occur in the area include, but are not limited to: Crotch's bumble bee (*Bombus crotchii*), western bumblebee (*Bombus occidentalis*), giant garter snake (*Thamnophis gigas*), Swainson's hawk (*Buteo swainsoni*), greater sandhill crane (*Grus canadensis tabida*), tricolored blackbird (*Agelaius tricolor*), hairy Orcutt grass (*Orcuttia pilosa*), slender Orcutt grass (*Orcuttia tenuis*), and Greene's tuctoria (*Tuctoria greenei*).

The EIR should disclose the potential of the Project to take State-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To facilitate the issuance of an ITP, if applicable, CDFW recommends the EIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both State and federally listed species may be present within the Project vicinity.

Native Plant Protection Act

The Native Plant Protection Act (Fish & G. Code §1900 *et seq*.) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

Lake and Streambed Alteration Program

The EIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access and staging areas). The environmental document should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined the Project will result in significant impacts to these resources the EIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

1. Substantially divert or obstruct the natural flow of any river, stream or lake;

2. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or

3. Deposit debris, waste or other materials where it may pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If upon review of an entity's notification, CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the EIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources. Notifications for projects involving (1) sand, gravel or rock

extraction, (2) timber harvesting operations, or (3) routine maintenance operations must be submitted using paper notification forms. All other LSA Notification types must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS. More information about LSA Notifications, paper forms and fees may be found at https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA.

Please note that other agencies may use specific methods and definitions to determine impacts to areas subject to their authorities. These methods and definitions often do not include all needed information for CDFW to determine the extent of fish and wildlife resources affected by activities subject to Notification under Fish and Game Code section 1602. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as United States Army Corps of Engineers) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of an LSA.

CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. CDFW recommends lead agencies coordinate with us as early as possible, since potential modification of the proposed Project may avoid or reduce impacts to fish and wildlife resources and expedite the Project approval process.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.

2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Based on review of Project materials, aerial photography and observation of the site from public roadways, the Project site supports unnamed tributaries to the Thermalito Afterbay. CDFW recommends the EIR fully identify the Project's potential impacts to the stream and/or its associated vegetation and wetlands.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural

communities detected during Project surveys to CNDDB. The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the City and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the Notice of Preparation of the EIR for the Feather River Ranch Subdivision and recommends that the City address CDFW's comments and concerns in the forthcoming EIR. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter, or wish to schedule a meeting and/or site visit, please contact Melissa Stanfield, Senior Environmental Scientist (Specialist) at (916) 597-6417 or melissa.stanfield@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Tanya Sheya
1ABC45303752499...

Tanya Sheya
Environmental Program Manager

ec: Juan Torres, Senior Environmental Scientist (Supervisory)
Melissa Stanfield, Senior Environmental Scientist (Specialist)
Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

Literature Cited

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

NATIVE AMERICAN HERITAGE COMMISSION

November 3, 2022

Wes Ervin
City of Oroville
1725 Montgomery Street
Oroville, CA 95965

Re: 2022110054, Proposed Feather River Ranch Subdivision Project, Butte County

Dear Mr. Ervin:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015. If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). Both SB 18 and AB 52 have tribal consultation requirements. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources 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, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process 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. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe. (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cameron.Vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

cc: State Clearinghouse

629 Entler Avenue, Suite 15
Chico, CA 95928

(530) 332-9400
(530) 332-9417 Fax

STEPHEN ERTLE
Air Pollution Control Officer

PATRICK LUCEY
Assistant Air Pollution Control Officer

November 9, 2022

City of Oroville, Community Development Department
Attn: Wes Ervin, Planner
1735 Montgomery Street
Oroville, CA 95965

Re: Feather River Ranch Subdivision

Dear Mr. Ervin,

The Butte County Air Quality Management District (District) appreciates the opportunity to comment on the Notice of Preparation (NOP) for the Feather River Ranch Subdivision Project. Based on the information reviewed, the District has the following comments:

1. Screening for criteria air pollutants: Based on the District's 2014 CEQA Air Quality Handbook (https://bcaqmd.org/wp-content/uploads/CEQA-Handbook-Appendices-2014.pdf), this project exceeds the size provided by the screening criteria table in Section 4.3 Screening for Criteria Air Pollutants. The District recommends using the latest version of CalEEMod to perform modeling and quantification of pollutants created by construction and operational activities to estimate impacts of criteria air pollutants as well as greenhouse gases.
2. The District recognizes that Air Quality is an environmental topic that will be addressed in the Draft Environmental Impact Report (EIR).

If you have any questions or comments, please contact me at (530) 332-9400 x108.

Sincerely,

Jason Mandly
Senior Air Quality Planner

Wes Ervin

From: Noelle Snow
Sent: Tuesday, November 8, 2022 11:07 AM
To: Wes Ervin; Daniel Kopshever
Subject: FW: Notice of Preparation of an Environmental Impact

FYI

From: Darrel Cruz <Darrel.Cruz@washoetribe.us>
Sent: Tuesday, November 8, 2022 11:00 AM
To: Noelle Snow <nsnow@cityoforoville.org>
Subject: RE: Notice of Preparation of an Environmental Impact

Hello Noelle,
Thank you for consulting with the Washoe Tribe of Nevada and California on the proposed Notice of Preparation of an Environmental Impact Report for the Proposed Feather Ranch Subdivision Project (APN 030-230-098).

At this time we have no interest in the project.

Darrel

Darrel Cruz, Director
THPO/CRO
Washoe Tribe of NV & CA
919 Highway 395
Gardnerville, NV. 89410
P. (775) 265-8600
C. (775) 546-3421
darrel.cruz@washoetribe.us

From: Noelle Snow [mailto:nsnow@cityoforoville.org]
Sent: Friday, October 28, 2022 1:56 PM
To: Darrel Cruz <Darrel.Cruz@washoetribe.us>
Subject: Notice of Preparation of an Environmental Impact

Good afternoon,

Please see attached Notice of Preparation of an Environmental Impact Report for the Proposed Feather Ranch Subdivision Project (APN 030-230-098)

Thank you,

Noelle Snow
Community Development Tech II
City of Oroville
1735 Montgomery Street
Oroville, CA 95965
Ph: (530) 538-2508
Email: nsnow@cityoforoville.org

Department of Public Works Joshua Pack, Director

Butte County
PUBLIC WORKS

7 County Center Drive
Oroville, California 95965

T: 530.538.7681
F: 530.538.7171

buttecounty.net/publicworks

December 2, 2022

Wes Ervin, City Planner
City of Oroville Planning Division
1735 Montgomery St.
Oroville, CA 95965

Re: NOP response for the Proposed Feather River Ranch Project EIR

Butte County Public Works has reviewed the Notice of Preparation (NOP) for the Feather River Ranch Project dated November 1, 2022. The project consists of developing 172 new single-family lots within the Oroville City limits. Based on our preliminary review, we are providing the following comments relating to the potentially significant impacts that would result from the project on Transportation and Stormwater Drainage.

Transportation: The project will result in a significant increase in traffic in the Thermalito area that will impact County roads within the vicinity. Roadway improvements will be necessary to meet the transportation and safety demands associated with the project. It is imperative that the developer perform impact studies for the roads within the vicinity of this project including 18th Street, 20th Street, and Hwy. 162. Traffic impact studies should provide adequate information that includes the following:

- ADT's
- Traffic control devices
- Recommended road improvements
- Additional Right of Way (ROW) that will be required to construct and maintain any road improvements.
- Level Of Service (LOS) based on anticipated traffic flows
- Required mitigation to improve traffic control at locations impacted by improvements.

Stormwater Drainage: Drainage was not identified as a potentially significant impact for this project in the NOP although the increase of impervious surfaces associated with the project will likely impact stormwater drainage in the area. The project site was included in the Butte County 2007 Thermalito Master Drainage Plans (updated in 2009), which provides drainage information in the area and provides a consistent area-wide analysis.

Thank you for the opportunity to comment. Please contact me at (530)552-5706 or khunter@buttecounty.net.

Sincerely,

Kim Hunter
Deputy Director of Land Development
Butte County Public Works – Land Development Division

From: Woodruff Jerry <jandj_ranch@yahoo.com>
Sent: Tuesday, December 6, 2022 12:06 PM
To: Wes Ervin <wervin@cityoforoville.org>
Subject: Feather Ranch Subdivision

Good Afternoon Wes,

Thank you for returning my call today. I am opposed to this project unless the City of Oroville does something to address the lack of adequate response in regards to fire in the projects area. Our insurance policies have been cancelled and/or tripled due to the reduced fire response rating given for this area.

Jeanette Morton

APPENDIX 3.1

Air Quality & Greenhouse Gas Emissions Assessment for the Feather Ranch Project

ECORP Consulting, INC. February 2023

Air Quality & Greenhouse Gas Emissions Assessment for the Feather Ranch Project

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Oroville, California

Prepared For:

MD3 Investments
893 Marsh Street
San Luis Obispo, CA 93401

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

January 2023

CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
µg/m3	Micrograms per cubic meter; ppm = parts per million
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
AB	Assembly Bill
AQMD	Air Quality Management District
BCAG	Butte County Association of Governments
BCAQMD	Butte County Air Quality Management District
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH_4	Methane
City	City of Oroville
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
County	Butte County
DPM	Diesel particulate matter
EO	Executive Order
GHG	Greenhouse gas
GWP	Global warming potential
IPCC	Intergovernmental Panel on Climate Change
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards

LIST OF ACRONYMS AND ABBREVIATIONS

NO_2	Nitrogen dioxide
NO_x	Nitric oxides
NSVAB	Northern Sacramento Valley Air Basin
O_3	Ozone
PM	Particulate matter
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
ppb	Parts per billion
Project	Feather Ranch Project
ROGs	Reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
TACs	Toxic air contaminants
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile organic compounds
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

This report documents the results of an Air Quality and Greenhouse Gas (GHG) Emissions Assessment completed for the Feather Ranch Project (Project), which proposes the construction of 172 single-family dwelling units on 44.97 acres of land in the City of Oroville (City), in Butte County (County), California (see Figure 1-1. *Regional Project Location*). This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Butte County Air Quality Management District (BCAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the surrounding environment.

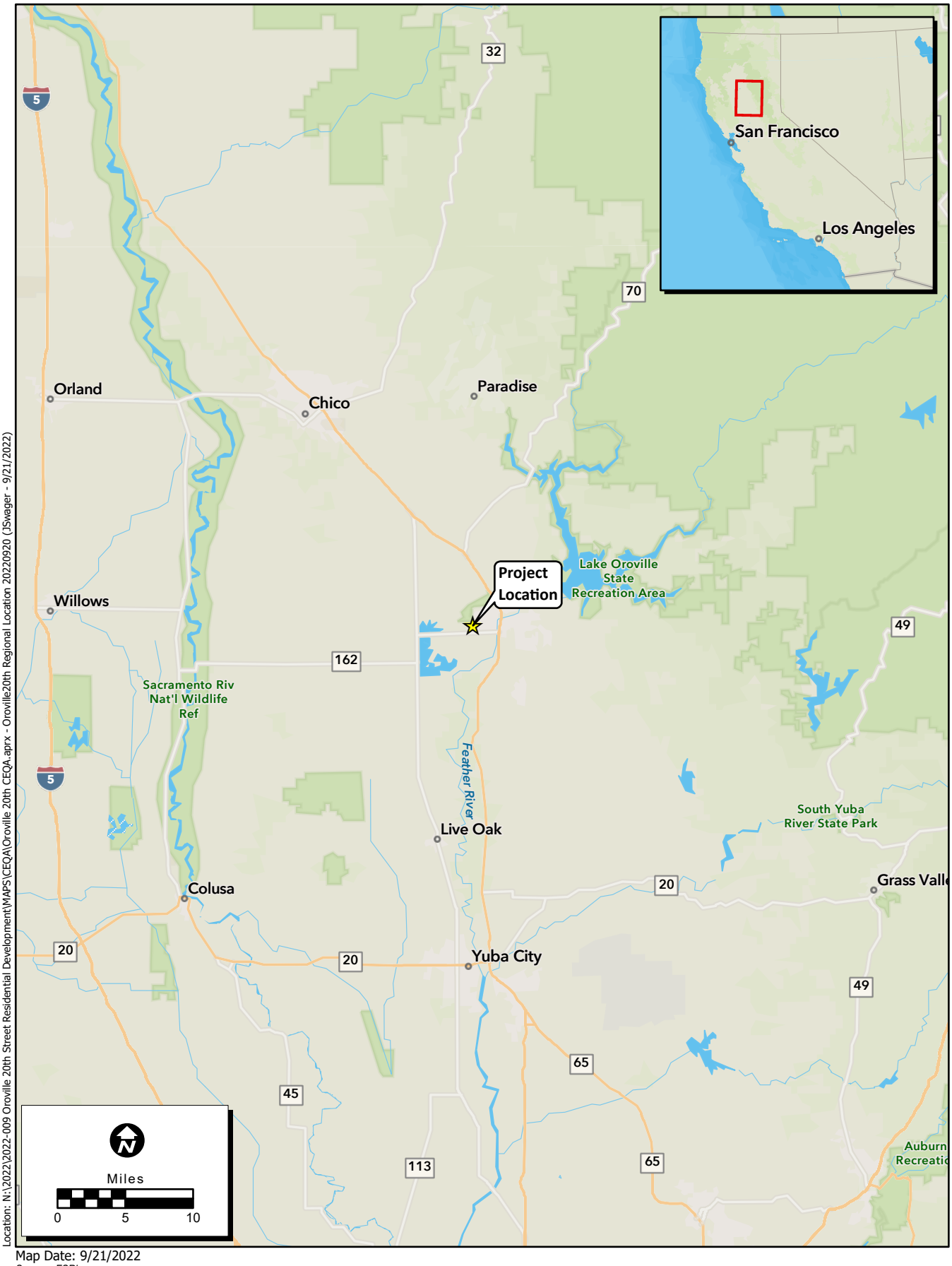
1.1 Project Location and Description

The Proposed Project is the subdivision of a 44.97-acre site into single-family lots located at the southwest corner of the Feather Avenue/20th Street intersection in the City of Oroville, California (see Figure 1-2. *Site Location*). The 44.97-acre Project Site is currently within the City of Oroville General Plan land use designation of *Airport Business Park* and zoning district of *Airport Business Park* with an Airport Influence Area Overlay. None of these designations allow the development of residential uses at the density of 3.82 units per acre requested for the Proposed Project. Therefore, a General Plan Amendment and rezoning will be required to approve the Project and its proposal to create 172 single-family lots. The Proposed Project includes a request to change the General Plan land use designation to *Residential Single-Family* and a rezoning to *Single Family Residential*.

The Project Site is currently vacant undeveloped land. Elevations range from 230 feet AMSL at the southwest corner of the Project Site to 190 feet AMSL at the northeast corner, generally sloping from west to east. The Site is bound by a combination of vacant lands and large lot residences to the north, vacant land to the west, vacant lands and large lot residences to the south with Oroville Dam Boulevard and the Oroville Municipal Airport beyond, and a combination of vacant land and residences to the east (see Figure 1-3. *Surrounding Land Uses*).

Improvements to 20th Street and abutting Project Vicinity roadways include curbs, gutters and sidewalks adjacent to the Project Site. Sidewalks would front 20th Street, Biggs Street, and Feather Avenue as well as along all internal proposed roadways. Greenway space would be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project Site, and fronting 20th and Biggs streets. Storm drainage facilities are proposed throughout the Project Site, with connections tying in together internally, prior to tying into storm drainage facilities located within 20th Street.

City-required approvals include a General Plan Amendment, rezone, and a tentative subdivision map.



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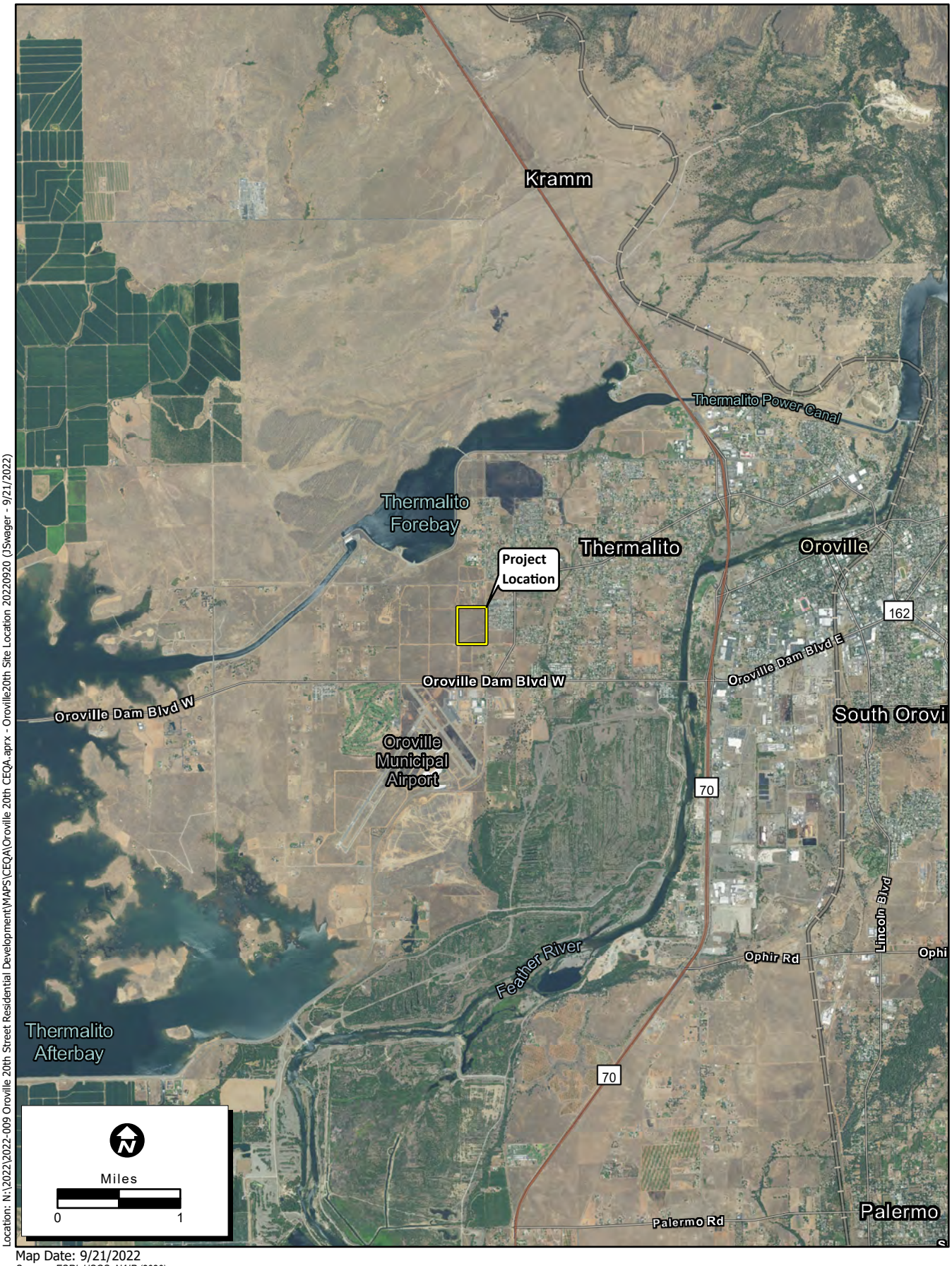
Map Date: 9/21/2022

Sources: ESRI

Figure 1-1. Regional Project Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Site Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-2. Site Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Surrounding LandUse 202209201 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-3. Surrounding Uses

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Northern Sacramento Valley Air Basin (NSVAB), which encompasses the Project Site, pursuant to the regulatory authority of the BCAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

2.1.1 Northern Sacramento Valley Air Basin

The proposed Project is located within the NSVAB. The NSVAB consists of seven counties: Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern end of the Cascade Mountain Range and the northern end of the Sierra Nevada. These mountain ranges reach heights in excess of 6,000 feet above mean sea level, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as to pollution transported northward on prevailing winds from the Sacramento metropolitan area (SVAQEEP 2021).

The environmental conditions of Butte County are conducive to potentially adverse air quality conditions. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are generally from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Butte County have also contributed to an increase in emissions.

2.1.1.1 Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the SVAB can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical air flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of exceeding federal or state standards.

2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
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, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N_2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, 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.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	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).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

2.1.2.1 Carbon Monoxide

CO in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SVAB are in compliance with the state and federal one- and eight-hour standards.

2.1.2.2 Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

2.1.2.3 Ozone

O_3 is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROGs and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

2.1.2.4 Particulate Matter

PM includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x, sulfur oxides (SO_x) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease.

According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

2.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is 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.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Most recently, CARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

2.1.4 Ambient Air Quality

Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region. As described in detail below, the region is designated as a nonattainment area for the federal O_3 standard and is also a nonattainment area for the state standards for O_3, PM_{10} and $PM_{2.5}$ (CARB 2020; 2018). The Chico - East Avenue air monitoring station (984 East Avenue, Chico) is located approximately 24.7 miles northwest of the Project Site and monitors ambient concentrations of O_3, PM_{10}, and $PM_{2.5}$. Ambient emissions

concentrations vary due to localized variation in emissions sources and climate conditions, but the concentrations from this air quality monitoring station should be considered "generally" representative of ambient concentrations in the Project Area.

Table 2-2 summarizes the published data concerning O_3, PM_{10} and $PM_{2.5}$ from the Chico – East Avenue monitoring station. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

Table 2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2019	2020	2021
O_3 – Chico – East Avenue Monitoring Station			
Max 1-hour concentration (ppm)	0.072	0.097	0078
Max 8-hour concentration (ppm)	0.064	0.083	0.069
Number of days above 1-hour standard (state)	0	1	0
Number of days above 8-hour standard (state/federal)	0 / 0	1 / 1	0 / 0
PM_{10} – Chico East Avenue Monitoring Station			
Max 24-hour concentration (µg/m^3) (state/ federal)	55.7 / 54.4	387.0 / 391.3	127.4 / 130.3
Number of days above 24-hour standard (state/federal)	* / 0	* / 10.0	* / 0
$PM_{2.5}$ – Chico East Avenue Monitoring Station			
Max 24-hour concentration (µg/m^3) (state/federal)	34.6 / 34.6	329.3 / 329.3	102.7 / 102.7
Number of days above federal 24-hour standard	0	33.6	13.3

Source: CARB 2022a
Note: µg/m^3 = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10} and $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the Butte County portion of the NSVAB, which encompasses the Project Site, is included in Table 2-3.

Table 2-3. Attainment Status of Criteria Pollutants in the Butte County Portion of the NSVAB

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Unclassified/Attainment
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

Source: CARB 2020; 2018

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 standard and is also a nonattainment area for the state standards for O_3, PM_{10} and $PM_{2.5}$ and (CARB 2020; 2018).

2.1.5 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project Site include residences directly adjacent to the northeast corner of the Project Site boundary, fronting 20th Street, approximately 75 feet distant.

2.2 Regulatory Framework

2.2.1 Federal

2.2.1.1 Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the SVAB for the criteria pollutants.

2.2.2 State

2.2.2.1 California Clean Air Act

The California Clean Air Act (CCAA) allows the State to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

2.2.2.2 California State Implementation Plan

The California Clean Air Act (CCAA) allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP

includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

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 then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The *2021 Triennial Air Quality Attainment Plan* constitutes the current SIP for the Butte County portion of the NSVAB. The plan is updated on a triennial basis and was last updated in 2021. It presents comprehensive strategies to reduce the O_3 precursor pollutants (ROG and NOx) from stationary, area, mobile, and indirect sources.

2.2.2.3 Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act

CARB's statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the State's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by SB 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

2.2.3 Local

2.2.3.1 Butte County Air Quality Management District

The BCAQMD is the air pollution control agency for Butte County, including the Project Site. The agency's primary responsibility is ensuring that the federal and state ambient air quality standards are attained and maintained in the Butte County portion of the NSVAB. The BCAQMD, along with other air districts in the NSVAB, has committed to jointly prepare and implement the NSVAB Air Quality Attainment Plan for the purpose of achieving and maintaining healthful air quality throughout the air basin. The BCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities.

The BCAQMD has adopted a number of rules and regulations to implement its air quality plans, including permitting, prohibitions and limits to emissions from a variety of stationary resources, regulation of open burning, regulation of toxic air contaminants, and implementation of FCAA requirements. The following is a list of noteworthy rules that are required of construction activities associated with the Proposed Project:

- **Rule 400: Permit Requirements.** The purpose of this Rule is to require any person constructing, altering, or operating a source that emits or may emit air contaminants to request an Authority to Construct or Permit to Operate from the Air Pollution Control Officer (APCO) and to provide an orderly procedure for application, review, and authorization of new sources and of the modification and operation of existing sources of air pollution. Stationary sources that are subject to Rule 1101-Title V-Federal Operating Permits of these Rules and Regulations shall also comply with the procedures specified in this Rule.
- **Rule 402: Nuisance.** No person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 205: Fugitive Dust.** The purpose of this Rule is to reduce ambient concentrations and limit fugitive emissions of fine particulate matter (PM_{10}) from construction activities, bulk material handling and storage, carryout and track-out, and similar activities, weed abatement activities, unpaved parking lots, unpaved staging areas, unpaved roads, inactive disturbed land, disturbed open areas, and windblown dust.
- **Rule 230: Architectural Coatings.** The purpose of this rule is to limit the emissions of volatile organic compounds from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District.

2.3 Air Quality Emissions Impact Assessment

2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan.

2) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

3) Expose sensitive receptors to substantial pollutant concentrations.

4) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

2.3.1.1 Butte County Air Quality Management District Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (BCAQMD) may be relied upon to make the above determinations. According to the BCAQMD, an air quality impact is considered significant if the proposed Project contributes substantially to an existing or projected air quality violation or exposes sensitive receptors to substantial pollutant concentrations. The BCAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 2-4.

Table 2-4. BCAQMD Regional Significance Thresholds

Air Pollutant	Construction Activities		Operations
	Pounds per Day	Tons per Year	Pounds per day
Reactive Organic Gas	137	4.5	25
Carbon Monoxide	-	-	-
Nitrogen Oxide	137	4.5	25
Sulfur Oxide	-	-	-
Coarse Particulate Matter (PM_{10})	80	-	80
Fine Particulate Matter ($PM_{2.5}$)	-	-	-

Source: BCAQMD 2014

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

2.3.2 Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the BCAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Butte County. Operational air pollutant

emissions were based on the Project Site Plans and traffic trip generation rates from KD Anderson & Associates (2023).

2.3.3 Impact Analysis Impact Analysis

2.3.3.1 Project Construction-Generated Criteria Air Quality Emissions

Construction Significance Analysis

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation.

Construction-generated emissions associated the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 2-5. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BCAQMD's thresholds of significance.

Table 2-5. Construction-Related Emissions						
Construction Year	**Pollutant**					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily (pounds per day)						
Construction Year One	3.75	36.0	34.2	0.1	9.4	5.4
Construction Year Two	5.4	19.7	30.2	0.0	1.6	0.9
Construction Year Three	5.28	18.7	29.7	0.0	1.5	0.9
Construction Year Four	5.2	17.9	29.3	0.0	1.4	0.8
BCAQMD Significance Threshold	*137 pounds/day*	*137 pounds/day*	-	-	*80 pounds/day*	-
Exceed BCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Annual (tons per year)						
Construction Year One	0.2	2.3	2.1	0.0	0.3	0.2
Construction Year Two	0.7	2.6	3.8	0.0	0.2	0.1
Construction Year Three	0.7	2.4	3.7	0.0	0.2	0.1
Construction Year Four	0.6	2.1	3.2	0.0	0.2	0.1
BCAQMD Significance Threshold	*4.5*	*4.5*	-	-	-	-
Exceed BCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of BCAQMD Rule 205. The specific Rule 205 measures applied in CalEEMod include sweeping/cleaning adjacent roadway access areas daily, water exposed surfaces twice daily. Emissions taken of the season, summer or winter, with the highest outputs. Building construction, paving, and painting assumed to occur simultaneously.

As shown in Table 2-5, emissions generated during Project construction would not exceed the BCAQMD's daily or annual thresholds of significance.

2.3.3.2 Project Operation-Generated Criteria Air Quality Emissions

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10} and O_3 precursors such as ROG and NO_X. Operational-generated emissions associated with the

proposed Project were calculated using CalEEMod. Predicted maximum annual operational-generated emissions of criteria air pollutants for the proposed Project are summarized in Table 2-6.

Table 2-6. Operational-Related Emissions

Emission Source	Pollutant (pounds per day)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Summer Emissions						
Area	8.6	0.1	9.8	0.0	0.0	0.0
Energy	0.0	0.7	0.3	0.0	0.1	0.1
Mobile	6.7	1.5	10.1	0.0	0.0	0.0
Total:	**15.3**	**2.3**	**20.2**	**0.0**	**3.8**	**0.1**
BCAQMD Significance Threshold	*25 pounds/day*	*25 pounds/day*	-	-	*80 pounds/day*	-
Exceed BCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Area	7.8	-	-	-	-	-
Energy	0.0	0.7	0.3	0.0	0.1	0.1
Mobile	5.5	1.7	15.1	0.0	0.0	0.1
Total:	**13.3**	**2.4**	**15.4**	**0.0**	**0.1**	**0.2**
BCAQMD Significance Threshold	*25 pounds/day*	*25 pounds/day*	-	-	*80 pounds/day*	-
Exceed BCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: Emission projections predominately based on CalEEMod model defaults for Butte County. Average daily vehicle trips provided by KD Anderson & Associates (2023).
Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

As shown in Table 2-6, daily emissions associated with Project operations would not exceed the BCAQMD significance thresholds.

2.3.3.3 Project Consistency with Air Quality Planning

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The *2021 Triennial Air Quality Attainment Plan* constitutes the current SIP for the Butte County portion of the NSVAB and is the most recent air quality planning document covering Butte County. Air quality attainment plans are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards. State law makes CARB the lead agency for all purposes related to the *Air Quality Attainment Plan*. Local air districts prepare air quality attainment plans and submit them to CARB for review and approval. The *2021 Triennial Air Quality Attainment Plan* includes forecast ROG and NO_X emissions (O_3 precursors) for the entire NSVAB through the year 2020. The plan also includes control strategies necessary to attain the California O_3 standard at the earliest practicable date, as well as developed emissions inventories and associated emissions projections for the region showing a downtrend for both ROG and NO_X.

The consistency of the Project with the *2021 Triennial Air Quality Attainment Plan* is determined by Project-induced development's consistency with air pollutant emission projections in the plan. However, although the *2021 Triennial Air Quality Attainment Plan* provides estimated ROG and NOx emissions for the entire NSVAB, they are not apportioned by local air district, county or municipality. The *2021 Triennial Air Quality Attainment Plan* is based on information derived from projected growth in Butte County in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Therefore, until such time as Butte County's applicable air quality plan provides the locally appropriate data necessary to evaluate the consistency of a project's potential air quality impacts (due to non-stationary sources) with the attainment plan's emission projections, the BCAQMD recommends that lead agencies and applicants evaluate a project's contribution to changes in population growth in relation to those projections made by the Butte County Association of Governments (BCAG) (BCAQMD 2014).

BCAG has prepared the Butte County population and housing forecasts using professionally accepted methodologies for long-range forecasting. Utilizing a "top down" approach, long-term projections prepared by the California Department of Finance were consulted for Butte County and used by BCAG to re-establish control totals for the region. Additionally, a variety of data sources, including input from local jurisdictions, were reviewed and inserted at the local jurisdiction level, therefore incorporating a "bottom up" approach. Adjustments were made to compensate for the re-distribution and re-population of the Camp Fire burn area (BCAG 2018). As such, projects that propose development consistent with the growth anticipated by BCAG would be consistent with the *2021 Triennial Air Quality Attainment Plan*.

According to the California Department of Finance, the City of Oroville currently contains a population of 18,863 people and a housing inventory of 7,783 houses (Department of Finance 2022). Accounting for a home vacancy rate of 7.1 percent in Oroville, the Department of Finance (2022) estimates an average of 2.49 people living within an occupied residence. The Proposed Project would create an additional 172 single-family lots, which could be expected to accommodate 428 people (2.49 x 172 = 428), thereby increasing the City of Oroville population to 19,291 (this estimate conservatively assumes that all future residents at the Project would be new to Oroville) and housing stock to 7,955 units. BCAG projects the population of Oroville to range from 20,757 to 22,283 people in the year 2025, and the housing inventory to range from 7,841 to 8,301 units. Thus, the expected growth in population and housing as a result of the Proposed Project would not surpass BCAG's projections and therefore would not result in a conflict with the *2021 Triennial Air Quality Attainment Plan*. Additionally, as shown in Table 2-5 and 2-6, all Project emissions would be under the BCAQMD significance thresholds, which were established to for reducing air pollution and related health effects, a primary goal of the *2021 Triennial Air Quality Attainment Plan*. It is further noted that according to Chapter Five of the Oroville Housing Element, Goal 3: *Facilitate Development of New Housing to Meet the Needs of the Community*, the City will maintain a goal to facilitate development of a range of housing that varies sufficiently in terms of cost, design, size, location, and tenure to meet the housing needs of all economic segments of the community at a level which can be supported by the utility, water, and street infrastructure. Thus, the Project complies with the anticipated housing needs in Oroville and supports the goals of the General Plan. For these reasons, the Project would be consistent with the goals of local air quality planning.

2.3.3.4 Exposure of Sensitive Receptors to Toxic Air Contaminants

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project Site include residences directly adjacent to the northeast corner of the Project Site boundary, fronting 20th Street, approximately 75 feet distant.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NOx, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The Butte County portion of the NSVAB is listed as a nonattainment area for the federal O_3 standard and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$. Thus, existing O_3, PM_{10} and $PM_{2.5}$ levels in the NSVAB are at unhealthy levels during certain periods. However, as shown in Table 2-5 the Project would not exceed the BCAQMD significance thresholds for construction emissions.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NOx) in excess of the BCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the BCAQMD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. PM_{10} exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with O_3 and NOx, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the BCAQMD's thresholds. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operational Air Contaminants

Operation of the Proposed Project would not result in the development of any substantial sources of air toxins. There are no stationary sources associated with the operations of the Project; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at nearby sensitive receptors. The Project would not have a high carcinogenic or non-carcinogenic risk during operation.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the

source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the Sacramento County portion of the SVAB is designated as in attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District's (SCAQMD's) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting the Los Angeles, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD), the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The Proposed Project is anticipated to result in 1,622 daily traffic trips (KD Anderson & Associates 2023). Thus, the Proposed Project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day) and there is no likelihood of the Project traffic exceeding CO values.

2.3.3.5 Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

According to the BCAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include wastewater treatment plants, sanitary landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging plants. The Proposed Project does not include any uses identified by the BCAQMD as being associated with odors.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane (CH_4), and N_2O. Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the

last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1]USEPA 2016a, [2] USEPA 2016b, [3] USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.1.1 Sources of Greenhouse Gas Emissions

In 2022, CARB released the 2022 edition of the California GHG inventory covering calendar year 2020 emissions. In 2020, California emitted 369.2 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2020, accounting for approximately 38 percent of total GHG emissions in the state. Continuing the downward trend from previous years, transportation emissions decreased 27 million metric

tons of CO_2e in 2020, though the intensity of this decrease was most likely from light duty vehicles after shelter-in-place orders were enacted in response to the COVID-19 pandemic. Emissions from the electricity sector account for 16 percent of the inventory and have remained at a similar level as in 2019 despite a 44 percent decrease in in-state hydropower generation (due to below average precipitation levels), which was more than compensated for by a 10 percent growth in in-state solar generation and cleaner imported electricity incentivized by California's clean energy policies. California's industrial sector accounts for the second largest source of the state's GHG emissions in 2020, accounting for 23 percent (CARB 2022b).

3.2 Regulatory Framework

3.2.1 State

3.2.1.1 Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

3.2.1.2 Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the State, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

3.2.1.3 Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

3.2.1.4 Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

3.2.1.5 Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008, which became effective in January 2009, helps facilitate AB 32's GHG reduction goals by addressing the emissions from passenger vehicles. The main objectives of the bill aim to reduce GHG emissions through extensive transportation, housing, and land use planning. SB 375 directs CARB to establish regional targets to reduce GHG emissions from passenger vehicle use. CARB administers 2020 and 2035 targets for each of the regions throughout the State. The corresponding metropolitan planning organizations (MPOs) in each region are required to prepare and adopt a Sustainable Communities Strategy (SCS) which help adhere to the CARB administered targets. Sustainable Community Strategies play a vital role in regional transportation plans by allowing transportation, land use, and housing strategies to align with the State's GHG emission goals. Project Plans that are consistent with their region's SCS may be subject to a more streamlined CEQA process.

3.2.1.6 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings

The Building and Efficiency Standards (Energy Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. These standards are a unique California asset that have placed the State on the forefront of energy efficiency, sustainability, energy independence and climate change issues. The 2019 Building Energy Efficiency Standards improve upon the 2016 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. 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 2019 standards are a major step toward meeting Zero Net Energy. The most significant efficiency improvement to the residential Standards includes the introduction of photovoltaic into the perspective package, improvements for attics, walls, water heating and lighting. Buildings permitted on or after January 1, 2020, must comply with the 2019 Standards.

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CalGreen Building Standard (CalGreen) and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. Like Part 6 of Title 24, the CalGreen standards are periodically updated, with increasing energy savings and efficiencies associated with each code update. CalGreen contains voluntary "Tier 1" and "Tier 2" standards that are not mandatory statewide but could be required by a City or County. These are 'reach' standards that can be adopted by local jurisdictions and may be incorporated as mandatory standards in future code cycles.

3.2.2 Local

3.2.2.1 City of Orville Community Climate Action Plan

The City of Oroville Community Climate Action Plan (CAP) is Oroville's strategic plan to reduce GHG emissions in the City. The CAP allows City decision makers, staff, and the community to understand the sources and magnitude of local GHG emissions, reduce GHG emissions, and prioritize steps to achieve reduction targets. The CAP also outlines a forthcoming climate change adaptation plan that will better prepare the City to address potential economic, environmental, and social effects of climate change. The ultimate goal of the CAP is to reduce GHG emissions to 11 percent below 2010 levels – a goal referred to as the 2020 emissions reduction target. The CAP contains an inventory of the community's GHG emissions from the agriculture, transportation, energy, solid waste, off-road equipment, water and wastewater, and stationary source sectors. It is noted that the CAP does not promulgate a specific reduction target for post-2020.

3.2.2.2 Butte County Air Quality Management District

The BCAQMD has jurisdiction over local air quality in Butte County, including the Project Site. To date neither the BCAQMD nor the City of Oroville have established specific threshold criteria for GHG emissions.

3.2.2.3 Butte County Association of Governments 2020 Regional Transportation Plan / Sustainable Communities Strategy

The Butte County Association of Governments (BCAG) region, which encompasses the Project Site, must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions. Specifically, the region has been tasked by CARB to achieve a 7 percent per capita reduction from mobile sources by the end of 2035 (CARB 2023). The BCAG 2020 Transportation Plan/Sustainable Communities Strategy (RTP/SCS) charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2020 RTP/SCS contains projects, policies, and strategies to achieve environmental sustainability and integrated planning. The Plan includes strategies to generally improve air quality, improve health, and reduce GHG emissions consistent with state requirements. The RTP/SCS achieves its overall objectives by combining transportation investment and policies with integrated land use strategies that reduce per capita vehicle miles traveled (VMT) and emissions.

3.3 Greenhouse Gas Emissions Impact Assessment

3.3.1 Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to greenhouse gas emissions if it would:

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 greenhouse gases.

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans

[and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

As previously stated, neither the City of Oroville nor the BCAQMD promulgate GHG emission thresholds. While the Oroville Community CAP is strategic plan to reduce GHG emissions in the City, with the ultimate goal to reduce GHG emissions to 11 percent below 2010 levels, the Community CAP has not been updated since its adoption in 2015 and its most recent GHG target is for the year 2020. Therefore, Project consistency with the CAP would not be considered an appropriate threshold to evaluate the Project. Instead, the Project is assessed for consistency with BCAG's 2020 RTP/SCS. The 2020 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The BCAG region strives toward sustainability through integrated land use and transportation planning. The BCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions. Specifically, the region has been tasked by CARB to achieve a 7 percent per capita reduction by the end of 2035. Therefore, the Project will be assessed for consistency with regulations or requirements adopted by the 2020 RTP/SCS, which establishes an overall GHG target for the Project region.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines § 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

3.3.2 Methodology

GHG emissions were modeled using CalEEMod, version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated GHG emissions were calculated using CalEEMod model defaults for Butte County. Operational GHG emissions were based on the Project site plans and traffic trip generation rates from KD Anderson and Associates (2023).

3.3.3 Impact Analysis

In view of the above considerations, this assessment quantifies the Project's total annual GHG emissions.

Construction

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 3-2. Construction-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/ Year)**
Construction Calendar Year One	353
Construction Calendar Year Two	620
Construction Calendar Year Three	609
Construction Calendar Year Four	536
Maximum Construction Emissions	**620**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

As shown in Table 3-2, Project construction would result in the maximum generation of 620 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. Furthermore, GHG emissions generated by the construction sector have been declining in recent years. For instance, construction equipment engine efficiency has continued to improve year after year. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower (hp) and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the USEPA, CARB, and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis- Con, and Yanmar). On August 27, 1998, the USEPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 hp and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. As a result, all off-road, diesel-fueled construction equipment manufactured in 2006 or later has been manufactured to Tier 3 standards. Tier 3 engine standards reduce precursor and subset GHG emissions such as nitrogen oxide by as much as 60 percent. On May 11, 2004, the USEPA signed the final rule introducing Tier 4 emission standards, which were phased in over the period of 2008-2015. The Tier 4 standards require that emissions of nitrogen oxide be further reduced by about 90 percent. All off-road, diesel-fueled construction equipment manufactured in 2015 or later will be manufactured to Tier 4 standards.

In addition, the California Energy Commission recently released the 2019 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code). The 2019 updates to the Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions, and alterations to existing buildings. For instance, effective January 1, 2017, owners/builders of construction projects have been required to divert (recycle) 65 percent of construction waste materials generated during the project construction phase. This requirement greatly reduces the generation of GHG emissions by reducing decomposition at landfills, which is a source of CH_4, and reducing demand for natural resources.

Operations

Operation of the Project would result in an increase in GHG emissions primarily associated with motor vehicle trips and onsite energy sources. Long-term operational GHG emissions attributed to the Project are identified in Table 3-3.

Table 3-3. Operational-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/ Year)
Area Source	2
Energy	296
Mobile	3,453
Waste	27
Water	13
Total	**3,792**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.
Notes: Emission projections predominately based on CalEEMod model defaults for Butte County. Average daily vehicle trips provided by KD Anderson and Associates (2023).

As shown in Table 3-3 Project operations would result in the generation of 3,792 metric tons of CO_2e annually. A large majority of these emissions would be generated by mobile sources, which is an emission source that cannot be regulated by the City. Additionally, GHG emissions are global pollutants. They can be carried miles away from the original source and have long atmospheric lifetimes compared to local pollutants. GHG Emissions do not directly pose a threat to human health but can have numerous indirect effects. As previously stated, GHG emissions have been directly correlated to climate change. This can lead to events such as droughts, heat waves, increased intensity in storm events and rising sea levels. These can result in decreased precipitation, increased wildfires, saltwater infiltration of groundwater tables and decreased crop yields. A reduction of vehicle trips to and from the Proposed Project Site would reduce the amounts of mobile emissions.

The State of California has implemented numerous strategies pertaining to automobiles and trucks and the reduction of emissions that directly apply to the Project. Urban goods delivery is an essential component of the greater freight system and vital to the urban economy. While urban goods delivery represents a small share of urban traffic, it generates a disproportionate amount of GHG emissions. The State of California promulgates policies designed and implemented to improve the efficiency and environmental footprint of the urban freight system, including the introduction of zero and near-zero emission vehicles - a strategy embedded in the Governor's Sustainable Freight Action Plan as well as CARB's AB 32 Scoping Plan and Mobile Source Strategy.

3.3.3.1 Generation of GHG Emissions Resulting in Conflicts with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The State of California promulgates several mandates and goals to reduce statewide GHG emissions, including the goal to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (SB 32) and 80 percent below 1990 levels by the year 2050 (EO S-3-05). The Proposed Project is subject to compliance with SB 32. As previously described, the significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Specifically, the Project will be assessed for consistency with the BCAG's 2020 RTP/SCS, which establishes an overall GHG target for the Project region consistent with California's 2030 GHG reduction goals of SB 32 and EO S-3-05. The 2020 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The BCAG region strives toward sustainability through integrated land use and transportation planning. The BCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions. Specifically, the region has been tasked by CARB to achieve a 7 percent per capita reduction by the end of 2035.

The strategy to achieve the mandated 7 percent per capita reduction in mobile-source GHG emissions by 2035 promulgated by the BCAG 2020 RTP/SCS is based on a land use and transportation scenario which defines a pattern of future growth and transportation system investment for the region. The assumptions surrounding the assumed pattern of future growth are guided by BCAG's population growth projections for Butte County and cities.

The projected regional population growth in the BCAG 2020 RTP/SCS, when integrated with the proposed regional transportation network identified in the RTP/SCS, would reduce per capita vehicular travel–related GHG emissions and achieve state-mandated GHG reduction per capita targets for the BCAG region. The 2020 RTP/SCS is based on a land use and transportation scenario which defines a pattern of future growth for the region. BCAG has prepared the Butte County population and housing forecasts using professionally accepted methodologies for long-range forecasting. Utilizing a "top down" approach, long-term projections prepared by the California Department of Finance were consulted for Butte County and used by BCAG to re-establish control totals for the region. Additionally, a variety of data sources, including input from local jurisdictions, were reviewed and inserted at the local jurisdiction level, therefore incorporating a "bottom up" approach. Adjustments were made to compensate for the re-distribution and re-population of the Camp Fire burn area (BCAG 2018). As such, projects that propose development consistent with the growth anticipated by BCAG would be consistent with the 2020 RTP/SCS.

According to the California Department of Finance, the City of Oroville currently contains a population of 18,863 people and a housing inventory of 7,783 houses (Department of Finance 2022). Accounting for a home vacancy rate of 7.1 percent in Oroville, the Department of Finance (2022) estimates an average of 2.49 people living within an occupied residence. The Proposed Project would create an additional 172 single-family lots, which could be expected to accommodate 428 people (2.49 x 172 = 428), thereby

increasing the City of Oroville population to 19,291 (this estimate conservatively assumes that all future residents at the Project would be new to Oroville) and housing stock to 7,955 units. BCAG projects the population of Oroville to range from 20,757 to 22,283 people in the year 2025, and the housing inventory to range from 7,841 to 8,301 units. Thus, the expected growth in population and housing as a result of the Proposed Project would not surpass BCAG's projections and therefore would not result in a conflict with the 2020 RTP/SCS.

4.0 REFERENCES

BCAG (Butte County Association of Governments). 2018. Provisional Long-Term Regional Growth Forecasts 2018 - 2040.

BCAQMD (Butte County Air Quality Management District). 2014. CEQA Air Quality Handbook. https://bcaqmd.org/wp-content/uploads/CEQA-Handbook-Appendices-2014.pdf

California Department of Finance. 2022. E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark

CAPCOA (California Air Pollution Control Officers Association). 2023. California Emissions Estimator Model (CalEEMod), version 2022.1.

_____. 2013. Health Effects. http://www.capcoa.org/health-effects/.

CARB (California Air Resources Board). 2023. Website: SB 375 Regional Plan Climate Targets. Accessed at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets

_____. 2022a. Air Quality Data Statistics. http://www.arb.ca.gov/adam/index.html.

_____. 2022b. California Greenhouse Gas Emission Inventory 2022 Edition. https://ww2.arb.ca.gov/ghg-inventory-data

_____. 2020. State Area Designation Maps. http://www.arb.ca.gov/desig/adm/adm.htm.

_____. 2018. Federal Area Designation Maps. http://www.arb.ca.gov/desig/adm/adm.htm.

_____. 2017. California's 2017 Climate Change Scoping Plan. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

_____. 2008. Climate Change Scoping Plan Appendices (Appendix F).

Oroville, City of.2015. City of Oroville Community Climate Action Plan. https://www.cityoforoville.org/home/showpublisheddocument/12191/635955765376170000

_____. 2014. Housing Element. https://www.cityoforoville.org/home/showpublisheddocument/10724/635955765376170000

Crockett, Alexander G. 2011. Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World.

IPCC (Intergovernmental Panel on Climate Change). 2014. Climate Change 2014 Synthesis Report: Approved Summary for Policymakers. http://www.ipcc.ch/.

_____. 2013. Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.

KD Anderson & Associates. 2023. Feather Ranch Project Traffic Impact Study.

SCAQMD (South Coast Air Quality Management District). 2003. 2003 Air Quality Management Plan.

_____. 1992. 1992 Federal Attainment Plan for Carbon Monoxide.

SVAQEEP (Sacramento Valley Air Quality Engineering and Enforcement Professionals). 2021. Northern Sacramento Valley Air Quality Attainment Plan.

USEPA (U.S. Environmental Protection Agency). 2016a. Climate Change – Greenhouse Gas Emissions: Carbon Dioxide. http://www.epa.gov/climatechange/emissions/co2.html.

_____. 2016b. Methane. https://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html.

_____. 2016c. Nitrous Oxide. https://www3.epa.gov/climatechange/ghgemissions/gases/n2o.html.

_____. 2002. Health Assessment Document for Diesel Engine Exhaust. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=300055PV.TXT.

LIST OF ATTACHMENTS

Attachment A – CalEEMod Output File for Air Quality Emissions and Greenhouse Gas Emissions

ATTACHMENT A

CalEEMod Output Files – Criteria Air Pollutants and Greenhouse Gas Emissions

Feather Ranch Project Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Feather Ranch Project
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	42.2
Location	39.504610795145965, -121.61149360964033
County	Butte
City	Oroville
Air District	Butte County AQMD
Air Basin	Sacramento Valley
TAZ	222
EDFZ	3
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	172	Dwelling Unit	45.0	335,400	2,014,611	—	440	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Transportation	T-32*	Orient Project Toward Transit, Bicycle, or Pedestrian Facility
Transportation	T-35*	Provide Tra c Calming Measures

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.45	5.41	36.0	34.2	0.05	1.60	7.80	9.40	1.47	3.97	5.44	—	5,453	5,453	0.22	0.12	3.98	5,473
Mit.	4.45	5.41	36.0	34.2	0.05	1.60	7.80	9.40	1.47	3.97	5.44	—	5,453	5,453	0.22	0.12	3.98	5,473
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.44	5.34	36.0	33.9	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,756	6,756	0.28	0.12	0.10	6,781
Mit.	4.44	5.34	36.0	33.9	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,756	6,756	0.28	0.12	0.10	6,781
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.14	3.76	14.4	20.6	0.03	0.59	1.31	1.85	0.55	0.59	1.08	—	3,714	3,714	0.15	0.08	1.19	3,743

Mit.	2.14	3.76	14.4	20.6	0.03	0.59	1.31	1.85	0.55	0.59	1.08	—	3,714	3,714	0.15	0.08	1.19	3,743
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	0.69	2.63	3.76	0.01	0.11	0.24	0.34	0.10	0.11	0.20	—	615	615	0.03	0.01	0.20	620
Mit.	0.39	0.69	2.63	3.76	0.01	0.11	0.24	0.34	0.10	0.11	0.20	—	615	615	0.03	0.01	0.20	620
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	137	137	—	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	137	137	—	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.45	3.75	36.0	34.2	0.05	1.60	7.80	9.40	1.47	3.97	5.44	—	5,453	5,453	0.22	0.05	0.64	5,473

2025	3.03	5.41	19.7	30.2	0.04	0.81	0.79	1.60	0.75	0.19	0.94	—	5,201	5,201	0.21	0.12	3.98	5,245
2026	2.85	5.28	18.7	29.7	0.04	0.73	0.79	1.51	0.67	0.19	0.86	—	5,176	5,176	0.21	0.12	3.67	5,220
2027	2.74	5.18	17.9	29.3	0.04	0.66	0.79	1.44	0.61	0.19	0.79	—	5,153	5,153	0.20	0.11	3.34	5,196
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.44	3.73	36.0	33.9	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,756	6,756	0.28	0.06	0.02	6,781
2025	3.91	5.34	29.8	29.3	0.06	1.23	3.74	4.98	1.14	1.46	2.60	—	6,753	6,753	0.28	0.12	0.10	6,778
2026	2.80	5.22	18.8	28.3	0.04	0.73	0.79	1.51	0.67	0.19	0.86	—	5,085	5,085	0.21	0.12	0.10	5,125
2027	2.67	5.11	18.1	28.0	0.04	0.66	0.79	1.44	0.61	0.19	0.79	—	5,064	5,064	0.21	0.11	0.09	5,103
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.56	1.31	12.4	11.4	0.02	0.53	1.31	1.85	0.49	0.59	1.08	—	2,124	2,124	0.09	0.02	0.11	2,132
2025	2.14	3.76	14.4	20.6	0.03	0.59	0.64	1.23	0.55	0.17	0.72	—	3,714	3,714	0.15	0.08	1.19	3,743
2026	2.00	3.73	13.4	20.3	0.03	0.52	0.55	1.07	0.48	0.13	0.61	—	3,646	3,646	0.15	0.08	1.13	3,676
2027	1.69	3.22	11.4	17.7	0.03	0.42	0.48	0.90	0.38	0.12	0.50	—	3,209	3,209	0.13	0.07	0.91	3,235
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.28	0.24	2.27	2.08	< 0.005	0.10	0.24	0.34	0.09	0.11	0.20	—	352	352	0.01	< 0.005	0.02	353
2025	0.39	0.69	2.63	3.76	0.01	0.11	0.12	0.23	0.10	0.03	0.13	—	615	615	0.03	0.01	0.20	620
2026	0.37	0.68	2.44	3.70	0.01	0.09	0.10	0.19	0.09	0.02	0.11	—	604	604	0.02	0.01	0.19	609
2027	0.31	0.59	2.07	3.23	< 0.005	0.08	0.09	0.16	0.07	0.02	0.09	—	531	531	0.02	0.01	0.15	536

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.45	3.75	36.0	34.2	0.05	1.60	7.80	9.40	1.47	3.97	5.44	—	5,453	5,453	0.22	0.05	0.64	5,473

2025	3.03	5.41	19.7	30.2	0.04	0.81	0.79	1.60	0.75	0.19	0.94	—	5,201	5,201	0.21	0.12	3.98	5,245
2026	2.85	5.28	18.7	29.7	0.04	0.73	0.79	1.51	0.67	0.19	0.86	—	5,176	5,176	0.21	0.12	3.67	5,220
2027	2.74	5.18	17.9	29.3	0.04	0.66	0.79	1.44	0.61	0.19	0.79	—	5,153	5,153	0.20	0.11	3.34	5,196
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.44	3.73	36.0	33.9	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,756	6,756	0.28	0.06	0.02	6,781
2025	3.91	5.34	29.8	29.3	0.06	1.23	3.74	4.98	1.14	1.46	2.60	—	6,753	6,753	0.28	0.12	0.10	6,778
2026	2.80	5.22	18.8	28.3	0.04	0.73	0.79	1.51	0.67	0.19	0.86	—	5,085	5,085	0.21	0.12	0.10	5,125
2027	2.67	5.11	18.1	28.0	0.04	0.66	0.79	1.44	0.61	0.19	0.79	—	5,064	5,064	0.21	0.11	0.09	5,103
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.56	1.31	12.4	11.4	0.02	0.53	1.31	1.85	0.49	0.59	1.08	—	2,124	2,124	0.09	0.02	0.11	2,132
2025	2.14	3.76	14.4	20.6	0.03	0.59	0.64	1.23	0.55	0.17	0.72	—	3,714	3,714	0.15	0.08	1.19	3,743
2026	2.00	3.73	13.4	20.3	0.03	0.52	0.55	1.07	0.48	0.13	0.61	—	3,646	3,646	0.15	0.08	1.13	3,676
2027	1.69	3.22	11.4	17.7	0.03	0.42	0.48	0.90	0.38	0.12	0.50	—	3,209	3,209	0.13	0.07	0.91	3,235
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.28	0.24	2.27	2.08	< 0.005	0.10	0.24	0.34	0.09	0.11	0.20	—	352	352	0.01	< 0.005	0.02	353
2025	0.39	0.69	2.63	3.76	0.01	0.11	0.12	0.23	0.10	0.03	0.13	—	615	615	0.03	0.01	0.20	620
2026	0.37	0.68	2.44	3.70	0.01	0.09	0.10	0.19	0.09	0.02	0.11	—	604	604	0.02	0.01	0.19	609
2027	0.31	0.59	2.07	3.23	< 0.005	0.08	0.09	0.16	0.07	0.02	0.09	—	531	531	0.02	0.01	0.15	536

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.0	18.7	13.3	113	0.22	0.29	7.26	7.55	0.28	1.31	1.59	57.5	24,220	24,277	6.76	1.07	76.2	24,842

Mit.	12.0	18.7	13.3	113	0.22	0.29	7.26	7.55	0.28	1.31	1.59	57.5	24,220	24,277	6.76	1.07	76.2	24,842
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.0	16.8	15.3	83.4	0.21	0.29	7.26	7.55	0.28	1.31	1.59	57.5	22,270	22,327	6.83	1.16	4.32	22,848
Mit.	10.0	16.8	15.3	83.4	0.21	0.29	7.26	7.55	0.28	1.31	1.59	57.5	22,270	22,327	6.83	1.16	4.32	22,848
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.3	17.1	14.2	87.3	0.21	0.29	7.12	7.41	0.27	1.29	1.56	57.5	22,316	22,374	6.77	1.10	33.7	22,904
Mit.	10.3	17.1	14.2	87.3	0.21	0.29	7.12	7.41	0.27	1.29	1.56	57.5	22,316	22,374	6.77	1.10	33.7	22,904
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.89	3.12	2.60	15.9	0.04	0.05	1.30	1.35	0.05	0.23	0.29	9.52	3,695	3,704	1.12	0.18	5.57	3,792
Mit.	1.89	3.12	2.60	15.9	0.04	0.05	1.30	1.35	0.05	0.23	0.29	9.52	3,695	3,704	1.12	0.18	5.57	3,792
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	25.0	25.0	—	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshol	—	25.0	25.0	—	—	—	—	80.0	—	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	—	—	No	—	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783
Area	0.90	8.61	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786
Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	12.0	18.7	13.3	113	0.22	0.29	7.26	7.55	0.28	1.31	1.59	57.5	24,220	24,277	6.76	1.07	76.2	24,842
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Area	—	7.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786

Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	10.0	16.8	15.3	83.4	0.21	0.29	7.26	7.55	0.28	1.31	1.59	57.5	22,270	22,327	6.83	1.16	4.32	22,848
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.80	8.88	13.4	82.2	0.20	0.23	7.12	7.35	0.21	1.29	1.50	—	20,494	20,494	0.77	1.05	31.3	20,858
Area	0.45	8.18	0.05	4.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.9	12.9	< 0.005	< 0.005	—	12.9
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786
Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	10.3	17.1	14.2	87.3	0.21	0.29	7.12	7.41	0.27	1.29	1.56	57.5	22,316	22,374	6.77	1.10	33.7	22,904
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453
Area	0.08	1.49	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14
Energy	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	294	294	0.04	< 0.005	—	296
Water	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3
Waste	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	1.89	3.12	2.60	15.9	0.04	0.05	1.30	1.35	0.05	0.23	0.29	9.52	3,695	3,704	1.12	0.18	5.57	3,792

2.6. Operations Emissions by Sector, Mitigated

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

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

Mobile	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783
Area	0.90	8.61	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786
Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	12.0	18.7	13.3	113	0.22	0.29	7.26	7.55	0.28	1.31	1.59	57.5	24,220	24,277	6.76	1.07	76.2	24,842
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Area	—	7.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786
Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	10.0	16.8	15.3	83.4	0.21	0.29	7.26	7.55	0.28	1.31	1.59	57.5	22,270	22,327	6.83	1.16	4.32	22,848
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.80	8.88	13.4	82.2	0.20	0.23	7.12	7.35	0.21	1.29	1.50	—	20,494	20,494	0.77	1.05	31.3	20,858
Area	0.45	8.18	0.05	4.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.9	12.9	< 0.005	< 0.005	—	12.9
Energy	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,775	1,775	0.22	0.02	—	1,786
Water	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Waste	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	10.3	17.1	14.2	87.3	0.21	0.29	7.12	7.41	0.27	1.29	1.56	57.5	22,316	22,374	6.77	1.10	33.7	22,904
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453
Area	0.08	1.49	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14

Energy	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	294	294	0.04	< 0.005	—	296
Water	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3
Waste	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	1.89	3.12	2.60	15.9	0.04	0.05	1.30	1.35	0.05	0.23	0.29	9.52	3,695	3,704	1.12	0.18	5.57	3,792

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.41	2.98	< 0.005	0.15	—	0.15	0.13	—	0.13	—	469	469	0.02	< 0.005	—	471
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.54	< 0.005	0.03	—	0.03	0.02	—	0.02	—	77.7	77.7	< 0.005	< 0.005	—	77.9
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	1.06	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.55	137
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.76	2.76	< 0.005	< 0.005	0.01	2.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Demolition (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.41	2.98	< 0.005	0.15	—	0.15	0.13	—	0.13	—	469	469	0.02	< 0.005	—	471
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.54	< 0.005	0.03	—	0.03	0.02	—	0.02	—	77.7	77.7	< 0.005	< 0.005	—	77.9
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.09	0.06	1.06	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.55	137
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.76	2.76	< 0.005	< 0.005	0.01	2.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Site Preparation (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.96	2.71	< 0.005	0.13	—	0.13	0.12	—	0.12	—	435	435	0.02	< 0.005	—	437
Dust From Material Movement	—	—	—	—	—	—	0.63	0.63	—	0.32	0.32	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.54	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.1	72.1	< 0.005	< 0.005	—	72.3
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.07	1.24	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	157	157	0.01	0.01	0.64	159

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	0.93	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	138	138	0.01	0.01	0.02	140
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.7	11.7	< 0.005	< 0.005	0.02	11.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	1.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.96	2.71	< 0.005	0.13	—	0.13	0.12	—	0.12	—	435	435	0.02	< 0.005	—	437
Dust From Material Movement	—	—	—	—	—	—	0.63	0.63	—	0.32	0.32	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.54	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.1	72.1	< 0.005	< 0.005	—	72.3
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.07	1.24	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	157	157	0.01	0.01	0.64	159
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	0.93	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	138	138	0.01	0.01	0.02	140
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.7	11.7	< 0.005	< 0.005	0.02	11.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	1.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	6.04	5.31	0.01	0.26	—	0.26	0.23	—	0.23	—	1,162	1,162	0.05	0.01	—	1,166
Dust From Material Movement	—	—	—	—	—	—	0.63	0.63	—	0.25	0.25	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.10	0.97	< 0.005	0.05	—	0.05	0.04	—	0.04	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.06	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	158	158	0.01	0.01	0.02	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.6	28.6	< 0.005	< 0.005	0.06	29.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	6.04	5.31	0.01	0.26	—	0.26	0.23	—	0.23	—	1,162	1,162	0.05	0.01	—	1,166
Dust From Material Movement	—	—	—	—	—	—	0.63	0.63	—	0.25	0.25	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.10	0.97	< 0.005	0.05	—	0.05	0.04	—	0.04	—	192	192	0.01	< 0.005	—	193
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.06	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	158	158	0.01	0.01	0.02	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.6	28.6	< 0.005	< 0.005	0.06	29.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Grading (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	207	207	0.01	< 0.005	—	207

Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.2	34.2	< 0.005	< 0.005	—	34.3
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	0.98	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	154	154	0.01	0.01	0.02	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	0.01	5.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.83	0.83	< 0.005	< 0.005	< 0.005	0.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Grading (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	207	207	0.01	< 0.005	—	207
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.2	34.2	< 0.005	< 0.005	—	34.3

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	0.98	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	154	154	0.01	0.01	0.02	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	0.01	5.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.83	0.83	< 0.005	< 0.005	< 0.005	0.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.77	7.13	8.91	0.02	0.29	—	0.29	0.27	—	0.27	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.30	1.63	< 0.005	0.05	—	0.05	0.05	—	0.05	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.23	4.08	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	543	543	0.03	0.02	2.07	552
Vendor	0.02	0.02	0.55	0.20	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	374	374	< 0.005	0.05	1.00	392
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.30	0.30	3.04	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	478	478	0.03	0.02	0.05	485
Vendor	0.02	0.02	0.59	0.21	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	375	375	< 0.005	0.05	0.03	391
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.18	2.12	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	337	337	0.02	0.01	0.61	342
Vendor	0.02	0.01	0.39	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	< 0.005	0.04	0.29	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.7	55.7	< 0.005	< 0.005	0.10	56.6
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.3	42.3	< 0.005	0.01	0.05	44.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.77	7.13	8.91	0.02	0.29	—	0.29	0.27	—	0.27	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.30	1.63	< 0.005	0.05	—	0.05	0.05	—	0.05	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.23	4.08	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	543	543	0.03	0.02	2.07	552
Vendor	0.02	0.02	0.55	0.20	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	374	374	< 0.005	0.05	1.00	392
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.30	0.30	3.04	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	478	478	0.03	0.02	0.05	485
Vendor	0.02	0.02	0.59	0.21	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	375	375	< 0.005	0.05	0.03	391
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.18	2.12	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	337	337	0.02	0.01	0.61	342
Vendor	0.02	0.01	0.39	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	< 0.005	0.04	0.29	267

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.7	55.7	< 0.005	< 0.005	0.10	56.6
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.3	42.3	< 0.005	0.01	0.05	44.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.33	0.21	3.77	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	532	532	0.03	0.02	1.90	541
Vendor	0.02	0.02	0.52	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	367	367	< 0.005	0.05	0.93	384
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.29	0.27	2.82	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	469	469	0.03	0.02	0.05	476
Vendor	0.02	0.01	0.56	0.20	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	367	367	< 0.005	0.05	0.02	384
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.18	2.05	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	345	345	0.02	0.01	0.59	350
Vendor	0.01	0.01	0.39	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	262	262	< 0.005	0.04	0.29	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.1	57.1	< 0.005	< 0.005	0.10	58.0
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.4	43.4	< 0.005	0.01	0.05	45.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Building Construction (2026) - Mitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.33	0.21	3.77	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	532	532	0.03	0.02	1.90	541
Vendor	0.02	0.02	0.52	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	367	367	< 0.005	0.05	0.93	384
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.29	0.27	2.82	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	469	469	0.03	0.02	0.05	476
Vendor	0.02	0.01	0.56	0.20	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	367	367	< 0.005	0.05	0.02	384
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.18	2.05	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	345	345	0.02	0.01	0.59	350
Vendor	0.01	0.01	0.39	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	262	262	< 0.005	0.04	0.29	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.1	57.1	< 0.005	< 0.005	0.10	58.0
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.4	43.4	< 0.005	0.01	0.05	45.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Building Construction (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.65	5.94	8.18	0.01	0.21	—	0.21	0.20	—	0.20	—	1,515	1,515	0.06	0.01	—	1,520
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.08	1.49	< 0.005	0.04	—	0.04	0.04	—	0.04	—	251	251	0.01	< 0.005	—	252
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.31	0.20	3.51	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	522	522	0.03	0.02	1.73	530
Vendor	0.02	0.02	0.50	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	359	359	< 0.005	0.05	0.84	375
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.26	0.25	2.61	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	460	460	0.03	0.02	0.04	466
Vendor	0.02	0.01	0.54	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	359	359	< 0.005	0.05	0.02	375
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.14	1.69	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	299	299	0.02	0.01	0.47	304
Vendor	0.01	0.01	0.33	0.12	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	227	227	< 0.005	0.03	0.23	237

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	49.5	49.5	< 0.005	< 0.005	0.08	50.3
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.6	37.6	< 0.005	0.01	0.04	39.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Building Construction (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.65	5.94	8.18	0.01	0.21	—	0.21	0.20	—	0.20	—	1,515	1,515	0.06	0.01	—	1,520
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.14	0.12	1.08	1.49	< 0.005	0.04	—	0.04	0.04	—	0.04	—	251	251	0.01	< 0.005	—	252
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.31	0.20	3.51	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	522	522	0.03	0.02	1.73	530
Vendor	0.02	0.02	0.50	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	359	359	< 0.005	0.05	0.84	375
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.26	0.25	2.61	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	460	460	0.03	0.02	0.04	466
Vendor	0.02	0.01	0.54	0.19	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	—	359	359	< 0.005	0.05	0.02	375
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.14	1.69	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	299	299	0.02	0.01	0.47	304
Vendor	0.01	0.01	0.33	0.12	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	227	227	< 0.005	0.03	0.23	237
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	49.5	49.5	< 0.005	< 0.005	0.08	50.3
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.6	37.6	< 0.005	0.01	0.04	39.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Paving (2025) - Unmitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.09	6.82	0.01	0.24	—	0.24	0.22	—	0.22	—	1,032	1,032	0.04	0.01	—	1,036
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.24	< 0.005	0.04	—	0.04	0.04	—	0.04	—	171	171	0.01	< 0.005	—	171
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.99	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	132	132	0.01	< 0.005	0.50	134
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.74	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	116	116	0.01	< 0.005	0.01	118
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.51	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	81.5	81.5	< 0.005	< 0.005	0.15	82.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Paving (2025) - Mitigated

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

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

Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.09	6.82	0.01	0.24	—	0.24	0.22	—	0.22	—	1,032	1,032	0.04	0.01	—	1,036
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.24	< 0.005	0.04	—	0.04	0.04	—	0.04	—	171	171	0.01	< 0.005	—	171
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.99	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	132	132	0.01	< 0.005	0.50	134
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.74	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	116	116	0.01	< 0.005	0.01	118
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.51	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	81.5	81.5	< 0.005	< 0.005	0.15	82.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	5.08	7.10	0.01	0.23	—	0.23	0.21	—	0.21	—	1,079	1,079	0.04	0.01	—	1,083
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.30	< 0.005	0.04	—	0.04	0.04	—	0.04	—	179	179	0.01	< 0.005	—	179
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.91	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	129	129	0.01	< 0.005	0.46	131
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.68	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	114	114	0.01	< 0.005	0.01	115

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.50	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.6	83.6	< 0.005	< 0.005	0.14	84.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Paving (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	5.08	7.10	0.01	0.23	—	0.23	0.21	—	0.21	—	1,079	1,079	0.04	0.01	—	1,083
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.30	< 0.005	0.04	—	0.04	0.04	—	0.04	—	179	179	0.01	< 0.005	—	179
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.91	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	129	129	0.01	< 0.005	0.46	131
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.68	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	114	114	0.01	< 0.005	0.01	115
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.50	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.6	83.6	< 0.005	< 0.005	0.14	84.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.38	6.27	0.01	0.19	—	0.19	0.17	—	0.17	—	952	952	0.04	0.01	—	955
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.80	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	158	158	0.01	< 0.005	—	158
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.85	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	126	126	0.01	< 0.005	0.42	128
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.63	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	111	111	0.01	< 0.005	0.01	113
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.3	72.3	< 0.005	< 0.005	0.11	73.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.02	12.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Paving (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.38	6.27	0.01	0.19	—	0.19	0.17	—	0.17	—	952	952	0.04	0.01	—	955
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.80	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	158	158	0.01	< 0.005	—	158
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.85	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	126	126	0.01	< 0.005	0.42	128
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.63	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	111	111	0.01	< 0.005	0.01	113
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.3	72.3	< 0.005	< 0.005	0.11	73.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.02	12.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Architectural Coating (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.60	0.78	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.2	91.2	< 0.005	< 0.005	—	91.5
Architectural Coatings	—	1.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.1	15.1	< 0.005	< 0.005	—	15.1
Architectural Coatings	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.82	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	109	109	0.01	< 0.005	0.41	110
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.61	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	95.7	95.7	0.01	< 0.005	0.01	97.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.42	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.3	67.3	< 0.005	< 0.005	0.12	68.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Architectural Coating (2025) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.60	0.78	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.2	91.2	< 0.005	< 0.005	—	91.5
Architectural Coatings	—	1.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.1	15.1	< 0.005	< 0.005	—	15.1
Architectural Coatings	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.82	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	109	109	0.01	< 0.005	0.41	110
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.61	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	95.7	95.7	0.01	< 0.005	0.01	97.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.42	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.3	67.3	< 0.005	< 0.005	0.12	68.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Architectural Coating (2026) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.61	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	2.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.75	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	0.01	< 0.005	0.38	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	93.8	93.8	0.01	< 0.005	0.01	95.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.0	69.0	< 0.005	< 0.005	0.12	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	0.02	11.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Architectural Coating (2026) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.61	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	2.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.75	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	0.01	< 0.005	0.38	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	93.8	93.8	0.01	< 0.005	0.01	95.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.41	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.0	69.0	< 0.005	< 0.005	0.12	70.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	0.02	11.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Architectural Coating (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.52	0.71	< 0.005	0.01	—	0.01	0.01	—	0.01	—	84.1	84.1	< 0.005	< 0.005	—	84.4
Architectural Coatings	—	1.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	14.0
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.70	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	104	104	0.01	< 0.005	0.35	106
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.52	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	91.9	91.9	0.01	< 0.005	0.01	93.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.7	59.7	< 0.005	< 0.005	0.09	60.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.88	9.88	< 0.005	< 0.005	0.02	10.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Architectural Coating (2027) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.52	0.71	< 0.005	0.01	—	0.01	0.01	—	0.01	—	84.1	84.1	< 0.005	< 0.005	—	84.4
Architectural Coatings	—	1.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	14.0
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.04	0.70	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	104	104	0.01	< 0.005	0.35	106
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.52	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	91.9	91.9	0.01	< 0.005	0.01	93.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.7	59.7	< 0.005	< 0.005	0.09	60.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.88	9.88	< 0.005	< 0.005	0.02	10.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783
Total	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Total	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453
Total	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453

4.1.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783

Total	11.0	10.0	12.5	103	0.22	0.23	7.26	7.49	0.22	1.31	1.53	—	22,384	22,384	0.76	1.03	73.8	22,783
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Total	9.94	8.98	14.6	83.0	0.20	0.23	7.26	7.49	0.22	1.31	1.53	—	20,460	20,460	0.83	1.12	1.91	20,816
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453
Total	1.79	1.62	2.45	15.0	0.04	0.04	1.30	1.34	0.04	0.23	0.27	—	3,393	3,393	0.13	0.17	5.18	3,453

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Total	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852

Total	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Total	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Total	—	—	—	—	—	—	—	—	—	—	—	—	843	843	0.14	0.02	—	852
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Total	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Total	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	154	154	0.01	< 0.005	—	155
Total	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	154	154	0.01	< 0.005	—	155

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934

Total	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Total	0.09	0.04	0.73	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	932	932	0.08	< 0.005	—	934
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	154	154	0.01	< 0.005	—	155
Total	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	154	154	0.01	< 0.005	—	155

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	7.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.90	0.86	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2
Total	0.90	8.61	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	7.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	7.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14
Total	0.08	1.49	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14

4.3.1. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	7.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.90	0.86	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2
Total	0.90	8.61	0.09	9.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.1	26.1	< 0.005	< 0.005	—	26.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	7.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	7.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14
Total	0.08	1.49	0.01	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.13	2.13	< 0.005	< 0.005	—	2.14

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Total	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Total	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3
Total	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3

4.4.1. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0

Total	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Total	—	—	—	—	—	—	—	—	—	—	—	10.6	34.1	44.8	1.09	0.03	—	80.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3
Total	—	—	—	—	—	—	—	—	—	—	—	1.76	5.65	7.41	0.18	< 0.005	—	13.3

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Total	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164

Total	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2
Total	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2

4.5.1. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Total	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Total	—	—	—	—	—	—	—	—	—	—	—	46.9	0.00	46.9	4.69	0.00	—	164
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2
Total	—	—	—	—	—	—	—	—	—	—	—	7.76	0.00	7.76	0.78	0.00	—	27.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40

4.6.2. Mitigated

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

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

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.40	2.40
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

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

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/11/2024	8/20/2024	5.00	50.0	—
Site Preparation	Site Preparation	8/21/2024	10/2/2024	5.00	30.0	—
Grading	Grading	10/3/2024	1/16/2025	5.00	75.0	—
Building Construction	Building Construction	1/17/2025	11/19/2027	5.00	740	—
Paving	Paving	1/17/2025	11/18/2027	5.00	740	—
Architectural Coating	Architectural Coating	1/17/2025	11/18/2027	5.00	740	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38

Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.9	LDA,LDT1,LDT2
Demolition	Vendor	—	6.36	HHDT,MHDT

Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	6.36	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	6.36	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	61.9	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	18.4	6.36	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	6.36	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	12.4	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	6.36	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.9	LDA,LDT1,LDT2
Demolition	Vendor	—	6.36	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	6.36	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	6.36	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	61.9	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	18.4	6.36	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	6.36	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	12.4	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	6.36	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	679,185	226,395	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	0.00	—
Site Preparation	0.00	0.00	45.0	0.00	—
Grading	0.00	0.00	225	0.00	—
Paving	0.00	0.00	0.00	0.00	1.90

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.90	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	1,622	1,631	1,459	583,944	25,498	25,634	22,930	9,179,994

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Single Family Housing	1,622	1,631	1,459	583,944	25,498	25,634	22,930	9,179,994

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
679185	226,395	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,509,195	204	0.0330	0.0040	2,906,974

5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,509,195	204	0.0330	0.0040	2,906,974

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	5,544,730	27,101,228

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	5,544,730	27,101,228

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	34.0	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	34.0	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	8.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	9.94	annual hectares burned

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

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	3	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	3	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2

Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	70.5
AQ-PM	18.3
AQ-DPM	16.1
Drinking Water	63.5
Lead Risk Housing	67.1
Pesticides	83.7
Toxic Releases	6.53
Traffic	16.5
Effect Indicators	—
CleanUp Sites	37.6
Groundwater	59.6

Haz Waste Facilities/Generators	23.7
Impaired Water Bodies	72.2
Solid Waste	63.7
Sensitive Population	—
Asthma	69.1
Cardio-vascular	97.1
Low Birth Weights	85.8
Socioeconomic Factor Indicators	—
Education	72.2
Housing	59.3
Linguistic	31.3
Poverty	95.2
Unemployment	99.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.42230207
Employed	1.73232388
Median HI	19.81265238
Education	—
Bachelor's or higher	8.520467086
High school enrollment	100
Preschool enrollment	43.9753625
Transportation	—
Auto Access	36.01950468

Active commuting	6.313358142
Social	—
2-parent households	18.73476197
Voting	41.67842936
Neighborhood	—
Alcohol availability	75.41383293
Park access	21.35249583
Retail density	4.876170923
Supermarket access	19.17105094
Tree canopy	72.07750545
Housing	—
Homeownership	70.64031823
Housing habitability	68.06108046
Low-inc homeowner severe housing cost burden	45.7590145
Low-inc renter severe housing cost burden	44.01385859
Uncrowded housing	57.46182471
Health Outcomes	—
Insured adults	33.3504427
Arthritis	0.0
Asthma ER Admissions	10.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	1.6

Cognitively Disabled	1.4
Physically Disabled	1.3
Heart Attack ER Admissions	0.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	53.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	35.2
Elderly	19.9
English Speaking	55.8
Foreign-born	18.8
Outdoor Workers	35.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.3
Traffic Density	15.4
Traffic Access	0.0
Other Indices	—
Hardship	82.6

Other Decision Support	—
2016 Voting	27.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	12.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Construction timeline based off of email provided by MD3 Investments
Land Use	Units and lot acreage provided by Project Description
Construction: Construction Phases	Building const., paving, and arch. coating will be happening concurrently
Operations: Hearths	No fireplaces or wood stoves
Operations: Vehicle Data	Data provided by KD Anderson & Associates Traffic Report

APPENDIX 3.2 A

Biological Resources Assessment for the Feather Ranch Project

ECORP Consulting, Inc., January 2023

Biological Resources Assessment
for the
Feather Ranch Project

Butte County, California

Prepared For:

MD3 Investments

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

February 2023

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
°F	Degrees Fahrenheit
APN	Assessor Parcel Number
BA	Biological Assessment
BCC	Birds of Conservation Concern
BO	Biological Opinion
BRA	Biological Resources Assessment
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Oroville
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DPS	Distinct population segment
Element	Open Space, Natural Resources, and Conservation Element of the Oroville General Plan
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level
NCCP	Natural Community Conservation Plan
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

Term	Description
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWPR	National Wetlands Protection Rule
Project	Feather Ranch Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group

1.0 INTRODUCTION

On behalf of the MD3 Investments, ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the Feather Ranch Project (Project) located in the City of Oroville, Butte County, California. The Project is located within Assessor Parcel Number (APN) 030-230-098-000. For this BRA, the Study Area was defined as the limits of this APN. The purpose of the assessment was to collect information on the biological resources present and evaluate the potential for special-status species and their habitats to occur in the Study Area; assess potential biological impacts related to Project activities; and identify potential mitigation measures to inform the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Project Location

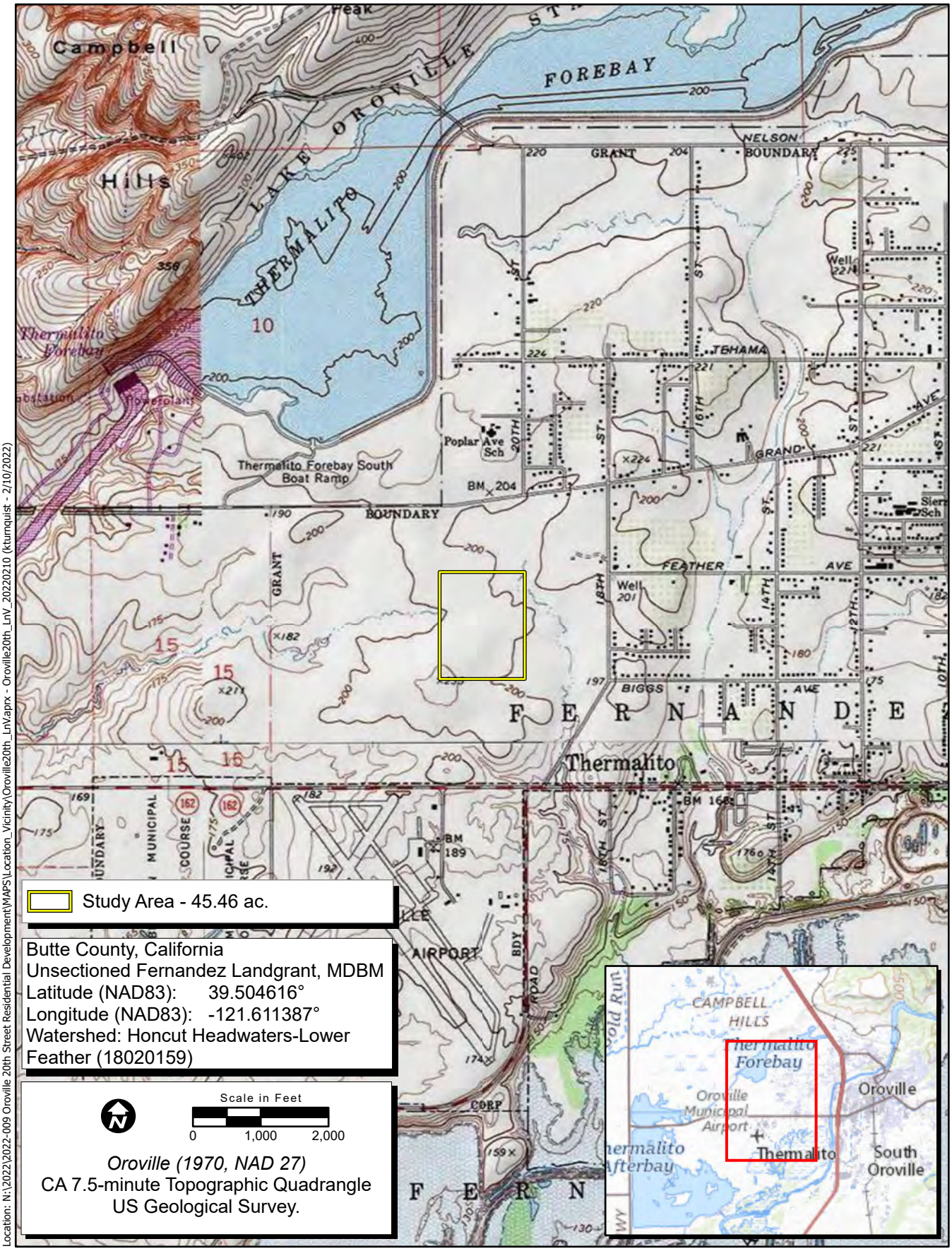
The approximately 45.46-acre Study Area includes the impact limits of the Project and is located west of 20ths Street between Feather Avenue and Biggs Avenue in Oroville, Butte County, California (Figure 1). The Study Area corresponds to an unsectioned portion of the Fernandez Landgrant within the "Oroville, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1970). The approximate center of the Study Area is located at latitude 39.504616° and longitude -121.611387° (North American Datum 1983) within the Honcut Headwaters-Lower Feather watershed (Hydrologic Unit Code #18020159; Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\Location_Vicinity\Oroville20th_LnV.aprx - Oroville20th_LnV_20220210 (kturnquist - 2/10/2022)

Map Date: 2/10/2022
Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);

are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or

are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

1.3 Previous Studies

An aquatic resources delineation report was prepared for the Study Area by Rincon Consultants, Inc. (Rincon. 2021). The delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0)* (U.S. Army Corps of Engineers [USACE] 2008).

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.1.1 Section 7

Section 7 of the ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify

Critical Habitat for listed species. If adverse effects to a species or its Critical Habitat are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a biological opinion (BO). Through consultation and the issuance of a BO, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS.

2.1.1.2 Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit (ITP) under Section 10 of the ESA is necessary. The purpose of the ITP is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an ITP under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

2.1.1.3 Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and

2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, the physical or biological features needed for life processes. Physical and biological features that are essential to the conservation of the species may require special management considerations or protection. These include but are not limited to:

space for individual and population growth and for normal behavior;

food, water, air, light, minerals, or other nutritional or physiological requirements;

cover or shelter;

sites for breeding, reproduction, or rearing (or development) of offspring; or

habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "…restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the USACE. "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 CFR Section 328.2(f)]. In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to Waters of the U.S. (more than 0.5 acre of impact) may require an individual permit. Projects that only minimally affect Waters of the U.S. (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.1.4 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable Waters of the U.S. Structures or work outside the limits defined for navigable Waters of the U.S. require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies

to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable Water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. The alteration of a USACE-federally authorized civil works project requires a permit pursuant to Section 14 of the Act, as amended and codified in 33 USC 408. Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, who serve as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

2.2 State Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code Sections 2050-2116) protects species of fish, wildlife, and plants listed by the State as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. Fully protected species are identified in the California Fish and Game Code Section 4700 for mammals, Section 3511 for birds, Section 5050 for reptiles and amphibians, and Section 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan (NCCP) within which such species are covered.

2.2.3 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code Sections 1900-1913) was established with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare." The NPPA prohibits the take of plants listed under the NPPA, though the NPPA contains exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.2.4 California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code Section 3511 described above, the California Fish and Game Code includes a several sections that specifically protect certain birds:

Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.

Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.

Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.

Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.5 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the State Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials

into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

2.2.6 California Environmental Quality Act

In accordance with CEQA Guidelines Section 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria parallel the definitions used in the ESA, California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under the ESA, California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as SSC by CDFW, birds identified as BCC by USFWS, and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

2.2.6.1 Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal ESA, California ESA, or California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- SSC are typically associated with habitats that are threatened.

Depending on the policy of the lead agency, projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.6.2 U.S. Fish and Wildlife Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest

conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.6.3 Sensitive Natural Communities

The CDFW maintains the California Natural Community List (CDFW 2021), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation* (Sawyer et al. 2009), along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

2.2.6.4 California Rare Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California (CNPS 2022), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private-sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere.

Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere.

Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere.

Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere.

Rare Plant Rank 3 – a review list of plants about which more information is needed.

Rare Plant Rank 4 – a watch list of plants of limited distribution.

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat).

Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat).

Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2022).

Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2, and 3 are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 4 and at the discretion of the CEQA lead agency.

2.2.6.5 California Environmental Quality Act Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of nonlisted species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines, which provides examples of impacts that would normally be considered significant.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant under CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 Local Plans and Ordinances

2.3.1 Oroville 2030 General Plan

The Open Space, Natural Resources, and Conservation Element (Element) of the Oroville General Plan, adopted in 2009, is dedicated to preserving and improving the quantity, quality, and character of open space in Oroville. The Element identifies Oroville's important open space lands and ensures that future development will respect the natural and scenic qualities of those places, helping to shape the desired physical form of the community by safeguarding open space for future generations. The Element also provides direction regarding the conservation, development and use of natural resources in and around Oroville, including mineral, agricultural and cultural resources, as well addressing water and air quality. The following Goals from the Biological Resources section of the Element could pertain to Project development:

Goal OPS-8 Preserve and protect all special-status species, species that are candidates for federal or state listing. State species of special concern, and CNPS listed plant species.

Goal OPS-9 Protect areas of significant wildlife habitat and sensitive biological resources to maintain biodiversity among plant and animal species in the City of Oroville and the surrounding area.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that have been documented within or in the vicinity of the Study Area.

CDFW CNDDB data for the "Oroville, California" 7.5-minute USGS quadrangle and the nine surrounding USGS quadrangles (CDFW 2022a).

USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2022a).

CNPS' electronic Inventory of Rare and Endangered Plants of California was queried for the "Oroville, California" 7.5-minute USGS quadrangles and the nine surrounding quadrangles (CNPS 2022).

NMFS Resources data for the "Oroville, California" 7.5-minute USGS quadrangle (National Oceanic and Atmospheric Administration [NOAA] 2022a).

The results of the database queries are included in Appendix A.

Aerial imagery and site or species-specific background information, as cited throughout this document, were reviewed to determine the potential for occurrence of sensitive biological resources within or in the vicinity of the Study Area.

3.2 Field Surveys Conducted

ECORP biologist Keith Kwan conducted a reconnaissance-level field survey for the Study Area on March 1, 2022. The reconnaissance survey entailed visual observation and documentation of onsite biological resources. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

Potential aquatic resources.

Vegetation communities.

Plant and animal species directly observed.

Animal evidence (e.g., scat, tracks).

Existing active raptor nest locations.

Special habitat features.

Representative photographs.

3.3 Special-Status Species Considered for the Study Area

Based on database queries, a list of special-status species that are considered to have the potential to occur within the vicinity of the Study Area was generated (Table 1). Each of the species was evaluated for its potential to occur within the Study Area through the literature review and field observations, and categorized based on the following criteria:

Present - Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.

Potential to Occur - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.

Low Potential to Occur - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.

Absent - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Existing Condition

4.1.1 Site Characteristics and Land Use

The Study Area is located within gently rolling terrain situated at an elevational range of approximately 190 to 230 feet above Mean Sea Level (MSL) in the Sacramento Valley District of the California floristic province (Baldwin et al. 2012). The average winter low temperature in the vicinity of the Study Area is 39.4 degrees Fahrenheit (˚F) and the average summer high temperature is 92.2˚F; average annual precipitation is approximately 31.52 inches (NOAA 2022b).

The Study Area is currently undeveloped and idle rangeland. The vegetation community is a mixture of native and nonnative herbaceous plants. There are no trees or shrubs present. There are no perimeter fences, so this site is not used for livestock grazing but may have been in the past. Undeveloped dirt roads and a disced fire-break path surround the Study Area.

The surrounding lands include residential development to the east, rural residences to the north and south, and undeveloped rangeland to the west.

Representative photographs of the Study Area are included in Appendix B.

4.1.2 Soils

According to the Web Soil Survey (NRCS 2022), one soil unit, or type, has been mapped within the Study Area, (603) Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes (Figure 2).

This soil unit is composed of Oroville, gravelly fine sandy loam, and similar soils (30 percent), Thermalito, sandy loam, and similar soils (25 percent), Fernandez, sandy loam, and similar soils (15 percent), Thompsonflat, fine sandy loam, and similar soils (15 percent), and minor components (15 percent). The Oroville series consists of moderately deep, poorly drained soils that formed in alluvium derived from metamorphic and igneous rocks. These soils are in swales on intermediate terraces. The Thermalito series consists of moderately deep, somewhat poorly drained soils that formed in alluvium derived from metamorphic and igneous rocks. These soils are on mounds on intermediate terraces. The Thompsonflat series consists of very deep, moderately well drained soils that formed in alluvium derived from metamorphic and igneous rocks. These soils are on intermediate and high terraces. The Fernandez series consists of very deep, moderately well drained soils that formed in alluvium derived from metamorphic and igneous rocks. These soils are on intermediate terraces.

This soil unit is not derived from serpentinite or other ultramafic parent materials (Horton 2017; Jennings et al. 1977; NRCS 2022).

4.1.3 Vegetation Communities and Land Cover Types

The majority of the Study Area is comprised of nonnative annual grassland with scattered isolated seasonal wetlands/vernal pool basins. The develop-disturbed land cover type found onsite consists of dirt roads and areas of repeated off-road vehicle use. These areas are largely denuded of any vegetation.

4.1.3.1 Non-Native Annual Grassland

The majority of the Study Area is comprised of nonnative annual grassland. This community is dominated by a variety of nonnative species such as medusahead grass (*Elymus caput-medusae*), wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis*), and filaree (*Erodium* species). This vegetation community onsite is not specifically classified in *A Manual of California Vegetation* (Sawyer et al. 2009) but is similar to some "Herbaceous Semi-Natural" alliances.

4.1.3.2 Seasonal Wetland/Vernal Pool

Seasonal wetlands/vernal pools are scattered throughout the Study Area in topographic depressions in the rolling terrain. These depressions collect seasonal runoff and direct rainfall during the wet season and remain inundated or saturated long enough during the growing season to support wetland vegetation, hydric soil, and wetland hydrology. Dominant plant species found in these wetland depressions include slender popcorn flower (*Plagiobothrys stipitatus*), toad rush (*Juncus bufonius*), smooth goldfields (*Lasthenia glaberrima*), and water-starwort (*Callitriche marginata*).

Map Features

Study Area - 45.46

Series Number - Series Description

603 - Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes

Photo Source: NAIP 2020

Map Date: 3/4/2022

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 500 1,000

Figure 2. Natural Resources Conservation Service Soil Types

2022-009 Oroville 20th Street Residential Development

ECORP: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\Soils_and_Geology\Oroville20th_NRCS_20220304.mxd (AMM) amyers 3/4/2022

This vegetation community onsite is not specifically classified in *A Manual of California Vegetation* (Sawyer et al. 2009) These wetlands are discussed in further detail in the Section 4.1.4 Aquatic Resources.

4.1.4 Aquatic Resources

Rincon prepared an aquatic resources delineation report dated March 2021 for the Study Area (Figure 3; Appendix C).

Seventy-eight depressional seasonal wetlands totaling 2.62 acres were delineated within the Study Area. These wetlands were categorized as seasonal wetlands by Rincon but some could be considered vernal pools by other wetland delineators. The U.S. Environmental Protection Agency (USEPA) defines vernal pools as "seasonal depressional wetlands that occur under Mediterranean climate conditions of the West Coast and in glaciated areas of the northeastern and midwestern states. They are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall" (USEPA 2022).

At present, there has been no verification or jurisdictional determination of these aquatic resources conducted by the USACE.

When Rincon prepared the delineation report, the definition of Waters of the U.S. was based on the National Wetlands Protection Rule (NWPR). Under the NWPR, the wetlands onsite would probably not have been considered Waters of the U.S. as stated in the Rincon report. However, the NWPR was vacated and remanded in August 2021. Under the current definition of Waters of the U.S. according to the pre-2015 regulatory regime, which includes the *Rapanos* Guidance, wetlands adjacent to nonnavigable tributaries that are not relatively permanent would require a significant nexus evaluation to establish federal jurisdiction. The wetlands onsite would require a significant nexus evaluation by the USACE in order to determine jurisdiction.

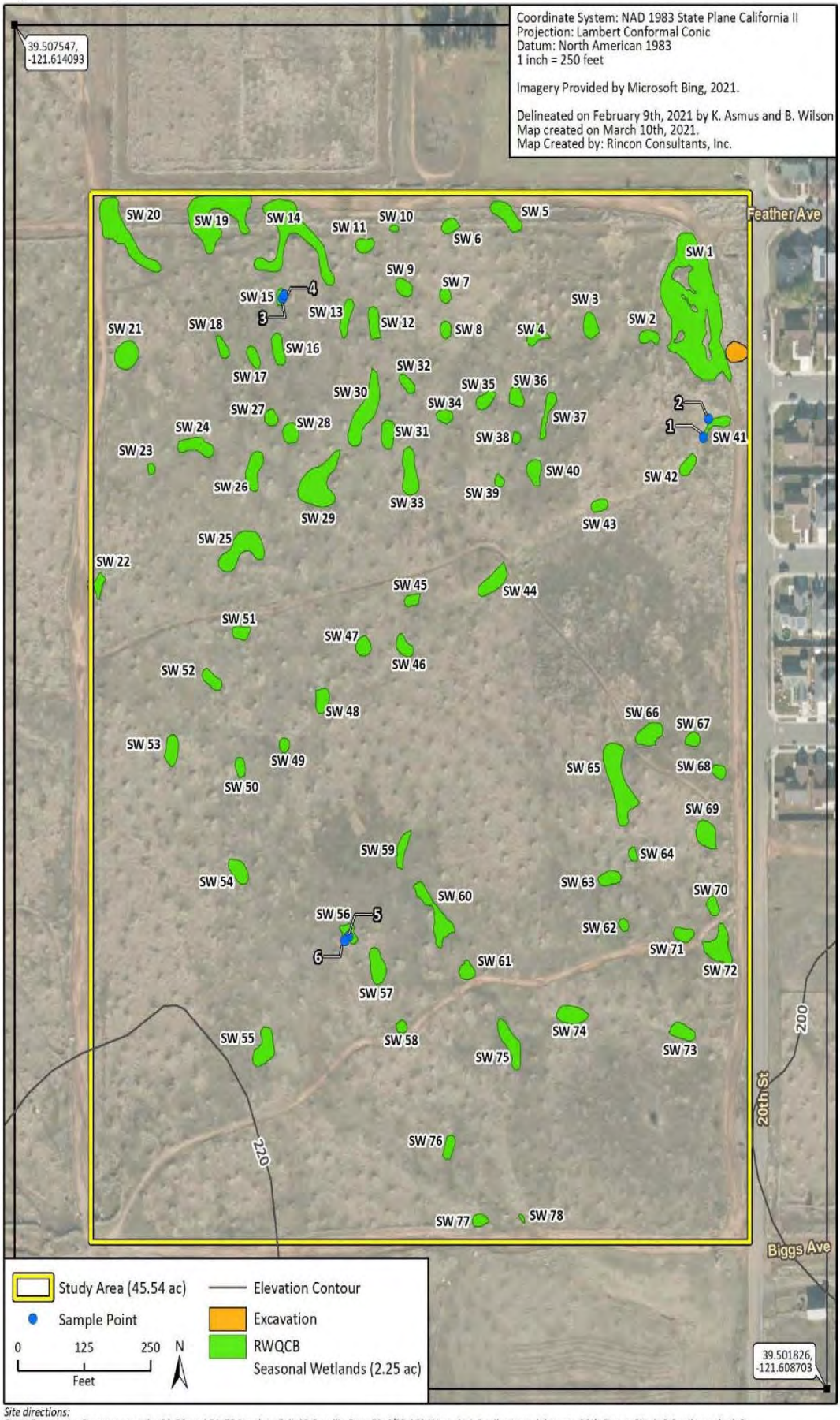
Regardless of federal jurisdiction, the wetlands delineated onsite would likely be considered Waters of the State under the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board 2019).

4.1.5 Wildlife Observations

Wildlife observed within or flying over the Study Area during the site reconnaissance includes mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), savannah sparrow (*Passerculus sandwichensis*), Brewer's blackbird (*Euphagus cyanocephalus*), and western meadowlark (*Sturnella neglecta*).

4.2 Evaluation of Species Identified in the Literature Search

Table 1 lists all the special-status plant and wildlife species (as defined in Section 1.3) identified in the literature review as potentially occurring within the vicinity of the Study Area. Included in this table are the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Study Area.



Site directions:
From Downtown Sacramento take CA-99 and CA-70 North to Exit 46 Oroville Dam Blvd/SR 162 West. At 1.9 miles turn right onto 20th Street. Site is 0.3 mile on the left.

Source: Rincon Consultants, Inc.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3. Aquatic Resources Delineation Map
2022-099 Feather Ranch Project

Following the table is a brief description and discussion of each special-status species that was determined to have potential to occur onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Plants						
Henderson's bent grass *(Agrostis hendersonii)*	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands (230'–1,000').	April–June	Potential – There is suitable habitat onsite.
Jepson's onion *(Allium jepsonii)*	–	–	1B.2	Serpentinite or volcanic soils in chaparral, cismontane woodland, and lower montane coniferous forests (984'–4,331').	April–August	Absent-There is no suitable habitat onsite.
Sanborn's onion *(Allium sanbornii* var. *sanbornii)*	–	–	4.2	Chaparral, cismontane woodland, and lower montane coniferous forests, usually with gravelly, serpentinite soils (853'–4,954').	May–September	Absent-There is no suitable habitat onsite.
True's manzanita *(Arctostaphylos mewukka* ssp. *truei)*	–	–	4.2	Chaparral and lower montane coniferous forest, sometimes on roadsides (1,394'–4,560').	February–July	Absent-There is no suitable habitat onsite.
Depauperate milk-vetch (*Astragalus pauperculus*)	-	-	4.3	Occurs within vernally mesic and volcanic soils in chaparral, cismontane woodland, and valley and foothill grasslands (195'-3,985')	March-June	Low Potential – There is marginally suitable habitat onsite.
Mexican mosquito fern *(Azolla microphylla)*	–	–	4.2	Marshes and swamps, ponds or slow-moving bodies of water (98'–328').	August	Absent-There is no suitable habitat onsite.
Big-scale balsamroot *(Balsamorhiza macrolepis)*	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on	March–June	Potential – There is suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				serpentinite soils (150'–5,100').		
Valley brodiaea (*Brodiaea rosea* ssp. *vallicola*)	–	–	4.2	Occurs in old alluvial terraces and silt, sandy, or gravelly soils in vernal pools and swales within valley and foothill grassland (35'–1,100').	April–May	Potential – There is suitable habitat onsite.
Sierra foothills brodiaea *(Brodiaea sierrae)*	–	–	4.3	Usually found on serpentinite or gabbroic soils within chaparral or cismontane woodland (164'–3,215').	May–August	Absent-There is no suitable habitat onsite.
Thread-leaved beakseed *(Bulbostylis capillaris)*	–	–	4.2	Lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest (1,296'–6,808').	June–August	Absent-There is no suitable habitat onsite.
Butte County calycadenia *Calycadenia oppositifolia*)	-	-	4.2	Occurs on volcanic, granitic, and serpentinite areas of chaparral, cismontane woodland, lower montane coniferous forest, meadows, seeps and valley and foothill grassland. (295'-3,100')	April - July	Low Potential – There is marginally suitable habitat onsite.
Dissected-leaved toothwort (*Cardamine pachystigma* var. *dissectifolia*)	–	–	1B.2	Rocky, usually serpentine soils of chaparral and lower montane coniferous forest (836'–6,890').	Feb–May	Absent-There is no suitable habitat onsite.
Pink creamsacs *(Castilleja rubicundula* var. *rubicundula)*	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps,	April–June	Low Potential – There is marginally suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				and valley and foothill grassland (65'–2,985').		
Brandegee's clarkia *(Clarkia biloba* ssp. *brandegeeae)*	–	–	4.2	Chaparral, cismontane woodlands, and lower montane coniferous forest often along roadcuts (246'–3,002').	May–July	Absent-There is no suitable habitat onsite.
White-stemmed clarkia (*Clarkia gracilis* ssp. *albicaulis*)	–	–	1B.2	Sometimes serpentine soils of chaparral and cismontane woodland (803'–3,560').	May–July	Absent-There is no suitable habitat onsite.
Golden-anthered clarkia (*Clarkia mildrediae* ssp. *lutescens*)	–	–	4.2	Often roadcuts and often rocky soils of cismontane woodland and lower montane coniferous forest openings (902'–5,741').	June–August	Absent-There is no suitable habitat onsite.
Mildred's clarkia (*Clarkia mildrediae* ssp. *mildrediae*)	–	–	1B.3	Sandy, usually granitic soils of cismontane woodland and lower montane coniferous forest (803'–5,611).	May–August	Absent-There is no suitable habitat onsite.
Mosquin's clarkia (*Clarkia mosquinii*)	–	–	1B.1	Rocky soils and roadsides of cismontane woodland and lower montane coniferous forest (606'–4,889')	May–July	Absent-There is no suitable habitat onsite.
Marsh claytonia (*Claytonia palustris*)	–	–	4.3	Meadows and seeps (mesic), marshes and swamps, and upper montane coniferous forest (3,280'–8,202').	May–October	Absent-There is no suitable habitat onsite.
Streambank spring beauty *(Claytonia parviflora* ssp. *grandiflora)*	–	–	4.2	Occurs in rocky cismontane woodland (820'–3,937').	February–May	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
California lady's-slipper (*Cypripedium californicum)*	–	–	4.2	Usually within serpentinite seeps and streambanks of bogs and ferns, and lower montane coniferous forest (98'–9,022').	April–August	Absent-There is no suitable habitat onsite.
Clustered lady's-slipper *(Cypripedium fasciculatum)*	–	–	4.2	In serpentinite seeps, and streambanks of lower montane coniferous forest, and North Coast coniferous forest (328'–7,989').	March–August	Absent-There is no suitable habitat onsite.
Recurved larkspur *(Delphinium recurvatum)*	–	–	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands (10'–2,592').	March–June	Potential – There is suitable habitat onsite.
Ahart's buckwheat (*Eriogonum umbellatum* var. *ahartii*)	–	–	1B.2	Serpentine soils, slopes, and openings of chaparral and cismontane woodland (1,312'–6,562').	June–September	Absent-There is no suitable habitat onsite.
Fern-leaved monkeyflower (*Erythranthe filicifolia*)	–	–	1B.2	Usually slow-draining, ephemeral seeps among exfoliating granitic slabs of chaparral, lower montane coniferous forest, and ephemeral meadows and seeps (1,361'–5,610').	April–June	Absent-There is no suitable habitat onsite.
Shield-bracted monkeyflower (*Erythranthe glaucescens*)	–	–	4.3	Serpentine seeps and sometimes streambanks of chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland (196'–4,069').	February–August	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Small–flowered monkeyflower (*Erythranthe inconspicua*)	–	–	4.3	Mesic. Chaparral, cismontane woodland and lower montane coniferous forest (899'–2,493').	May–June	Absent-There is no suitable habitat onsite.
Hoover's spurge (*Euphorbia hooveri*)	FT	–	1B.2	Vernal pools (80'–820').	July–September	Potential – There is suitable habitat onsite.
Butte County fritillary *(Fritillaria eastwoodiae)*	–	–	3.2	Chaparral, cismontane woodland, and openings in lower montane coniferous forest and occasionally is found on serpentinite soils (164'–4,921').	March–June	Absent-There is no suitable habitat onsite.
Adobe lily *(Fritillaria pluriflora)*	–	–	1B.2	Adobe soils in chaparral, cismontane woodland, and valley and foothill grassland (197'–2,313').	February–April	Absent-There is no suitable habitat onsite.
Serpentine bluecup *(Githopsis pulchella* ssp. *serpentinicola)*	–	–	4.3	Serpentinite or Ione cismontane woodland (1,050'–2,001').	May–June	Absent-There is no suitable habitat onsite.
Hogwallow starfish *(Hesperevax caulescens)*	–	–	4.2	Sometimes alkaline in mesic areas with clay soil within valley and foothill grassland and shallow vernal pools (0'–1,655').	March–June	Potential – There is suitable habitat onsite.
Woolly rose-mallow *(Hibiscus lasiocarpos* var. *occidentalis)*	–	–	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees (0'–394').	June–September	Absent-There is no suitable habitat onsite.
Ahart's dwarf rush *(Juncus leiospermus* var. *ahartii)*	–	–	1B.2	Mesic areas in valley and foothill grassland. Species has an affinity for slight disturbance such as farmed fields	March–May	Potential – There is suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				(USFWS 2005) (98'–751').		
Red Bluff dwarf rush *(Juncus leiospermus* var. *leiospermus)*	–	–	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools (115'–4,101').	March–June	Potential – There is suitable habitat onsite.
Colusa layia *(Layia septentrionalis)*	–	–	1B.2	Sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands (328'–3,593').	April–May	Potential – There is suitable habitat onsite.
Bristly leptosiphon (*Leptosiphon acicularis*)	–	–	4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland (180'–4,920').	April–July	Potential – There is suitable habitat onsite.
Serpentine leptosiphon (*Leptosiphon ambiguus*)	–	–	4.2	Usually serpentinite soils of Cismontane woodland, coastal scrub, and valley and foothill grassland (395'–3710').	March–June	Low Potential – There is marginally suitable habitat onsite.
Humboldt lily *(Lilium humboldtii* ssp. *humboldtii)*	–	–	4.2	Occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forest (295'–4,199').	May–August	Absent-There is no suitable habitat onsite.
Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*)	FE	CE	1B.1	Mesic valley and foothill grassland and vernal pools (150'–3,052').	March–May	Potential – There is suitable habitat onsite.
Woolly meadowfoam *(Limnanthes floccosa* ssp. *floccosa)*	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and	March–May	Potential – There is suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				vernal pools (197'–4,380').		
Sylvan microseris *(Microseris sylvatica)*	–	–	4.2	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, valley and foothill grassland; serpentinite (rarely) (150'-4,920')	March-June	Potential – There is suitable habitat onsite.
Veiny monardella *(Monardella venosa)*	–	–	1B.1	Heavy clay soils in cismontane woodland and valley and foothill grasslands (197'–1,345').	May–July	Low Potential – there is marginally suitable habitat onsite.
Tehama navarretia (*Navarretia heterandra*)	–	–	4.3	Mesic areas in valley and foothill grassland and vernal pools (98'–3,314').	April–June	Potential – there is suitable habitat onsite.
Slender Orcutt grass *(Orcuttia tenuis)*	FT	CE	1B.1	Vernal pools, often gravelly (115'–5,774').	May–September	Potential – there is suitable habitat onsite.
Lewis Rose's ragwort (*Packera eurycephala* var. *lewisrosei*)	–	–	1B.2	Serpentine soils of chaparral, cismontane woodland, and lower montane coniferous forest (898'–6,201').	March–July	Absent-There is no suitable habitat onsite.
Ahart's paronychia (*Paronychia ahartii*)	–	–	1B.1	Well-drained rocky outcrops, often vernal pool edges, and volcanic upland (Hartman and Rabeler 2012) of cismontane woodland, valley and foothill grassland, and vernal pools (98'–1673').	February–June	Potential – There is suitable habitat onsite.
Bacigalupi's yampah *(Perideridia bacigalupii)*	–	–	4.2	Serpentinite soils of lower montane coniferous forest and chaparral (1,476'–3,396').	June–August	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Sierra blue grass *(Poa sierrae)*	–	–	1B.3	Lower montane coniferous forest openings (1,198'–4,921').	April–July	Absent-There is no suitable habitat onsite.
Bidwell's knotweed (*Polygonum bidwelliae*)	–	–	4.3	Volcanic soils of chaparral, cismontane woodland, and valley and foothill grassland (196'–3,938').	April–July	Absent-There is no suitable habitat onsite.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,133').	May–October	Absent-There is no suitable habitat onsite.
Giant checkerbloom *(Sidalcea gigantea)*	–	–	4.3	Meadows and seeps within lower and upper montane coniferous forests (2,198'–6,398').	January–June	Absent-There is no suitable habitat onsite.
Butte County checkerbloom (*Sidalcea robusta*)	–	–	1B.2	Chaparral and cismontane woodland (295'–5,250').	April–June	Absent-There is no suitable habitat onsite.
Obtuse starwort (*Stellaria obtusa*)	–	–	4.3	Mesic areas and streambanks of lower montane coniferous forest, riparian woodland, and upper montane coniferous forest (492'–7,513').	May–September	Absent-There is no suitable habitat onsite.
Sickle-fruit jewelflower (*Streptanthus drepanoides*)	–	–	4.3	Serpentine soils of chaparral, cismontane woodland, and lower montane coniferous forest (902'–5,447').	April–June	Absent-There is no suitable habitat onsite.
Long-fruit jewelflower *(Streptanthus longisiliquus)*	–	–	4.3	Openings in cismontane woodland and lower montane coniferous forest (2,346'–4,921').	April–September	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Butte County golden clover (*Trifolium jokerstii*)	-	-	1B.2	Mesic valley and foothill grassland and vernal pools (164'-1,575')	March–May	Potential – There is suitable habitat onsite.
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools (98'–3,510').	May–July	Potential – There is suitable habitat onsite.
Felt-leaved violet *(Viola tomentosa)*	–	–	4.2	Gravelly soils in lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest (4,708'–6,562').	May–October	Absent-There is no suitable habitat onsite.
Brazilian watermeal *(Wolffia brasiliensis)*	–	–	2B.3	Assorted shallow freshwater marshes and swamps (66'–328').	April–December	Absent-There is no suitable habitat onsite.
Invertebrates						
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	-	-	Vernal pools/wetlands.	November-April	Potential – There is suitable habitat onsite.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November-April	Potential – There is suitable habitat onsite.
Monarch butterfly (*Danaus plexippus*)	FC	-	-	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and	Any season	Absent-Suitable habitat is not present onsite.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential To Occur Onsite**
	FESA	**CESA/ NPPA**	**Other**			
				Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.		
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent-Suitable habitat is not present onsite.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Vernal pools/wetlands.	November-April	Potential – There is suitable habitat onsite.
Fish						
Green sturgeon (Southern Distinct Population Segment [DPS]) *(Acipenser medirostris)*	FT	-	-	Anadromous. Pacific Ocean, San Francisco Bay, Sacramento-San Joaquin Delta and estuary to Sacramento River.	N/A	Absent-There is no suitable habitat onsite.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent-There is no suitable habitat onsite.
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)	FT	-	-	Fast-flowing, well-oxygenated rivers and streams	N/A	Absent-There is no suitable habitat onsite.
Chinook salmon (Central Valley spring-run Evolutionarily Significant Unit) (*Oncorhynchus tshawytscha*)	FT	CT	-	Undammed rivers, streams, creeks.	N/A	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Amphibians						
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent-There is no suitable habitat onsite.
Foothill yellow-legged frog Feather River Clade (*Rana boylii*)	-	CT	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May - October	Absent-There is no suitable habitat onsite.
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Potential – There is suitable habitat onsite.
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Blainville's ("Coast") horned lizard (*Phrynosoma blainvillii*)	-	-	SSC	Formerly a wide-spread horned lizard found in a wide variety of habitats, often in lower elevation areas with sandy washes and scattered low bushes. Also occurs in Sierra Nevada foothills. Requires open areas for basking, but with bushes or grass clumps for cover, patches of loamy soil or sand for burrowing and an abundance of ants (Stebbins and McGinnis 2012).	Apr-Oct	Potential-There is suitable habitat onsite.
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent-There is no suitable habitat onsite.
Birds						
Clark's grebe *(Aechmophorus clarkii)*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Absent-There is no suitable habitat onsite.
California black rail (*Laterallus jamaicensis coturniculus*)	-	CT	BCC, CFP	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily	March-September (breeding)	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential To Occur Onsite**
	FESA	**CESA/ NPPA**	**Other**			
				found in coastal and Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer, El Dorado counties)		
Greater sandhill crane *(Antigone canadensis tabida)*	-	CT	CFP	Breeds in NE California, Nevada, Oregon, Washington, and BC, Canada; winters from CA to Florida. In winter, they forage in burned grasslands, pastures, and feed on waste grain in a variety of agricultural settings (i.e., corn, wheat, milo, rice, oats, and barley), tilled fields, recently planted fields, alfalfa fields, row crops and burned rice fields.	March-August (breeding); September-March (wintering)	Absent-There is no suitable habitat onsite.
Marbled godwit (*Limosa fedoa*)	-	-	BCC	Nests in Montana, North and South Dakota, Minnesota, into Canada. Winter range along Pacific Coast from British Columbia south to Central America, with small numbers wintering in interior California. Wintering habitat includes coastal mudflats, meadows, estuaries, sandy beaches, sandflats, and salt ponds.	August-April (Migrant/ Wintering in CA)	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
Black tern *(Chlidonias niger)*	-	-	BCC, SSC	Breeding range includes northeastern California, Central Valley, Great Plains of U.S. and Canada; winters in Central and South America; nesting habitat includes shallow freshwater marsh with emergent vegetation, prairie sloughs, lake margins, river islands, and cultivated rice fields.	May-August	Absent-There is no suitable habitat onsite.
Osprey *(Pandion haliaetus)*	-	-	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	April-September	Absent-There is no suitable habitat onsite.
Golden eagle (*Aquila chrysaetos*)	-	-	BCC, CFP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission	Nest (February-August); winter CV (October-February)	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter.		
Northern harrier (*Circus hudsonius*)	-	-	BCC, SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/brackish marshes, tundra, grasslands, prairies, croplands, desert, shrub-steppe, and (rarely) riparian woodland communities.	April-September	Low Potential-There is marginal nesting habitat onsite.
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent-There is no suitable habitat onsite.
Swainson's hawk (*Buteo swainsoni*)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural	March-August	Potential-There is suitable foraging habitat, but no nesting habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				lands, particularly during disking/harvesting, irrigated pastures		
Burrowing owl *(Athene cunicularia)*	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Potential-There is suitable habitat onsite.
Long-eared owl *(Asio otus)*	-	-	BCC, SSC	Nests in open forests, riparian woodland, conifer forests, dense vegetation adjacent to grasslands, shrublands or other open communities	March-August (breeding); November-March (wintering in Central Valley)	Absent-There is no suitable habitat onsite.
Nuttall's woodpecker *(Dryobates nuttallii)*	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent-There is no suitable habitat onsite.
American peregrine falcon *(Falco peregrinus anatum)*	De-listed	De-listed	CFP	In California, breeds in coastal region, northern California, and Sierra Nevada. Nesting habitat includes cliff ledges and human-made ledges on towers and	CA Residents nest in February-June	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				buildings. Wintering habitat includes areas where there are large concentrations of shorebirds, waterfowl, pigeons or doves.		
Least Bell's vireo (*Vireo bellii pusillus*)	FE	CE	-	In California, breeding range includes Ventura, Los Angeles, Riverside, Orange, San Diego, and San Bernardino counties, and rarely Stanislaus and Santa Clara counties. Nesting habitat includes dense, low shrubby vegetation in riparian areas, brushy fields, young second-growth woodland, scrub oak, coastal chaparral and mesquite brushland. Winters in southern Baja California Sur.	April 1-July 31	Absent-There is no suitable habitat onsite.
Loggerhead shrike (*Lanius ludovicianus*)	-	-	SSC	Found throughout California in open country with short vegetation, pastures, old orchards, grasslands, agricultural areas, open woodlands. Not found in heavily forested habitats.	March-July	Potential-There is suitable habitat onsite.
Yellow-billed magpie (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah	April-June	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				with large in large expanses of open ground; also found in urban parklike settings.		
Oak titmouse (*Baeolophus inornatus*)			BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree)	March-July	Absent-There is no suitable habitat onsite.
Bank swallow (*Riparia riparia*)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent-There is no suitable habitat onsite.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble,	March-August	Potential-There is suitable foraging habitat, but no nesting habitat onsite.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	**Status**			**Habitat Description**	**Survey Period**	**Potential To Occur Onsite**
	FESA	**CESA/ NPPA**	**Other**			
				milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck, and fava bean fields.		
Yellow warbler (*Setophaga petechia*)	-	-	SSC	Breeding range includes most of California, except Central Valley (isolated breeding locales on Valley floor, Stanislaus, Colusa, and Butte counties), Sierra Nevada range above tree line, and southeastern deserts. Nesting habitat includes riparian vegetation near streams and meadows. Winters in Mexico south to South America.	May-August	Absent-There is no suitable habitat onsite.
Mammals						
Pallid bat *(Antrozous pallidus)*	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied	April-September	Absent-There is no suitable habitat onsite.

Table 1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	FESA	CESA/ NPPA	Other			
				as well as vacant buildings (Western Bat Working Group [WBWG] 2022).		
Townsend's big-eared bat *(Corynorhinus townsendii)*	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Absent-There is no suitable habitat onsite.
Greater mastiff bat (*Eumops perotis californicus*)	-	-	SSC	Primarily a cliff-dwelling species, found in similar crevices in large boulders and buildings (WBWG 2022).	April-September	Absent-There is no suitable habitat onsite.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
FC	Candidate for FESA listing as Threatened or Endangered.
BCC	USFWS Bird of Conservation Concern
CR	CESA- or NPPA-listed, Rare.
CE	CESA or NPPA listed, Endangered.
CT	CESA- or NPPA-listed, Threatened.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
1B	CRPR/Rare or Endangered in California and elsewhere.
2B	Plants rare, threatened, or endangered in California but more common elsewhere.
3	CRPR/Plants About Which More Information is Needed – A Review List.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

4.2.1 Plants

A total of 60 special-status plant species were identified as having the potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, 37 species were determined to be absent from the Study Area due to the lack of suitable habitat or due to the Study Area being outside of

the known elevational range for the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining 23 species that have the potential or low potential to occur within the Study Area is presented below.

4.2.1.1 Henderson's Bent Grass

Henderson's bent grass (*Agrostis hendersonii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3.2 species. This species is an herbaceous annual that occurs in vernal pools and in mesic areas in valley and foothill grasslands. Henderson's bent grass blooms from April through June and is known to occur at elevations between 230 to 1,000 feet above MSL. The current range of this species in California includes Butte, Calaveras, Merced, Napa, Shasta, Tehama, and Tuolumne counties; occurrence in Butte County confirmed, but possibly extirpated (CNPS 2022).

There are no CNDDB occurrences of Henderson's bent grass within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Henderson's bent grass has potential to occur within the Study Area.

4.2.1.2 Depauperate Milk-Vetch

Depauperate milk-vetch (*Astragalus pauperculus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous annual that occurs within vernally mesic and volcanic soils in chaparral, cismontane woodland, and valley and foothill grasslands. The blooming period for this species is from March through June and is known to occur at elevations 195 to 3,985 feet above MSL. Depauperate milk-vetch is endemic to California; its current range includes Butte, Shasta, and Tehama counties (CNPS 2022).

There are no CNDDB occurrences of depauperate milk-vetch (CDFW 2022a). The nonnative annual grassland within the Study Area may provide marginally suitable habitat for this species. Depauperate milk-vetch has low potential to occur within the Study Area.

4.2.1.3 Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in chaparral, cismontane woodlands, valley and foothill grassland, and sometimes on serpentinite soils. Big-scale balsamroot blooms from March through June and is known to occur at elevations ranging from 150 to 5,100 feet above MSL. Big-scale balsamroot is endemic to California; the current range of this species includes Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, and Tuolumne counties (CNPS 2022).

There are no CNDDB occurrences of big-scale balsamroot within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Big-scale balsamroot has potential to occur within the Study Area.

4.2.1.4 Valley Brodiaea

Valley brodiaea (*Brodiaea rosea* ssp. *vallicola*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a bulbiferous perennial herb that occurs in old alluvial terraces and silty, sandy, or gravelly soils in vernal pools, swales, and valley and foothill grassland. Valley brodiaea blooms from April through May (sometimes June) and is known to occur at elevations ranging from 35 to 1,100 feet above MSL. Valley brodiaea is endemic to California; the current range of this species includes Butte, Calaveras, Nevada, Placer, Sacramento, San Joaquin, Sutter, and Yuba counties (CNPS 2022).

There are no CNDDB occurrences of Valley brodiaea (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Valley brodiaea has potential to occur within the Study Area.

4.2.1.5 Butte County Calycadenia

Butte County calycadenia (*Calycadenia oppositifolia*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs on volcanic, granitic, and serpentinite areas of chaparral, cismontane woodland, lower montane coniferous forest, meadows, seeps, and valley and foothill grassland. Butte County calycadenia blooms from April through July and is known to occur at elevations ranging from 295 to 3,100 feet above MSL. This species is endemic to California; the current range includes Butte County (CNPS 2022).

There are no CNDDB occurrences of Butte County calycadenia (CDFW 2022a). The nonnative annual grassland within the Study Area may provide marginally suitable habitat for this species. Butte County calycadenia has low potential to occur within the Study Area.

4.2.1.6 Pink Creamsacs

Pink creamsacs (*Castilleja rubicundula* var. *rubicundula*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a hemiparasitic herbaceous annual that occurs in serpentinite substrates in chaparral (openings), cismontane woodland, meadows and seeps, and valley and foothill grassland. Pink creamsacs blooms from April through June and is known to occur at elevations ranging from 65 to 2,985 feet above MSL. Pink creamsacs is endemic to California; its current range includes Butte, Colusa, Glenn, Lake, Napa, Santa Clara, Shasta, and Yolo counties (CNPS 2022).

There is one CNDDB occurrence of pink creamsacs within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide marginally suitable habitat for this species. Pink creamsacs has low potential to occur within the Study Area.

4.2.1.7 Recurved Larkspur

Recurved larkspur (*Delphinium recurvatum*) is not listed pursuant to either the federal or California ESAs, but is designated a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in alkaline

substrates in chenopod scrub, cismontane woodland, and valley and foothill grasslands. Recurved larkspur blooms from March through June and is known to occur at elevations ranging from 10 to 2,592 feet above MSL. Recurved larkspur is endemic to California; the current range of this species includes Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Solano, Sutter, and Tulare counties. The species is presumed extirpated from Butte and Colusa counties (CNPS 2022).

There are no CNDDB occurrences of recurved larkspur within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Recurved larkspur has potential to occur within the Study Area.

4.2.1.8 Hoover's Spurge

Hoover's spurge (*Euphorbia hooveri)* is listed as threatened pursuant to the federal ESA, not listed as rare pursuant to the California ESA, and is also designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in vernal pools. Hoover's spurge blooms from July through September and is known to occur at elevations ranging from 80 to 820 feet above MSL. Hoover's spurge is endemic to California; its current range includes Butte, Colusa, Glenn, Merced, Stanislaus, Tehama, and Tulare counties (CNPS 2022).

There are no CNDDB occurrences of Hoover's spurge within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Hoover's spurge has potential to occur within the Study Area.

4.2.1.9 Hogwallow Starfish

Hogwallow starfish (*Hesperevax caulescens*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in mesic, clay areas within valley and foothill grassland and shallow vernal pools, sometimes in alkaline areas. Hogwallow starfish blooms from March through June and is known to occur from 0 to 1,655 feet above MSL. Hogwallow starfish is endemic to California; the current range of this species includes Alameda, Amador, Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Mariposa, Merced, Monterey, Sacramento, San Diego, San Joaquin, San Luis Obispo, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba counties; however, it is presumed extirpated in San Diego county (CNPS 2022).

There are no CNDDB occurrences of hogwallow starfish within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Hogwallow starfish has potential to occur within the Study Area.

4.2.1.10 Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in mesic areas in valley and foothill grasslands. This species also appears to have an affinity for slight disturbance since it has been found on farmed fields and gopher turnings (USFWS 2005). Ahart's dwarf rush blooms

from March through May and is known to occur at elevations ranging from 98 to 751 feet above MSL (USFWS 2005). Ahart's dwarf rush is endemic to California; the current range of this species includes Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2022).

There are two CNDDB occurrences of Ahart's dwarf rush within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Ahart's dwarf rush has potential to occur within the Study Area.

4.2.1.11 Red Bluff Dwarf Rush

Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernally mesic areas in chaparral, cismontane woodland, meadows, seeps, valley and foothill grasslands, and vernal pools. Red Bluff dwarf rush blooms from March through June and is known to occur at elevations ranging from 115 to 4,101 feet above MSL. Red Bluff dwarf rush is endemic to California; the current range of this species includes Butte, Placer, Shasta, and Tehama counties (CNPS 2022).

There is one CNDDB occurrence of Red Bluff dwarf rush within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Red Bluff dwarf rush has potential to occur within the Study Area.

4.2.1.12 Colusa Layia

Colusa layia (*Layia septentrionalis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands. Colusa layia blooms from April through May and is known to occur at elevations ranging from 328 to 3,593 feet above MSL. Colusa layia is endemic to California; the current range of this species includes Butte, Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo counties (CNPS 2022).

There are no CNDDB occurrences of Colusa layia within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Colusa layia has potential to occur within the Study Area.

4.2.1.13 Bristly Leptosiphon

Bristly leptosiphon (*Leptosiphon acicularis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an annual herb that occurs in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland. Bristly leptosiphon blooms from April through July and is known to occur at elevations ranging from 180 to 4,920 feet above MSL. Bristly leptosiphon is endemic to California; the current range of this species includes Alameda, Butte, Colusa, Humboldt, Kern, Lake, Marin, Mendocino, Napa, Placer, San Benito, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Yuba counties (CNPS 2022).

There are no CNDDB occurrences of bristly leptosiphon within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Bristly leptosiphon has potential to occur within the Study Area.

4.2.1.14 Serpentine Leptosiphon

Serpentine leptosiphon (*Leptosiphon ambiguus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs usually in serpentinite soil within cismontane woodland, coastal scrub, valley and foothill grassland. Serpentine leptosiphon blooms from March through June and is known to occur at elevations ranging from 395 to 3,710 feet above MSL. Serpentine bird's-beak is endemic to California; its current range includes Alameda, Contra Costa, Merced, San Benito, Santa Clara, Santa Cruz, San Joaquin, San Mateo, and Stanislaus counties (CNPS 2022).

There are no CNDDB occurrences of serpentine leptosiphon within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide marginally suitable habitat for this species. Serpentine leptosiphon has low potential to occur within the Study Area.

4.2.1.15 Butte County Meadowfoam

Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*) is listed as endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. Butte County meadowfoam is an herbaceous annual that occurs in vernal pools and mesic areas of valley and foothill grasslands. Butte County meadowfoam blooms from March through May and is known to occur at elevations between 150 to 3,050 feet above MSL. Butte County meadowfoam is endemic to California; the current known range for this species includes Butte County (CNPS 2022).

There are two CNDDB occurrences of Butte County meadowfoam within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Butte County meadowfoam has potential to occur within the Study Area.

4.2.1.16 Woolly Meadowfoam

Woolly meadowfoam (*Limnanthes floccosa* ssp. *floccosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools. Woolly meadowfoam blooms from March through May and is known to occur at elevations ranging from 197 to 4,380 feet above MSL. The current known range for this species in California includes Butte, Lake, Lassen, Napa, Shasta, Siskiyou, Tehama, and Trinity counties (CNPS 2022).

There are no CNDDB occurrences of woolly meadowfoam within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Woolly meadowfoam has potential to occur within the Study Area.

4.2.1.17 Sylvan Microseris

Sylvan microseris (*Microseris sylvatica*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous perennial that occurs in chaparral, cismontane woodland, Great Basin scrub, pinyon juniper woodland, and valley and foothill grasslands; serpentinite (rarely). Sylvan microseris blooms from March through June and is known to occur at elevations ranging from 150 to 4,920 feet above MSL. Sylvan microseris is endemic to California; its current range includes Alameda, Butte, Contra Costa, Fresno, Kern, Los Angeles, Napa, San Benito, Tulare, and Yolo counties. Occurrence confirmed but possibly extirpated in Los Angeles County (CNPS 2022).

There are no CNDDB occurrences of Sylvan microseris within 5 miles of the Study Area (CDFW 2022a). However, the nonnative annual grassland within the Study Area may provide suitable habitat for this species. Sylvan microseris has potential to occur within the Study Area.

4.2.1.18 Veiny Monardella

Veiny monardella (*Monardella venosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on heavy clay soils in cismontane woodland and valley and foothill grasslands. Veiny monardella blooms from May through July and is known to occur at elevations ranging from 197 to 1,345 feet above MSL. Veiny monardella is endemic to California; the current range of this species includes Butte, Sutter, Tuolumne, and Yuba counties, but is believed to be extirpated from Sutter County (CNPS 2022).

There are no CNDDB occurrences of veiny monardella within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide marginally suitable habitat for this species. Veiny monardella has low potential to occur within the Study Area.

4.2.1.19 Tehama Navarretia

Tehama navarretia (*Navarretia heterandra*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous annual that occurs in mesic areas in valley and foothill grassland and vernal pools. Tehama navarretia blooms between April and June and is known to occur at elevations ranging from 98 to 3,314 feet above MSL. The current range for Tehama navarretia in California includes Butte, Colusa, Lake, Napa, Shasta, Tehama, Trinity, and Yuba counties (CNPS 2022).

There are no CNDDB occurrences of Tehama navarretia within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Tehama navarretia has potential to occur within the Study Area.

4.2.1.20 Slender Orcutt Grass

Slender Orcutt grass (*Orcuttia tenuis*) is listed as threatened pursuant to the federal ESA, is listed as endangered pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in often gravelly soils in vernal pools primarily on substrates of volcanic

origin (Crampton 1959; Corbin and Schoolcraft 1989; as cited in USFWS 2005). This species is known to occur in the same type of vernal pool complexes as Sacramento Orcutt grass in Sacramento County; however, these species have not been observed coexisting in the same vernal pool (USFWS 2005). The median area of pools occupied by populations studied by Stone et al. (1988, as cited in USFWS 2005) was 1.6 acres and ranged from 0.2 to 111.0 acres (USFWS 2005). Slender Orcutt grass blooms from May through September and is known to occur at elevations ranging from 115 to 5,774 feet above MSL (CNPS 2022). Slender Orcutt grass is endemic to California; the current range for this species includes Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties (CNPS 2022).

There are two CNDDB occurrences of slender Orcutt grass within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Slender Orcutt grass has potential to occur within the Study Area.

4.2.1.21 Ahart's Paronychia

Ahart's Paronychia (*Paronychia ahartii*) is not listed as pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. Ahart's paronychia is an annual herb that occurs in cismontane woodland, valley foothill and grassland and vernal pools. Ahart's paronychia blooms at elevations ranging from 98 to 1,673 feet above MSL. Ahart's paronychia is endemic to California; the current range of this species includes Butte, Shasta, and Tehama counties (CNPS 2022).

There are two CNDDB occurrences of Ahart's paronychia within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools and the nonnative annual grassland within the Study Area may provide suitable habitat for this species. Ahart's paronychia has potential to occur within the Study Area.

4.2.1.22 Butte County Golden Clover

Butte County golden clover (*Trifolium jokerstii*) is not listed pursuant to the federal and California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in vernal pools and mesic areas in valley and foothill grassland. Butte County golden clover blooms between March and May and is known to occur at elevations ranging from 164 to 1,575 feet above MSL. Butte County golden clover is endemic to California; its current range includes Butte County (CNPS 2022).

There are five CNDDB occurrences of Butte County golden clover within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Butte County golden clover has potential to occur within the Study Area.

4.2.1.23 Greene's Tuctoria

Greene's tuctoria (*Tuctoria greenei*) is listed endangered pursuant to the ESA, is listed as rare pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools. Greene's tuctoria blooms from May through July and is known to occur at elevations ranging from 98 to 3,510 feet above MSL. Greene's tuctoria is endemic to California; the current range of this species includes Butte, Fresno, Glenn, Madera, Merced, Modoc, Shasta, San Joaquin,

Stanislaus, Tehama, and Tulare counties. It is considered extirpated from Fresno, Madera, San Joaquin, Stanislaus, and Tulare counties (CNPS 2022).

There are two CNDDB occurrences of Greene's tuctoria within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Greene's tuctoria has potential to occur within the Study Area.

4.2.2 Invertebrates

A total of five special-status invertebrates species were identified as having the potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, two species were determined to be absent from the Study Area due to the lack of suitable habitat or due to the Study Area being outside of the known elevational range for the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining three special-status invertebrates that have the potential to occur within the Study Area is presented below.

4.2.2.1 Conservancy Fairy Shrimp

The conservancy fairy shrimp (*Branchinecta conservatio*) is listed as endangered pursuant to the federal Endangered Species Act. This fairy shrimp is endemic to California and is found in grasslands in the northern two thirds of the Central Valley (Eriksen and Belk 1999). The historic distribution of conservancy fairy shrimp is not known, but it likely occurred throughout a large portion of the Central Valley and Southern Coastal regions of California (USFWS 2005). Until recently, this species has only been known from a few disjunct populations in California, including four clustered populations in the Vina Plains area in Tehama and Butte Counties, Jepson Prairie Preserve in Solano County, the Sacramento National Wildlife Refuge in Glenn County, the Tule Ranch Unit of CDFW's Yolo Basin Wildlife Area in Yolo County, the Grasslands Ecological Area in Merced County, one location in Stanislaus County, three locations in the Southern Sierra Foothills Vernal Pool Region, and two locations near the Santa Barbara Vernal Pool Region (USFWS 2003, 2006). In April of 2007, the USFWS reported that a single conservancy fairy shrimp was documented in one vernal pool within the Mariner Conservation Bank in Placer County, near the town of Lincoln, California). The life cycle of conservancy fairy shrimp is reliant on the ephemeral conditions of its vernal habitat. It inhabits a variety of different landforms and soil types, and is often found in large, turbid pools with low conductivity, total dissolved solids, and alkalinity (USFWS 2005).

There are no CNDDB occurrences of conservancy fairy shrimp within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Conservancy fairy shrimp has potential to occur within the Study Area.

4.2.2.2 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal Endangered Species Act. Vernal pool fairy shrimp may occur in seasonal ponds, vernal pools, and swales during the wet season, which generally occurs from December through May. This species can be found in a variety of pool sizes, ranging from less than 0.001 acre to over 24.5 acres (Eriksen and Belk 1999). The shrimp hatch from cysts when colder water (10°Celsius [50°F] or less) fills the pool and mature in as few as

18 days, under optimal conditions (Eriksen and Belk 1999). At maturity, mating takes place and cysts are dropped. Vernal pool fairy shrimp occur in disjunct patches dispersed across California's Central Valley from Shasta to Tulare counties, the central and southern Coast Ranges from northern Solano to Ventura counties, and three areas in Riverside County (USFWS 2003).

There are 12 CNDDB occurrences of vernal pool fairy shrimp within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Vernal pool fairy shrimp has potential to occur within the Study Area.

4.2.2.3 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as endangered pursuant to the federal Endangered Species Act. This species inhabits vernal pools containing clear to highly turbid water, ranging in size from 0.001 to 89.0 acres (USFWS 1994). Vernal pool tadpole shrimp are distinguished from other vernal pool branchiopods discussed in this report by a large, shield like carapace that covers the anterior half of their body (USFWS 2003). Cysts hatch during the wet season and the shrimp reach maturity in a few weeks. This species matures slowly and is long lived, relative to other species. Vernal pool tadpole shrimp will continue to grow as long as the pools they occur in remain inundated, and in some instances can survive for six months or longer (USFWS 2003). The geographic range of vernal pool tadpole shrimp extends from Shasta County to northern Tulare County in California's Central Valley, and in the central coast range from Solano County to Alameda County (USFWS 2003).

There are four CNDDB occurrences of vernal pool tadpole shrimp within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools within the Study Area may provide suitable habitat for this species. Vernal pool tadpole shrimp has potential to occur within the Study Area.

4.2.3 Fish

Four special-status fish species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all four species were considered to be absent from the Study Area due to the lack of suitable habitat and/or because the Study Area is outside of the known geographic range for these species. No further discussion of these species is provided within this assessment.

4.2.4 Amphibians

A total of three special-status amphibians were identified as having the potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, two species were determined to be absent from the Study Area due to the lack of suitable habitat or due to the Study Area being outside of the known elevational range for the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining special-status amphibian that has the potential to occur within the Study Area is presented below.

4.2.4.1 Western Spadefoot

The western spadefoot (*Spea hammondii*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is designated as a CDFW species of special concern. Necessary habitat components of the western spadefoot include loose, friable soils in which to burrow in upland habitats and breeding ponds. Breeding sites include temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Jennings and Hayes 1994). Spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoot toads are known to occur from the Redding area, Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Jennings and Hayes 1994).

There is one CNDDB occurrence of western spadefoot within 5 miles of the Study Area (CDFW 2022a). The seasonal wetlands/vernal pools and nonnative annual grassland within the Study Area supports potentially suitable habitat for this species. Western spadefoots have potential to occur in the Study Area.

4.2.5 Reptiles

A total of three special-status reptiles were identified as having the potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, two species were determined to be absent from the Study Area due to the lack of suitable habitat or due to the Study Area being outside of the known elevational range for the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining special-status reptile that has the potential to occur within the Study Area is presented below.

4.2.5.1 Blainville's Horned Lizard

Blainville's horned lizard (*Phrynosoma blainvillii*) is considered a CDFW species of special concern and is a relatively large (to 105 millimeters in snout-vent length), dorsoventrally flattened, rounded lizard found historically from Redding, California, to Baja, Mexico (Jennings and Hayes 1994). This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands and coniferous forests, though it is most common along lowland desert sandy washes and chaparral (Stebbins 2003). In the Central Valley, the species ranges from southern Tehama County southward. In the Sierra Nevada it occurs from Butte County south to Tulare County, and in the Coast Ranges it occurs from Sonoma County south into Baja California (California Department of Fish and Game [CDFG] 1988). It occurs from sea level to 8,000 feet above MSL and an isolated population occurs in Siskiyou County (Stebbins 2003).

There are no CNDDB occurrences of Blainville's horned lizard within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Blainville's horned lizard has potential to occur onsite.

4.2.6 Birds

A total of 21 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Of those, 16 species were determined to be absent from the Study Area due to the lack of suitable habitat and/or due to the Study Area being outside of the known geographic range of the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining five species that have the potential to occur within the Study Area is presented below.

4.2.6.1 Northern Harrier

The northern harrier (*Circus hudsonius*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is considered to be a USFWS BCC and a CDFW species of special concern. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California. The northern harrier is a ground nesting species, and typically nests in emergent wetland/marsh, open grasslands, or savannah communities usually in areas with dense vegetation (Smith et al. 2020). Foraging occurs within a variety of open environments such as marshes, agricultural fields, and grasslands. Nesting occurs during April through September.

There is one CNDDB occurrence of northern harrier within 5 miles of the Study Area (CDFW 2022a). The nonnative annual grassland represents marginally suitable nesting habitat for this species. Northern harrier have low potential to occur onsite.

4.2.6.2 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species and are protected pursuant to the California ESA. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanopulus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

The nearest CNDDB occurrence of Swainson's hawk is located between 5 and 6 miles south of the Study Area (CDFW 2022a). There is no potentially suitable nesting habitat onsite. However, the nonnative annual grassland within the Study Area may provide suitable foraging habitat for this species. Swainson's hawk has potential to forage onsite.

4.2.6.3 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is designated as a BCC by the USFWS and a species of special concern by the CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2020). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel but may also use man-made structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (CDFG 2012).

There is one CNDDB occurrence of burrowing owl within 5 miles of the Study Area (CDFW 2022a). No burrowing owls were observed during the site reconnaissance survey. The nonnative annual grassland within the Study Area may provide suitable habitat for this species. Burrowing owl has potential to occur within the Study Area.

4.2.6.4 Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is not listed pursuant to either the California or federal ESAs; but is considered a SSC by the CDFW. Loggerhead shrikes nest throughout California except the northwestern corner, montane forests, and high deserts (Small 1994). Loggerhead shrikes nest in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 2020). The nesting season extends from March through July.

There are no CNDDB occurrences of loggerhead shrike within 5 miles of the Study Area (CDFW 2022a). However, a small shrub along the northern boundary could provide suitable nesting habitat for this species. Loggerhead shrike have potential to occur onsite.

4.2.6.5 Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) was granted emergency listing for protection under the California ESA in December 2014 but the listing status was not renewed in June 2015. After an extensive status review, the California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, it is currently considered a USFWS BCC and a CDFW SSC. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy et al. 2020). Tricolored blackbirds nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. Tricolored blackbird nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g., wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2020). They feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands,

wetlands, feedlots, dairies, and agricultural fields (Beedy et al. 2020). The nesting season is generally from March through August.

There are four CNDDB occurrences of tricolored blackbird within 5 miles of the Study Area (CDFW 2022a). There is no potentially suitable nesting habitat onsite; however, the nonnative annual grassland within the Study Area may provide suitable foraging habitat for this species. Tricolored blackbirds have potential to forage onsite.

4.2.6.6 Other Protected Birds

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the MBTA. The Study Area supports potential nesting habitat for a variety of common birds protected under these regulations.

4.2.7 Mammals

Three special-status mammals were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all three species were considered to be absent from the Study Area due to the lack of suitable habitat and/or because the Study Area is outside of the known geographic range for these species (Table 1). No further discussion of these species is provided within this assessment.

4.3 Critical Habitat and Essential Fish Habitat

There are no Critical Habitats mapped within the Study Area (USFWS 2022b). The Study Area is not Essential Fish Habitat (NOAA 2022a).

4.4 Riparian Habitats and Sensitive Natural Communities

There are no riparian habitats present within the Study Area. Five other sensitive natural communities were identified as having potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2022a). These include Northern Hardpan Vernal Pool, Northern Basalt Flow Vernal Pool, Northern Volcanic Mud Flow Vernal Pool, Great Valley Cottonwood Riparian Forest, and Great Valley Willow Scrub. Upon further analysis and site reconnaissance, the seasonal wetlands delineated by Rincon onsite could be categorized as Northern Hardpan Vernal Pool. The seasonal wetlands onsite fit the general description of Northern Hardpan Vernal Pools (Holland 1986).

4.5 Wildlife Movement/Corridors and Nursery Sites

The Study Area is located in close proximity to residential development and subject to some disturbances from offroad vehicle use. The Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW and is not identified as a critical and noncritical winter and summer range, fall holding areas, fawning grounds, or migration corridors for mule deer (*Odocoileus hemionus*) (CDFW 2022b). Therefore, the Study Area is not expected to support critical wildlife movement corridors or potential nursery sites. However, a variety of common bird species were observed within the Study Area during the site reconnaissance and other wildlife species also likely move through the Study Area.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2022a) and none were observed during the site reconnaissance.

5.0 IMPACT ANALYSIS

This section specifically addresses the questions raised by the CEQA - Appendix G Environmental Checklist Form, IV. Biological Resources. This impact analysis assumes the Project will implement measures that fulfill the intent of recommended measures described in Section 6.0.

5.1 Special Status Species

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

No special-status species are known to occur within the Study Area; however, plant and animal surveys have not been conducted. The Study Area supports potential habitat for special-status species within the impact area. Potential effects to special-status species are summarized in the following sections by taxonomic group or species.

5.1.1 Special-Status Plants

There is potential habitat for four federally or state-listed plant species in the Study Area, and there is potential or low potential for 19 other non-listed special-status plant species to occur. Project development would permanently remove or alter marginally suitable or suitable potential habitat for special-status plants, and in the chance that special-status plant populations occur onsite they may be directly or indirectly impacted by development.

Implementation of recommendations BIO2, BIO3, and BIO4 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to special-status plants. With implementation of these measures, the Project is not expected to significantly impact special-status plants.

5.1.2 Special-Status Aquatic Invertebrates

There is potential habitat for three federally listed invertebrate species within the Study Area. The seasonal wetlands/vernal pools present onsite represent potential habitat for listed aquatic invertebrates. Project development would permanently remove or alter suitable potential habitat for special-status aquatic invertebrates, and in the chance that special-status aquatic invertebrates occur onsite they may be directly or indirectly impacted by development.

Implementation of recommendation BIO2 and BIO5 described in Section 6.0 would avoid or minimize potential effects to listed aquatic invertebrates. With implementation of these measures, the Project is not expected to significantly impact special-status aquatic invertebrates.

5.1.3 Special-Status Amphibians

There is no potential habitat for federally or state-listed amphibian species in the Study Area, but there is potential for one other non-listed special-status amphibian species to occur. Project development would permanently remove or alter suitable potential habitat for special-status amphibians, and in the chance that special-status amphibians occur onsite they may be directly or indirectly impacted by development.

Implementation of recommendations BIO2 and BIO6 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to special-status amphibians. With implementation of these measures, the Project is not expected to significantly impact special-status amphibians.

5.1.4 Special-Status Reptiles

There is no potential habitat for federally or state-listed reptile species in the Study Area, but there is potential for one other non-listed special-status reptile species to occur. Project development would permanently remove or alter suitable potential habitat for special-status reptiles, and in the chance that special-status reptiles occur onsite they may be directly or indirectly impacted by development.

Implementation of recommendations BIO2 and BIO7 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to special-status reptiles. With implementation of these measures, the Project is not expected to significantly impact special-status reptiles.

5.1.5 Special-Status and Other Protected Birds

There is potential foraging habitat for two state-listed bird species (Swainson's hawk and tricolored blackbird) in the Study Area, and there is low potential or potential for three non-listed special-status bird species and a variety of other birds that are protected under the MBTA and the California Fish and Game Code. Project development would permanently remove or alter potential foraging habitat for two state-listed birds (Swainson's hawk and tricolored blackbird) and a minimal amount of nesting habitat for other non-listed protected birds in the development area.

Implementation of recommendations BIO2, BIO8, and BIO9 described in Section 6.0 would avoid or minimize potential effects to special-status birds and other protected birds.

5.2 Riparian Habitat and Sensitive Natural Communities

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

The Study Area supports a number of isolated wetlands that were delineated by Rincon as "seasonal wetlands." Based on site conditions (e.g., site topography, plant species, soil characteristics), these seasonal wetlands fit the description for Northern Hardpan Vernal Pools, which is considered a sensitive natural community. There is no riparian habitat or other potential sensitive natural community present onsite.

The Project may directly or indirectly impact Northern Hardpan Vernal Pools due to removal for site development or due to alteration of hydrology.

Implementation of recommendations BIO2, BIO5, and WATERS1 through WATERS4 as described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Northern Hardpan Vernal Pools.

5.3 Aquatic Resources, Including Waters the U.S. and State

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

According to the *20th Street Residential Development Jurisdictional Waters and Wetland Delineation* report prepared by Rincon (March 2021), there are aquatic resources present. These aquatic resources, under the current definition of Waters of the U.S., would require a significant nexus evaluation by the USACE to determine jurisdiction pursuant to Section 404 of the CWA. It is likely that the aquatic features mapped onsite be determined to be Waters of the U.S. Project implementation may result in fill of these aquatic features within the development area.

Implementation of recommendations WATER1 through WATER4 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Waters of the U.S. and State.

5.4 Wildlife Movement/Corridors

Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Study Area provides limited migratory opportunities for terrestrial wildlife. Project construction is likely to disturb and permanently displace most wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, some wildlife movement is expected to resume but will likely be limited through the developed areas of the Study Area. The Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Study Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

5.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project will not conflict with any local policies or ordinances protected biological resources, such as a tree preservation policy or ordinance, because there are no trees onsite.

5.6 Habitat Conservation Plan, Natural Community Conservation Plan or Other Approved Local, Regional, or State Habitat Conservation Plan

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not covered by any local, regional, or state conservation plan. Therefore, the Project would not conflict with a local, regional, or state conservation plan. The Butte Regional Conservation Plan, currently in development, which is intended to be both a federal HCP and a state NCCP could cover Project development if adopted in the future.

6.0 RECOMMENDATIONS

This section summarizes recommended measures to avoid, minimize, or compensate for potential impacts to biological resources from the proposed Project.

6.1 General Recommendations

The following general measures are recommended to avoid impacts to offsite and onsite biological resources:

BIO1: The project should implement erosion control measures and BMPs to reduce the potential for sediment or pollutants at the Project site. Examples of appropriate measures are included below.

- Avoided aquatic resources should be clearly demarcated prior to construction. Avoidance buffers should be consistent with the City of Oroville requirements and/or requirements of regulatory permits. Erosion control measures should be placed between avoided aquatic resources and the outer edge of the impact limits prior to commencement of construction activities. Such identification and erosion control measures should be properly maintained until construction is completed and the soils have been stabilized.
- Any fueling in the Study Area should use appropriate secondary containment techniques to prevent spills.

BIO2: A qualified biologist should conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel to aid workers in recognizing special status species and sensitive biological resources that may occur on-site. The program shall include identification of the special status species and their habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and Mitigation Measures required to reduce impacts to biological resources within the work area.

6.2 Special-Status Species

Recommendations to minimize impacts to special status species or habitats are summarized below by species or taxonomic group.

6.2.1 Plants

There is potential or low potential for 23 special-status plants to occur within the Study Area. The following measures are recommended to minimize potential impacts to special-status plants:

BIO3: Perform floristic plant surveys according to USFWS, CDFW, and CNPS protocols prior to construction. Surveys should be conducted by a qualified biologist and timed according to the appropriate phenological stage for identifying target species. Known reference populations should be visited and/or local herbaria records should be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the Project site, no further measures pertaining to special-status plants are necessary.

BIO4: If special-status plants are identified within 25-feet of the Project impact area, implement the following measures:

- If avoidance of special-status plants is feasible, establish and clearly demarcate avoidance zones for special-status plant occurrences prior to construction. Avoidance zones should include the extent of the special-status plants plus a 25-foot buffer, unless otherwise determined by a qualified biologist, and should be maintained until the completion of construction. A qualified biologist/biological monitor should be present must occur within the avoidance buffer to ensure special-status plants are not impacted by the work.
- If avoidance of special-status plants is not feasible, mitigate for significant impacts to special-status plants. Mitigation measures should be developed in consultation with CDFW and/or USFWS. Mitigation measures may include permanent preservation of onsite or offsite habitat for special-status plants and/or translocation of plants or seeds from impacted areas to unaffected habitats.

6.2.2 Invertebrates

There is potential for three federally listed special-status invertebrates to occur within the Study Area. The following measure is recommended to minimize potential impacts to special-status invertebrates:

BIO5: No Project construction shall proceed in areas supporting potential habitat for federally listed vernal pool invertebrates, or within adequate buffer areas (250 feet or lesser distance deemed sufficiently protective by a qualified biologist with approval from USFWS), until incidental take authorization has been issued by USFWS under Section 7 (Biological Opinion) or Section 10 (HCP) of the ESA and the Project proponent has abided by conditions in the BO or HCP, including all conservation and minimization measures. Conservation and

minimization measures shall include preparation of supporting documentation describing methods to protect existing vernal pools during and after project construction and compensatory mitigation for loss of suitable habitat.

6.2.3 Western Spadefoot

Western spadefoot have potential to occur within the Study Area. Implementation of recommendation BIO1, BIO2, and the following measure would avoid and/or minimize potential adverse effects to western spadefoot:

BIO6: A qualified biologist shall conduct surveys for western spadefoot in areas of potential habitat that would be eliminated by the Project. The surveys shall be conducted at the appropriate time of year to detect western spadefoot, generally the breeding season, according to methods approved by CDFW. If western spadefoot is found in habitat that will be eliminated or made unsuitable for western spadefoot, then a plan to collect and relocate adult and larval western spadefoot and egg masses to suitable habitat will be prepared in consultation with CDFW.

6.2.4 Blainville's Horned Lizard

Blainville's horned lizard have potential to occur within the Study Area. Implementation of recommendation BIO1, BIO2, and the following measure would avoid and/or minimize potential adverse effects to Blainville's horned lizard:

BIO7: A qualified biologist shall conduct a preconstruction Blainville's horned lizard survey in Project impact areas within 48 hours prior to construction activities. Any Blainville's horned lizard individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, consult with CDFW to develop avoidance and minimization measures, which may include, but not limited to, fencing avoidance areas, development of a relocation plan, and/or onsite monitoring during site construction.

6.2.5 Special-Status Birds and Migratory Bird Treaty Act-Protected Birds (Including Nesting Raptors)

Three special-status birds and various other protected birds have the potential to nest within the Study Area. The following measure is recommended to minimize potential impacts to nesting birds:

BIO8: If construction is to occur during the nesting season (generally February 1 through August 31), conduct a preconstruction nesting bird survey of all suitable nesting habitat on the Project within 14 days of the commencement of construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the

young have fledged and are no longer reliant upon the nest or parental care for survival. Preconstruction nesting surveys are not required for construction activity outside the nesting season.

The Study Area supports potential foraging habitat for two state-listed birds: Swainson's hawk and tricolored blackbird. The following measure is recommended to minimize potential impacts to foraging habitat:

BIO9: Mitigate for the loss of Swainson's hawk according to the 1994 California Department of Fish and Game's *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California*. It is anticipated that the recommend measures to address Swainson's hawk foraging habitat impact and Waters of the U.S./State impacts (WATERS1-4) will be sufficient to mitigate impacts to tricolored blackbird foraging habitat.

6.3 Riparian and Sensitive Natural Communities

There is no riparian habitat onsite. The wetlands present could be considered Northern Hardpan Vernal Pool, which is a sensitive natural community. In addition to BIO1 and BIO2, implementation of recommended measures pertaining to Waters of the U.S./State in Section 6.4 below, including WATER1, WATER2, WATER3, and WATER4 would minimize potential impacts to Northern Hardpan Vernal Pools.

6.4 Waters of the U.S./State

The Project site supports potential Waters of the U.S. and State. In addition to BIO1 and BIO2, the following measures are recommended if impacts are proposed to aquatic resources:

WATERS1: Prepare and submit an aquatic resources delineation for the Project to the USACE and obtain a verification or Preliminary Jurisdictional Determination.

WATERS2: File a request for authorization to fill Waters of the U.S. under the Section 404 of the federal CWA (Section 404 Permit) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Nationwide Permit (0.5-acre or less of impacts for Nationwide Permit 29-Residential Developments) or an Individual Permit for the Project should be prepared and submitted to USACE. Mitigation for impacts to Waters of the U.S. typically consists of a minimum of a 1:1 ratio for direct impacts; however final mitigation requirements will be developed in consultation with USACE.

WATERS3: If necessary, file a request for a Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained from the RWQCB for Section 404 permit actions.

WATERS4: Pursuant to the Porter-Cologne Water Quality Act, a permit authorization from the RWQCB is required prior to the discharge of material in an area that could affect Waters of the State. Mitigation requirements for discharge to Waters of the State within the Project site will be developed in consultation with the RWQCB.

6.5 Wildlife Movement Corridors

No impacts to wildlife movement, corridors, or nursery sites are expected.

7.0 SUMMARY

The Study Area supports potentially suitable habitat for nine federal or state-listed species, including four plants, three aquatic invertebrates, and two birds. In addition, the Study Area supports potentially suitable habitat for 24 non-listed special-status species, including 19 plants, one amphibian, one reptile, and three birds. While not considered special-status as defined in this analysis, some commonly occurring birds that are protected under the MBTA could potentially nest onsite. The annual grassland community onsite appears to meet the criteria to be a Northern Hardpan Vernal Pool community, which is considered a sensitive natural community by CDFW. The aquatic resources delineation conducted by Rincon has not been submitted to the USACE for verification, but it is likely that the wetlands mapped onsite are considered jurisdictional Waters of the U.S., based on the current definition.

With implementation of recommendations described in Section 6.0, the Project is not expected to have a significant effect on biological resources.

8.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual; Vascular Plants of California*, Second Edition. University of California Press, Berkeley, California.

Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2020. Swainson's Hawk (*Buteo swainsoni*), version 1.0. In *Birds of the World* (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.swahaw.01.

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle. 2020. Tricolored Blackbird (*Agelaius tricolor*), version 1.0. In *Birds of the World* (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.tribla.01.

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. Dated March 7, 2012.

_____. 1988. California's Wildlife. Volume I, Amphibians and Reptiles. D. C. Zeiner, W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. California Department of Fish and Game. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2022a. Rarefind 5. Online Version, commercial version dated January 30, 2022. California Natural Diversity Database. The Resources Agency, Sacramento.

_____. 2022b. Biogeographic Information and Observation System. Available https://wildlife.ca.gov/data/BIOS. Accessed March 2022.

_____. 2021. California Natural Community List. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609.

California Native Plant Society (CNPS). 2022. Inventory of Rare and Endangered Plants in California (online edition, v8-03 0.39). California Native Plant Society. Sacramento, CA. Accessed March 2022.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Eriksen, C. H. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, California.

Estep, J.A. 1989. Biology, movements, and habitat relationships of the Swainson's hawk in the Central Valley of California, 1986-1987. California Department of Fish and Game, Nongame Bird and Mammal Section Report.

Hartman, Ronald L. and Richard K. Rabeler. 2012, *Paronychia ahartii*, in Jepson Flora Project (eds.) *Jepson eFlora*, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=36286, accessed on February 10, 2023.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, California Department of Fish and Game, Sacramento, CA.

Horton, John D., 2017. 0818, The State Geologic Map Compilation Geodatabase of the Conterminous United States: U.S. Geological Survey data release DOI: 10.5066/F7WH2N65, U.S. Geological Survey, Denver, CO. Available https://doi.org/10.5066/F7WH2N65

Jennings, C.W., R.G. Strand, and T.H. Rogers. 1977. Geologic map of California: California Division of Mines and Geology, scale 1:750,000. Available https://mrdata.usgs.gov/geology/state/sgmc-lith.php?code=5.14#California. Accessed December 2020.

Jennings, M.R. and M.P. Hayes. 1994. Amphibians and reptile species of special concern in California. Contract 38023, report to the California Department of Fish and Game, Inland Fisheries Division. Sacramento, CA. 255 pp.

National Oceanic and Atmospheric Administration (NOAA). 2022a. NOAA Fisheries West Coast Region California Species List Tools. Available online: https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html. Accessed March 2022.

_____. 2022b. National Climatic Data Center 1981-2010 Climate Normals for Oroville Municipal Airport, CA US. https://www.ncdc.noaa.gov/cdo-web/datatools/normals. Accessed March 2022.

Natural Resources Conservation Service (NRCS). 2022. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/. Accessed March 2022.

Natural Resources Conservation Service (NRCS), U.S. Geological Survey (USGS), and U.S. Environmental Protection Agency (USEPA). 2016. Watershed Boundary Dataset for California. http://datagateway.nrcs.usda.gov.

Poulin, R. G., L. D. Todd, E. A. Haug, B. A. Millsap, and M. S. Martell. 2020. Burrowing Owl (Athene cunicularia), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.burowl.01.

Rincon Consultants, Inc. (Rincon). 2021. *20th Street Residential Development Jurisdictional Waters and Wetlands Delineation*. Prepared for: MD3 Investments. March 2021.

Sawyer, J., Keeler-Wolf T., Evens J. M. 2009. *A Manual of California Vegetation, Second Edition*. Sacramento, California: California Native Plant Society.

Small, A. 1994. *California Birds: Their Status and Distribution*. Ibis Publishing Company. Vista, California. 342 pp.

Smith, K. G., S. R. Wittenberg, R. B. Macwhirter, and K. L. Bildstein. 2020. Northern Harrier (*Circus hudsonius*), version 1.0. In *Birds of the World* (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.norhar2.01

State Water Resources Control Board. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2, 2019. Available online: https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html#officialdocuments. Accessed March 2022.

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

Stebbins, R. C. and S. M. McGinnis. 2012. *Field Guide to Amphibians and Reptiles of California (revised edition)*. University of California Press, Berkeley.

U.S. Army Corps of Engineers (USACE). 2020. National Wetland Plant List. Document Number 2020-10630. Published May 18, 2020. Available https://www.federalregister.gov/documents/2020/05/18/2020-10630/national-wetland-plant-list#citation-1-p29690.

_____. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer.

U.S. Environmental Protection Agency (USEPA). 2022. Classification and Types of Wetlands. United States Environmental Protection Agency. Available online: https://www.epa.gov/wetlands/classification-and-types-wetlands#undefined. Accessed March 2022.

U.S. Fish and Wildlife Service (USFWS). 2022a. USFWS Resource Report List. Information for Planning and Conservation. Available https://ecos.fws.gov/ipac. Accessed March 2022.

_____. 2022b. Online Critical Habitat Mapper. Available https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed March 2022.

_____. 2021. Birds of Conservation Concern 2021. United States Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds, Falls Church, Virginia. Available online: http://www.fws.gov/birds/management/ managed-species/birds-of-conservation-concern.php.

_____. 2006. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule. Federal Register. February 10, 2006 (Volume 71, Number 28).

_____. 2005. Recovery plan for vernal pool ecosystems of California and Southern Oregon. Portland, OR. Dated December 15, 2005. http://ecos.fws.gov/docs/recovery_plan/060614.pdf

_____. 2003. Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule. Federal Register 68(151):46684-46867.

_____. 1994. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. Portland, Oregon.

U.S. Geological Survey (USGS). 1970. "Oroville, California" 7.5-minute Quadrangle. U.S. Department of the Interior. Denver, Colorado.

Western Bat Working Group (WBWG). 2022. Western Bat Species Accounts. http://wbwg.org/western-bat-species/.

Yosef, R. 2020. Loggerhead Shrike (Lanius ludovicianus), version 1.0. In Birds of the World (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.logshr.01.

LIST OF APPENDICES

APPENDIX A

Results of Database Searches

Search Results

63 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3912155:3912166:3912165:3912164:3912154:3912156:3912146:3912145:3912144**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2	 ©2005 Steve Matson
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	None	None	G2	S2	1B.2	 © 2019 Steven Perry
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	G4T3T4	S3S4	4.2	 ©2018 Steven Perry
Arctostaphylos mewukka ssp. *truei*	True's manzanita	Ericaceae	perennial evergreen shrub	Feb-Jul	None	None	G4?T3	S3	4.2	 © 2008 George W. Hartwell
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	 ©2012 Tim Kellison
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2	No Photo Available
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	 ©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	 © 2011 Steven Perry
Brodiaea sierrae	Sierra foothills brodiaea	Themidaceae	perennial bulbiferous herb	May-Aug	None	None	G3	S3	4.3	

										© 2006 George W. Hartwell
Bryum chryseum	brassy bryum	Bryaceae	moss		None	None	G5	S3	4.3	No Photo Available
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	None	None	G5	S3	4.2	 ©2016 Ryan Batten
Calycadenia oppositifolia	Butte County calycadenia	Asteraceae	annual herb	Apr-Jul	None	None	G3	S3	4.2	No Photo Available
Cardamine pachystigma var. *dissectifolia*	dissected-leaved toothwort	Brassicaceae	perennial rhizomatous herb	Feb-May	None	None	G3G5T2Q	S2	1B.2	No Photo Available
Castilleja rubicundula var. *rubicundula*	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	None	None	G5T2	S2	1B.2	 ©2010 Vernon Smith
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	Onagraceae	annual herb	May-Jul	None	None	G4G5T4	S4	4.2	No Photo Available
Clarkia gracilis ssp. *albicaulis*	white-stemmed clarkia	Onagraceae	annual herb	May-Jul	None	None	G5T3	S3	1B.2	No Photo Available
Clarkia mildrediae ssp. *lutescens*	golden-anthered clarkia	Onagraceae	annual herb	Jun-Aug	None	None	G3T3	S3	4.2	No Photo Available
Clarkia mildrediae ssp. *mildrediae*	Mildred's clarkia	Onagraceae	annual herb	May-Aug	None	None	G3T2T3	S2S3	1B.3	No Photo Available
Clarkia mosquinii	Mosquin's clarkia	Onagraceae	annual herb	May-Jul(Sep)	None	None	G2	S2	1B.1	No Photo Available
Claytonia palustris	marsh claytonia	Montiaceae	perennial herb	May-Oct	None	None	G4	S4	4.3	 ©2006 Dean Wm. Taylor, Ph.D.
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	No Photo Available
Cypripedium californicum	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	Apr-Aug(Sep)	None	None	G4	S4	4.2	

										© 2012 Barry Rice
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	None	None	G4	S4	4.2	 © 2013 Scot Loring
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	No Photo Available
Eriogonum umbellatum var. *ahartii*	Ahart's buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	G5T3	S3	1B.2	No Photo Available
Erythranthe filicifolia	fern-leaved monkeyflower	Phrymaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	 Belinda Lo, 2020
Erythranthe glaucescens	shield-bracted monkeyflower	Phrymaceae	annual herb	Feb-Aug(Sep)	None	None	G3G4	S3S4	4.3	 Neal Kramer 2020
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	 © 2017 Debra L. Cook
Euphorbia hooveri	Hoover's spurge	Euphorbiaceae	annual herb	Jul-Sep(Oct)	FT	None	G1	S1	1B.2	No Photo Available
Fritillaria eastwoodiae	Butte County fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3Q	S3	3.2	 ©2009 Sierra Pacific Industries
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	 © 2015 Steve Matson
Githopsis pulchella ssp.	serpentine bluecup	Campanulaceae	annual herb	May-Jun	None	None	G4T3	S3	4.3	

serpentinicola										 © 2019 Barry Breckling
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	 © 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	 © 2020 Steven Perry
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	 © 2004 Carol W. Witham
Juncus leiospermus var. *leiospermus*	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	 ©2016 Dylan Neubauer
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	 © 2013 Jake Ruygt
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	 © 2007 Len Blumin
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	 © 2010 Aaron Schusteff
Lilium humboldtii ssp. *humboldtii*	Humboldt lily	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	None	None	G4T3	S3	4.2	 © 2008 Sierra Pacific Industries
Limnanthes floccosa ssp.	Butte County meadowfoam	Limnanthaceae	annual herb	Mar-May	FE	CE	G4T1	S1	1B.1	

californica										© 2007 George W. Hartwell
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	G4T4	S3	4.2	 © 2021 Scot Loring
Microseris sylvatica	sylvan microseris	Asteraceae	perennial herb	Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Mielichhoferia elongata	elongate copper moss	Mielichhoferiaceae	moss		None	None	G5	S3S4	4.3	 © 2012 John Game
Monardella venosa	veiny monardella	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	 © 2007 George W. Hartwell
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	 ©2021 Scot Loring
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	 © 2013 Justy Leppert
Packera eurycephala var. *lewisrosei*	Lewis Rose's ragwort	Asteraceae	perennial herb	Mar-Jul(Aug-Sep)	None	None	G4T2	S2	1B.2	No Photo Available
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	 © 2004 Carol W. Witham
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G3	S3	4.2	No Photo Available
Plagiobryoides vinosula	wine-colored tufa moss	Bryaceae	moss		None	None	G4	S3S4	4.2	No Photo Available
Poa sierrae	Sierra blue grass	Poaceae	perennial rhizomatous herb	Apr-Jul	None	None	G3	S3	1B.3	 © 2012 Belinda Lo
Polygonum bidwelliae	Bidwell's knotweed	Polygonaceae	annual herb	Apr-Jul	None	None	G4	S4	4.3	

										 ©2020 Neal Kramer
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
Sidalcea gigantea	giant checkerbloom	Malvaceae	perennial rhizomatous herb	(Jan-Jun)Jul-Oct	None	None	G3	S3	4.3	 ©2018 Sierra Pacific Industries
Sidalcea robusta	Butte County checkerbloom	Malvaceae	perennial rhizomatous herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
Stellaria obtusa	obtuse starwort	Caryophyllaceae	perennial rhizomatous herb	May-Sep(Oct)	None	None	G5	S4	4.3	 ©2014 Kirsten Bovee
Streptanthus drepanoides	sickle-fruit jewelflower	Brassicaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	 ©2012 Julie Kierstead Nelson
Streptanthus longisiliquus	long-fruit jewelflower	Brassicaceae	perennial herb	Apr-Sep	None	None	G3	S3	4.3	 ©2008 Sierra Pacific Industries
Trifolium jokerstii	Butte County golden clover	Fabaceae	annual herb	Mar-May	None	None	G2	S2	1B.2	No Photo Available
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	 ©2008 F. Gauna
Viola tomentosa	felt-leaved violet	Violaceae	perennial herb	(Apr)May-Oct	None	None	G3	S3	4.2	No Photo Available
Wolffia brasiliensis	Brazilian watermeal	Araceae	perennial herb (aquatic)	Apr-Dec	None	None	G5	S2	2B.3	

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Scot Loring

Showing 1 to 63 of 63 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 24 February 2022].

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Oroville (3912155) OR Oroville Dam (3912154) OR Hamlin Canyon (3912166) OR Cherokee (3912165) OR Berry Creek (3912164) OR Shippee (3912156) OR Biggs (3912146) OR Palermo (3912145) OR Bangor (3912144))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3	SSC
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01050	***Rana boylii*** foothill yellow-legged frog	None	Endangered	G3	S3	SSC
ABNGA04010	***Ardea herodias*** great blue heron	None	None	G5	S4	
ABNKC01010	***Pandion haliaetus*** osprey	None	None	G5	S4	WL
ABNKC10010	***Haliaeetus leucocephalus*** bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC11011	***Circus hudsonius*** northern harrier	None	None	G5	S3	SSC
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S3	
ABNKD06071	***Falco peregrinus anatum*** American peregrine falcon	Delisted	Delisted	G4T4	S3S4	FP
ABNME03041	***Laterallus jamaicensis coturniculus*** California black rail	None	Threatened	G3G4T1	S1	FP
ABNMK01014	***Antigone canadensis tabida*** greater sandhill crane	None	Threatened	G5T5	S2	FP
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S3	SSC
ABPAU08010	***Riparia riparia*** bank swallow	None	Threatened	G5	S2	
ABPBR01030	***Lanius ludovicianus*** loggerhead shrike	None	None	G4	S4	SSC
ABPBW01114	***Vireo bellii pusillus*** least Bell's vireo	Endangered	Endangered	G5T2	S2	
ABPBX03010	***Setophaga petechia*** yellow warbler	None	None	G5	S3S4	SSC
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S1S2	SSC
AFCAA01031	***Acipenser medirostris pop. 1*** green sturgeon - southern DPS	Threatened	None	G3T1	S1	
AFCHA0205L	***Oncorhynchus tshawytscha pop. 11*** chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5T1T2Q	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AFCHA0209K	***Oncorhynchus mykiss irideus pop. 11*** steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AMACC01090	***Myotis thysanodes*** fringed myotis	None	None	G4	S3	
AMACC02010	***Lasionycteris noctivagans*** silver-haired bat	None	None	G3G4	S3S4	
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
AMACD02011	***Eumops perotis californicus*** western mastiff bat	None	None	G4G5T4	S3S4	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
ARACF12100	***Phrynosoma blainvillii*** coast horned lizard	None	None	G3G4	S3S4	SSC
ARADB36150	***Thamnophis gigas*** giant gartersnake	Threatened	Threatened	G2	S2	
CTT44110CA	***Northern Hardpan Vernal Pool*** Northern Hardpan Vernal Pool	None	None	G3	S3.1	
CTT44131CA	***Northern Basalt Flow Vernal Pool*** Northern Basalt Flow Vernal Pool	None	None	G3	S2.2	
CTT44132CA	***Northern Volcanic Mud Flow Vernal Pool*** Northern Volcanic Mud Flow Vernal Pool	None	None	G1	S1.1	
CTT61410CA	***Great Valley Cottonwood Riparian Forest*** Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT63410CA	***Great Valley Willow Scrub*** Great Valley Willow Scrub	None	None	G3	S3.2	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T2	S3	
IIHYM24250	***Bombus occidentalis*** western bumble bee	None	None	G2G3	S1	
IIHYM24480	***Bombus crotchii*** Crotch bumble bee	None	None	G3G4	S1S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S1S2	
PDAST11061	***Balsamorhiza macrolepis*** big-scale balsamroot	None	None	G2	S2	1B.2
PDAST5N0F0	***Layia septentrionalis*** Colusa layia	None	None	G2	S2	1B.2
PDAST8H182	***Packera eurycephala var. lewisrosei*** Lewis Rose's ragwort	None	None	G4T2	S2	1B.2
PDBRA0K1B1	***Cardamine pachystigma var. dissectifolia*** dissected-leaved toothwort	None	None	G3G5T2Q	S2	1B.2
PDCAR0L0V0	***Paronychia ahartii*** Ahart's paronychia	None	None	G3	S3	1B.1
PDCAR0X0U0	***Stellaria obtusa*** obtuse starwort	None	None	G5	S4	4.3
PDEUP0D150	***Euphorbia hooveri*** Hoover's spurge	Threatened	None	G1	S1	1B.2
PDFAB40310	***Trifolium jokerstii*** Butte County golden clover	None	None	G2	S2	1B.2
PDLAM18082	***Monardella venosa*** veiny monardella	None	None	G1	S1	1B.1
PDLIM02042	***Limnanthes floccosa ssp. californica*** Butte County meadowfoam	Endangered	Endangered	G4T1	S1	1B.1
PDMAL0H0R3	***Hibiscus lasiocarpos var. occidentalis*** woolly rose-mallow	None	None	G5T3	S3	1B.2
PDMAL110P0	***Sidalcea robusta*** Butte County checkerbloom	None	None	G2	S2	1B.2
PDONA05053	***Clarkia biloba ssp. brandegeeae*** Brandegee's clarkia	None	None	G4G5T4	S4	4.2
PDONA050J1	***Clarkia gracilis ssp. albicaulis*** white-stemmed clarkia	None	None	G5T3	S3	1B.2
PDONA050Q2	***Clarkia mildrediae ssp. mildrediae*** Mildred's clarkia	None	None	G3T2T3	S2S3	1B.3
PDONA050S0	***Clarkia mosquinii*** Mosquin's clarkia	None	None	G2	S2	1B.1
PDPGN086UY	***Eriogonum umbellatum var. ahartii*** Ahart's buckwheat	None	None	G5T3	S3	1B.2
PDPHR01150	***Erythranthe filicifolia*** fern-leaved monkeyflower	None	None	G2	S2	1B.2
PDRAN0B1J0	***Delphinium recurvatum*** recurved larkspur	None	None	G2?	S2?	1B.2
PDSCR0D482	***Castilleja rubicundula var. rubicundula*** pink creamsacs	None	None	G5T2	S2	1B.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMALI040Q0	***Sagittaria sanfordii*** Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L1	***Juncus leiospermus var. ahartii*** Ahart's dwarf rush	None	None	G2T1	S1	1B.2
PMJUN011L2	***Juncus leiospermus var. leiospermus*** Red Bluff dwarf rush	None	None	G2T2	S2	1B.1
PMLIL022V0	***Allium jepsonii*** Jepson's onion	None	None	G2	S2	1B.2
PMLIL0V060	***Fritillaria eastwoodiae*** Butte County fritillary	None	None	G3Q	S3	3.2
PMLIL0V0F0	***Fritillaria pluriflora*** adobe-lily	None	None	G2G3	S2S3	1B.2
PMPOA040K0	***Agrostis hendersonii*** Henderson's bent grass	None	None	G2Q	S2	3.2
PMPOA4G050	***Orcuttia tenuis*** slender Orcutt grass	Threatened	Endangered	G2	S2	1B.1
PMPOA4Z310	***Poa sierrae*** Sierra blue grass	None	None	G3	S3	1B.3
PMPOA6N010	***Tuctoria greenei*** Greene's tuctoria	Endangered	Rare	G1	S1	1B.1

Record Count: 71

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Butte County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS
Butte County Meadowfoam Limnanthes floccosa ssp. californica	Endangered

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/4223

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Black Tern Chlidonias niger — Breeds May 15 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3093

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

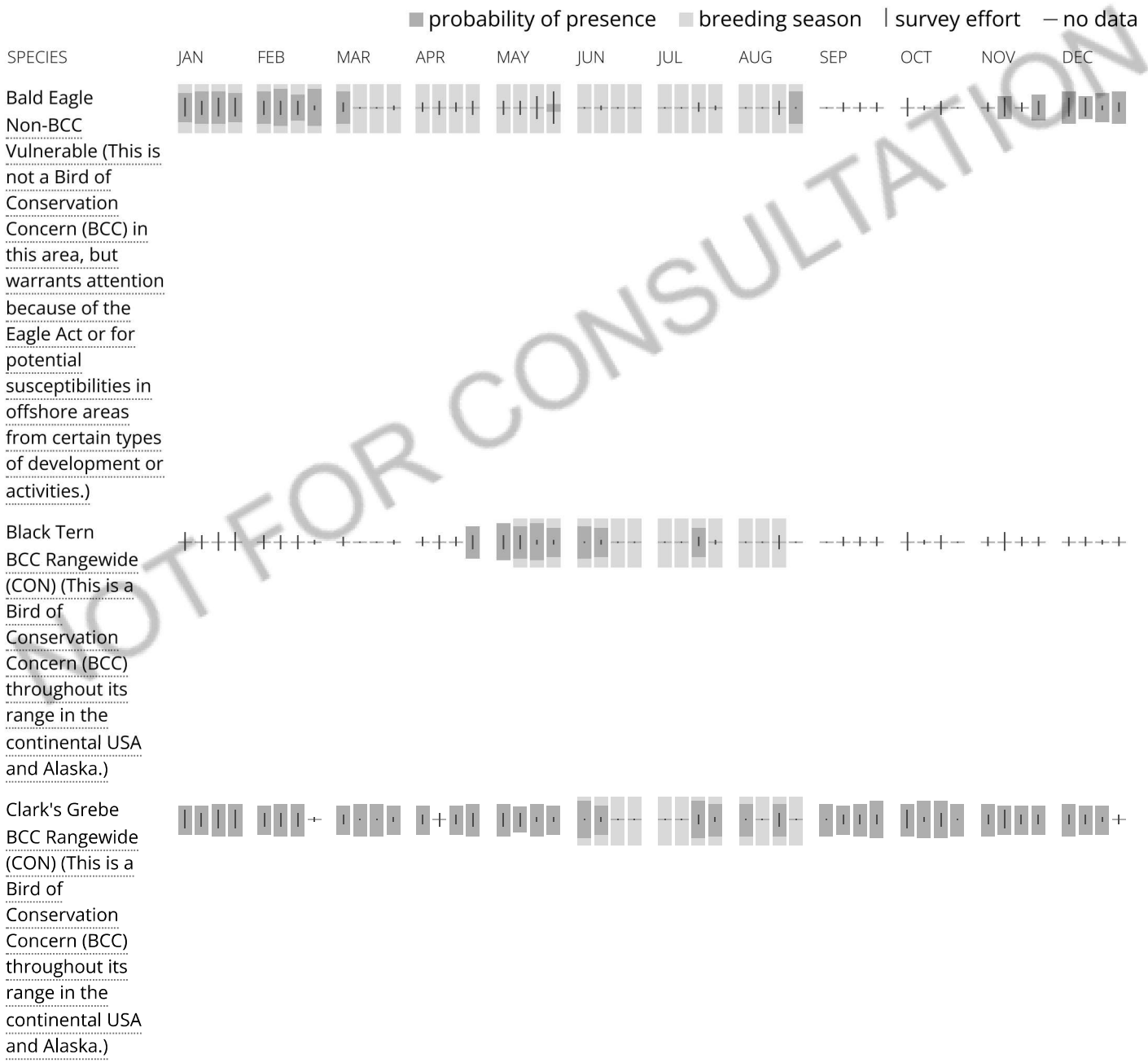
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

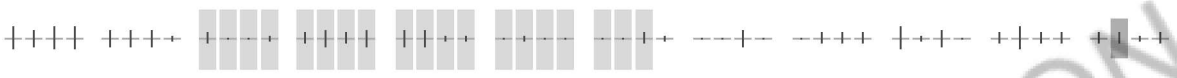
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



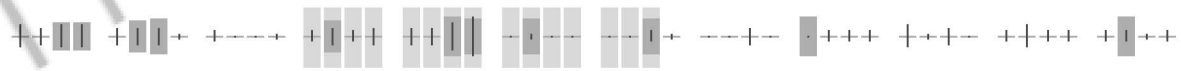
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Long-eared Owl BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

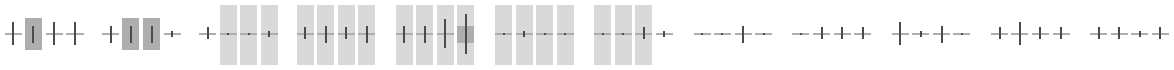


Marbled Godwit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

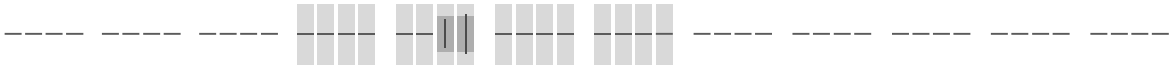


Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tricolored Blackbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Yellow-billed Magpie BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring

in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NMFS Species List

Quad Name: Oroville

Quad Number: 39121-E5

ESA Anadromous Fish

CVSR Chinook Salmon ESU (T)

CCV Steelhead DPS (T)

sDPS Green Sturgeon (T)

ESA Anadromous Fish Critical Habitat

CVSR Chinook Salmon Critical Habitat

CCV Steelhead Critical Habitat

sDPS Green Sturgeon Critical Habitat

Essential Fish Habitat

Chinook Salmon EFH

Accessed February 2022
(https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html)

APPENDIX B

Representative Site Photographs

Photo 1. Eastern Study Area Boundary

Photo 2. Northern Study Area Boundary

Photo 3. Seasonal Wetland Depression in NW Corner of Study Area

Photo 4. Seasonal Wetland Depression in SE Corner of Study Area

APPENDIX C

Jurisdictional Waters and Wetlands Delineation

20th Street Residential Development

Jurisdictional Waters and Wetlands Delineation

prepared for

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March 2021

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Table of Contents

Tables

Figures

Appendices

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Executive Summary

On behalf of MD3 Investments, Rincon Consultants, Inc. (Rincon) conducted an aquatic resources delineation and preliminary jurisdictional determination for the 20th Street Residential Development project, located in the northern Sacramento Valley in the community of Oroville, Butte County, California. The site is proposed for development of 160 single family residences on the approximately 45-acre site.

Delineated aquatic features at the site include 78 depressional seasonal wetlands that all meet the U.S. Army Corps of Engineers' (USACE) three parameter definition of wetlands, which requires the presence of hydric vegetation, hydric soils, and hydrology. These wetlands do not connect to and are not adjacent to other potentially federally jurisdictional waters or wetlands as defined in 33 Code of Federal Regulations (CFR) 328.3 and are considered isolated. Therefore, these wetlands are not considered potentially USACE jurisdictional. However, as isolated wetlands they are considered potentially Regional Water Quality Control Board jurisdictional pursuant to the Porter-Cologne Act. There are no waters delineated on the site, i.e. no features with a bed and bank or ordinary high water mark. Therefore, there are no features on site considered to be under the jurisdiction of the California Department of Fish and Wildlife.

Introduction

On behalf of MD3 Investments, Rincon Consultants, Inc. (Rincon) conducted an aquatic resources delineation for the 20th Street Residential Development (Project), located in Oroville, Butte County, California. The delineation was conducted to determine the location and extent of waters and wetlands within the project site that are potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW).

Any proposed development in areas identified as jurisdictional waters and/or wetlands may be subject to the permit requirements of the USACE under Section 404 of the Clean Water Act (CWA), RWQCB under Section 401 of the CWA and Porter-Cologne Water Quality Act, and CDFW pursuant to Section 1600 et. seq. of the California Fish and Game Code. The results of this delineation are considered preliminary until verified by the Sacramento District USACE.

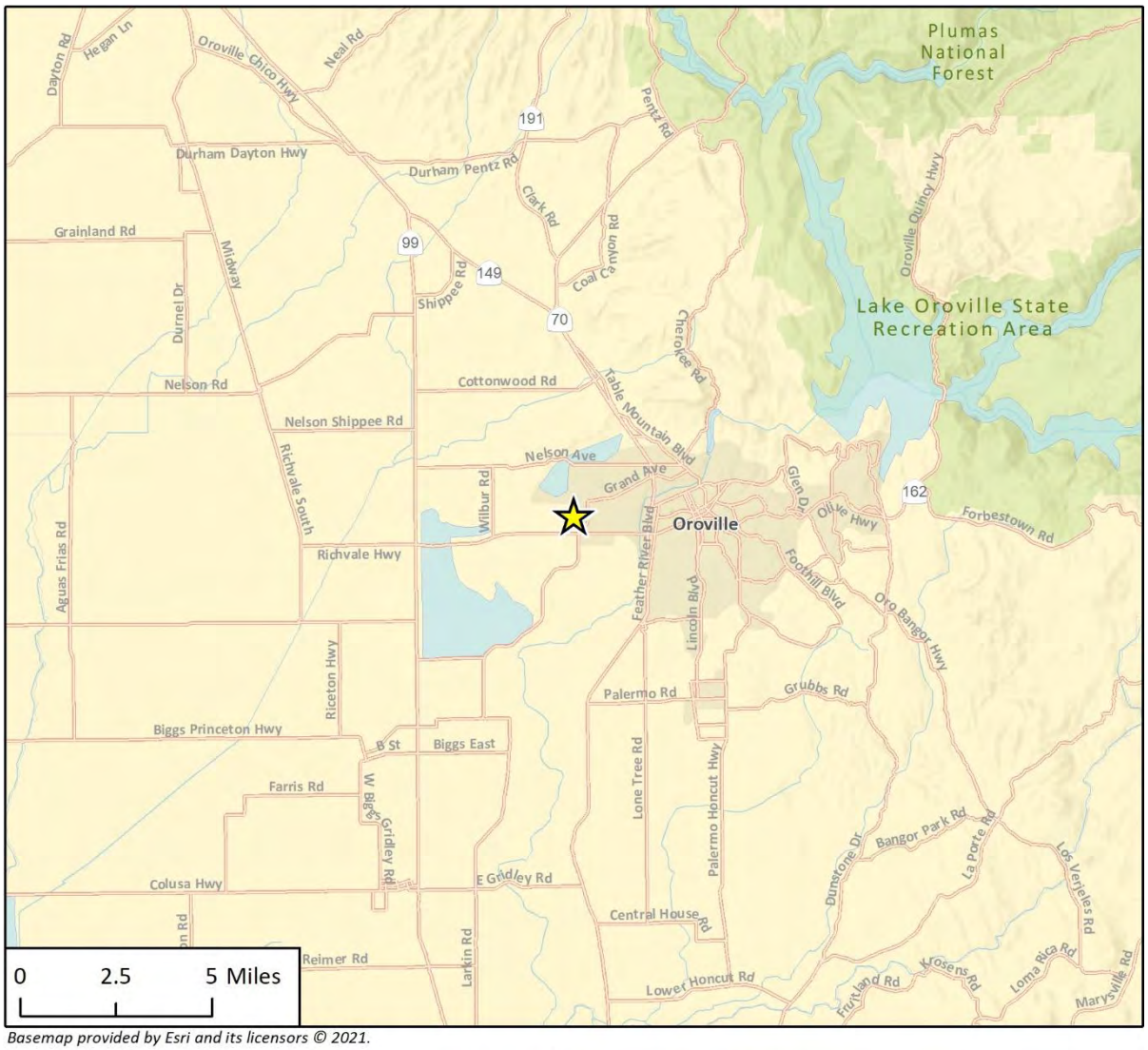
Project Location

The Project is located in the northern Sacramento Valley in the community of Oroville in Butte County, California (Figure 1). The Project's approximate center is at latitude 39.504790°N and longitude 121.611406°W and is found within the Oroville U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle, Township 19 north, Range 3 east, Sections 14 and 15 (Figure 2).

The Project is located on the west side of 20th Street approximately 0.3 mile north of the intersection with Oroville Dam Boulevard/State Route (SR) 162, which forms the eastern boundary. There southern boundary is in approximate alignment with Biggs Avenue and the northern boundary with Feather Avenue, both to the east of 20th Street (Figure 3). The western boundary is approximately aligned with an existing dirt road. The site is primarily surrounded by open space. A residential development is present to the northeast, to the north are two rural residential parcels and there is open space on the eastern and southern boundaries. Additional residential developments and rural residential parcels are located further to the east and west, Thermalito Forebay to the northwest, and Oroville Municipal Airport and Table Mountain Golf Club are located southeast.

The site is proposed for development of 160 single family residences on the approximately 45-acre site. The study area is defined as the boundary of the Project site parcel, APN 030-230-098, plus a buffer of approximately 50 feet.

Figure 1 Study Area Location

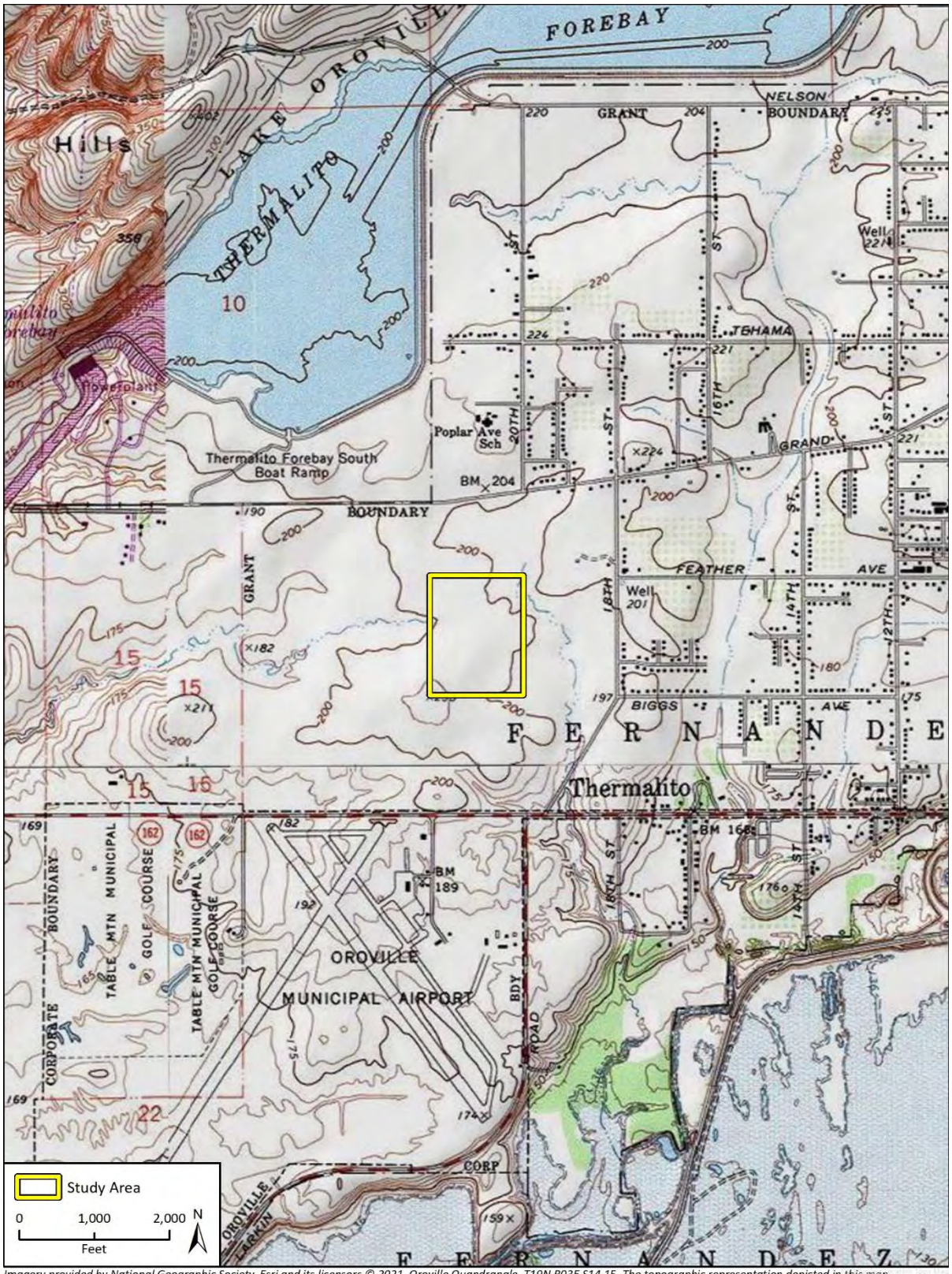


Basemap provided by Esri and its licensors © 2021.

Study Area

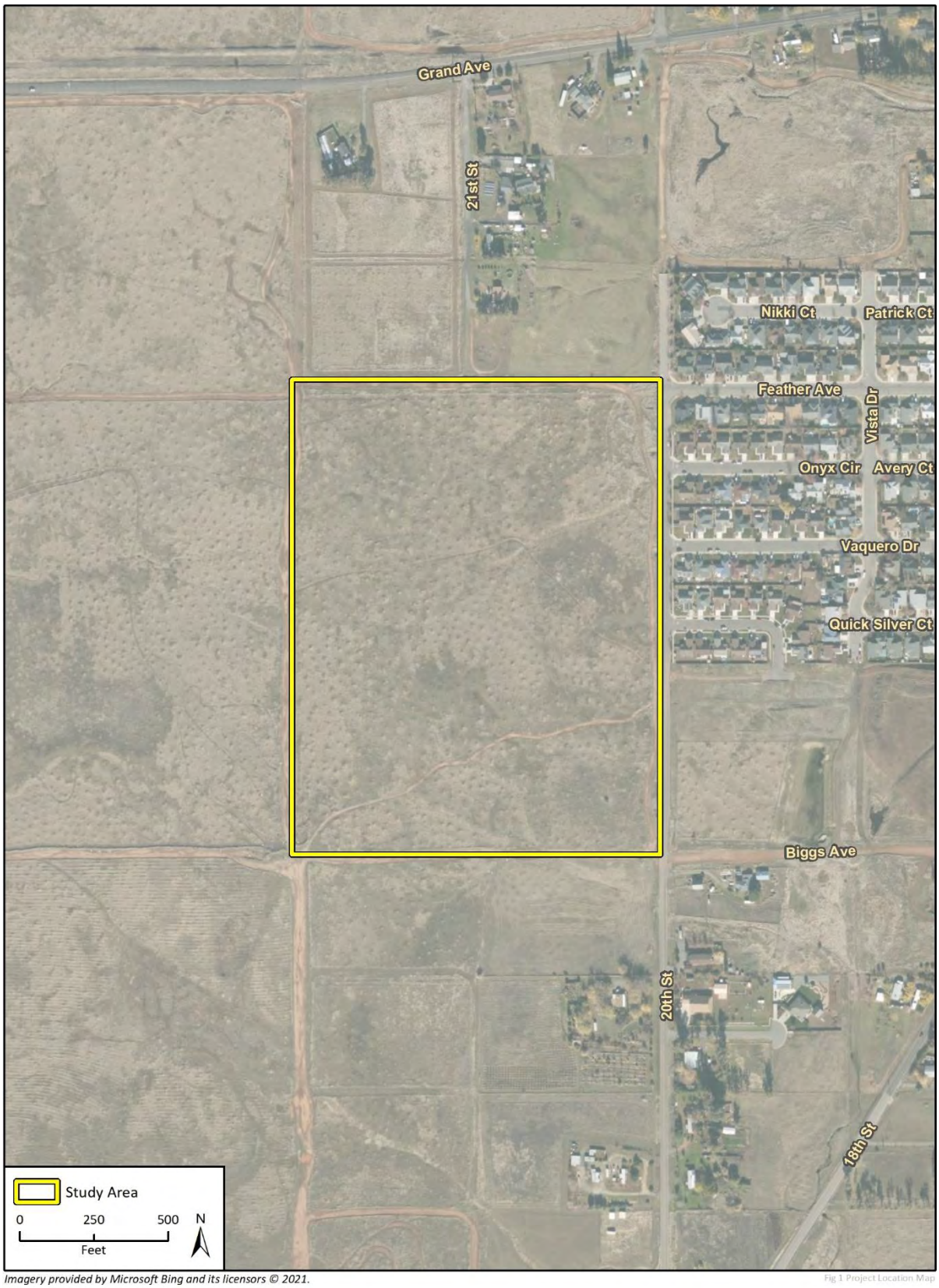
N

Figure 2 Study Area Topographic Map



Imagery provided by National Geographic Society, Esri and its licensors © 2021. Oroville Quandrangle. T19N R03E S14,15. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Figure 3 Study Area Vicinity



Methodology

Prior to the site visit, Rincon conducted a review of Gallaway Enterprises' Preliminary Wetland Assessment letter report (Gallaway 2020) to identify potential wetlands and other waters that may be present within the study area. Other existing materials reviewed included online geospatial wetlands information provided by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2020), Google Earth Imagery (Google Earth 2020), the *National Hydrography Dataset* (NHD) (USGS 2018), and current and historical topographic maps (USGS 2021) of the site and region. Soils types in the study area were identified using the Web Soil Survey, a resource provided by the National Resources Conservation Service (NRCS 2019).

Field work for the delineation was conducted on February 9, 2021 by Rincon biologists Kristin Asmus and Beth Wilson in accordance with the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0)* (2008 Supplement) (USACE 2008). The 1987 Manual and 2008 Supplement provide technical guidelines and methods for a three-parameter approach to determining the location and boundaries of jurisdictional wetlands. This approach requires that an area support positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a jurisdictional wetland. Routine wetland determination data forms were completed for 6 sample points and are provided in Appendix A.

To determine whether hydrophytic vegetation dominated an area, plant species at sample points were listed on the data forms and the wetland indicator status for each species was recorded using the National Wetlands Plant List (NWPL) (USACE 2018). Hydrophytic species include those listed as obligate (OBL), facultative wetland (FACW), or facultative (FAC). The designation of a species indicator status corresponds to the probability that a species will occur in a wetland habitat. The indicator categories are defined as follows:

- **Obligate wetland plant species (OBL).** Plants that almost always occur in wetlands under natural conditions (estimated probability >99 percent), but which rarely occur in non-wetlands.
- **Facultative wetland plant species (FACW).** Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur in non-wetlands.
- **Facultative plant species (FAC).** Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
- **Facultative upland plant species (FACU).** Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands but occur more often in non-wetlands.
- **Obligate upland plant species (UPL).** Plants that occur rarely (estimated probability <1 percent) in wetlands but occur almost always in non-wetlands.
- **Not Listed (NL).** Plant species for which insufficient information was available to determine an indicator status and are treated as upland species because they do not on occur on the wetland plant list.

Soils were examined by digging soil test pits to determine whether hydric soils exist in the sampling location. Soils were described in terms of depth, matrix color, redoxymorphic color (when present), and moisture status at each sampling location. Hydric soil determinations were based on the indicators provided by the 1987 Manual and 2008 Supplement. Soil units mapped to the study area

by the soil survey were cross-referenced to list of Hydric Soils of the United States to determine if the soil was listed as a hydric map unit (NRCS 2021).

Additionally, Rincon evaluated sources of water, potential connections to interstate waters, and other factors that affect whether wetlands and waters qualify as "waters of the United States" under current regulations (i.e., the USACE/USEPA 2020 Navigable Waters Protection Rule, 33 CFR Part 328).

The lateral limits (i.e., width) of non-wetland waters (streams and channels) are delineated at the ordinary high water mark (OHWM), as defined in 33 CFR 328.3. The OHWM represents the limit of potential USACE jurisdiction over non-tidal waters in the absence of adjacent wetlands (33 CFR 328.4). Additional references include Regulatory Guidance Letter 05-05 (USACE 2005) and *A Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (Lichvar and McColley 2008). Drainages were examined for the presence of physical characteristics indicative of the OHWM such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, sediment deposition and transport, scour, and other indicators.

Aquatic features were recorded digitally in the field using a handheld Geode™ Global Positioning System (GPS) receiver with sub-meter accuracy connected to an Android® tablet equipped with ESRI ArcGIS Collector® software. The data was subsequently transferred and overlaid on recent high-resolution aerial imagery using ESRI ArcGIS software. Sample point locations were also recorded digitally. Approximately 25% of the wetland polygons delineated by Gallaway Enterprises in 2020 were re-examined at various locations across the property during the field visit and determined to be accurate. A combined dataset was used to prepare the delineation map.

Botanical nomenclature used in this report follows NWPL and, for plants that were not listed in the NWPL, *The Jepson Manual: Vascular Plants of California* (Second Edition) (Baldwin *et al.* 2012). Plant community names follow *A Manual of California Vegetation: Second Edition* (MCVII) (Sawyer *et al*. 2009), where applicable or *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). This report also provides wetland community names that conform to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*. 1979).

Routine wetland determination data forms were completed for 6 sample points and are provided in Appendix A. Representative photographs of the site are included in Appendix B. A list of plant species observed and their wetland indicator status are provided in Appendix C. This report was prepared in accordance with the USACE Updated Map and Drawing Standards for the South Pacific Regulatory Program (USACE 2016a) and the Sacramento District Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016b).

Wetlands and Waters of the State

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland. The term "isolated waters" is applied generally to waters or wetlands that are not connected by surface or shallow subsurface water to a river, lake, ocean, or other navigable or interstate water. In the case of isolated wetland

features or those displaying an OHWM, RWQCB still considers such wetlands and drainages to be jurisdictional waters of the state pursuant to the Porter-Cologne Act.

Section 1602 of the California Fish and Game Code requires an entity to notify the CDFW before conducting any activity that would divert obstruct, or substantially alter a lake or streambed. Once notified, the CDFW may require that a Streambed Alteration Agreement be executed before the activity may proceed. CDFW jurisdiction extends from the top of bank to top of bank and if riparian vegetation is present extends to the furthest extents of the riparian vegetation.

Environmental Setting

This section presents the results of the jurisdictional delineation, and includes discussions of the environmental setting, descriptions of the major vegetation units observed, soil types present, and a discussion of local hydrology in the study area.

Site Conditions

The study area is located at the eastern edge of the Sacramento Valley, approximately 4 miles to the west of the Sierra Nevada foothills. The valley is characterized by valley grassland, agriculture, rivers with riparian corridors, irrigation canals, and drainage ditches. The study area is situated approximately 7 miles west of the Lake Oroville Dam, on the north central portion of a peninsula shaped by the Feather River approximately 1.75 miles east, Thermalito Forebay 0.5 mile north, Thermalito Afterbay approximately 2.25 miles west, and the Thermalito Power Canal that connects the river to the forebay and the Western Canal connecting the afterbay back to the river through the Oroville Wildlife Area.

The study area is located within the Mediterranean California (LRR-C) sub-region of the Arid West Region, which is characterized by relatively warm, wet winters and dry summers, with most of the precipitation falling between November and April (Environmental Laboratory 2008). According to Western Regional Climate Center (WRCC 2021) data records between 1893 to 2016, average annual temperatures at the Oroville, California Station (Station No. 046521) range between 48.6 and 75.2 degrees Fahrenheit (F°), with the warmest temperatures occurring in July with an average high of 96.4 F°. The coldest temperatures occur between December and January with an average low of 37.3 F°. Average annual rainfall in the vicinity is approximately 28.69 inches, with most precipitation occurring between October and May (WRCC 2021). At the time of the February field survey accumulated precipitation for the current water year (October 1 to September 30) was 9.6 inches (UCANR 2021), approximately 45% of average for that time of year for the Feather River Basin (CDEC 2021). Approximately 1.68 inches of precipitation was recorded in the 14 days prior to the field visit, and 0.26 inch within 7 days of the field visit.

The study area is characterized by mima mound topography (low, roughly circular earth mounds with low saddles and basins in between peaks) (Appendix B, Photograph 1). Overall the site slopes to the north/northeast with elevations ranging from 230 feet above mean sea level (msl) at the top of a low hill in the southwest corner of the property to 193 feet above msl in the northeast corner. The project site contains numerous small depressional seasonal wetlands across the site. The study area is relatively disturbed with dirt access roads along the property boundaries and crisscrossing the site and evidence of off-road vehicle use on the dirt roads as well as crossing some grassland areas (Appendix B, Photographs 2 and 3).

Vegetation

There are two vegetation communities present in the study area, nonnative annual grassland and seasonal wetland. A third landcover type, Developed/Disturbed comprises the dirt roads, which can be seen in Figure 3.

Nonnative Annual Grassland

Nonnative annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. Nonnative annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, dominate this vegetation type. Scattered native grass and wildflower species representing remnants of the original vegetation may also be common. This vegetation community covers the majority of the study area and is dominated by medusa-head (*Elymus caput-medusae*; NL), little quaking grass (*Briza minor*; FAC), and wild oats (*Avena fatua*; NL) with Italian rye grass (*Festuca perennis*; FAC) and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*; FAC). Characteristic forbs present include storksbill (*Erodium botrys*; FACU), hairy hawkbit (*Leontodon saxatilis*; FACU) and wild hyacinth (*Dichelostemma multiflorum*; NL) Onsite non-native grassland does not conform to any of the alliances as described in MCVII (Sawyer *et al*. 2009) and would be classified as an upland following Cowardin *et al.* (1979).

Seasonal Wetland

Seasonal wetlands support annual and perennial native and non-native wetland indicator plant species. This plant association typically resembles a wetland community only following the wet season; it dries up rapidly with the onset of summer and the wetland indicator species go dormant. During the dry season, such sites may not be readily recognizable as wetland species go to seed and typical upland grasses and forbs become established. On site, seasonal wetlands occur where water ponds and soils remain saturated during the growing season. Plant species identified in seasonal wetlands on site include coyote thistle (*Eryngium castrense*; OBL), toad rush (*Juncus bufonius*; FACW), common stickyseed (*Blennosperma nanum*; FACW), water-starwort (*Callitriche marginate*; OBL) and smooth goldfields (*Lasthenia glaberrima*; OBL). On site, seasonal wetland does not conform to any specific series as classified by Sawyer *et al.* (1995) and is not specifically described in Holland (1986); it would be classified as palustrine seasonally flooded wetland following Cowardin *et al.* (1979).

Hydrology

The study area is located within the Thermalito Afterbay subwatershed (Hydrologic Unit Code 180201590201) within the Upper Feather River watershed. No NWI features are mapped in the study area. Natural hydrology in the study area is primarily driven by direct precipitation with associated runoff, ponding, percolation, and evapotranspiration. Water moves generally from the southwest to the northeast. Due to the mima mound topography, surface water collects in the basins between mounds where it percolates and/or ponds above a restrictive hardpan layer. When water levels are high within the system or during storm events, water may flow over low saddles via sheet flow or in ephemeral swales.

Prior to the construction of the residential neighborhood to the east and the paving of 20th Street in 2007, water from the northeast corner of the study area likely drained during high water conditions to an intermittent stream channel that arose in a shallow draw approximately 0.3 mile to the north and flowed southeast across the northwest corner of the residential neighborhood, then south eventually reaching the Feather River. This drainage can be seen in historic and the current (1970) USGS 7.5-minute Oroville topographic quadrangle and is partly visible in aerial imagery dated prior to 2007 (Google Earth 2021). It is also mapped in the NWI.

After construction of the neighborhood to the east the drainage was undergrounded and where it daylights to the south it is channelized, running through a detention basin and apparently returning to its natural course approximately 0.10 mile to the south.

Currently, water collected in the seasonal wetland in the northeast corner of the study area appears to periodically overflow into an excavation that contains a concrete culvert pipe, presumably connected to the storm drain system associated with the neighborhood construction. More detail about the excavation and the connection to the seasonal wetland follows under Other Observations below.

Soils

The study area is underlain by Plio-Pleistocene and Pliocene loosely consolidated deposits comprising sandstone, shale, and gravel deposits (USGS 2005). One soil complex is mapped in the study area, Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes (NRCS 2021). Each of the components is listed on the NRCS hydric soils list (NRCS 2021). The complex comprises approximately 30% Oroville, 25% Thermalito, 15% Fernandez, and 15% Thompsonflat with 11 other minor and mostly unnamed components. They are all formed in alluvium from metamorphic and igneous rocks and found on intermediate terraces. The Fernandez and Thompsonflat series are both very deep, moderately well drained soils. The Thermalito series is found on mounds and is moderately deep, somewhat poorly drained, with very high runoff and a depth to duripan of 20-40 inches. The Oroville soil series is found in swales and is moderately deep, poorly drained, with high to very high runoff and a depth to duripan of 20-40 inches. The Oroville series is classified as a fine, mixed, active, thermic Aquic Durixeralfs.

Delineation Results

This section presents the results of the delineation of aquatic resources in the study area and a preliminary determination of jurisdiction. Delineated potentially jurisdictional features include 78 seasonal wetlands. Wetland determination data forms are presented in Appendix A and representative photographs of aquatic resources are provided in Appendix B.

Seasonal Wetlands

There are 78 seasonal wetlands delineated in the study area totaling 2.62 acres. The wetlands are scattered throughout the property with more concentrated in the north and east (Figure 4). Wetlands are generally situated in the basins between mounds, though three larger wetlands at the northern end and another in the northeast corner are bounded by, and periodically flood over, the dirt boundary roads. Ponded water and saturated soils were present at the time of the field survey. Paired sample point data was collected at three locations on the property, in the northwest, northeast, and south-central areas. Vegetation composition in wetland and grassland communities was consistent throughout the study area. Hydric vegetation and hydrology were present at all three wetland sample points. Soils samples at all 6 locations were similar gravelly clay loam or clay texture (at depth) and the same red coloring (Appendix B, Photographs 4 and 5), which potentially obscured redoximorphic indicators. No depletions or manganese soft masses were detected that would meet the 2008 Supplement's technical description for hydric soil indicator TF2 Red Parent Material. However, because all four component series of the NRCS mapped soil complex are listed as hydric, hydric soils were assumed to be present wherever hydric vegetation and wetland hydrology were present.

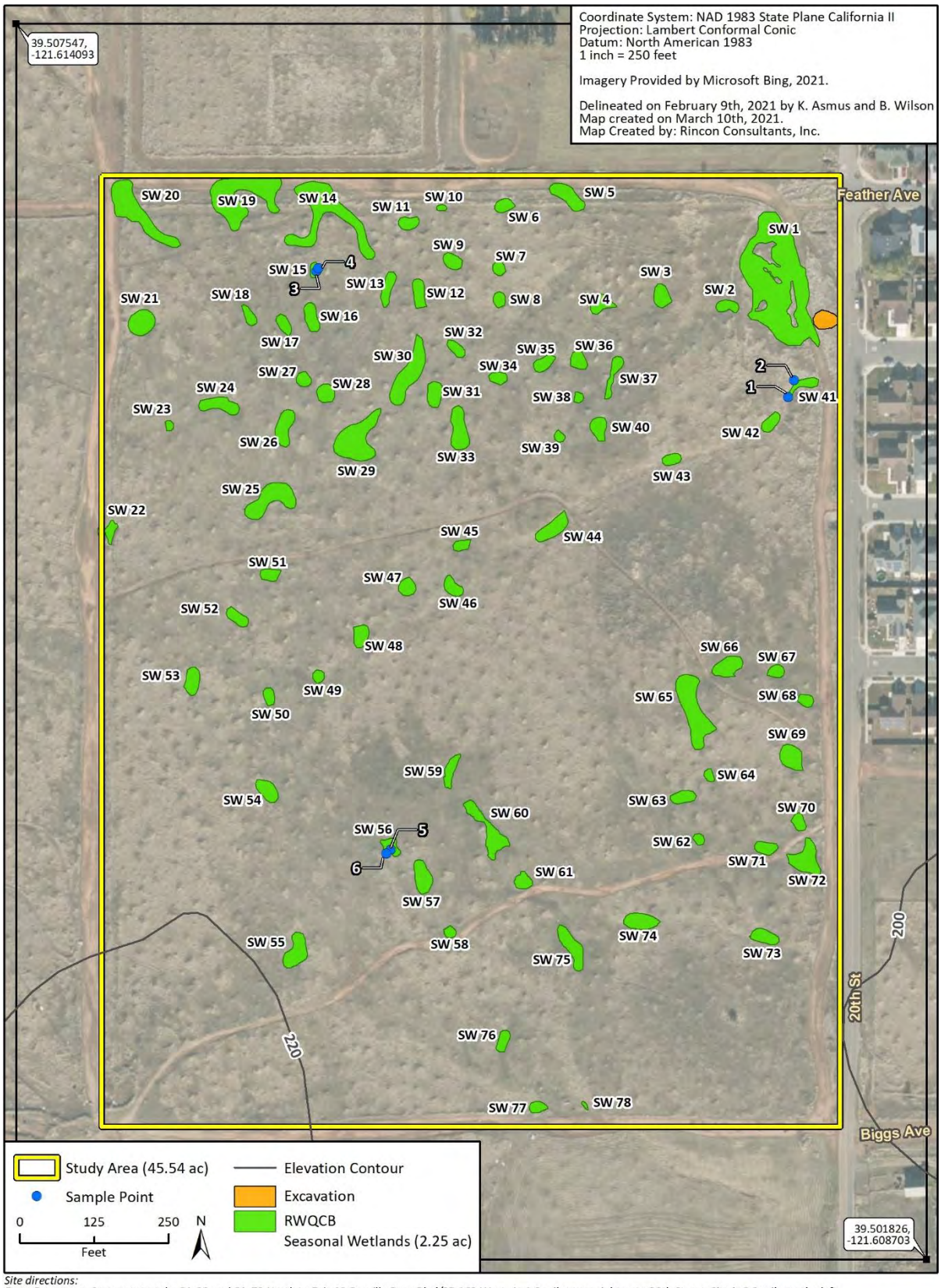
The depressional seasonal wetlands are isolated and do not connect to and are not adjacent to other potentially jurisdictional waters. These wetlands are not considered potentially USACE jurisdictional or potentially CDFW jurisdictional but are considered potentially RWQCB jurisdictional.

Other Observations

Some linear swale features are present that likely connect some of the depressional seasonal wetlands to each other during and briefly following high water level events. While these features have drainage like topography and short lengths with minimal scour, there were none with a discernible bed and bank or OHWM, and vegetation in these features was dominated by upland species. Therefore, swales on the site do not meet the definition of waters or wetlands and are not considered jurisdictional.

As previously described in the Hydrology section, prior to the construction of the residential neighborhood to the east and the paving of 20th Street in 2007, water from the northeast corner of the study area likely drained during high water conditions to an intermittent stream channel that flowed southeast across the northwest corner of the adjacent residential neighborhood, then south to the Feather River. After construction of the neighborhood the drainage was culverted and where it daylights to the south it is channelized, running through a detention basin and apparently returning to its natural course approximately 0.10 mile to the south.

Figure 4 Aquatic Resources Delineation Map



Site directions:
From Downtown Sacramento take CA-99 and CA-70 North to Exit 46 Oroville Dam Blvd/SR 162 West. At 1.9 miles turn right onto 20th Street. Site is 0.3 mile on the left.

At the time of the adjacent housing construction and paving of 20th Street, a large excavation was made on the eastern boundary of the study area Appendix B, Photograph 6), adjacent to Seasonal Wetland 1 (SW1) (Figure 4). At the bottom of the excavation, approximately 10 feet below street grade is a cement culvert that appears to slope away from the site toward the center of the street. A storm drain grate is present on the opposite side of the street from the excavation and culvert. A dirt road that cuts across the corner of the study area around the edge of the excavation was established in the years after construction and appears to have reduced drainage into the excavation and potentially increased the size of SW1.

When SW1 fills to capacity it floods over the road and, as evidenced by erosion at the edge of the excavation (Appendix B, Photographs 7 and 8), periodically overflows into the excavation. Water was pooled on the road and dripping slowly into the excavation at the time of the field survey. There was large cobble sized rip-rap present on the slopes of the excavation, but no hydrophytic vegetation present in the basin of the excavation or any observable water polling on the bottom or reaching the culvert pipe.

Summary of Jurisdictional Waters

Table 1, below, summarizes the potentially jurisdictional features delineated in the study area. Figure 4 depicts the location and extent of these features.

Potential USACE Jurisdiction

The seasonal wetlands delineated in the study area are considered isolated because they are not connected or adjacent to other potentially federally jurisdictional waters, nor is there a direct hydrological surface connection to downstream federally jurisdictional waters in a typical year. Therefore, the seasonal wetlands are not considered potentially USACE jurisdictional.

Potential RWQCB Jurisdiction

The seasonal wetlands are considered isolated waters and as such are considered potentially RWQCB jurisdictional waters.

Potential CDFW Jurisdiction

There are no non-wetland waters (i.e., lakes or streambeds) delineated in the study area; therefore, there are no potentially CDFW jurisdictional features.

Table 1 RWQCB Jurisdictional Area

Feature	RWQCB Jurisdiction Wetland Acres	Feature	RWQCB Jurisdiction Wetland Acres	Feature	RWQCB Jurisdiction Wetland Acres
SW1	0.371	SW 27	0.011	SW 53	0.021
SW 2	0.014	SW 28	0.017	SW 54	0.022
SW 3	0.020	SW 29	0.084	SW 55	0.035
SW 4	0.020	SW 30	0.067	SW 56	0.015
SW 5	0.033	SW 31	0.021	SW 57	0.029
SW 6	0.013	SW 32	0.012	SW 58	0.007
SW 7	0.009	SW 33	0.039	SW 59	0.018
SW 8	0.010	SW 34	0.011	SW 60	0.048
SW 9	0.015	SW 35	0.015	SW 61	0.014
SW 10	0.003	SW 36	0.015	SW 62	0.006
SW 11	0.014	SW 37	0.019	SW 63	0.017
SW 12	0.020	SW 38	0.005	SW 64	0.006
SW 13	0.020	SW 39	0.006	SW 65	0.089
SW 14	0.134	SW 40	0.019	SW 66	0.030
SW 15	0.371	SW 41	0.016	SW 67	0.011
SW 16	0.021	SW 42	0.015	SW 68	0.010
SW 17	0.013	SW 43	0.011	SW 69	0.029
SW 18	0.011	SW 44	0.031	SW 70	0.012
SW 19	0.134	SW 45	0.009	SW 71	0.015
SW 20	0.090	SW 46	0.016	SW 72	0.043
SW 21	0.034	SW 47	0.015	SW 73	0.020
SW 22	0.014	SW 48	0.018	SW 74	0.029
SW 23	0.004	SW 49	0.008	SW 75	0.035
SW 24	0.030	SW 50	0.010	SW 76	0.013
SW 25	0.062	SW 51	0.013	SW 77	0.010
SW 26	0.031	SW 52	0.016	SW 78	0.002
Seasonal Wetlands Total				**2.62 acres**	

References

Baldwin, B.G. (ed.). 2012. *The Jepson Manual: Vascular Plants of California*, *Second Edition*. University of California Press. Berkeley, California.

California Department of Water Resources. 2021. California Data Exchange Center. 2020-2021 WY Precipitation Summary Report. Available: https://cdec.water.ca.gov/

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. Available: https://www.fws.gov/wetlands/documents/classwet/index.html#contents

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual,* Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Miss.

Galloway Enterprises. 2020. *Preliminary Wetland Assessment of the 20th Street Property, Oroville, Butte County, CA.* March.

Google Earth. 2020. Google Earth Pro (Version 7.3.3.7786) [Computer software]. Accessed January-February 2021. Available: https://www.google.com/earth/versions/.

Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. October.

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

Natural Resources Conservation Service. 2021. Soil Data Access Hydric Soils List [Website data viewer]. Query by Soil Survey Area. Accessed: January 2021. Available: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

____.2019. Web Soil Survey (Version 3.4.0). U.S. Department of Agriculture. Last Modified July 31, 2019. Accessed: January 2021. Available: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA.

UCANR.*See* University of California Agricultural and Natural Resources

University of California Agricultural and Natural Resources. 2021. Statewide Integrated Pest Management Program, California Weather Data. California Irrigation Management Information System, CIMIS #12 Station DURHAM.A, Durham, California. Accessed: 2/2021. Available: http://ipm.ucanr.edu/WEATHER/index.html

USACE. *See* U.S. Army Corps of Engineers.

U.S. Army Corps of Engineers. 2018. *National Wetland Plant List* (Version 3.4). Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Accessed January-February 2021. Available: http://wetland-plants.usace.army.mil/.

———-. 2016a. *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program.* South Pacific Division. February.

———-. 2016b. *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports*. Sacramento District. January.

____. 2008a*. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. Technical Report ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

_____. 2005. Regulatory Guidance Letter: Ordinary High Water Mark Identification (RGL 05-05). Available: http://www.usace.army.mil/cw/cecw o/reg/rgls/rgl05-05.pdf.

U.S. Fish and Wildlife Service. 2020. National Wetland Inventory Data Mapper. Last Updated October 1, 2020. Accessed: January 2021. Available at: https://www.fws.gov/wetlands/data/mapper.html.

USFWS. *See* U.S. Fish and Wildlife Service.

U.S. Geological Survey. 2021. Historical Topographic Map Explorer (Website data viewer). Accessed January 2021. Available: https://livingatlas.arcgis.com/topoexplorer/index.html

———-. 2018. National Hydrography Dataset, The National Map (Website Advanced Viewer). Page last Modified October 22, 2018. Accessed: January 2021. Available: https://viewer.nationalmap.gov/advanced-viewer/

_____. 2005. California Geologic Map Data. Mineral Resources On-Line Spatial Data. Available: http://mrdata.usgs.gov/geology/state/state.php?state=CA.

USGS. *See* U.S. Geological Survey.

Western Regional Climate Center. 2020. Climate of Oroville, California (046521). Available: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6521

WRCC *See* Western Regional Climate Center.

Appendix A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-1

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2-3%

Subregion (LRR): LRR C Lat: 39.505727° Long: -121.609568° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑ No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
Soils are red, 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus bufonius	20	Y	OBL
2. Eryngium castrense	15	Y	OBL
3. Blennosperma nanum	10	Y	FACW
4. Leontodon saxatilis	3	N	FACU
5. Erodium botrys	2	N	FACU
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
6	2.5YR 4/4	100					Clay loam	6 inches hit clay duripan

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil is red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-2

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR C Lat: 39.508864° Long: -121.609540° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	45	Y	NI/UPL
2. Festuca perennis	35	Y	FAC
3. Erodium botrys	15	N	FACU
4. Briza minor	3	N	FAC
5. Bordiaea elegans	2	N	FACU
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	38	x 3 =	114
FACU species	17	x 4 =	68
UPL species	45	x 5 =	225
Column Totals:	100 (A)		407 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	2.5YR 4/4	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soil is red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is on flat area above basin/swale wetland area of SP-1.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-3

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): concave Slope (%): 2-3%

Subregion (LRR): LRR C Lat: 39.506420° Long: -121.612365° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus bufonius	25	Y	FACW
2. Hordeum marinum gussoneanum	20	Y	FAC
3. Eryngium castrense	15	Y	OBL
4. Hypochaeris glabra	5	N	NI/UPL
5. Erodium botrys	3	N	FACU
6. Elymus caput-medusae	2	N	NI/UPL
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

No pit dug, sample point is inundated. Additionally, soils onsite are red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 3

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-4

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): slope Slope (%): 1-2%

Subregion (LRR): LRR C Lat: 39.508421° Long: -121.612343° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☐ No ☑	Is the Sampled Area within a Wetland? Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Briza minor	25	Y	FAC
2. Elymus caput-medusae	22	Y	NI/UPL
3. Festuca perennis	18	Y	FAC
4. Plantago virginica	13	N	FACU
5. Erodium botrys	10	N	FACU
6. Brodiaea elegans	2	N	FACU
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 43	x 3 =	129
FACU species 25	x 4 =	100
UPL species 22	x 5 =	110
Column Totals: 90 (A)		339 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5YR 4/4	100					Clay loam	
10-18	7.5YR 4/6	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is on slight slope elevated above wetland SP3.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-5

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): concave Slope (%): 1-2%

Subregion (LRR): LRR C Lat: 39.503740° Long: -121.611904° Datum: NAD83ft

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑ No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Eryngium castrense	25	Y	OBL
2. Juncus bufonius	20	Y	FACW
3. Blennosperma nanum	3	N	FACW
4. Elymus caput-medusae	2	N	NI/UPL
5. Lasthenia glaberrima	5	N	OBL
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

No pit dug, sample point was inundated. Additionally, soils onsite are red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-8

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): none Slope (%): 0-1%

Subregion (LRR): LRR C Lat: 39.503729° Long: -121.611957° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☐ No ☑	Is the Sampled Area within a Wetland? Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Festuca perennis	40	Y	FAC
2. Briza minor	35	Y	FAC
3. Elymus caput-medusae	10	N	NI/UPL
4. Erodium botrys	5	N	FACU
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 75	x 3 =	225
FACU species 5	x 4 =	20
UPL species 10	x 5 =	50
Column Totals: (A)		295 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

All dominants are FAC status so Prevalence Index worksheet completed and is greater than 3.0

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5YR 4/4						Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soils on site are red with no depeletions or soft manganese masses discernible at wetland points to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is elevated above wetland SP-5.

Appendix B

Representative Photographs

Photograph 1. View north of the topography of the study area.

Photograph 2. View east of dirt tracks across the property.

Photograph 3. View of off-road vehicle tracks.

Photograph 4. View of red soils at wetland data Sample Point (SP) 1.

Photograph 5. View of red soils at upland data point SP2.

Photograph 6. View east toward adjacent neighborhood of the excavation with culvert pipe. A storm drain is visible across the street in the upper left of the photo.

Photograph 7. View southwest of the erosional feature from periodic overflow of Seasonal Wetland 1.

Photograph 8. Close view of erosional feature.

Appendix C

Plants Observed

Plants Observed in the Study Area with Indicator Status

Scientific Name	Common Name	Indicator Status
Avena fatua	wild oats	NL
Blennosperma nanum	common stickyseed	FACW
Briza minor	little quaking grass	FAC
Brodiaea elegans	harvest brodiaea	FACU
Callitriche marginata	water-starwort	OBL
Dicholostemma multiflorum	wild hyacinth	NL
Elymus caput-medusae	medusa-head	NL
Erodium botrys	storksbill	FACU
Eryngium castrense	coyote thistle	OBL
Fesutca perennis	Italian wild rye	FAC
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	FAC
Hypochaeris glabra	smooth cats ear	NL
Juncus bufonius	toad rush	FACW
Lasthenia glaberrima	smooth goldfields	OBL
Leontodon saxatilis	hairy hawkbit	FACU
Lythrum hyssopifolia	loosestrife	OBL
Plantago virginica	plantain	FACU

Source: Rincon 2021

APPENDIX 3.2 B

Jurisdictional Waters and Wetlands Delineation,

Rincon Consultants, Inc., March 2021

20th Street Residential Development

Jurisdictional Waters and Wetlands Delineation

prepared for

MD3 Investments
San Luis Obispo, California
md3investments@gmail.com
Contact: Michael D. Stoltey, Managing Member
M: 805-710-7866

prepared by

Rincon Consultants, Inc.
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Sacramento, California 95819
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March 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Table of Contents

Tables

Figures

Appendices

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Executive Summary

On behalf of MD3 Investments, Rincon Consultants, Inc. (Rincon) conducted an aquatic resources delineation and preliminary jurisdictional determination for the 20th Street Residential Development project, located in the northern Sacramento Valley in the community of Oroville, Butte County, California. The site is proposed for development of 160 single family residences on the approximately 45-acre site.

Delineated aquatic features at the site include 78 depressional seasonal wetlands that all meet the U.S. Army Corps of Engineers' (USACE) three parameter definition of wetlands, which requires the presence of hydric vegetation, hydric soils, and hydrology. These wetlands do not connect to and are not adjacent to other potentially federally jurisdictional waters or wetlands as defined in 33 Code of Federal Regulations (CFR) 328.3 and are considered isolated. Therefore, these wetlands are not considered potentially USACE jurisdictional. However, as isolated wetlands they are considered potentially Regional Water Quality Control Board jurisdictional pursuant to the Porter-Cologne Act. There are no waters delineated on the site, i.e. no features with a bed and bank or ordinary high water mark. Therefore, there are no features on site considered to be under the jurisdiction of the California Department of Fish and Wildlife.

Introduction

On behalf of MD3 Investments, Rincon Consultants, Inc. (Rincon) conducted an aquatic resources delineation for the 20th Street Residential Development (Project), located in Oroville, Butte County, California. The delineation was conducted to determine the location and extent of waters and wetlands within the project site that are potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW).

Any proposed development in areas identified as jurisdictional waters and/or wetlands may be subject to the permit requirements of the USACE under Section 404 of the Clean Water Act (CWA), RWQCB under Section 401 of the CWA and Porter-Cologne Water Quality Act, and CDFW pursuant to Section 1600 et. seq. of the California Fish and Game Code. The results of this delineation are considered preliminary until verified by the Sacramento District USACE.

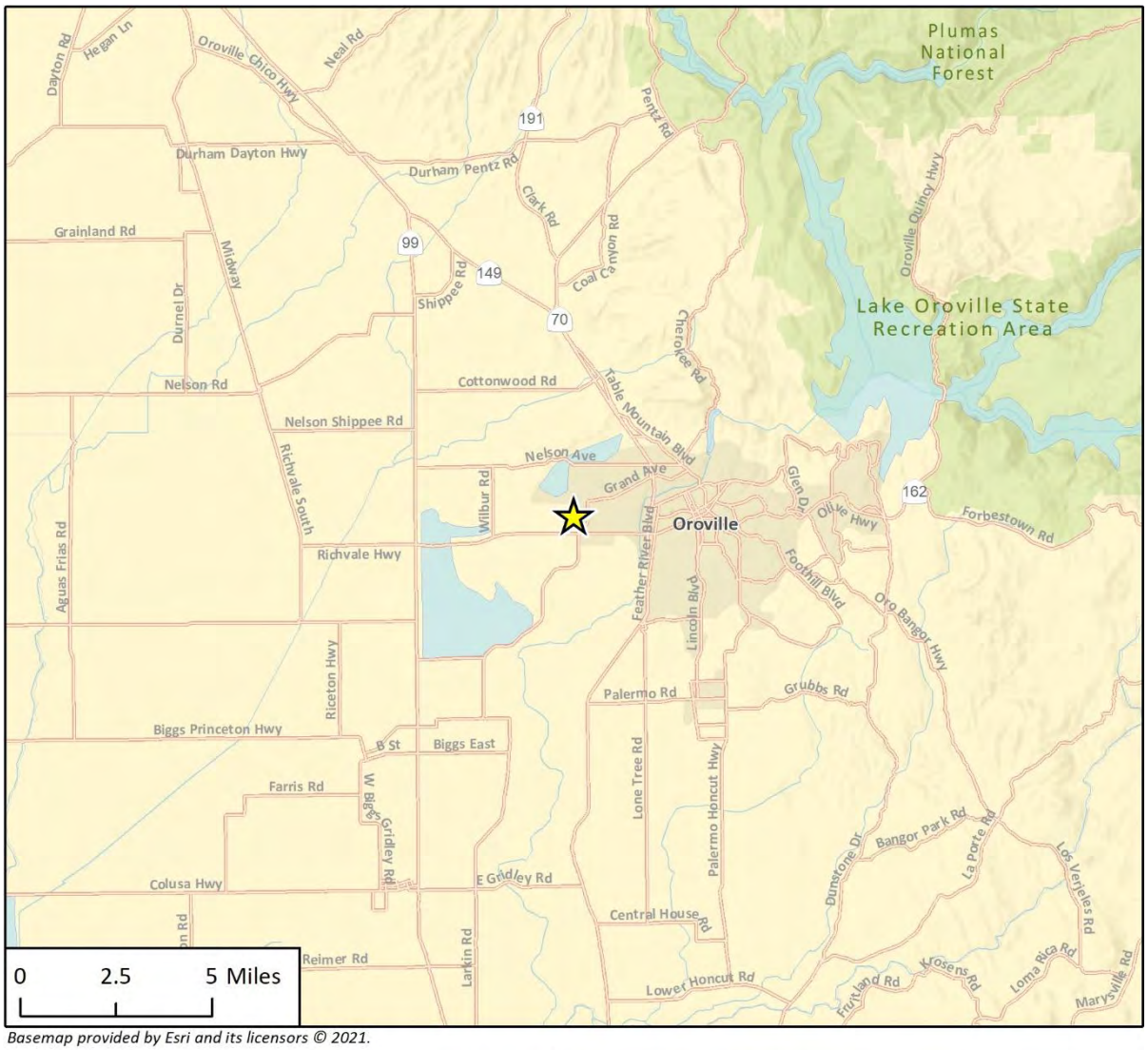
Project Location

The Project is located in the northern Sacramento Valley in the community of Oroville in Butte County, California (Figure 1). The Project's approximate center is at latitude 39.504790°N and longitude 121.611406°W and is found within the Oroville U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle, Township 19 north, Range 3 east, Sections 14 and 15 (Figure 2).

The Project is located on the west side of 20th Street approximately 0.3 mile north of the intersection with Oroville Dam Boulevard/State Route (SR) 162, which forms the eastern boundary. There southern boundary is in approximate alignment with Biggs Avenue and the northern boundary with Feather Avenue, both to the east of 20th Street (Figure 3). The western boundary is approximately aligned with an existing dirt road. The site is primarily surrounded by open space. A residential development is present to the northeast, to the north are two rural residential parcels and there is open space on the eastern and southern boundaries. Additional residential developments and rural residential parcels are located further to the east and west, Thermalito Forebay to the northwest, and Oroville Municipal Airport and Table Mountain Golf Club are located southeast.

The site is proposed for development of 160 single family residences on the approximately 45-acre site. The study area is defined as the boundary of the Project site parcel, APN 030-230-098, plus a buffer of approximately 50 feet.

Figure 1 Study Area Location



Basemap provided by Esri and its licensors © 2021.

Study Area

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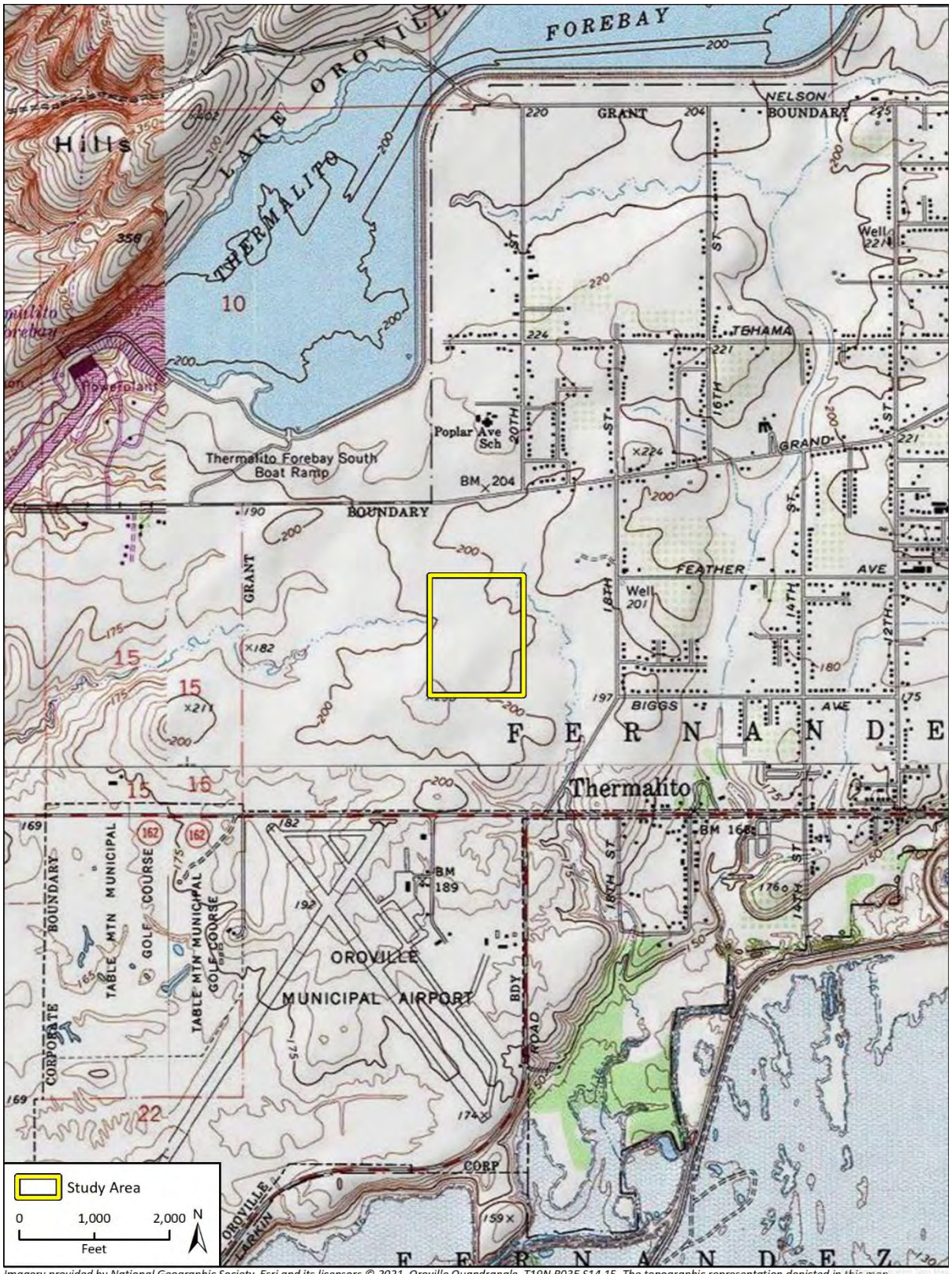
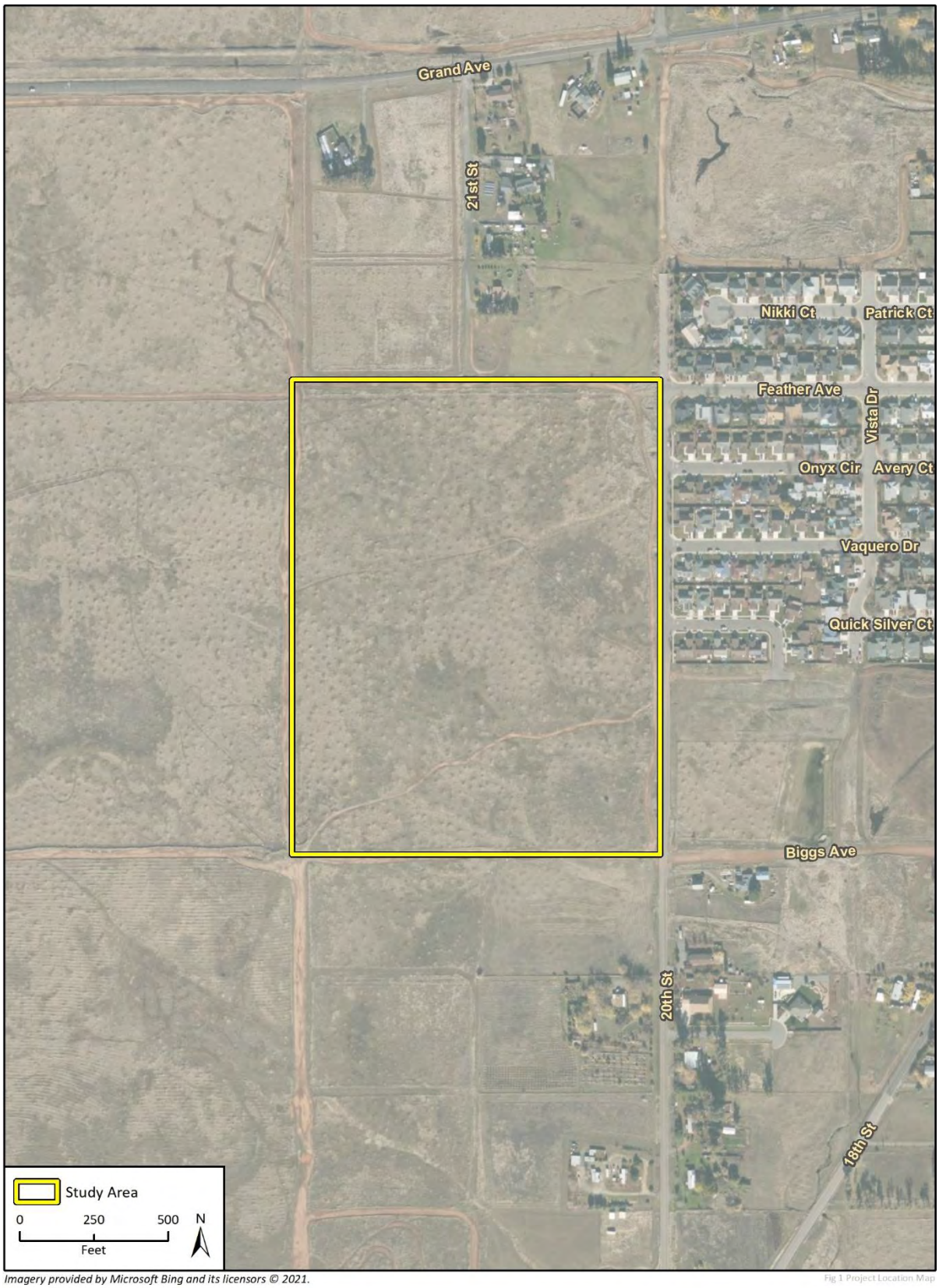
Figure 2 Study Area Topographic Map



Imagery provided by National Geographic Society, Esri and its licensors © 2021. Oroville Quandrangle. T19N R03E S14,15. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Figure 3 Study Area Vicinity



Methodology

Prior to the site visit, Rincon conducted a review of Gallaway Enterprises' Preliminary Wetland Assessment letter report (Gallaway 2020) to identify potential wetlands and other waters that may be present within the study area. Other existing materials reviewed included online geospatial wetlands information provided by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2020), Google Earth Imagery (Google Earth 2020), the *National Hydrography Dataset* (NHD) (USGS 2018), and current and historical topographic maps (USGS 2021) of the site and region. Soils types in the study area were identified using the Web Soil Survey, a resource provided by the National Resources Conservation Service (NRCS 2019).

Field work for the delineation was conducted on February 9, 2021 by Rincon biologists Kristin Asmus and Beth Wilson in accordance with the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0)* (2008 Supplement) (USACE 2008). The 1987 Manual and 2008 Supplement provide technical guidelines and methods for a three-parameter approach to determining the location and boundaries of jurisdictional wetlands. This approach requires that an area support positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a jurisdictional wetland. Routine wetland determination data forms were completed for 6 sample points and are provided in Appendix A.

To determine whether hydrophytic vegetation dominated an area, plant species at sample points were listed on the data forms and the wetland indicator status for each species was recorded using the National Wetlands Plant List (NWPL) (USACE 2018). Hydrophytic species include those listed as obligate (OBL), facultative wetland (FACW), or facultative (FAC). The designation of a species indicator status corresponds to the probability that a species will occur in a wetland habitat. The indicator categories are defined as follows:

- **Obligate wetland plant species (OBL).** Plants that almost always occur in wetlands under natural conditions (estimated probability >99 percent), but which rarely occur in non-wetlands.
- **Facultative wetland plant species (FACW).** Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur in non-wetlands.
- **Facultative plant species (FAC).** Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
- **Facultative upland plant species (FACU).** Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands but occur more often in non-wetlands.
- **Obligate upland plant species (UPL).** Plants that occur rarely (estimated probability <1 percent) in wetlands but occur almost always in non-wetlands.
- **Not Listed (NL).** Plant species for which insufficient information was available to determine an indicator status and are treated as upland species because they do not on occur on the wetland plant list.

Soils were examined by digging soil test pits to determine whether hydric soils exist in the sampling location. Soils were described in terms of depth, matrix color, redoxymorphic color (when present), and moisture status at each sampling location. Hydric soil determinations were based on the indicators provided by the 1987 Manual and 2008 Supplement. Soil units mapped to the study area

by the soil survey were cross-referenced to list of Hydric Soils of the United States to determine if the soil was listed as a hydric map unit (NRCS 2021).

Additionally, Rincon evaluated sources of water, potential connections to interstate waters, and other factors that affect whether wetlands and waters qualify as "waters of the United States" under current regulations (i.e., the USACE/USEPA 2020 Navigable Waters Protection Rule, 33 CFR Part 328).

The lateral limits (i.e., width) of non-wetland waters (streams and channels) are delineated at the ordinary high water mark (OHWM), as defined in 33 CFR 328.3. The OHWM represents the limit of potential USACE jurisdiction over non-tidal waters in the absence of adjacent wetlands (33 CFR 328.4). Additional references include Regulatory Guidance Letter 05-05 (USACE 2005) and *A Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (Lichvar and McColley 2008). Drainages were examined for the presence of physical characteristics indicative of the OHWM such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, sediment deposition and transport, scour, and other indicators.

Aquatic features were recorded digitally in the field using a handheld Geode™ Global Positioning System (GPS) receiver with sub-meter accuracy connected to an Android® tablet equipped with ESRI ArcGIS Collector® software. The data was subsequently transferred and overlaid on recent high-resolution aerial imagery using ESRI ArcGIS software. Sample point locations were also recorded digitally. Approximately 25% of the wetland polygons delineated by Gallaway Enterprises in 2020 were re-examined at various locations across the property during the field visit and determined to be accurate. A combined dataset was used to prepare the delineation map.

Botanical nomenclature used in this report follows NWPL and, for plants that were not listed in the NWPL, *The Jepson Manual: Vascular Plants of California* (Second Edition) (Baldwin *et al.* 2012). Plant community names follow *A Manual of California Vegetation: Second Edition* (MCVII) (Sawyer *et al*. 2009), where applicable or *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). This report also provides wetland community names that conform to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*. 1979).

Routine wetland determination data forms were completed for 6 sample points and are provided in Appendix A. Representative photographs of the site are included in Appendix B. A list of plant species observed and their wetland indicator status are provided in Appendix C. This report was prepared in accordance with the USACE Updated Map and Drawing Standards for the South Pacific Regulatory Program (USACE 2016a) and the Sacramento District Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016b).

Wetlands and Waters of the State

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland. The term "isolated waters" is applied generally to waters or wetlands that are not connected by surface or shallow subsurface water to a river, lake, ocean, or other navigable or interstate water. In the case of isolated wetland

features or those displaying an OHWM, RWQCB still considers such wetlands and drainages to be jurisdictional waters of the state pursuant to the Porter-Cologne Act.

Section 1602 of the California Fish and Game Code requires an entity to notify the CDFW before conducting any activity that would divert obstruct, or substantially alter a lake or streambed. Once notified, the CDFW may require that a Streambed Alteration Agreement be executed before the activity may proceed. CDFW jurisdiction extends from the top of bank to top of bank and if riparian vegetation is present extends to the furthest extents of the riparian vegetation.

Environmental Setting

This section presents the results of the jurisdictional delineation, and includes discussions of the environmental setting, descriptions of the major vegetation units observed, soil types present, and a discussion of local hydrology in the study area.

Site Conditions

The study area is located at the eastern edge of the Sacramento Valley, approximately 4 miles to the west of the Sierra Nevada foothills. The valley is characterized by valley grassland, agriculture, rivers with riparian corridors, irrigation canals, and drainage ditches. The study area is situated approximately 7 miles west of the Lake Oroville Dam, on the north central portion of a peninsula shaped by the Feather River approximately 1.75 miles east, Thermalito Forebay 0.5 mile north, Thermalito Afterbay approximately 2.25 miles west, and the Thermalito Power Canal that connects the river to the forebay and the Western Canal connecting the afterbay back to the river through the Oroville Wildlife Area.

The study area is located within the Mediterranean California (LRR-C) sub-region of the Arid West Region, which is characterized by relatively warm, wet winters and dry summers, with most of the precipitation falling between November and April (Environmental Laboratory 2008). According to Western Regional Climate Center (WRCC 2021) data records between 1893 to 2016, average annual temperatures at the Oroville, California Station (Station No. 046521) range between 48.6 and 75.2 degrees Fahrenheit (F°), with the warmest temperatures occurring in July with an average high of 96.4 F°. The coldest temperatures occur between December and January with an average low of 37.3 F°. Average annual rainfall in the vicinity is approximately 28.69 inches, with most precipitation occurring between October and May (WRCC 2021). At the time of the February field survey accumulated precipitation for the current water year (October 1 to September 30) was 9.6 inches (UCANR 2021), approximately 45% of average for that time of year for the Feather River Basin (CDEC 2021). Approximately 1.68 inches of precipitation was recorded in the 14 days prior to the field visit, and 0.26 inch within 7 days of the field visit.

The study area is characterized by mima mound topography (low, roughly circular earth mounds with low saddles and basins in between peaks) (Appendix B, Photograph 1). Overall the site slopes to the north/northeast with elevations ranging from 230 feet above mean sea level (msl) at the top of a low hill in the southwest corner of the property to 193 feet above msl in the northeast corner. The project site contains numerous small depressional seasonal wetlands across the site. The study area is relatively disturbed with dirt access roads along the property boundaries and crisscrossing the site and evidence of off-road vehicle use on the dirt roads as well as crossing some grassland areas (Appendix B, Photographs 2 and 3).

Vegetation

There are two vegetation communities present in the study area, nonnative annual grassland and seasonal wetland. A third landcover type, Developed/Disturbed comprises the dirt roads, which can be seen in Figure 3.

Nonnative Annual Grassland

Nonnative annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. Nonnative annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, dominate this vegetation type. Scattered native grass and wildflower species representing remnants of the original vegetation may also be common. This vegetation community covers the majority of the study area and is dominated by medusa-head (*Elymus caput-medusae*; NL), little quaking grass (*Briza minor*; FAC), and wild oats (*Avena fatua*; NL) with Italian rye grass (*Festuca perennis*; FAC) and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*; FAC). Characteristic forbs present include storksbill (*Erodium botrys*; FACU), hairy hawkbit (*Leontodon saxatilis*; FACU) and wild hyacinth (*Dichelostemma multiflorum*; NL) Onsite non-native grassland does not conform to any of the alliances as described in MCVII (Sawyer *et al*. 2009) and would be classified as an upland following Cowardin *et al.* (1979).

Seasonal Wetland

Seasonal wetlands support annual and perennial native and non-native wetland indicator plant species. This plant association typically resembles a wetland community only following the wet season; it dries up rapidly with the onset of summer and the wetland indicator species go dormant. During the dry season, such sites may not be readily recognizable as wetland species go to seed and typical upland grasses and forbs become established. On site, seasonal wetlands occur where water ponds and soils remain saturated during the growing season. Plant species identified in seasonal wetlands on site include coyote thistle (*Eryngium castrense*; OBL), toad rush (*Juncus bufonius*; FACW), common stickyseed (*Blennosperma nanum*; FACW), water-starwort (*Callitriche marginate*; OBL) and smooth goldfields (*Lasthenia glaberrima*; OBL). On site, seasonal wetland does not conform to any specific series as classified by Sawyer *et al.* (1995) and is not specifically described in Holland (1986); it would be classified as palustrine seasonally flooded wetland following Cowardin *et al.* (1979).

Hydrology

The study area is located within the Thermalito Afterbay subwatershed (Hydrologic Unit Code 180201590201) within the Upper Feather River watershed. No NWI features are mapped in the study area. Natural hydrology in the study area is primarily driven by direct precipitation with associated runoff, ponding, percolation, and evapotranspiration. Water moves generally from the southwest to the northeast. Due to the mima mound topography, surface water collects in the basins between mounds where it percolates and/or ponds above a restrictive hardpan layer. When water levels are high within the system or during storm events, water may flow over low saddles via sheet flow or in ephemeral swales.

Prior to the construction of the residential neighborhood to the east and the paving of 20th Street in 2007, water from the northeast corner of the study area likely drained during high water conditions to an intermittent stream channel that arose in a shallow draw approximately 0.3 mile to the north and flowed southeast across the northwest corner of the residential neighborhood, then south eventually reaching the Feather River. This drainage can be seen in historic and the current (1970) USGS 7.5-minute Oroville topographic quadrangle and is partly visible in aerial imagery dated prior to 2007 (Google Earth 2021). It is also mapped in the NWI.

After construction of the neighborhood to the east the drainage was undergrounded and where it daylights to the south it is channelized, running through a detention basin and apparently returning to its natural course approximately 0.10 mile to the south.

Currently, water collected in the seasonal wetland in the northeast corner of the study area appears to periodically overflow into an excavation that contains a concrete culvert pipe, presumably connected to the storm drain system associated with the neighborhood construction. More detail about the excavation and the connection to the seasonal wetland follows under Other Observations below.

Soils

The study area is underlain by Plio-Pleistocene and Pliocene loosely consolidated deposits comprising sandstone, shale, and gravel deposits (USGS 2005). One soil complex is mapped in the study area, Oroville-Thermalito-Fernandez-Thompsonflat complex, 0 to 9 percent slopes (NRCS 2021). Each of the components is listed on the NRCS hydric soils list (NRCS 2021). The complex comprises approximately 30% Oroville, 25% Thermalito, 15% Fernandez, and 15% Thompsonflat with 11 other minor and mostly unnamed components. They are all formed in alluvium from metamorphic and igneous rocks and found on intermediate terraces. The Fernandez and Thompsonflat series are both very deep, moderately well drained soils. The Thermalito series is found on mounds and is moderately deep, somewhat poorly drained, with very high runoff and a depth to duripan of 20-40 inches. The Oroville soil series is found in swales and is moderately deep, poorly drained, with high to very high runoff and a depth to duripan of 20-40 inches. The Oroville series is classified as a fine, mixed, active, thermic Aquic Durixeralfs.

Delineation Results

This section presents the results of the delineation of aquatic resources in the study area and a preliminary determination of jurisdiction. Delineated potentially jurisdictional features include 78 seasonal wetlands. Wetland determination data forms are presented in Appendix A and representative photographs of aquatic resources are provided in Appendix B.

Seasonal Wetlands

There are 78 seasonal wetlands delineated in the study area totaling 2.62 acres. The wetlands are scattered throughout the property with more concentrated in the north and east (Figure 4). Wetlands are generally situated in the basins between mounds, though three larger wetlands at the northern end and another in the northeast corner are bounded by, and periodically flood over, the dirt boundary roads. Ponded water and saturated soils were present at the time of the field survey. Paired sample point data was collected at three locations on the property, in the northwest, northeast, and south-central areas. Vegetation composition in wetland and grassland communities was consistent throughout the study area. Hydric vegetation and hydrology were present at all three wetland sample points. Soils samples at all 6 locations were similar gravelly clay loam or clay texture (at depth) and the same red coloring (Appendix B, Photographs 4 and 5), which potentially obscured redoximorphic indicators. No depletions or manganese soft masses were detected that would meet the 2008 Supplement's technical description for hydric soil indicator TF2 Red Parent Material. However, because all four component series of the NRCS mapped soil complex are listed as hydric, hydric soils were assumed to be present wherever hydric vegetation and wetland hydrology were present.

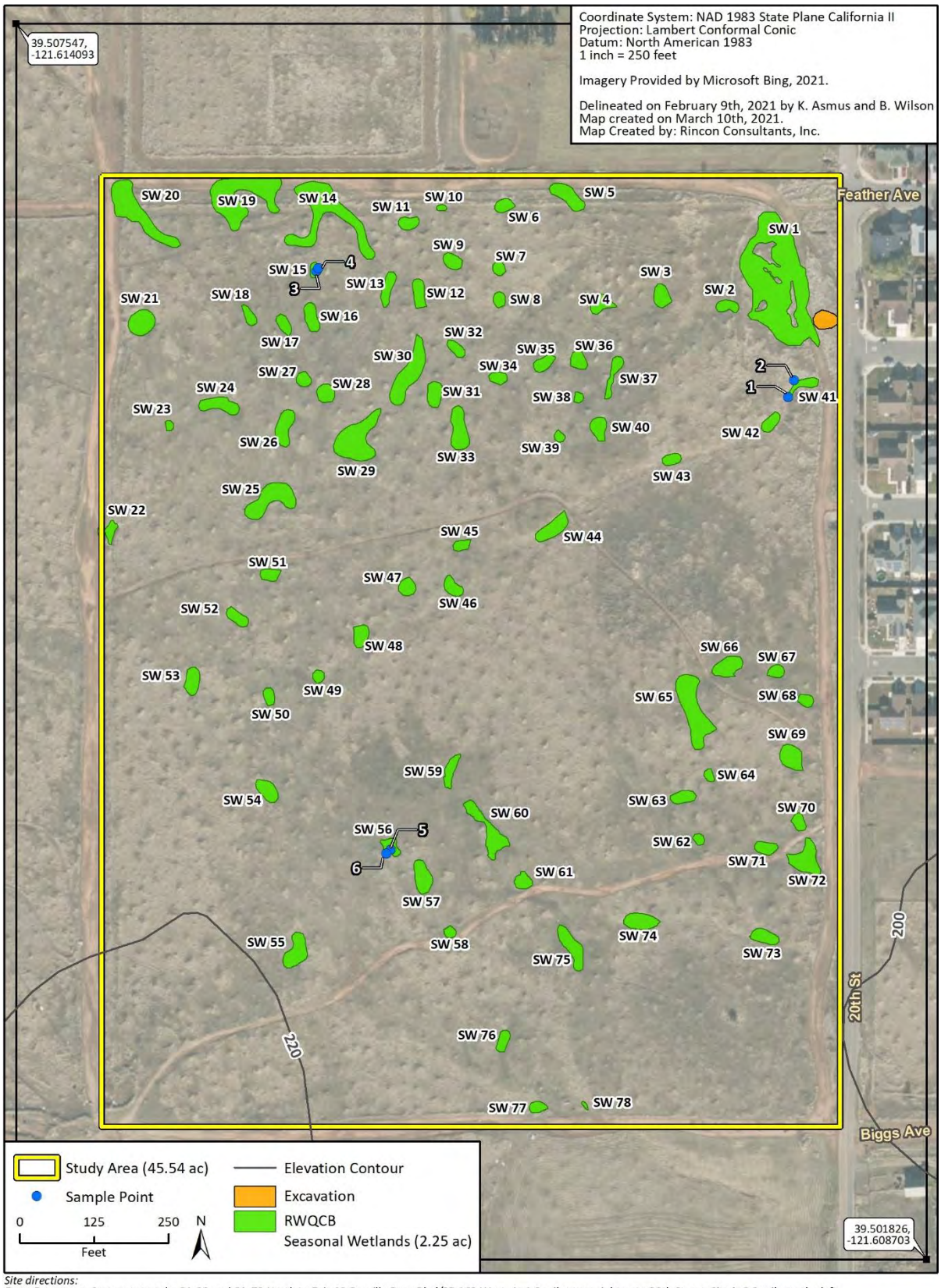
The depressional seasonal wetlands are isolated and do not connect to and are not adjacent to other potentially jurisdictional waters. These wetlands are not considered potentially USACE jurisdictional or potentially CDFW jurisdictional but are considered potentially RWQCB jurisdictional.

Other Observations

Some linear swale features are present that likely connect some of the depressional seasonal wetlands to each other during and briefly following high water level events. While these features have drainage like topography and short lengths with minimal scour, there were none with a discernible bed and bank or OHWM, and vegetation in these features was dominated by upland species. Therefore, swales on the site do not meet the definition of waters or wetlands and are not considered jurisdictional.

As previously described in the Hydrology section, prior to the construction of the residential neighborhood to the east and the paving of 20th Street in 2007, water from the northeast corner of the study area likely drained during high water conditions to an intermittent stream channel that flowed southeast across the northwest corner of the adjacent residential neighborhood, then south to the Feather River. After construction of the neighborhood the drainage was culverted and where it daylights to the south it is channelized, running through a detention basin and apparently returning to its natural course approximately 0.10 mile to the south.

Figure 4 Aquatic Resources Delineation Map



Site directions:
From Downtown Sacramento take CA-99 and CA-70 North to Exit 46 Oroville Dam Blvd/SR 162 West. At 1.9 miles turn right onto 20th Street. Site is 0.3 mile on the left.

At the time of the adjacent housing construction and paving of 20th Street, a large excavation was made on the eastern boundary of the study area Appendix B, Photograph 6), adjacent to Seasonal Wetland 1 (SW1) (Figure 4). At the bottom of the excavation, approximately 10 feet below street grade is a cement culvert that appears to slope away from the site toward the center of the street. A storm drain grate is present on the opposite side of the street from the excavation and culvert. A dirt road that cuts across the corner of the study area around the edge of the excavation was established in the years after construction and appears to have reduced drainage into the excavation and potentially increased the size of SW1.

When SW1 fills to capacity it floods over the road and, as evidenced by erosion at the edge of the excavation (Appendix B, Photographs 7 and 8), periodically overflows into the excavation. Water was pooled on the road and dripping slowly into the excavation at the time of the field survey. There was large cobble sized rip-rap present on the slopes of the excavation, but no hydrophytic vegetation present in the basin of the excavation or any observable water polling on the bottom or reaching the culvert pipe.

Summary of Jurisdictional Waters

Table 1, below, summarizes the potentially jurisdictional features delineated in the study area. Figure 4 depicts the location and extent of these features.

Potential USACE Jurisdiction

The seasonal wetlands delineated in the study area are considered isolated because they are not connected or adjacent to other potentially federally jurisdictional waters, nor is there a direct hydrological surface connection to downstream federally jurisdictional waters in a typical year. Therefore, the seasonal wetlands are not considered potentially USACE jurisdictional.

Potential RWQCB Jurisdiction

The seasonal wetlands are considered isolated waters and as such are considered potentially RWQCB jurisdictional waters.

Potential CDFW Jurisdiction

There are no non-wetland waters (i.e., lakes or streambeds) delineated in the study area; therefore, there are no potentially CDFW jurisdictional features.

Table 1 RWQCB Jurisdictional Area

Feature	RWQCB Jurisdiction Wetland Acres	Feature	RWQCB Jurisdiction Wetland Acres	Feature	RWQCB Jurisdiction Wetland Acres
SW1	0.371	SW 27	0.011	SW 53	0.021
SW 2	0.014	SW 28	0.017	SW 54	0.022
SW 3	0.020	SW 29	0.084	SW 55	0.035
SW 4	0.020	SW 30	0.067	SW 56	0.015
SW 5	0.033	SW 31	0.021	SW 57	0.029
SW 6	0.013	SW 32	0.012	SW 58	0.007
SW 7	0.009	SW 33	0.039	SW 59	0.018
SW 8	0.010	SW 34	0.011	SW 60	0.048
SW 9	0.015	SW 35	0.015	SW 61	0.014
SW 10	0.003	SW 36	0.015	SW 62	0.006
SW 11	0.014	SW 37	0.019	SW 63	0.017
SW 12	0.020	SW 38	0.005	SW 64	0.006
SW 13	0.020	SW 39	0.006	SW 65	0.089
SW 14	0.134	SW 40	0.019	SW 66	0.030
SW 15	0.371	SW 41	0.016	SW 67	0.011
SW 16	0.021	SW 42	0.015	SW 68	0.010
SW 17	0.013	SW 43	0.011	SW 69	0.029
SW 18	0.011	SW 44	0.031	SW 70	0.012
SW 19	0.134	SW 45	0.009	SW 71	0.015
SW 20	0.090	SW 46	0.016	SW 72	0.043
SW 21	0.034	SW 47	0.015	SW 73	0.020
SW 22	0.014	SW 48	0.018	SW 74	0.029
SW 23	0.004	SW 49	0.008	SW 75	0.035
SW 24	0.030	SW 50	0.010	SW 76	0.013
SW 25	0.062	SW 51	0.013	SW 77	0.010
SW 26	0.031	SW 52	0.016	SW 78	0.002
Seasonal Wetlands Total				**2.62 acres**	

References

Baldwin, B.G. (ed.). 2012. *The Jepson Manual: Vascular Plants of California*, *Second Edition*. University of California Press. Berkeley, California.

California Department of Water Resources. 2021. California Data Exchange Center. 2020-2021 WY Precipitation Summary Report. Available: https://cdec.water.ca.gov/

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. Available: https://www.fws.gov/wetlands/documents/classwet/index.html#contents

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual,* Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Miss.

Galloway Enterprises. 2020. *Preliminary Wetland Assessment of the 20th Street Property, Oroville, Butte County, CA.* March.

Google Earth. 2020. Google Earth Pro (Version 7.3.3.7786) [Computer software]. Accessed January-February 2021. Available: https://www.google.com/earth/versions/.

Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. October.

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

Natural Resources Conservation Service. 2021. Soil Data Access Hydric Soils List [Website data viewer]. Query by Soil Survey Area. Accessed: January 2021. Available: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

____.2019. Web Soil Survey (Version 3.4.0). U.S. Department of Agriculture. Last Modified July 31, 2019. Accessed: January 2021. Available: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA.

UCANR.*See* University of California Agricultural and Natural Resources

University of California Agricultural and Natural Resources. 2021. Statewide Integrated Pest Management Program, California Weather Data. California Irrigation Management Information System, CIMIS #12 Station DURHAM.A, Durham, California. Accessed: 2/2021. Available: http://ipm.ucanr.edu/WEATHER/index.html

USACE. *See* U.S. Army Corps of Engineers.

U.S. Army Corps of Engineers. 2018. *National Wetland Plant List* (Version 3.4). Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Accessed January-February 2021. Available: http://wetland-plants.usace.army.mil/.

———-. 2016a. *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program.* South Pacific Division. February.

———-. 2016b. *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports*. Sacramento District. January.

____. 2008a*. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. Technical Report ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

_____. 2005. Regulatory Guidance Letter: Ordinary High Water Mark Identification (RGL 05-05). Available: http://www.usace.army.mil/cw/cecw o/reg/rgls/rgl05-05.pdf.

U.S. Fish and Wildlife Service. 2020. National Wetland Inventory Data Mapper. Last Updated October 1, 2020. Accessed: January 2021. Available at: https://www.fws.gov/wetlands/data/mapper.html.

USFWS. *See* U.S. Fish and Wildlife Service.

U.S. Geological Survey. 2021. Historical Topographic Map Explorer (Website data viewer). Accessed January 2021. Available: https://livingatlas.arcgis.com/topoexplorer/index.html

———-. 2018. National Hydrography Dataset, The National Map (Website Advanced Viewer). Page last Modified October 22, 2018. Accessed: January 2021. Available: https://viewer.nationalmap.gov/advanced-viewer/

_____. 2005. California Geologic Map Data. Mineral Resources On-Line Spatial Data. Available: http://mrdata.usgs.gov/geology/state/state.php?state=CA.

USGS. *See* U.S. Geological Survey.

Western Regional Climate Center. 2020. Climate of Oroville, California (046521). Available: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6521

WRCC *See* Western Regional Climate Center.

Appendix A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-1

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 2-3%

Subregion (LRR): LRR C Lat: 39.505727° Long: -121.609568° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑ No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
Soils are red, 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus bufonius	20	Y	OBL
2. Eryngium castrense	15	Y	OBL
3. Blennosperma nanum	10	Y	FACW
4. Leontodon saxatilis	3	N	FACU
5. Erodium botrys	2	N	FACU
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
6	2.5YR 4/4	100					Clay loam	6 inches hit clay duripan

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil is red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-2

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR C Lat: 39.508864° Long: -121.609540° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	45	Y	NI/UPL
2. Festuca perennis	35	Y	FAC
3. Erodium botrys	15	N	FACU
4. Briza minor	3	N	FAC
5. Bordiaea elegans	2	N	FACU
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	38	x 3 =	114
FACU species	17	x 4 =	68
UPL species	45	x 5 =	225
Column Totals:	100 (A)		407 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	2.5YR 4/4	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soil is red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is on flat area above basin/swale wetland area of SP-1.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-3

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): concave Slope (%): 2-3%

Subregion (LRR): LRR C Lat: 39.506420° Long: -121.612365° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus bufonius	25	Y	FACW
2. Hordeum marinum gussoneanum	20	Y	FAC
3. Eryngium castrense	15	Y	OBL
4. Hypochaeris glabra	5	N	NI/UPL
5. Erodium botrys	3	N	FACU
6. Elymus caput-medusae	2	N	NI/UPL
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

No pit dug, sample point is inundated. Additionally, soils onsite are red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 3

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-4

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): slope Slope (%): 1-2%

Subregion (LRR): LRR C Lat: 39.508421° Long: -121.612343° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☐ No ☑	Is the Sampled Area within a Wetland? Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Briza minor	25	Y	FAC
2. Elymus caput-medusae	22	Y	NI/UPL
3. Festuca perennis	18	Y	FAC
4. Plantago virginica	13	N	FACU
5. Erodium botrys	10	N	FACU
6. Brodiaea elegans	2	N	FACU
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 43	x 3 =	129
FACU species 25	x 4 =	100
UPL species 22	x 5 =	110
Column Totals: 90 (A)		339 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5YR 4/4	100					Clay loam	
10-18	7.5YR 4/6	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is on slight slope elevated above wetland SP3.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-5

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): concave Slope (%): 1-2%

Subregion (LRR): LRR C Lat: 39.503740° Long: -121.611904° Datum: NAD83ft

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☑ No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Eryngium castrense	25	Y	OBL
2. Juncus bufonius	20	Y	FACW
3. Blennosperma nanum	3	N	FACW
4. Elymus caput-medusae	2	N	NI/UPL
5. Lasthenia glaberrima	5	N	OBL
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

No pit dug, sample point was inundated. Additionally, soils onsite are red but no depeletions or soft manganese masses discernible to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Project site has mima mound topography. Sample point is in a concave basin/swale between mounds.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 20th Street, Oroville City/County: Oroville / Butte County Sampling Date: 2/9/2021

Applicant/Owner: MD3 State: CA Sampling Point: SP-8

Investigator(s): K. Asmus and B. Wilson Section, Township, Range: S 14 and 15, T19N, R3E

Landform (hillslope, terrace, etc.): Terrace/Valley Local relief (concave, convex, none): none Slope (%): 0-1%

Subregion (LRR): LRR C Lat: 39.503729° Long: -121.611957° Datum: NAD83fl

Soil Map Unit Name: Oroville-Thermalito-Fernandez-Thompson Flat Complex, 0 to 9 percent slopes NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

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

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

Hydrophytic Vegetation Present?	Yes ☐ No ☑	Is the Sampled Area within a Wetland? Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

Soils are red, generally 2.5YR

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Festuca perennis	40	Y	FAC
2. Briza minor	35	Y	FAC
3. Elymus caput-medusae	10	N	NI/UPL
4. Erodium botrys	5	N	FACU
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 75	x 3 =	225
FACU species 5	x 4 =	20
UPL species 10	x 5 =	50
Column Totals: (A)		295 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

All dominants are FAC status so Prevalence Index worksheet completed and is greater than 3.0

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5YR 4/4						Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soils on site are red with no depeletions or soft manganese masses discernible at wetland points to qualify under TF2. However; all soil series in the mapped complex are hydric; therefore, hydric soils are assumed where hydric vegetation and hydrology are present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

Project site has mima mound topography. Sample point is elevated above wetland SP-5.

Appendix B

Representative Photographs

Photograph 1. View north of the topography of the study area.

Photograph 2. View east of dirt tracks across the property.

Photograph 3. View of off-road vehicle tracks.

Photograph 4. View of red soils at wetland data Sample Point (SP) 1.

Photograph 5. View of red soils at upland data point SP2.

Photograph 6. View east toward adjacent neighborhood of the excavation with culvert pipe. A storm drain is visible across the street in the upper left of the photo.

Photograph 7. View southwest of the erosional feature from periodic overflow of Seasonal Wetland 1.

Photograph 8. Close view of erosional feature.

Appendix C

Plants Observed

Plants Observed in the Study Area with Indicator Status

Scientific Name	Common Name	Indicator Status
Avena fatua	wild oats	NL
Blennosperma nanum	common stickyseed	FACW
Briza minor	little quaking grass	FAC
Brodiaea elegans	harvest brodiaea	FACU
Callitriche marginata	water-starwort	OBL
Dicholostemma multiflorum	wild hyacinth	NL
Elymus caput-medusae	medusa-head	NL
Erodium botrys	storksbill	FACU
Eryngium castrense	coyote thistle	OBL
Fesutca perennis	Italian wild rye	FAC
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	FAC
Hypochaeris glabra	smooth cats ear	NL
Juncus bufonius	toad rush	FACW
Lasthenia glaberrima	smooth goldfields	OBL
Leontodon saxatilis	hairy hawkbit	FACU
Lythrum hyssopifolia	loosestrife	OBL
Plantago virginica	plantain	FACU

Source: Rincon 2021

APPENDIX 3.4

Energy Consumption Assessment for the Feather Ranch Project,

ECORP Consulting Inc., January 2023

Energy Consumption Assessment

Feather Ranch Project

Oroville, California

Prepared For:

MD3 Investments
893 Marsh Street
San Luis Obispo, CA 93401

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
55 Hanover Lane, Suite A
Chico, California 95973

January 2023

CONTENTS

LIST OF TABLES

ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

AMSL	Above Mean Sea Level
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
CAISO	California Independent System Operator
CARB	California Air Resources Board
CCR	California Code of Regulations
City	City of Oroville
CEC	California Energy Commission
County	Butte County
CPUC	California Public Utility Commission
EO	Executive Order
EPS	Emissions Performance Standard
GHG	Greenhouse Gas
IERP	Integrated Energy Policy Report
kv	Kilovolt
kWh	Kilowatt-Hours
mWh	Megawatt Hour

PG&E	Pacific Gas & Electric
Project	Feather Ranch Project
RPS	Renewables Portfolio Standard
SB	Senate Bill

1.0 INTRODUCTION

This report documents the results of an Energy Consumption Assessment completed for the Feather Ranch (Project). The Project proposes the construction of 172 single-family dwelling units on 44.97 acres of land in the City of Oroville (City), in Butte County (County), California. This report was prepared to analyze the potential direct and indirect environmental impacts associated with Project energy consumption, including the depletion of nonrenewable resources (oil, natural gas, coal, etc.) during the construction and operational phases. The impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity, natural gas the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations.

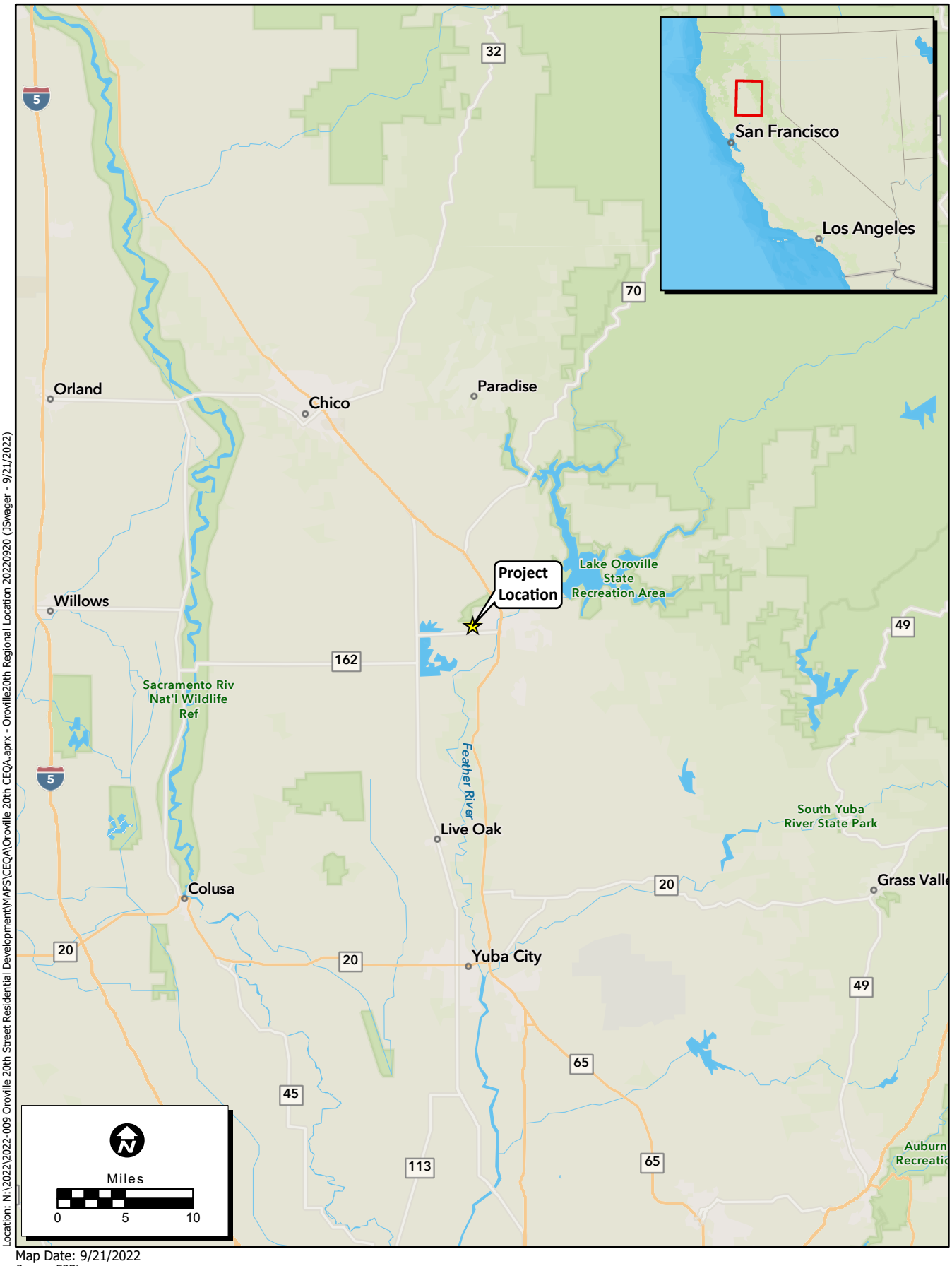
1.1 Project Location and Description

The Proposed Project is the subdivision of a 44.97-acre site into single-family lots located at the southwest corner of the Feather Avenue/20th Street intersection in the City of Oroville, California (see Figure 1-2. Site Location). The 44.97-acre Project Site is currently within the City of Oroville General Plan land use designation of Airport Business Park and zoning district of Airport Business Park with an Airport Influence Area Overlay. None of these designations allow the development of residential uses at the density of 3.82 units per acre requested for the Proposed Project. Therefore, a General Plan Amendment and rezoning will be required to approve the Project and its proposal to create 172 single-family lots. The Proposed Project includes a request to change the General Plan land use designation to Residential Single-Family and a rezoning to Single Family Residential.

The Project Site is currently vacant undeveloped land. Elevations range from 230 feet AMSL at the southwest corner of the Project Site to 190 feet AMSL at the northeast corner, generally sloping from west to east. The Site is bound by a combination of vacant lands and large lot residences to the north, vacant land to the west, vacant lands and large lot residences to the south with Oroville Dam Boulevard and the Oroville Municipal Airport beyond, and a combination of vacant land and residences to the east (see Figure 1-3. Surrounding Land Uses).

Improvements to 20th Street and abutting Project Vicinity roadways include curbs, gutters and sidewalks adjacent to the Project Site. Sidewalks would front 20th Street, Biggs Street, and Feather Avenue as well as along all internal proposed roadways. Greenway space would be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project Site, and fronting 20th and Biggs streets. Storm drainage facilities are proposed throughout the Project Site, with connections tying in together internally, prior to tying into storm drainage facilities located within 20th Street.

City-required approvals include a General Plan Amendment, rezone, and a tentative subdivision map.



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Regional Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI

Figure 1-1. Regional Project Location

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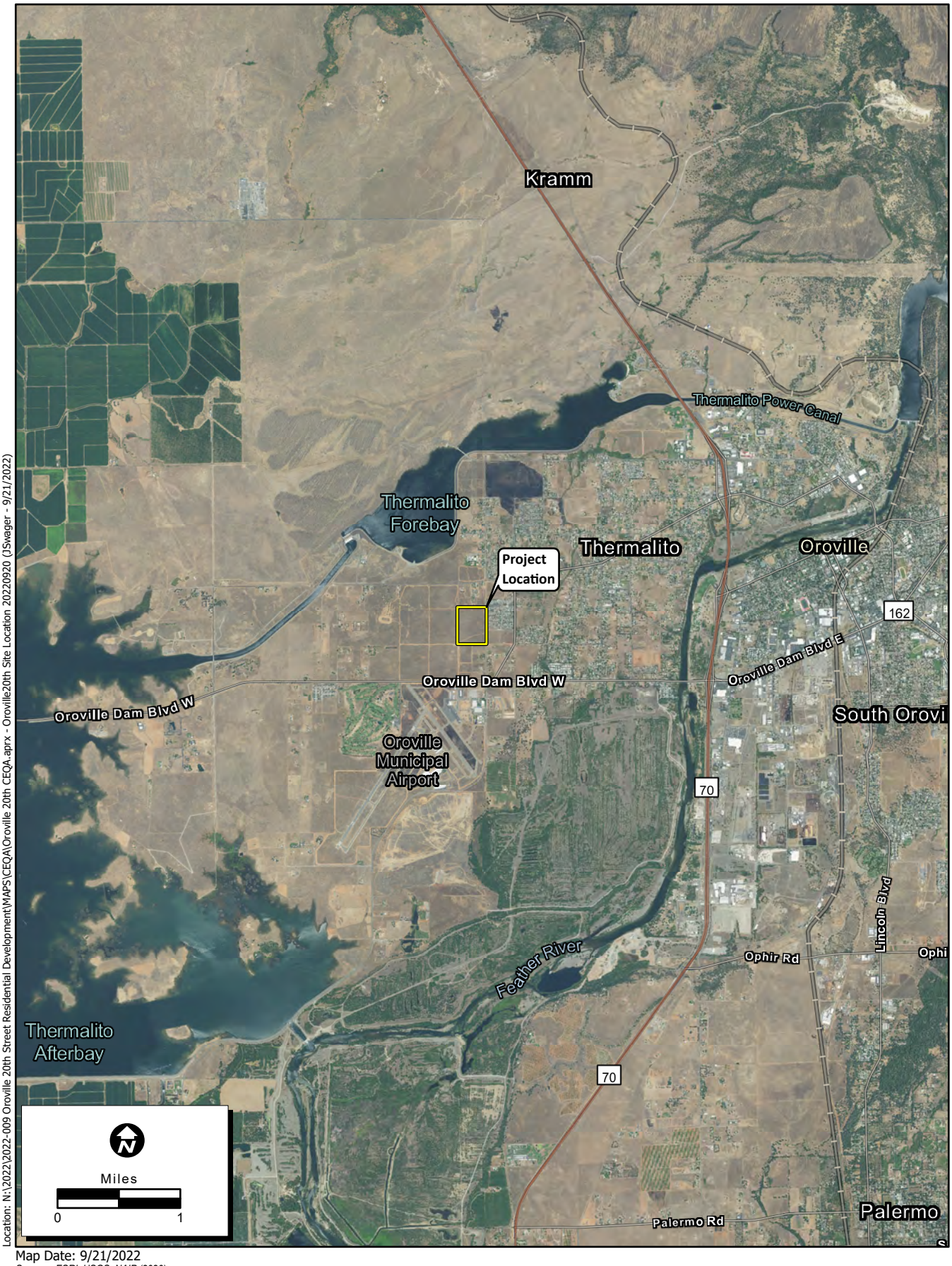
Feather Ranch Project



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Site Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-2. Site Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Surrounding LandUse 202209201 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-3. Surrounding Uses

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Feather Ranch Project

2.0 ENERGY CONSUMPTION

2.1 Energy Consumption Setting

Energy relates directly to environmental quality. Energy use can adversely affect air quality and other natural resources. The vast majority of California's air pollution is caused by burning fossil fuels. Consumption of fossil fuels is linked to changes in global climate and depletion of stratospheric ozone. Transportation energy use is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes (auto, carpool, and public transit); vehicle speeds; and miles traveled by these modes. Construction and routine operation and maintenance of transportation infrastructure also consume energy. In addition, residential, commercial, and industrial land uses consume energy, typically through the usage of natural gas and electricity. This analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity, natural gas, the equipment fuel necessary for Project construction, and the automotive fuel necessary for Project operations.

2.1.1 Energy Types and Sources

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity followed by renewables, large hydroelectric and nuclear (California Energy Commissions [CEC] 2022a). Pacific Gas & Electric (PG&E) provides electricity and natural gas to the City of Oroville. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield and Barstow to near the Oregon, Nevada and Arizona State Line. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. In 2019, PG&E announced that 100 percent of the company's delivered electricity comes from greenhouse gas emission-free sources, including renewables, nuclear, and hydropower (PG&E 2019).

2.1.2 Existing Transmission and Distribution Facilities

The components of transmission and distribution systems include the generating facility, switching yards and stations, primary substation, distribution substations, distribution transformers, various sized transmission lines, and the customers. The United States contains over a quarter million miles of transmission lines, most of them capable of handling voltages between 115 kilovolts (kv) and 345 kv, and a handful of systems of up to 500 kv and 765 kv capacity. Transmission lines are rated according to the amount of power they can carry, the product of the current (rate of flow), and the voltage (electrical pressure). Generally, transmission is more efficient at higher voltages. Generating facilities, hydro-electric dams, and power plants usually produce electrical energy at fairly low voltages, which is increased by transformers in substations. From there, the energy proceeds through switching facilities to the transmission lines. At various points in the system, the energy is "stepped down" to lower voltages for distribution to customers. Power lines are either high voltage (115, 230, 500, and 765 kv) transmission lines or low voltage (12, 24, and 60 kv) distribution lines. Overhead transmission lines consist of the wires carrying the electrical energy (conductors), insulators, support towers, and grounded wires to protect the lines from lightening

(called shield wires). Towers must meet the structural requirements of the system in several ways. They must be able to support both the electrical wires, the conductors, and the shield wires under varying weather conditions, including wind and ice loading, as well as a possible unbalanced pull caused by one or two wires breaking on one side of a tower. Every mile or so, a "dead-end" tower must be able to take the strain resulting if all the wires on one side of a tower break. Every change in direction requires a special tower design. In addition, the number of towers required per mile varies depending on the electrical standards, weather conditions, and the terrain. All towers must have appropriate foundations and be available at a fairly regular spacing along a continuous route accessible for both construction and maintenance. A right-of-way is a fundamental requirement for all transmission lines. A right-of-way must be kept clear of vegetation that could obstruct the lines or towers by falling limbs or interfering with the sag or wind sway of the overhead lines. If necessary, land acquisition and maintenance requirements can be substantial. The dimensions of a right-of-way depends on the voltage and number of circuits carried and the tower design. Typically, transmission line rights-of-way range from 100 to 300 feet in width. The electric power supply grid within Butte County is part of a larger supply network operated and maintained by PG&E that encompasses the entire northern California region. This system ties into yet a larger grid known as the California Power Pool that connects with the San Diego Gas and Electric and Southern California Edison Companies. These companies coordinate the development and operation, as well as purchase, sale, and exchange of power throughout the State of California. Within Butte County, PG&E owns most of the transmission and distribution facilities.

The California Independent System Operator (CAISO) manages the flow of electricity across the high-voltage, long-distance power lines (high-voltage transmissions system) that make up 80 percent of California's and a small part of Nevada's grid. This nonprofit public benefit corporation keeps power moving to and throughout California by operating a competitive wholesale electricity market, designed to promote a broad range of resources at lower prices, and managing the reliability of the electrical transmission grid. In managing the grid, CAISO centrally dispatches generation and coordinates the movement of wholesale electricity in California. As the only independent grid operator in the western U.S., CAISO grants equal access to 26,000 circuit miles of transmission lines and coordinates competing and diverse energy resources into the grid where it is distributed to consumers. Every five minutes, CAISO forecasts electrical demand and dispatches the lowest cost generator to meet demand while ensuring enough transmission capacity for delivery of power.

CAISO conducts an annual transmission planning process that uses engineering tools to identify any grid expansions necessary to maintain reliability, lower costs or meet future infrastructure needs based on public policies. CAISO engineers design, run and analyze complex formulas and models that simulate grid use under wide-ranging scenarios, such as high demand days coupled with wildfires. This process includes evaluating power plant proposals submitted for study into the interconnection queue to determine viability and impact to the grid. The long-term comprehensive transmission plan, completed every 15 months, maps future growth in electricity demand and the need to meet state energy and environmental goals that require the CAISO grid to connect to renewable-rich, but remote areas of the Western landscape. CAISO promotes energy efficiency through resource sharing. CAISO electricity distribution management strategy designed so that an area with surplus electricity can benefit by sharing megawatts with another region via the open

market. This allows the dispatch of electricity as efficiently as possible. By maximizing megawatts as the demand for electricity increases, CAISO helps keep electricity flowing during peak periods.

2.1.3 Energy Consumption

The Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g. of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all residential uses in Butte County from 2017 to 2021 is shown in Table 2-1. As indicated, the demand has decreased since 2017.

Table 2-1. Residential Electricity Consumption in Butte County 2017-2021

Year	Electricity Consumption (kilowatt hours)
2021	757,195,036
2020	736,395,940
2019	662,643,253
2018	721,603,925
2017	764,450,593

Source: CEC 2022b

The natural gas consumption associated with all nonresidential uses in Butte County from 2017 to 2021 is shown in Table 2-2. As indicated, the demand has decreased since 2017.

Table 2-2. Residential Natural Gas Consumption in Butte County 2017-2021

Year	Natural Gas Consumption (therms)
2021	21,822,501
2020	21,816,990
2019	22,698,185
2018	24,989,481
2017	27,189,926

Source: CEC 2022b

Automotive fuel consumption in Butte County from 2017 to 2021 is shown in Table 2-3. Fuel consumption has decreased between 2018 and 2022.

Table 2-3. Automotive Fuel Consumption in Butte County 2018-2022	
Year	**Total Fuel Consumption (gallons)**
2022	118,261,744
2021	118,122,078
2020	106,642,798
2019	121,842,862
2018	126,146,889

Source: California Air Resources Board (CARB) 2022

2.2 Regulatory Setting

2.2.1 State

2.2.1.1 Senate Bill 1389 Integrated Energy Policy Report

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the California Energy Commissions (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (Public Resources Code § 25301a). The CEC prepares these assessments and associated policy recommendations every two years, with updates on alternate years, as part of the Integrated Energy Policy Report (IEPR).

The 2017 IEPR focuses on next steps for transforming transportation energy use in California. The 2017 IEPR addresses the role of transportation in meeting state climate, air quality, and energy goals; the transportation fuel supply; the Alternative and Renewable Fuel and Vehicle Technology Program; current and potential funding mechanisms to advance transportation policy; transportation energy demand forecasts; the status of statewide plug-in electric vehicle infrastructure; challenges and opportunities for electric vehicle infrastructure.

2.2.1.2 Executive Order B-55-18

In September 2018 Governor Jerry Brown Signed Executive Order (EO) B-55-18, which establishing a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Carbon neutrality refers to achieving a net zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for GHG emission reduction. EO B-55-18 requires the California Air Resource Board (CARB) to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

2.2.1.3 Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law Senate Bill (SB) 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state's utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the CPUC.

The CEC has designed regulations that:

- Establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities, of 1,100 pounds carbon dioxide per megawatt hour (mWh). This would encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of greenhouse gas.
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long term while meeting the State's standards for environmental impact.
- Establish a public process for determining the compliance of proposed investments with the emissions performance standard (EPS) (Perata, Chapter 598, Statutes of 2006).

2.2.1.4 Renewable Energy Sources (Renewable Portfolio Standards)

Established in 2002 under SB 1078, and accelerated by SB 107 (2006) and SB 2 (2011), California's Renewables Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 RPS to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 60 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the CAISO into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

2.3 Energy Consumption Impact Assessment

2.3.1 Thresholds of Significance

CEQA Guidelines Appendix G states that a project may have a significant effect on the environment if implementation would result in any of the following:

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.

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purpose of this analysis, the amount of electricity estimated to be consumed by the Project is quantified and compared to that consumed by all residential land uses in Butte County. Similarly, the amount of natural gas and fuel necessary for Project construction and operations is calculated and compared to that consumed in Butte County.

2.3.2 Methodology

Construction and operational related energy consumption estimated to be consumed by the Project include the number of kWh of electricity, therms of natural gas, and gallons of gasoline. Modeling was based on Project specific information. The amount of total construction-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1. Electricity and natural gas consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1 (see Appendix A if this Draft EIR, Feather Ranch Air Quality and Greenhouse Gas Emissions Assessment). CalEEMod is a statewide land use computer model designed to quantify resources associated with both construction and operations from a variety of land use projects. Operational automotive fuel consumption has been calculated with EMFAC 2021. EMFAC 2021 is a mathematical model that was developed to calculate emission rates and rates of gasoline consumption from motor vehicles that operate on highways, freeways, and local roads in California.

2.3.3 Project Energy Consumption Impact Analysis

2.3.3.1 Project Energy Consumption

The Project proposes the construction of 172 single-family dwelling units on 44.97 acres of land in the City of Oroville. The impact analysis focuses on the four sources of energy that are relevant to the proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption

of energy for a proposed land use project. For the purpose of this analysis, the amount of electricity and natural gas estimated to be consumed by the Project is quantified and compared to that consumed by all residential land uses in Butte County. Similarly, the amount of fuel necessary for Project construction and long-term operations is calculated and compared to that consumed in Butte County.

Energy consumption associated with the Proposed Project is summarized in Table 2-4.

Table 2-4. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumption	Percentage Increase Countywide
Building Energy Consumption		
Electricity Consumption[1]	1,509,195 kilowatt-hours	0.1993 percent
Natural Gas Conumption[1]	29,077 therms	0.1332 percent
Automotive Fuel Consumption		
Project Construction Year 1	34,778 gallons	0.0294 percent
Project Construction Year 2	61,084 gallons	0.0516 percent
Project Construction Year 3	60,000 gallons	0.0507 percent
Project Construction Year 4	52,808 gallons	0.0447 percent
Project Operations[3]	437,514 gallons	0.3699 percent

Source: [1]CalEEMod; [2]Climate Registry 2016; [3]EMFAC2021 (CARB 2022)
Notes: The Project increases in electricity consumption and natural gas are compared with all of the residential buildings in Butte County in 2021, the latest data available. The Project increases in construction and operations automotive fuel consumption are compared with the countywide fuel consumption in 2021, the most recent full year of data.

As shown in Table 2-4, the annual electricity consumption due to operations would be 1,509,195 kilowatt-hours, resulting in a negligible increase (0.1993 percent) in the typical annual electricity consumption attributable to all residential uses in Butte County); annual natural gas consumption from operations would be 29,077 therms resulting in a negligible increase (0.1332 percent) in the typical annual natural gas consumption attributable to all residential uses in Butte County. This is potentially a conservative estimate since in September 2018 Governor Jerry Brown Signed Executive Order (EO) B-55-18, which established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Carbon neutrality refers to achieving a net-zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for greenhouse gas (GHG) emission reduction. Governor's Executive Order B-55-18 requires CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal." For these reasons, the Project would not result in the inefficient, wasteful, or unnecessary consumption of building energy.

Fuel necessary for Project construction would be required for the operation and maintenance of construction equipment and the transportation of materials to the Project Site. The fuel expenditure necessary to construct the physical buildings and infrastructure would be temporary, lasting only as long as Project construction. As further indicated in Table 2-4, the Project's gasoline fuel consumption during the one-time construction period is estimated to be 34,778 gallons over the course of the first year of construction, 61,084 gallons in the second year of construction, 60,000 gallons in the third year of construction, and 52,808 in the fourth year of construction. This would increase the annual construction related fuel use in the county by 0.0294 percent, 0.0516 percent, 0.0507, and 0.0447 percent respectively. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

The Project is estimated to generate approximately 1,622 daily trips (KD Anderson & Associates, 2023). As indicated in Table 2-4, this would result in the consumption of approximately 437,514 gallons of automotive fuel per year, which would increase the annual countywide automotive fuel consumption by 0.3699 percent. This analysis conservatively assumes that all of the automobile trips projected to arrive at the Project during operations would be new to Butte County. Fuel consumption associated with the vehicle trips generated by the Project during operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

2.3.3.2 Project Consistency with State and Local Plans for Renewable Energy/Energy Efficiency

The Project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The Project will be built to the Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations (CCR) (Title 24). Title 24 was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 is updated approximately every three years; the 2019 Title 24 updates went into effect on January 1, 2020. The 2022 standards went into effect became effective January 1, 2023. The 2022 Energy Standards improve upon the 2019 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2022 update to the Energy Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, encouraging better energy efficiency, strengthening ventilation standards, and more. The 2022 Energy Standards are a major step toward meeting Zero Net Energy. Buildings permitted on or after January 1, 2023, must comply with the 2022 Standards. Compliance with Title 24 is mandatory at the time new building permits are issued by city

and county governments. Additionally, in January 2010, the State of California adopted the California Green Building Standards Code (CalGreen) that establishes mandatory green building standards for all buildings in California. The code was subsequently updated in 2013. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. With these building standards in place, the Project would not obstruct any state or local plan for renewable energy or energy efficiency. By building to be in compliance with Title 24 as well as the Green Building Standards Code, the Project achieves Goal OPS-17 of the City's Open Space, Natural resources, and Conservation Element of their General Plan, encouraging the conservation of energy resources and promoting green building.

3.0 REFERENCES

California Air Pollution Control Officers Association (CAPCOA). 2022. California Emissions Estimator Model (CalEEMod), version 2022.1.

CARB (California Air Resources Board). 2022. EMFAC2021 Web Database Emissions Inventory. https://www.arb.ca.gov/emfac/2021/.

CEC (California Energy Commissions). 2022a. 2021 Total System Electric Generations in Gigawatt Hours. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation

____. 2022b. California Energy Consumption Database. http://www.ecdms.energy.ca.gov/Default.aspx.

Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January 2016. http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

ECORP Consulting. 2022. Feather Ranch Air Quality and Greenhouse Gas Emissions Assessment.

KD Anderson & Associates. 2023. Feather Ranch Traffic Impact Study.

Oroville, City of. 2015. Open Space, Natural Resources, and Conservation Element. https://www.cityoforoville.org/home/showpublisheddocument/12188/635955765376170000

Pacific Gas & Electric (PG&E). 2019. Where Your Electricity Comes From. https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/1220-PowerContent-ADA.pdf

LIST OF ATTACHMENTS

Attachment A - Energy Consumption Modeling Outputs

ATTACHMENT A

Energy Consumption Modeling Outputs

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Construction

Table 1. Construction Year One			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	353	353,000	10.15
Total Gallons Consumed During Construction Year One:			**34,778**

Table 2. Construction Year Two			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	620	620,000	10.15
Total Gallons Consumed During Construction Year Two:			**61,084**

Table 3. Construction Year Three			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	609	609,000	10.15
Total Gallons Consumed During Construction Year Three:			**60,000**

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Table 4. Construction Year Four			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	536	536,000	10.15
Total Gallons Consumed During Construction Year Four:			**52,808**

Sources:

[1]ECORP Consulting. 2022. Air Quality and Greenhouse Gas Emissions Assessment: Feather Ranch Project

[2]Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1.* January 2016. http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

Proposed Project
Total Construction-Related and Operational
Gasoline Usage

Operations

Table 5. Average Miles per Gallon in Butte County in 2027 [3]								
Area	**Sub-Area**	**Cal. Year**	**Season**	**Veh_tech**	**EMFAC 2021 Category**	**Total Onroad Vehicle Gallons Consumed in Butte County in 2027**	**Total Onroad Vehicle Miles Traveled in Butte County in 2027**	**Total Passenger Vehicle Miles per Gallon in Butte County in 2027**
Sub-Areas	Butte County	2027	Annual	All Vehicles	All Vehicles	110,688,859	2,351,553,652	21.24

Sources:
[3]California Air Resource Board. 2021. EMFAC2021 Mobile Emissions Model.

Table 6. Total Gallons During Project Operations				
Project Onroad Vehicle Daily Trips[3]	**Estimated Miles per Trip[4]**	**Project Onroad Vehicle Daily Miles Traveled**	**Project Onroad Vehicle Daily Fuel Consumption**	**Project Onroad Vehicle Annual Fuel Consumption**
1,622	15.7	25,465.40	1,198.67	**437,514**

Sources:
[3]KD Anderson & Associates, 2023 [4]CalEEMod 2022.1

APPENDIX 3.9

Noise Impact Assessment for the Feather Ranch Project,

ECORP Consulting Inc., February 2023

Noise Impact Assessment
for the
Feather Ranch Project

City of Oroville, California

Prepared For:

MD3 Investments
893 Marsh Street
San Luis Obispo, CA 93401

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

February 2023

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

Caltrans	California Department of Transportation
City	City of Oroville
CNEL	Community Noise Equivalent Level
County	Butte County
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
L_{dn}	Day-night average sound level
L_{eq}	Measure of ambient noise
L_{max}	The maximum A-weighted noise level during the measurement period.
L_{min}	The minimum A-weighted noise level during the measurement period.
NIOSH	National Institute for Occupational Safety and Health
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PPV	Peak particle velocity
Project	Feather Ranch Project
RCNM	Roadway Construction Noise Model
RMS	Root mean square
STC	Sound Transmission Class
VdB	Vibration Velocity Level
WEAL	Western Electro-Acoustic Laboratory, Inc.

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Feather Ranch Project (Project), which includes the construction of 172 single-family lots in the City of Oroville (City), California (see Figure 1-1. *Regional Project Location*). This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the City General Plan Noise Element and Municipal Code. The purpose of this report is to estimate Project-generated noise levels and determine the level of impact the Project would have on the environment.

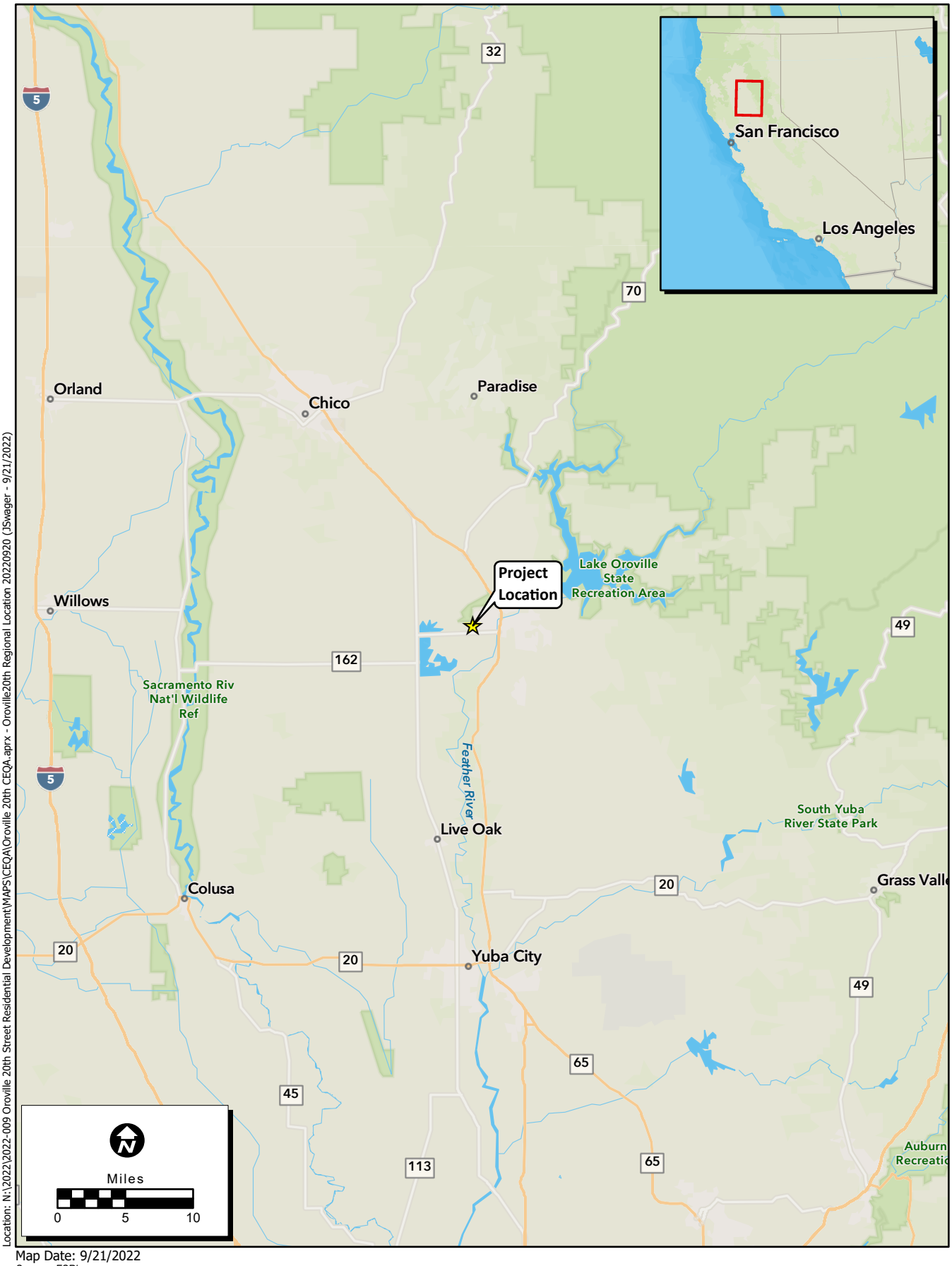
1.1 Project Location and Description

The Proposed Project is the subdivision of a 44.97-acre site into single-family lots located at the southwest corner of the Feather Avenue/20th Street intersection in the City of Oroville, California (see Figure 1-2. *Site Location*). The 44.97-acre Project Site is currently within the City of Oroville General Plan land use designation of *Airport Business Park* and zoning district of *Airport Business Park* with an Airport Influence Area Overlay. None of these designations allow the development of residential uses at the density of 3.82 units per acre requested for the Proposed Project. Therefore, a General Plan Amendment and rezoning will be required to approve the Project and its proposal to create 172 single-family lots. The Proposed Project includes a request to change the General Plan land use designation to *Residential Single-Family* and a rezoning to *Single Family Residential*.

The Project Site is currently vacant undeveloped land. Elevations range from 230 feet AMSL at the southwest corner of the Project Site to 190 feet AMSL at the northeast corner, generally sloping from west to east. The Site is bound by a combination of vacant lands and large lot residences to the north, vacant land to the west, vacant lands and large lot residences to the south with Oroville Dam Boulevard and the Oroville Municipal Airport beyond, and a combination of vacant land and residences to the east (see Figure 1-3. *Surrounding Land Uses*).

Improvements to 20th Street and abutting Project Vicinity roadways include curbs, gutters and sidewalks adjacent to the Project Site. Sidewalks would front 20th Street, Biggs Street, and Feather Avenue as well as along all internal proposed roadways. Greenway space would be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project Site, and fronting 20th and Biggs streets. Storm drainage facilities are proposed throughout the Project Site, with connections tying in together internally, prior to tying into storm drainage facilities located within 20th Street.

City-required approvals include a General Plan Amendment, rezone, and a tentative subdivision map.



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Regional Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI

Figure 1-1. Regional Project Location

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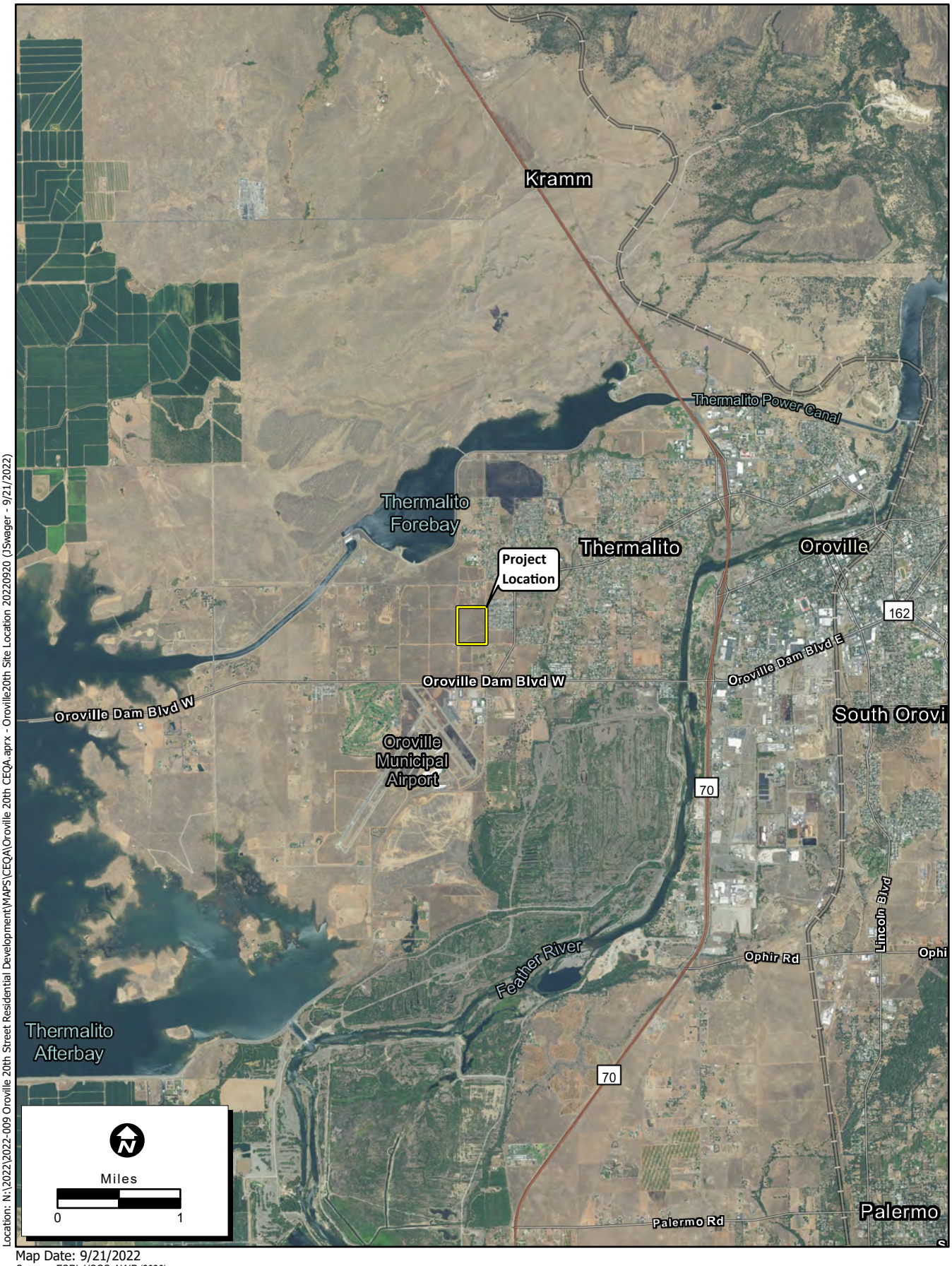
Feather Ranch Project



Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Site Location 20220920 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-2. Site Location

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Feather Ranch Project

Location: N:\2022\2022-009 Oroville 20th Street Residential Development\MAPS\CEQA\Oroville 20th CEQA.aprx - Oroville20th Surrounding LandUse 202209201 (JSwager - 9/21/2022)

Map Date: 9/21/2022

Sources: ESRI, USGS, NAIP (2020)

Figure 1-3. Surrounding Uses

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Feather Ranch Project

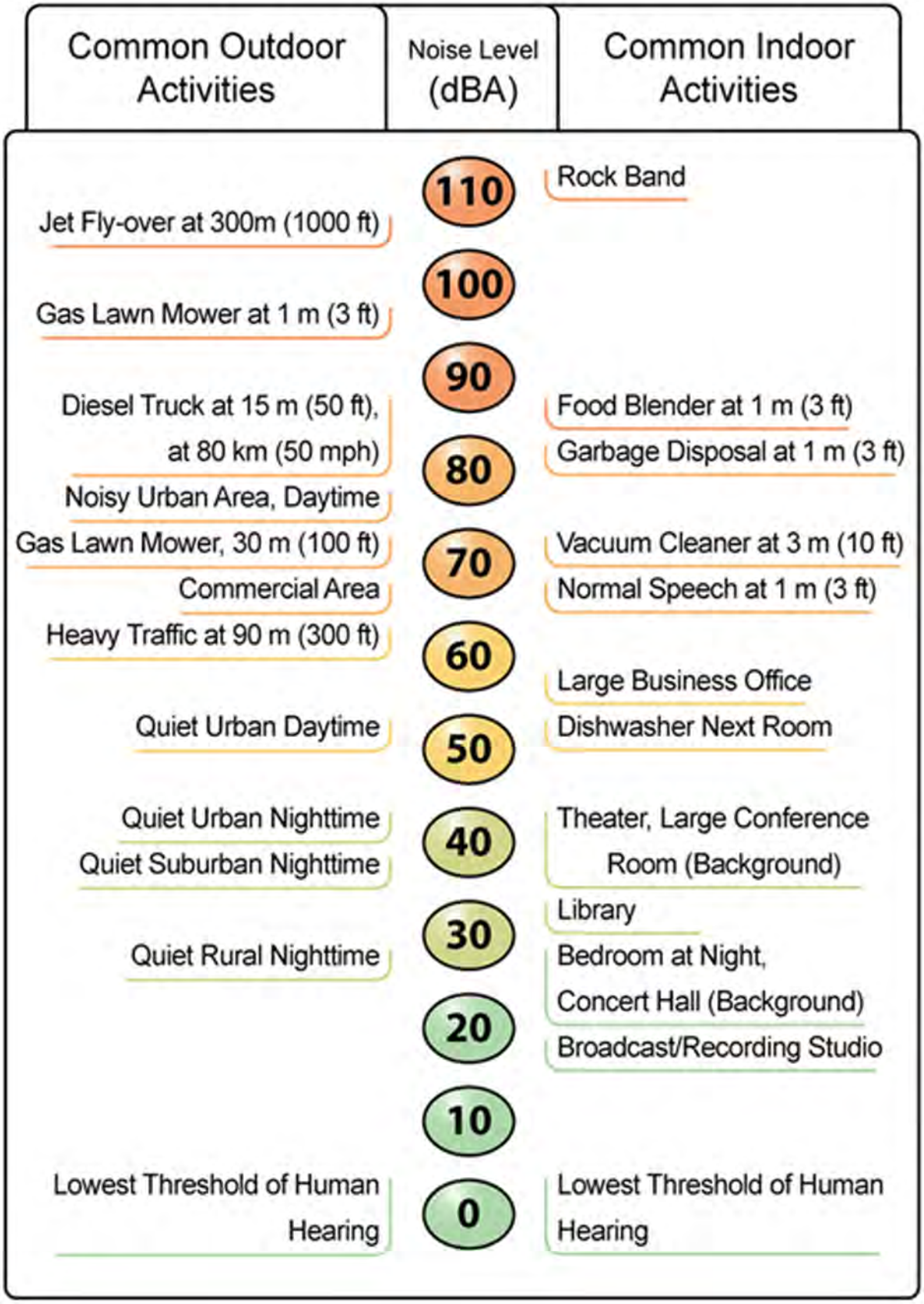
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear; therefore, sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted on Figure 2-1, *Common Noise Levels*.



Source: California Department of Transportation (Caltrans) 2020a

Figure 2-1. Common Noise Levels

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (FHWA 2017). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2017). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations). In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Table 2-1 provides a list of other common acoustical descriptors.

Table 2-1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sounds are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of one dBA cannot be perceived by humans.
- Outside of the laboratory, a three-dBA change is considered a just-perceivable difference.
- A change in level of at least five dBA is required before any noticeable change in community response would be expected. An increase of five dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

2.1.5.1 Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

2.1.5.2 Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Threshold at which there is a risk of architectural damage to extremely fragile historic buildings, ruins, ancient monuments
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Threshold at which there is a risk of architectural damage to fragile buildings. Virtually no risk of architectural damage to normal buildings
0.25	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to historic and some old buildings
0.3	96	Vibrations may begin to feel severe to people in buildings	Threshold at which there is a risk of architectural damage to older residential structures
0.5	103	Vibrations considered unpleasant by people subjected to continuous vibrations	Threshold at which there is a risk of architectural damage to new residential structures and Modern industrial/commercial buildings

Source: Caltrans 2020b

For the purposes of this analysis, a PPV descriptor with units of inches per section is used to evaluate construction-generated vibration for building damage and human complaints.

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive receptors to the Project Site include residences directly adjacent to the northeast corner of the Project Site boundary, fronting 20th Street, approximately 75 feet distant.

3.2 Existing Ambient Noise Environment

3.2.1 Existing Ambient Noise Measurements

The Site is bound by a combination of vacant lands and large lot residences to the north, vacant land to the west, vacant lands and large lot residences to the south with Oroville Dam Boulevard and the Oroville Municipal Airport beyond, and a combination of vacant land and residences to the east. In order to quantify existing ambient noise levels in the Project Area, ECORP Consulting, Inc. conducted three short-term noise measurements as well as one long-term measurement on the morning of December 19th, 2022; the long-term measurement lasted from December 19th to December 20th, 2022 (see Attachment A). The 15-minute measurements were taken between 1:18 p.m. and 2:17 p.m. The average noise levels of noise measured at each location are listed in Table 3-1.

Table 3-1. Existing (Baseline) Noise Measurements						
Location Number	**Location**	**CNEL dBA**	**L_{eq} dBA**	**L_{min} dBA**	**L_{max} dBA**	**Time**
Long-Term Measurement						
1	On Project Site	**43.1 dBA**	41.1 dBA	22.3 dBA	74.2dBA	2:57 p.m. (12/19/22) – 2:57 p.m. (12/20/22)
Short-Term Measurements						
1	Adjacent to the residences southeast of the Project Site	N/A	**48.6 dBA**	27.6 dBA	76.8 dBA	1:18 p.m. – 1:33 p.m.
2	At the corner of 20th Street and Feather Avenue	N/A	**47.3 dBA**	26.1 dBA	72.8 dBA	1:41 p.m. – 1:56 p.m.
3	Adjacent to 1450 21st Street, north of the Project Site	N/A	**36.2 dBA**	26.8 dBA	53.2 dBA	2:02 p.m. – 2:17 p.m.

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Notes: L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. L_{min} is the minimum noise level during the measurement period and L_{max} is the maximum noise level during the measurement period.

As shown, the existing noise level within the Project-vicinity currently ranges from 36.2 to 48.6 dBA L_{eq} over the course the three short-term noise measurements were taken in the Project vicinity, and the 43.1 dBA CNEL for the long-term measurement. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on area roadways.

3.2.2 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Project's Traffic Impact Study for the Feather Ranch Project (KD Anderson & Associates 2023). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 3-2.

Table 3-2. Existing Roadway Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway
18th Street		
North of Grand Avenue	Residential	42.0 dBA
Between Grand Avenue & Feather Avenue	Residential	52.4 dBA
Grand Avenue		
East of 18th Street	Residential	54.5 dBA
West of 18th Street	Residential	52.1 dBA
Oroville Dam Boulevard		
West of 20th Street/Larkin Road	Vacant & Agricultural	58.9 dBA
East of 20th Street/Larkin Road	Residential	62.9 dBA
Larkin Road		
South of Oroville Dam Boulevard	Vacant	53.1 dBA
20th Street		
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	41.0 dBA
Between Biggs Avenue & Feather Avenue	Vacant & Residential	38.7 dBA
Feather Avenue		
East of 20th Street	Residential	36.3 dBA
Onyx Circle		
East of 20th Street	Vacant & Residential	34.5 dBA
Russel Proctor Way		
East of 20th Street	Vacant & Residential	35.7 dBA

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by KD Anderson & Associates (2023). Refer to Attachment B for traffic noise modeling assumptions and results.

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 dB with A-weighting (dBA) over an eight-hour work shift (29 Code of Federal Regulations 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

4.1.2 National Institute of Occupational Safety and Health

A division of the US Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

4.2 State

4.2.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise-control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

4.2.2 State Office of Planning and Research Noise Element Guidelines

The State OPR *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a Land Use Compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.2.3 California Department of Transportation

In 2020, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2020b). The manual provides general guidance on vibration issues associated with the construction and operation of projects concerning human perception and structural damage. Table 2-2 above presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

4.3 Local

4.3.1 City of Oroville General Plan Noise Element

The Noise Element of the City of Oroville General Plan provides policy direction for minimizing noise impacts on the community. By identifying noise-sensitive land uses and establishing compatibility guidelines for land use and noises, noise considerations will influence the general distribution, location, and intensity of future land uses. The result is that effective land use planning and mitigation can alleviate the majority of noise problems.

The Noise Element sets various goals and policies that would apply to projects within Oroville. The following policy provisions are applicable to the Proposed Project:

Goal NOI-1: Minimize community exposure to excessive noise by ensuring compatible land uses relative to noise sources.

> **Policy P1.1**: Include noise considerations in land use planning, transportation planning and project design decisions.
>
> **Policy P1.6**: For transportation noise sources in the City of Oroville the increases in noise specified in [Table 4-1] represents a significant increase in ambient noise.

Table 4-1. Significant Increase in Transportation Noise

Ambient Noise Level Without Project (Leq or CNEL)	Significant Increase
< 60 dB	+ 5.0 dB or more
60 to 65 dB	+3.0 dB or more
> 65 dB	+1.5 dB or more

Source: City of Oroville 2015

Policy P1.7: Only allow land uses to exceed the noise exposure standards in [Table 4-2 and Table 4-3] if the proposed use can be shown to serve the greater public interests of the citizens of Oroville.

Table 4-2. Maximum Allowable Noise Exposure to Transportation Noise Sources

Land Use	Exterior Noise Level Standard for Outdoor Activity Areas[1]	Interior Spaces	
	L_{dn}/CNEL, dB	L_{dn}/CNEL, dB	L_{eq}, dB[2]
Residential	60[3]	45	--
Transient Lodging	60[3]	45	--
Hospitals, Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60[3]	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

Source: City of Oroville 2015

Note: -- = not applicable.

1 Where the location of outdoor activity areas is unknown, the exterior noise-level standard shall be applied to the property line of the receiving land use.

2 As determined for a typical worst-case hour during periods of use.

3 Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed, provided that available exterior noise-level reduction measures have been implemented and interior noise levels are in compliance with this table.

Table 4-3. Maximum Allowable Noise Exposure to Non-Transportation Noise Sources					
Land Use	**Noise Level Descriptor**	**Exterior Noise Level Standard (Applicable at Property Line)**		**Interior Noise Level Standard**	
		Daytime (7:00 a.m. – 10 p.m.)	**Nighttime (10:00 p.m. – 7:00 a.m.)**	**Daytime (7:00 a.m. – 10 p.m.)**	**Nighttime (10:00 p.m. – 7:00 a.m.)**
Residential	L_{eq}	50	45	40	35
	L_{max}	70	65	60	55
Transient Lodging, hospitals, nursing homes	L_{eq}	--	--	40	35
	L_{max}	--	--	60	35
Theaters, Auditoriums, Music Halls	L_{eq}	--	--	35	35
Churches, Meeting Halls	L_{eq}	--	--	40	40
Office Buildings	L_{eq}	--	--	45	--
Schools, Libraries	L_{eq}	--	--	45	--
Playgrounds, Parks	L_{eq}	65	--	--	--

Source: City of Oroville 2015

Note: Note: Each of the noise levels specified above shall be lowered by 5dB for simple tone noises, which are noises consisting primarily of speech, music or recurring impulsive noises. These noise-level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwelling).

Policy P1.10: When considering development proposals in the environs of the Oroville Municipal Airport, enforce the noise compatibility criteria and policies set forth in the adopted Butte County Airport Land Use Compatibility Plan. This includes restricting the development of residential or other noise sensitive receptor uses within the 55 dB CNEL contour around the Oroville Municipal Airport.

Goal NOI-2: Reduce noise levels from sources such as domestic uses, construction, and mobile sources including motor vehicles and traffic.

Policy P2.2: Enforce provisions of the Community Noise Ordinance, which limits maximum permitted noise levels that cross property lines and impact adjacent land uses.

Policy P2.3: Limit noise generating construction activities located within 1,000 feet of residential uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and non-holidays.

Policy P2.4: Require the following standard construction noise control measures to be included as requirements at construction sites in order to minimize construction noise impacts:

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Locate stationary noise generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.
- Utilize "quiet" air compressors and other stationary noise-generating equipment where appropriate technology exists and is feasible.
- The project sponsor shall designate a "noise coordinator" who would be responsible for responding to any local complaints about construction noise. The noise coordinator will determine the cause of the noise complaint (e.g. starting too early, bad muffler) and will require that reasonable measures warranted to correct the problem be implemented. The project sponsor shall also post a telephone number for excessive noise complaints in conspicuous locations in the vicinity of the project site. Additionally, the project sponsor shall send a notice to neighbors in the project vicinity with information on the construction schedule and the telephone number for noise complaints.

Policy P2.6: Support efforts to reduce vehicle and equipment noise, e.g. through fleet and equipment modernization or retrofits, use of alternative fuel vehicles and installation of mufflers or other noise reducing equipment.

4.3.2 City of Oroville Municipal Code

Chapter 9.20 of the City of Oroville Municipal Code contains the Noise Ordinance which places limits on noise levels as well as hours of construction. Regulations relevant to the Project are described below.

Chapter 9.20.060, Exceptions – Designated

A. *Daytime Exceptions.* Any noise source which does not produce a noise level exceeding 70 dBA at a distance of 25 feet from the source under its most noisy condition of use shall be exempt from the provisions of Sections 9.20.030, 9.20.040 and 9.20.050 between the hours of 7:00 a.m. and 9:00 p.m. daily except Saturdays, Sundays and holidays, when the exemption herein shall apply between 10:00 a.m. and 6:00 p.m.

B. *Safety Devices.* Aural warning devices which are required by law to protect the health, safety, and welfare of the community shall not produce a noise level more than 3 dB above the standard or minimum level as provided by state law.

C. *Construction and Alteration of Structures*. Notwithstanding any other provisions of this chapter, between the hours of 7:00 a.m. and 9:00 p.m. daily except Saturdays, Sundays and holidays, when the exemption herein shall apply between 10:00 a.m. and 6:00 p.m., construction, alteration or repair of structures shall be allowed if it meets at least one of the following noise limitations:

1. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible;

2. The noise level at any point outside of the property plane of the project shall not exceed 86 dBA;

3. The provisions of paragraphs 1 and 2 of this subsection shall not be applicable to impact tools and equipment, provided that on and after a date 6 months after the effective date of this chapter, such impact tools and equipment shall have intake and exhaust mufflers recommended by the manufacturers thereof and approved by the city's director of public works as best accomplishing maximum noise attenuation, and that pavement breakers and jackhammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof and approved by the city's director of public works as best accomplishing maximum noise attenuation. In the absence of manufacturer's recommendations, the director of public works may prescribe such means of accomplishing maximum noise attenuation as he or she may determine to be in the public interest.

5.0 Impact Assessment

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce the following:

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.

For purposes of this analysis and where applicable, the City's noise standards established in the General Plan Noise Element and the Municipal Code were used for evaluation of Project-related noise impacts for construction and operations.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Stationary noise sources are addressed qualitatively based on reference measurements taken by ECORP Consulting, Inc. The Project's contribution of traffic noise has been calculated with the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) coupled with traffic data provided by KD Anderson & Associates (2023). Groundborne vibration levels associated with construction-related activities were evaluated utilizing typical groundborne vibration levels associated with construction equipment based on the Caltrans guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance are evaluated, taking into account the distance from construction activities to nearby land uses.

An assessment of the noise/land use compatibility to locate sensitive noise receptors within the existing noise environment, was completed by conducting existing ambient baseline noise measurements around and adjacent to the Project Site with the use of a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute standard for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator.

5.3 Impact Analysis

5.3.1 Would the Project Result in Short-Term Construction-Generated Noise in Excess of City Standards?

Onsite Construction Noise

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

The nearest sensitive receptors to the Project Site include residences directly adjacent to the northeast corner of the Project Site boundary, fronting 20th Street, approximately 75 feet distant. As previously described, Section 9.20.60 of the City Municipal Code prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. on weekdays and between 6:00 p.m. and 10:00 a.m. on Saturdays, Sundays and holidays. The City exempts construction noise from City noise standards so long as it does not exceed the threshold of 86 dBA. Construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Additionally, construction would occur throughout the 44.97-acre Project site and would not be concentrated at one point. For the purposes of this analysis, the City's threshold of 86 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

The anticipated short-term construction noise levels generated for the necessary equipment were calculated using the Roadway Noise Construction Model for the site preparation, grading, building construction, paving and architectural coating phases. It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the Project Site and at various distances from sensitive receptors. Therefore, this analysis employs the FTA guidance for calculating construction noise, which recommends measuring construction noise produced by all construction equipment operating simultaneously from the center of the Project Site (FTA 2018). In this case, the center of the Project Site is approximately 950 feet from the nearest sensitive receptor, the residences north of the Project Site.

The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 5-1.

Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptor			
Equipment	**Estimated Exterior Construction Noise Level @ 950 feet**	**Construction Noise Standards (dBA L_{eq})**	**Exceeds Standard at Nearest Receptor?**
Site Preparation			
Rubber Tired Dozer (3)	52.1 dBA (each)	*86*	**No**
Tractors/Loaders/Backhoes (4)	54.4 dBA (each)	*86*	**No**
Combined Site Preparation Equipment	**62.0 dBA**	*86*	**No**
Grading			
Excavator (2)	51.2 dBA (each)	*86*	**No**
Grader	55.4 dBA	*86*	**No**
Rubber Tired Dozer	52.1 dBA	*86*	**No**
Scraper (2)	54.0 dBA (each)	*86*	**No**
Tractors/Loaders/Backhoes (2)	54.4 dBA (each)	*86*	**No**
Combined Grading Equipment	**62.6 dBA**	*86*	**No**
Building Construction, Paving, Architectural Coating			
Crane	47.0 dBA	*86*	**No**
Forklifts (3)	53.8 dBA (each)	*86*	**No**
Generator Set	52.0 dBA	*86*	**No**
Tractors/Loaders/Backhoes (3)	54.4 dBA (each)	*86*	**No**
Welders	44.4 dBA	*86*	**No**
Paver (2)	48.6 dBA (each)	*86*	**No**
Pavement Scarafier (2)	56.9 dBA (each)	*86*	**No**
Roller (2)	47.4 dBA (each)	*86*	**No**
Air Compressor	48.1 dBA	*86*	**No**
Combined Building Construction Equipment	**64.9 dBA**	*86*	**No**

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment C for Model Data Outputs.

Notes: Construction equipment used during construction derived from California Emissions Estimator Model (CalEEMod 2022.1). CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters. The distance to the nearest sensitive receptor was calculated from the center of the Project Site (approximately 950 feet).

As shown in Table 5-1, no individual or cumulative pieces of construction equipment would exceed the 86 dBA construction noise threshold during any phase of construction at the nearby noise-sensitive receptors.

Offsite Construction Traffic Noise

Project construction would result in additional traffic on adjacent roadways over the period that construction occurs. According to the California Emissions Estimator Model, which is used to predict air pollutant emissions associated with Project construction based on several construction surveys conducted in order to identify such parameters, including those generated by worker commute trips and vendor trips, the maximum number of construction workers and vendors traveling to and from the Project Site on a single day would be 80 (62 worker trips and 18 vendor trips). According to the California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The Project construction would not result in a doubling of traffic on the local transportation network, and therefore its contribution to existing traffic noise would not be perceptible.

5.3.2 Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. As previously described, the nearest noise sensitive receptors are the residences located across from the Project Site.

Project Land Use Compatibility

The City of Oroville uses the land use compatibility table presented in the General Plan Noise Element which provides the City with a tool to gauge the compatibility of new land users relative to existing noise levels. This table, presented as Table 4-2, identifies acceptable exterior and interior noise levels for various land uses, including residential land uses such as those proposed by the Project. In the case that the noise levels identified at the Proposed Project Site fall within levels presented in the General Plan, the Project is considered compatible with the existing noise environment. As previously stated, the Project is proposing the construction of 172 single-family dwelling units.

The long-term noise measurement taken on the Project Site from December 19th to December 20th, 2022, shown in Table 3-1, identifies an ambient noise level of 43.1 dBA CNEL. According to noise/land use compatibility table, presented in Table 4-2, this falls within the acceptable exterior noise level standard (≤60 dBA) and interior noise level standard (≤45 dBA) for residential land uses.

Additionally, a separate data point of ambient noise at the Project Site, as provided by the FHWA Highway Traffic Noise Prediction Model coupled with trip generation rates provided by KD Anderson and Associates (2023), identifies existing traffic noise levels on the roadway directly adjacent to the Project Site (20th Street) as potentially reaching 39.2 – 46.6 dBA CNEL at 100 feet from the centerline.

As all of the measured and modeled noise levels fall below the acceptable noise standards, the Project Site is considered an appropriate noise environment to locate the proposed land use.

Project Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity for the Proposed Project were modeled based on the traffic volumes identified by KD Anderson & Associates (2023) to determine the noise levels along Project vicinity roadways. Table 5-2 shows the calculated offsite roadway noise levels under existing traffic levels compared to future buildout of the Project. The calculated noise levels as a result of the Project at affected land uses are compared to the appropriate City of Oroville numeric noise thresholds.

The City has identified a substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA and the project creates a readily perceptible 5 dBA or greater noise level increase; or
- If the existing noise levels range from 60 to 65 dBA and the project creates a barely perceptible 3 dBA or greater noise level increase; or
- If the existing noise levels already exceed 65 dBA, and the project creates a community noise level increase of greater than 1.5 dBA.

Table 5-2. Proposed Project Predicted Traffic Noise Levels					
Roadway Segment	**Surrounding Uses**	**CNEL at 100 feet from Centerline of Roadway**		**City Noise Standard**	**Exceed Standards?**
		Existing Conditions	**Existing + Project Conditions**		
18th Street					
North of Grand Avenue	Residential	42.0 dBA	42.0 dBA	*>5*	**No**
Between Grand Avenue & Feather Avenue	Residential	52.4 dBA	53.7 dBA	*>5*	**No**
Grand Avenue					
East of 18th Street	Residential	54.5 dBA	55.7 dBA	*>5*	**No**
West of 18th Street	Residential	52.1 dBA	52.1 dBA	*>5*	**No**
Oroville Dam Boulevard					
West of 20th Street/Larkin Road	Vacant & Agricultural	58.9 dBA	59.1 dBA	*>5*	**No**
East of 20th Street/Larkin Road	Residential	62.9 dBA	63.9 dBA	*>3*	**No**
Larkin Road					
South of Oroville Dam Boulevard	Vacant	53.7 dBA	53.9 dBA	*>5*	**No**
20th Street					
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	41.0 dBA	47.6 dBA	*>5*	**Yes**
Between Biggs Avenue & Feather Avenue	Vacant & Residential	38.7 dBA	46.7 dBA	*>5*	**Yes**
Feather Avenue					
East of 20th Street	Residential	36.3 dBA	45.3 dBA	*>5*	**Yes**
Onyx Circle					
East of 20th Street	Vacant & Residential	34.5 dBA	34.5 dBA	*>5*	**No**
Russel Proctor Way					

Table 5-2. Proposed Project Predicted Traffic Noise Levels					
East of 20th Street	Vacant & Residential	31.5 dBA	31.5 dBA	*>5*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by KD Anderson & Associates (2023). Refer to Attachment B for traffic noise modeling assumptions and results.

As shown in Table 3.10-9, the roadway segments of 20th Street between Biggs Avenue and Feather Avenue and between Biggs Avenue and Oroville Dam Boulevard would experience an increase of more than 5.0 dBA CNEL over existing conditions, which is beyond the City of Oroville noise standard. Similarly, the segment of Feather Avenue east of 20th Street would also experience an increase of more than 5.0 dBA CNEL over existing conditions There is no feasible mitigation available to reduce these impacts to less than significant. Lead agencies have limited remedies at their disposal to effectively reduce traffic-related noise. Addressing traffic noise at the receiver rather than the source usually takes the form of noise barriers (i.e., sound walls). While constructing noise barriers along streets would reduce noise, the placement of sound walls between existing residences/businesses and local roadways would not be desirable as it would conflict with the community's aesthetic, design and character and is therefore deemed infeasible. Furthermore, such barriers would likely require property owner approval, which cannot be ensured. While measures such as encouraging ridesharing, carpooling, and alternative modes of transportation could reduce vehicle volumes, such measures can neither be mandated of residents nor have been shown to reduce vehicle trips to the extent needed to reduce vehicle noise levels below established thresholds. Therefore, no feasible mitigation measures exist to reduce the identified significant impact.

Operational Stationary Noise

As previously described, the Project is proposing the construction of 172 single-family dwelling units. Therefore, the main onsite stationary noise sources related to long-term operation on the Project Site would be from the proposed residences. ECORP staff regularly conduct noise measurements within various land uses, at specific noise-generating events, and at individual pieces of noise-generating equipment in order to develop a wide sampling of potential noise levels associated with such. The main noise source generated from the residences on the Project Site would include mechanical equipment and other typical sources specific to residential neighborhoods such as barking dogs, internal traffic circulation, radios, and people talking. According to previous field noise measurements conducted by ECORP, mechanical heating, ventilation, and air conditioning equipment generates noise levels less than 45 dBA at 20 feet. This noise level is less than the City's daytime and nighttime noise standards for residential properties.

The Project proposes to place residential uses adjacent to existing residential uses. The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within the community that would negatively affect noise sensitive land uses. The Project is consistent with the types, intensity, and patterns of land use envisioned for the Project Area, and as previously described, the Project is considered compatible with the existing noise environment. Operation of the Project would not result in a significant noise-related impact associated with onsite sources.

5.3.3 Would the Project Result in the Generation of Excessive Groundborne Vibration or Groundborne Noise Levels?

Construction-Generated Vibration

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 5-3.

Table 5-3. Representative Vibration Source Levels for Construction Equipment

Equipment Type	PPV at 25 Feet (inches per second)
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: FTA 2018; Caltrans 2020b

The City of Oroville does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.3 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Consistent with FTA recommendations for calculating construction vibration, construction vibration was measured from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site is a portable office located east of the Project Site.

Based on the representative vibration levels presented for various construction equipment types in Table 5-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential Project construction vibration levels. The FTA provides the following equation:

$$PPVequip = PPVref \times (25/D)^{1.5}$$

Table 5-4 presents the expected Project related vibration levels at a distance of 60 feet.

Table 5-4. Construction Vibration Levels at 60 Feet

Receiver PPV Levels (in/sec)[1]							Peak Vibration	Threshold	Exceed Threshold
Large Dozer	Pile Driver	Drilling & Rock Breaker	Loaded Trucks	Roller	Jack-hammer	Small Dozer			
0.024	0.046	0.024	0.020	0.057	0.009	0.001	0.057	*0.3*	**No**

As shown, groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the source and spreads over an increasingly large distance while material damping is a property of the friction loss which occurs during the passage of a vibration wave. As shown in Table 5-4, the nearest structure at 60 feet from the construction site would not experience groundborne levels in exceedance of standards.

Operational Groundborne Vibration

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels.

5.3.4 Would the Project Expose People Residing or Working in the Project Area to Excessive Airport Noise?

The Oroville Municipal Airport is the closest airport to the Project Site and is located approximately 0.5 miles away. The Project is in compliance with Policy P1.10 of the City's Noise Element, as the Project Site is located outside of the 55 dBA CNEL contour around the Oroville Municipal Airport. Thus, implementation of the Proposed Project would not affect airport operations nor result in increased exposure of people working at or visiting the Project Site to aircraft noise.

5.3.5 Would the Project Result in Cumulatively Considerable Noise Impacts?

Cumulative Construction Noise

Construction activities associated with the Proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the Proposed Project was determined to be less than significant following compliance with the City's construction noise threshold. Cumulative development in the vicinity of the Project Site could result in elevated construction noise levels

at sensitive receptors in the Project Area. However, each project would be required to comply with the applicable noise limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Cumulative Onsite Operational Noise

Cumulative long-term noise sources associated with development at the Project, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and related cumulative projects together could result in higher noise levels than considered separately. Considering the Proposed Project is located across from existing residential uses, the Project would not result in any substantial changes in the noise environment due to onsite sources. Noise increase as a result of the Project would not exceed City standards. Therefore, the Project would not contribute to cumulative impacts during operations.

Cumulative Traffic Noise

Cumulative traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise-sensitive land uses) were modeled based on the traffic volumes identified by KD Anderson & Associates (2023) to determine the noise levels along Project vicinity roadways. Table 5-5 shows the calculated offsite roadway noise levels under cumulative conditions without the Project (Cumulative No Project) compared to cumulative conditions plus future buildout of the Project (Cumulative Plus Project).

The calculated noise levels as a result of the Project at affected land uses are compared to the appropriate City numeric noise thresholds for evaluating the impact of increased traffic noise. The City's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the project creates a readily perceptible 5 dBA CNEL or greater noise level increase; or
- If the existing noise levels range from 60 to 65 dBA CNEL and the project creates a barely perceptible 3 dBA CNEL or greater noise level increase; or
- If the existing noise levels already exceed 65 dBA CNEL, and the project creates a community noise level increase of greater than 1.5 dBA CNEL.

Table 5-5. Cumulative Traffic Scenario

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		City Noise Standard (dBA CNEL)	Exceed Standards?
		Cumulative No Project	Cumulative + Project		
18th Street					
North of Grand Avenue	Residential	42.7 dBA	42.7 dBA	*>5*	**No**
Between Grand Avenue & Feather Avenue	Residential	53.9 dBA	54.8 dBA	*>5*	**No**
Grand Avenue					
East of 18th Street	Residential	56.4 dBA	57.1 dBA	*>5*	**No**
West of 18th Street	Residential	54.1 dBA	54.2 dBA	*>5*	**No**
Oroville Dam Boulevard					
West of 20th Street/Larkin Road	Vacant & Agricultural	59.4 dBA	59.5 dBA	*>5*	**No**
East of 20th Street/Larkin Road	Residential	65.9 dBA	66.0 dBA	*>3*	**No**
Larkin Road					
South of Oroville Dam Boulevard	Vacant	57.4 dBA	57.4 dBA	*>5*	**No**
20th Street					
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	44.0 dBA	48.4 dBA	*>5*	**No**
Between Biggs Avenue & Feather Avenue	Vacant & Residential	41.3 dBA	47.1 dBA	*>5*	**Yes**
Feather Avenue					
East of 20th Street	Residential	39.3 dBA	45.35 dBA	*>5*	**Yes**
Onyx Circle					
East of 20th Street	Vacant & Residential	36.3 dBA	36.3 dBA	*>5*	**No**
Russel Proctor Way					

Table 5-5. Cumulative Traffic Scenario					
East of 20th Street	Vacant & Residential	32.7 dBA	32.7 dBA	*>5*	**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by KD Anderson & Associates (2023). Refer to Attachment B for traffic noise modeling assumptions and results.

As shown in Table 3.10-12, the roadway segment of 20th Street between Biggs Avenue and Feather Avenue would experience an increase of more than 5.0 dBA CNEL over existing conditions, which is beyond the City of Oroville noise standard. Additionally, the segment of Feather Avenue east of 20th Street would also experience an increase of more than 5.0 dBA CNEL over existing conditions. As previously described, there is no feasible mitigation available to reduce these impacts to less than significant. Lead agencies have limited remedies at their disposal to effectively reduce traffic-related noise. Addressing traffic noise at the receiver rather than the source usually takes the form of noise barriers (i.e., sound walls). While constructing noise barriers along streets would reduce noise, the placement of sound walls between existing residences/businesses and local roadways would not be desirable as it would conflict with the community's aesthetic, design and character and is therefore deemed infeasible. Furthermore, such barriers would likely require property owner approval, which cannot be ensured. While measures such as encouraging ridesharing, carpooling, and alternative modes of transportation could reduce vehicle volumes, such measures can neither be mandated of residents nor have been shown to reduce vehicle trips to the extent needed to reduce vehicle noise levels below established thresholds. Therefore, no feasible mitigation measures exist to reduce the identified significant impact.

6.0 REFERENCES

Caltrans (California Department of Transportation). 2021. Traffic Census Program. https://dot.ca.gov/programs/traffic-operations/census

_____. 2020a. IS/EA Annotated Outline. http://www.dot.ca.gov/ser/vol1/sec4/ch31ea/chap31ea.htm.

_____. 2020b. Transportation- and Construction-Induced Vibration Guidance Manual.

_____. 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol.

_____. 2002. California Airport Land Use Planning Handbook.

FHWA (Federal Highway Administration). 2017. Construction Noise Handbook. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook02.cfm.

_____. 2006. Roadway Construction Noise Model.

FTA (Federal Transit Administration). 2018. Transit Noise and Vibration Impact Assessment.

KD Anderson & Associates. 2023. Feather Ranch Project Traffic Impact Study.

HMMH (Harris Miller, Miller & Hanson, Inc.). 2006. Transit Noise and Vibration Impact Assessment, Final Report.

Oroville, City of. 2015. City of Oroville General Plan Noise Element.

_____. 2022. City of Oroville Municipal Code.

State of California OPR. 2003. California General Plan Guidelines.

WEAL (Western Electro-Acoustic Laboratory, Inc.). 2000. Sound Transmission Sound Test Laboratory Report No. TL 96-186.

LIST OF ATTACHMENTS

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site

Location: W:\Projects\2022\2022-009 Feather Ranch [20th Street Residential] - Oroville\Figures\2022-009 Feather Ranch Map.aprx - Portrait Template (agne - 1/16/2023)

Map Date: 1/16/2023

Sources: Esri 2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Baseline Noise Measurement

Feather Ranch Residential Project, 2022-009

Site Number: 1			
Recorded By: Anaya Ward			
Job Number: 2022-009			
Date: 12/19/22			
Time: 1:18 p.m. – 1:33 p.m.			
Location: Adjacent to the residences southeast of the Project Site			
Source of Peak Noise: Vehicle traffic on 20th Street			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
48.6	27.6	76.8	124.0

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 15 min		Sky: Cloudy
	Note: dBA Offset = -0.02		Sensor Height (ft): 4
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2	43	30.28

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.045.s	Computer's File Name	LxT_0006133-20221219 131828-LxT_Data.045.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2022-12-19 13:18:28	Duration	0:15:00.0		
End Time	2022-12-19 13:33:28	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2022-12-19 13:15:36	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	48.6 dB		
LAE	78.1 dB	SEA	134.0 dB
EA	7.2 µPa²h		
EA8	231.8 µPa²h		
EA40	1.2 mPa²h		
LZS_{peak}	124.0 dB	2022-12-19 13:29:35	
LAS_{max}	76.8 dB	2022-12-19 13:29:35	
LAS_{min}	27.6 dB	2022-12-19 13:20:15	
LA_{eq}	48.6 dB		
LC_{eq}	67.7 dB	LC_{eq} - LA_{eq}	19.1 dB
LAI_{eq}	63.3 dB	LAI_{eq} - LA_{eq}	14.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
48.6 dB	48.6 dB	0.0 dB

LDEN	LDay	LEve	LNight
48.6 dB	48.6 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	48.6 dB		--- dB		--- dB	
$Ls_{(max)}$	76.8 dB	2022-12-19 13:29:35	--- dB	None	--- dB	None
$LS_{(min)}$	27.6 dB	2022-12-19 13:20:15	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	124.0 dB	2022-12-19 13:29:35

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	49.9 dB
LAS 10.0	42.0 dB
LAS 33.3	33.7 dB
LAS 50.0	32.1 dB
LAS 66.6	31.3 dB
LAS 90.0	29.6 dB

Time History

Site Number: 2			
Recorded By: Anaya Ward			
Job Number: 2022-009			
Date: 12/19/22			
Time: 1:41 p.m. – 1:56 p.m.			
Location: At the corner of 20th Street and Feather Avenue.			
Source of Peak Noise: Vehicle Traffic on 20th Street			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
47.3	26.1	72.8	96.5

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 15 min		Sky: Cloudy
	Note: dBA Offset = -0.02		Sensor Height (ft): 4
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2	43	30.28

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.046.s	Computer's File Name	LxT_0006133-20221219 134107-LxT_Data.046.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2022-12-19 13:41:07	Duration	0:15:00.0		
End Time	2022-12-19 13:56:07	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2022-12-19 13:15:25	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	47.3 dB		
LAE	76.8 dB	SEA	--- dB
EA	5.4 µPa²h		
EA8	171.9 µPa²h		
EA40	859.3 µPa²h		
LZS_{peak}	96.5 dB	2022-12-19 13:54:00	
LAS_{max}	72.8 dB	2022-12-19 13:54:01	
LAS_{min}	26.1 dB	2022-12-19 13:55:25	
LA_{eq}	47.3 dB		
LC_{eq}	60.3 dB	LC_{eq} - LA_{eq}	13.0 dB
LAI_{eq}	51.6 dB	LAI_{eq} - LA_{eq}	4.3 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
47.3 dB	47.3 dB	0.0 dB

LDEN	LDay	LEve	LNight
47.3 dB	47.3 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	47.3 dB		--- dB		--- dB	
$Ls_{(max)}$	72.8 dB	2022-12-19 13:54:01	--- dB	None	--- dB	None
$LS_{(min)}$	26.1 dB	2022-12-19 13:55:25	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	96.5 dB	2022-12-19 13:54:00

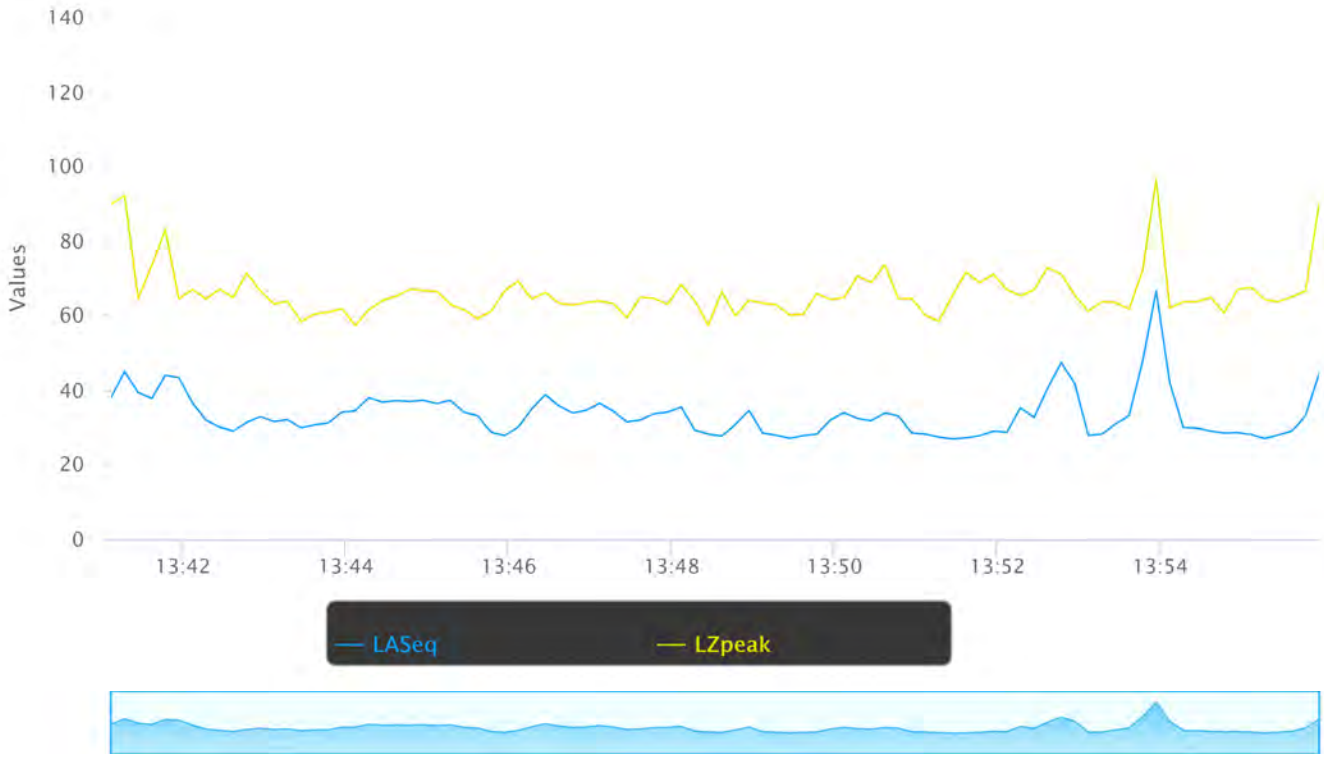
Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	44.7 dB
LAS 10.0	39.1 dB
LAS 33.3	34.2 dB
LAS 50.0	31.8 dB
LAS 66.6	29.4 dB
LAS 90.0	27.6 dB

Time History



Site Number: 3			
Recorded By: Anaya Ward			
Job Number: 2022-009			
Date: 12/19/22			
Time: 2:02 p.m. – 2:17 p.m.			
Location: Adjacent to 1450 21st Street, north of the Project Site			
Source of Peak Noise: Vehicle Traffic on Grand Avenue			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
36.2	26.8	53.2	79.6

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 15 min		Sky: Cloudy
	Note: dBA Offset = -0.02		Sensor Height (ft): 4
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2	43	30.28

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.047.s	Computer's File Name	LxT_0006133-20221219 140241-LxT_Data.047.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2022-12-19 14:02:41	Duration	0:15:00.0		
End Time	2022-12-19 14:17:41	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2022-12-19 13:15:25	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	36.2 dB		
LAE	65.7 dB	SEA	--- dB
EA	0.4 µPa²h		
EA8	13.3 µPa²h		
EA40	66.7 µPa²h		
LZS_{peak}	79.6 dB	2022-12-19 14:05:13	
LAS_{max}	53.2 dB	2022-12-19 14:04:53	
LAS_{min}	26.8 dB	2022-12-19 14:12:09	
LA_{eq}	36.2 dB		
LC_{eq}	51.0 dB	LC_{eq} - LA_{eq}	14.8 dB
LAI_{eq}	39.6 dB	LAI_{eq} - LA_{eq}	3.4 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
36.2 dB	36.2 dB	0.0 dB

LDEN	LDay	LEve	LNight
36.2 dB	36.2 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	36.2 dB		--- dB		--- dB	
$Ls_{(max)}$	53.2 dB	2022-12-19 14:04:53	--- dB	None	--- dB	None
$LS_{(min)}$	26.8 dB	2022-12-19 14:12:09	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	79.6 dB	2022-12-19 14:05:13

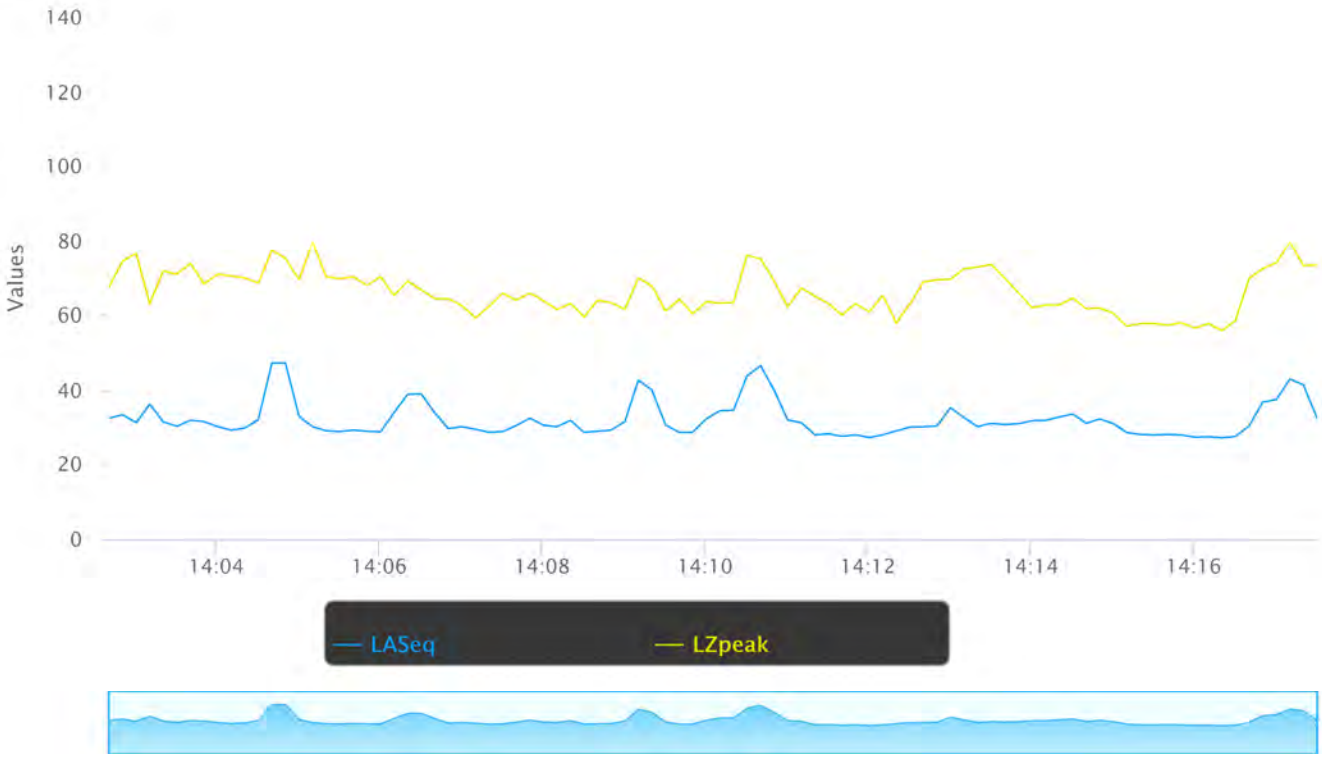
Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	42.3 dB
LAS 10.0	37.9 dB
LAS 33.3	31.6 dB
LAS 50.0	30.3 dB
LAS 66.6	29.2 dB
LAS 90.0	27.8 dB

Time History



Site Number: Long Term 1			
Recorded By: Anaya Ward			
Job Number: 2022-009			
Date: 12/19/22 – 12/20/22			
Time: 2:57 p.m. – 2:57 p.m.			
Location: On the Project Site			
Source of Peak Noise: Dirt bikes activities nearby, vehicle traffic on 20th Street.			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	**CNEL** (dB)
41.1	22.3	74.2	43.1

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0006133	02/24/2021	
	Microphone	Larson Davis	377B02	315201	02/24/2021	
	Preamp	Larson Davis	PRMLxT1L	069947	02/24/2021	
	Calibrator	Larson Davis	CAL200	17325	02/25/2021	

Weather Data			
Est.	Duration: 24 hr		Sky: Cloudy
	Note: dBA Offset = 0.01		Sensor Height (ft): 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2	43	30.28

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.048.s	Computer's File Name	LxT_0006133-20221219 145753-LxT_Data.048.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2022-12-19 14:57:53	Duration	24:00:00.0		
End Time	2022-12-20 14:57:53	Run Time	24:00:00.0	Pause Time	0:00:00.0
Pre-Calibration	2022-12-19 14:46:29	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	41.1 dB		
LAE	90.5 dB	SEA	--- dB
EA	123.7 µPa²h		
EA8	41.2 µPa²h		
EA40	206.1 µPa²h		
LZS_{peak}	98.8 dB	2022-12-19 14:59:30	
LAS_{max}	74.2 dB	2022-12-19 15:20:10	
LAS_{min}	22.3 dB	2022-12-20 02:18:45	
LA_{eq}	41.1 dB		
LC_{eq}	48.3 dB	LC_{eq} - LA_{eq}	7.2 dB
LAI_{eq}	48.1 dB	LAI_{eq} - LA_{eq}	7.0 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZSpeak > 135.0 dB	0	0:00:00.0
LZSpeak > 137.0 dB	0	0:00:00.0
LZSpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	42.8 dB	42.9 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	43.1 dB	43.7 dB	36.5 dB	32.7 dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	41.1 dB		--- dB		--- dB	
$Ls_{(max)}$	74.2 dB	2022-12-19 15:20:10	--- dB	None	--- dB	None
$LS_{(min)}$	22.3 dB	2022-12-20 02:18:45	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	98.8 dB	2022-12-19 14:59:30

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	45.8 dB
LAS 10.0	43.1 dB
LAS 33.3	35.7 dB
LAS 50.0	33.3 dB
LAS 66.6	30.9 dB
LAS 90.0	26.8 dB

ATTACHMENT B

Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS

Project Number: 2022-009
Project Name: Feather Ranch Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s): **Existing**
Source of Traffic Volumes: KD Anderson & Associates
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL	Traffic Vo 24-Hour Day
18th Street														
North of Grand Avenue	Residential	2	0	34	306	25	100	0.5	0	1.8%	0.7%	43.3	42.0	238
Between Grand Avenue & Feather Avenue	Residential	2	0	183	1,647	35	100	0.5	0	1.8%	0.7%	53.6	52.4	1,280
Grand Avenue														
East of 18th Street	Residential	2	0	216	1,944	40	100	0.5	0	1.8%	0.7%	55.7	54.5	1,510
West of 18th Street	Residential	2	0	123	1,107	40	100	0.5	0	1.8%	0.7%	53.3	52.1	860
Oroville Dam Boulevard														
West of 20th St/Larkin Road	Vacant & Agricultural	2	0	335	3,015	50	100	0.5	0	1.8%	0.7%	60.1	58.9	2,343
East of 20th St/Larkin Road	Residential	2	0	831	7,479	50	100	0.5	0	1.8%	0.7%	58.1	62.9	5,811
Larkin Road														
South of Oroville Dam Boulevard	Vacant	2	0	497	4,473	25	100	0.5	0	1.8%	0.7%	57.1	53.7	3,476
20th Street														
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	2	0	27	243	25	100	0.5	0	1.8%	0.7%	54.9	41.0	189
Between Biggs Avenue & Feather Avenue	Vacant & Residential	2	0	16	144	25	100	0.5	0	1.8%	0.7%	0.0	38.7	112
Feather Avenue														
East of 20th Street	Residential	2	0	9	81	25	100	0.5	0	1.8%	0.7%	40.0	36.3	63
Onyx Circle														
East of 20th Street	Vacant & Residential	2	0	6	54	25	100	0.5	0	1.8%	0.7%	37.5	34.5	42
Russel Proctor Way														
East of 20th Street	Vacant & Residential	2	0	3	27	25	100	0.5	0	1.8%	0.7%	35.7	31.5	21

TRAFFIC NOISE LEVELS

Project Number: 2022-009
Project Name: Feather Ranch Project

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	**Existing + Project**
Source of Traffic Volumes:	KD Anderson & Associates
Community Noise Descriptor:	L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hou dB(A) L_{eq}	24-Hour dB(A) CNEL
18th Street													
North of Grand Avenue	Residential	2	0	34	306	25	100	0.5	0	1.8%	0.7%	43.3	42.0
Between Grand Avenue & Feather Avenue	Residential	2	0	247	2,223	35	100	0.5	0	1.8%	0.7%	54.9	53.7
Grand Avenue													
East of 18th Street	Residential	2	0	280	2,520	40	100	0.5	0	1.8%	0.7%	56.9	55.7
West of 18th Street	Residential	2	0	123	1,107	40	100	0.5	0	1.8%	0.7%	53.3	52.1
Oroville Dam Boulevard													
West of 20th St/Larkin Road	Vacant & Agricultural	2	0	349	3,141	50	100	0.5	0	1.8%	0.7%	60.3	59.1
East of 20th St/Larkin Road	Residential	2	0	887	7,983	50	100	0.5	0	1.8%	0.7%	64.4	63.2
Larkin Road													
South of Oroville Dam Boulevard	Vacant	2	0	523	4,707	25	100	0.5	0	1.8%	0.7%	55.1	53.9
20th Street													
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	2	0	123	1,107	25	100	0.5	0	1.8%	0.7%	48.9	47.6
Between Biggs Avenue & Feather Avenue	Vacant & Residential	2	0	100	900	25	100	0.5	0	1.8%	0.7%	48.0	46.7
Feather Avenue													
East of 20th Street	Residential	2	0	73	657	25	100	0.5	0	1.8%	0.7%	46.6	45.3
Onyx Circle													
East of 20th Street	Vacant & Residential	2	0	6	54	25	100	0.5	0	1.8%	0.7%	35.7	34.5
Russel Proctor Way													
East of 20th Street	Vacant & Residential	2	0	3	27	25	100	0.5	0	1.8%	0.7%	32.7	31.5

TRAFFIC NOISE LEVELS

Project Number: 2022-009
Project Name: Feather Ranch Project

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	**Cumualitve No Project**
Source of Traffic Volumes:	KD Anderson & Associates
Community Noise Descriptor:	L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor[1]	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hou dB(A) L_{eq}	24-Hour dB(A) CNEL
18th Street													
North of Grand Avenue	Residential	2	0	40	360	25	100	0.5	0	1.8%	0.7%	44.0	42.7
Between Grand Avenue & Feather Avenue	Residential	2	0	260	2,340	35	100	0.5	0	1.8%	0.7%	55.1	53.9
Grand Avenue													
East of 18th Street	Residential	2	0	330	2,970	40	100	0.5	0	1.8%	0.7%	57.6	56.4
West of 18th Street	Residential	2	0	196	1,764	40	100	0.5	0	1.8%	0.7%	55.3	54.1
Oroville Dam Boulevard													
West of 20th St/Larkin Road	Vacant & Agricultural	2	0	373	3,357	50	100	0.5	0	1.8%	0.7%	60.6	59.4
East of 20th St/Larkin Road	Vacant & Agricultural	2	0	1,651	14,859	50	100	0.5	0	1.8%	0.7%	67.1	65.9
Larkin Road													
South of Oroville Dam Boulevard	Vacant	2	0	1,168	10,512	25	100	0.5	0	1.8%	0.7%	58.6	57.4
20th Street													
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	2	0	54	486	25	100	0.5	0	1.8%	0.7%	45.3	44.0
Between Biggs Avenue & Feather Avenue	Vacant & Residential	2	0	29	261	25	100	0.5	0	1.8%	0.7%	42.6	41.3
Feather Avenue													
East of 20th Street	Residential	2	0	18	162	25	100	0.5	0	1.8%	0.7%	40.5	39.3
Onyx Circle													
East of 20th Street	Vacant & Residential	2	0	9	81	25	100	0.5	0	1.8%	0.7%	37.5	36.3
Russel Proctor Way													
East of 20th Street	Vacant & Residential	2	0	4	36	25	100	0.5	0	1.8%	0.7%	34.0	32.7

TRAFFIC NOISE LEVELS

Project Number: 2022-009
Project Name: Feather Ranch Project

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	**Cumulative + Project**
Source of Traffic Volumes:	KD Anderson & Associates
Community Noise Descriptor:	L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor[1]	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hou dB(A) L_{eq}	24-Hour dB(A) CNEL
18th Street													
North of Grand Avenue	Residential	2	0	40	360	25	100	0.5	0	1.8%	0.7%	44.0	42.7
Between Grand Avenue & Feather Avenue	Residential	2	0	318	2,862	35	100	0.5	0	1.8%	0.7%	56.0	54.8
Grand Avenue													
East of 18th Street	Residential	2	0	386	3,474	40	100	0.5	0	1.8%	0.7%	58.3	57.1
West of 18th Street	Residential	2	0	198	1,782	40	100	0.5	0	1.8%	0.7%	55.4	54.2
Oroville Dam Boulevard													
West of 20th Street/Larkin Road	Vacant & Agricultural	2	0	386	3,474	50	100	0.5	0	1.8%	0.7%	60.8	59.5
East of 20th St/Larkin Road	Vacant & Agricultural	2	0	1,710	15,390	50	100	0.5	0	1.8%	0.7%	67.2	66.0
Larkin Road													
South of Oroville Dam Boulevard	Vacant	2	0	1,200	10,800	25	100	0.5	0	1.8%	0.7%	58.7	57.5
20th Street													
Between Oroville Dam Boulevard & Biggs Avenue	Vacant & Agricultural	2	0	148	1,332	25	100	0.5	0	1.8%	0.7%	49.7	48.4
Between Biggs Avenue & Feather Avenue	Vacant & Residential	2	0	109	981	25	100	0.5	0	1.8%	0.7%	48.3	47.1
Feather Avenue													
East of 20th Street	Residential	2	0	75	675	25	100	0.5	0	1.8%	0.7%	46.7	45.5
Onyx Circle													
East of 20th Street	Vacant & Residential	2	0	9	81	25	100	0.5	0	1.8%	0.7%	37.5	36.3
Russel Proctor Way													
East of 20th Street	Vacant & Residential	2	0	4	36	25	100	0.5	0	1.8%	0.7%	34.0	32.7

ATTACHMENT C

Roadway Construction Noise Model Outputs – Project Construction Noise

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/27/2023
Case Description: Feather Ranch Site Preparation

Description	**Affected Land Use**
Site Preparation	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Dozer	No	40		81.7	950
Dozer	No	40		81.7	950
Dozer	No	40		81.7	950
Tractor	No	40	84		950
Tractor	No	40	84		950
Tractor	No	40	84		950
Tractor	No	40	84		950

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Dozer	56.1	52.1
Dozer	56.1	52.1
Dozer	56.1	52.1
Tractor	58.4	54.4
Tractor	58.4	54.4
Tractor	58.4	54.4
Tractor	58.4	54.4
Total	58.4	**62**

*Calculated Lmax is the Loudest value.

APPENDIX 3.12

Traffic Impact Study for the Feather Ranch Project,

Ken Anderson and Associates, Inc., January 2023

TRAFFIC IMPACT STUDY

FOR THE

FEATHER RANCH PROJECT

Oroville, California

Prepared For:

ECORP Consulting, Inc.

Prepared By:

KD Anderson & Associates
3853 Taylor Road, Suite G
Loomis, California 95650
(916) 660-1555

January 2, 2023

2610-28

Feather Ranch Traf Study 1-2-23.doc

TRAFFIC IMPACT STUDY FOR THE FEATHER RANCH PROJECT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

This *Executive Summary* is a brief overview of the analysis presented in this traffic impact study. It is not intended to be a comprehensive description of the analysis. For more details, the reader is referred to the full description presented in the traffic impact study.

This traffic impact study presents an analysis of the traffic-related effects of the Feather Ranch Project (Project or Proposed Project). The Project site is located in the western portion of the City of Oroville, west of 20th Street and north of Oroville Dam Boulevard. The Proposed Project includes 172 single family dwelling unit lots.

This traffic impact study includes analysis of traffic operations at eight study intersections, six of which are currently present. These intersections are analyzed under the following four development scenarios:

- Existing Conditions,
- Existing Plus Feather Ranch Project Conditions,
- Long-Term Future Cumulative No Feather Ranch Project Conditions, and
- Long-Term Future Cumulative Plus Feather Ranch Project Conditions.

Under Existing Conditions, all study intersections experience traffic operating conditions which are considered acceptable, according to City of Oroville General Plan policies.

Under Existing Plus Project Conditions, one study intersection would experience traffic operating conditions which are considered unacceptable. An improvement is recommended, which would allow the intersection to operate at an acceptable condition.

Under Cumulative No Project Conditions, two study intersections would experience traffic operating conditions which are considered unacceptable. Improvements are recommended, which would allow the intersections to operate at acceptable conditions.

Under Cumulative Plus Project Conditions, two study intersections would experience traffic operating conditions which are considered unacceptable. Improvements are recommended, which would allow the intersections to operate at acceptable conditions.

In addition to presenting an analysis of traffic operating conditions, this traffic impact study also presents analysis of project-related impacts on:

- vehicle miles traveled,
- public transit services, and
- demand for bicycle and pedestrian facilities.

The Project is considered to have a significant impact on vehicle miles traveled. Mitigation measures are identified. Even with implementation of these measures, the impact is considered to be significant and unavoidable.

The Project is considered to have a less-than-significant impact on public transit service, and bicycle and pedestrian facilities.

INTRODUCTION

STUDY PURPOSE

This traffic impact study presents an analysis of the traffic-related effects of the proposed Feather Ranch Project.

PROJECT DESCRIPTION

The following is a description of the Feather Ranch Project.

Project Location

The City of Oroville is located in Butte County, in the Sacramento Valley along State Route (SR) 70, approximately mid-way between Chico and the Yuba City/Marysville area. The Proposed Project site is located on the west side of the City of Oroville. **Figure 1** shows the regional project location. **Figure 2** shows the project site location.

The project site is located southwest of the intersection of 20th Street and Feather Avenue. **Figure 3** shows the location of the project site relative to the adjacent roadway network.

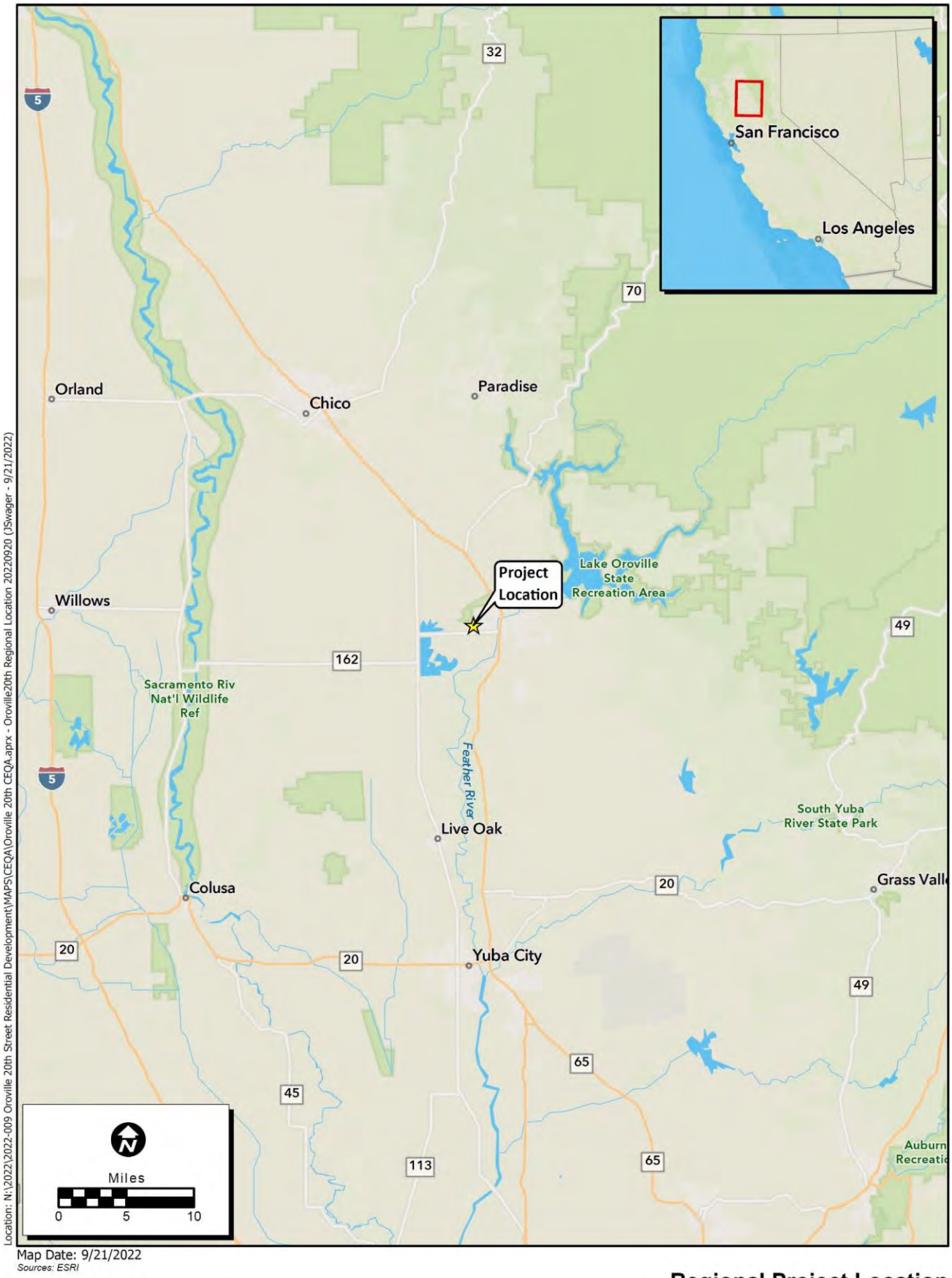
Project Land Use

The Proposed Project is the subdivision of a 44.97-acre site into single-family lots. The development would consist of 172 single-family lots. **Figure 4** shows the Proposed Project site plan

Project Site Access and Circulation Improvements

Direct access to the Proposed Project site would be provided by Feather Avenue and 20th Street. The western terminus of Feather Avenue is at the eastern boundary of the project site where it connects to 20th Street. Oroville Dam Boulevard (SR 162), and Grand Avenue provide access between the Project site and other portions of the City of Oroville. Regional access is provided by SR 70, which links the site with the other communities to the north and south of the City of Oroville.

Project-related improvements to 20th Street and abutting Project vicinity roadways include curbs, gutters and sidewalks adjacent to the Project Site. Sidewalks would front 20th Street, Biggs Avenue, and Feather Avenue as well as all internal proposed roadways. Greenway space would be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project site, and fronting 20th Street and Biggs Avenue.



Regional Project Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

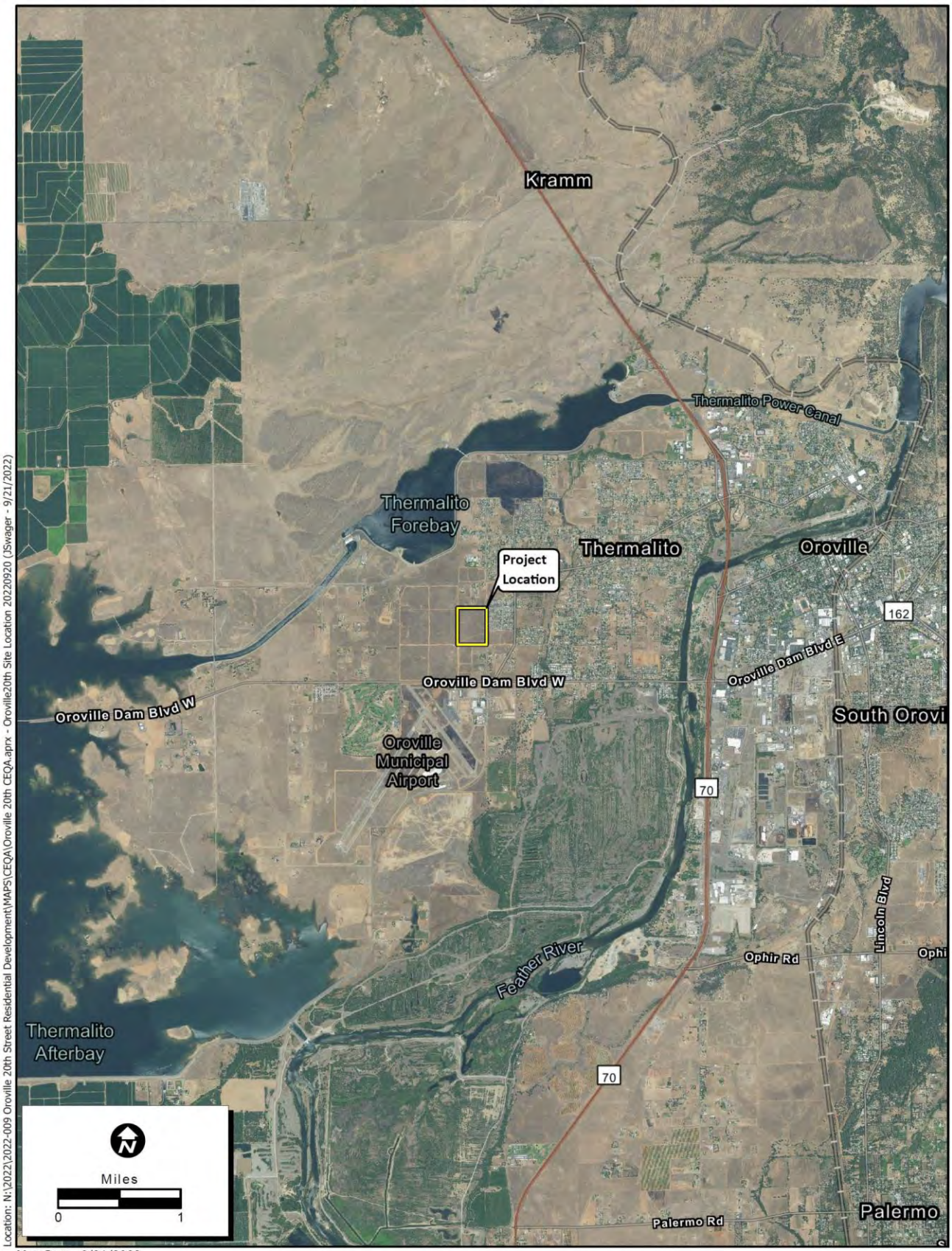
Feather Ranch Project

REGIONAL PROJECT LOCATION

KD Anderson & Associates, Inc.
Transportation Engineers

2610-28 RA 1/2/2023

figure 1



Site Location

Feather Ranch Project

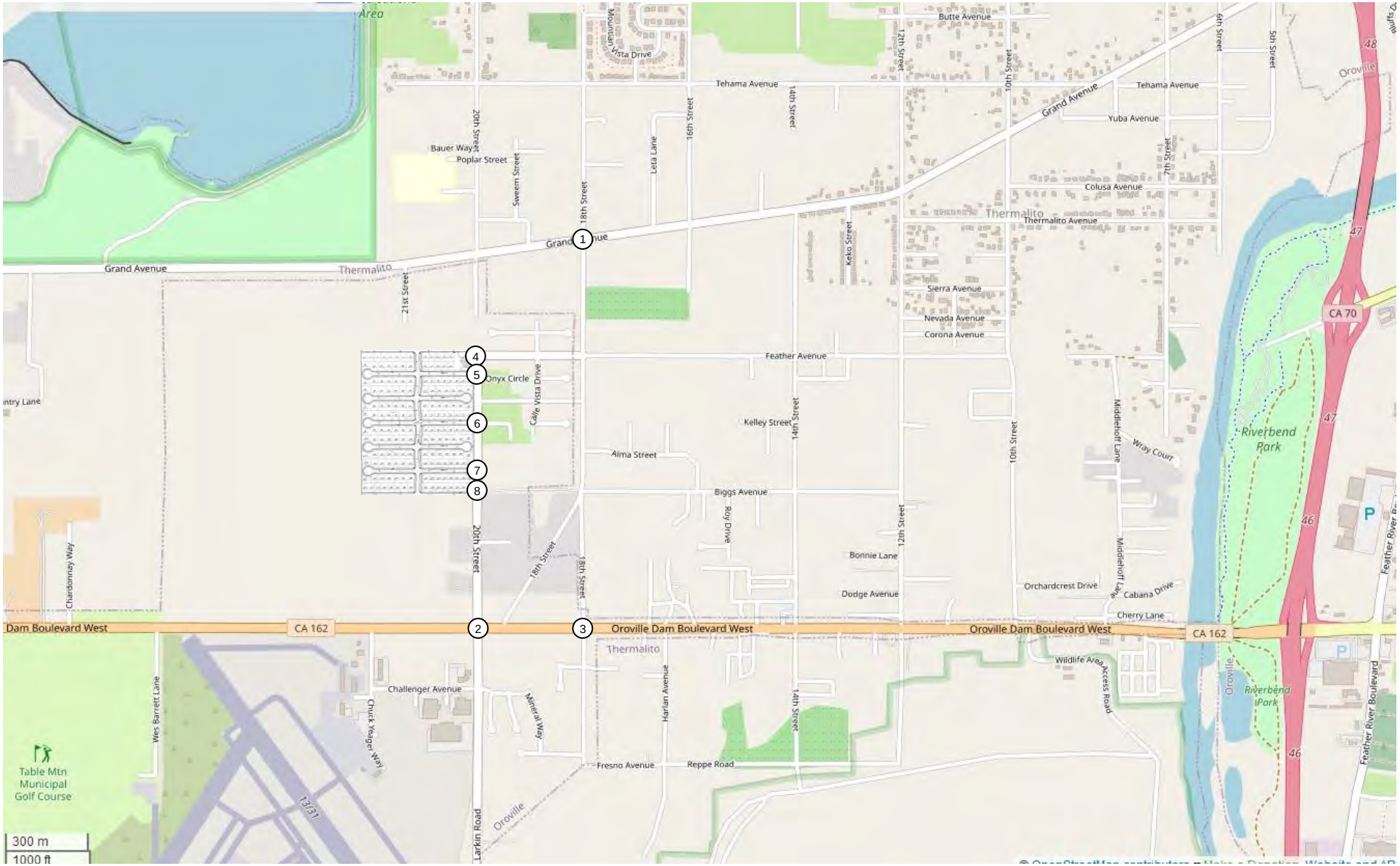
ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

SITE LOCATION

KD Anderson & Associates, Inc.
Transportation Engineers

2610-28 RA 1/2/2023

figure 2

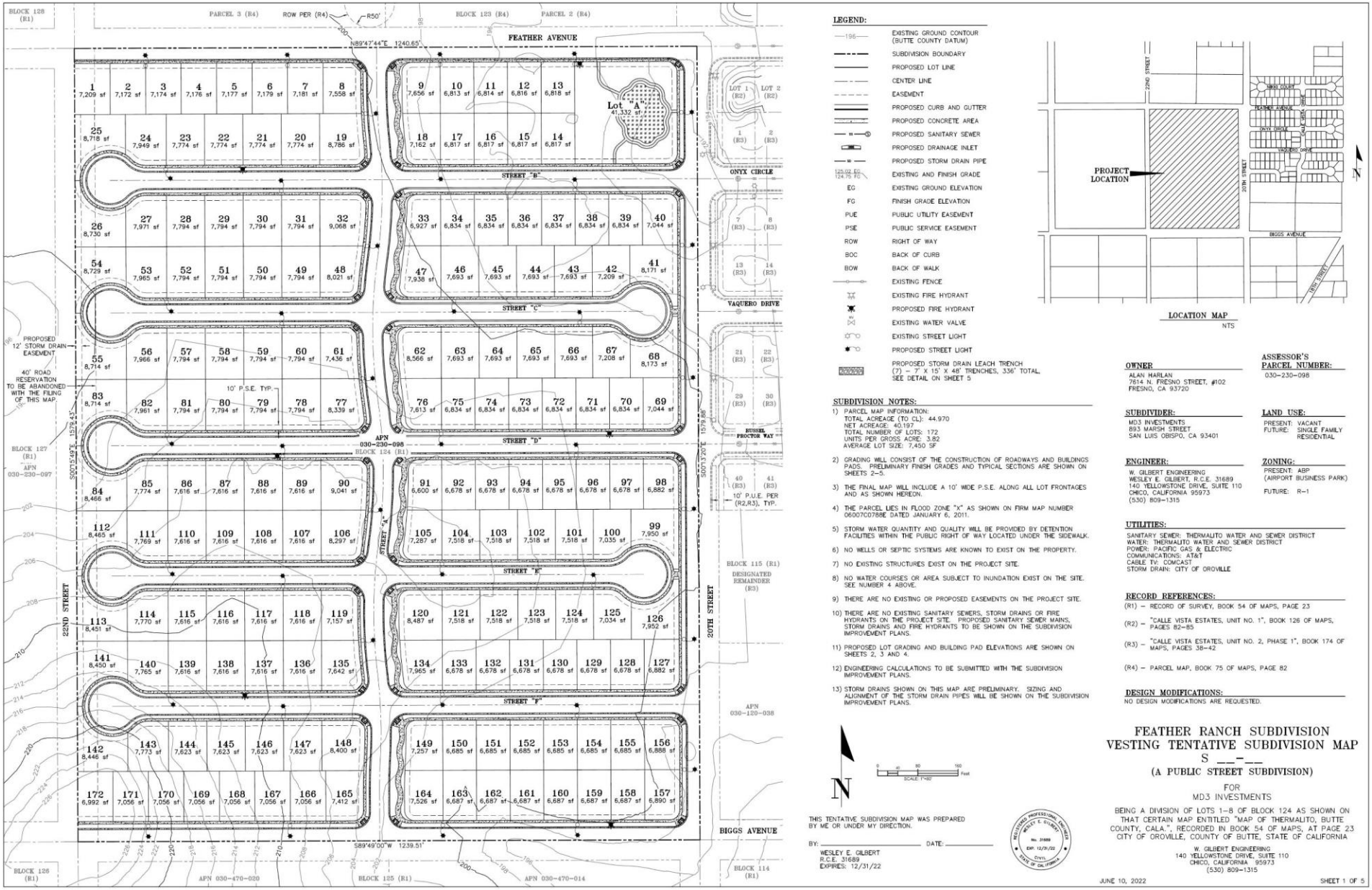


KD Anderson & Associates, Inc.
Transportation Engineers

2610-28 RA 1/2/2023

STUDY INTERSECTIONS

figure 3



LEGEND:

196	EXISTING GROUND CONTOUR (BUTTE COUNTY DATUM)
	SUBDIVISION BOUNDARY
	PROPOSED LOT LINE
	CENTER LINE
	EASEMENT
	PROPOSED CURB AND GUTTER
	PROPOSED CONCRETE AREA
SS	PROPOSED SANITARY SEWER
	PROPOSED DRAINAGE INLET
SD	PROPOSED STORM DRAIN PIPE
125.02 EG 124.75 FG	EXISTING AND FINISH GRADE
EG	EXISTING GROUND ELEVATION
FG	FINISH GRADE ELEVATION
PUE	PUBLIC UTILITY EASEMENT
PSE	PUBLIC SERVICE EASEMENT
ROW	RIGHT OF WAY
BOC	BACK OF CURB
BOW	BACK OF WALK
	EXISTING FENCE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
W	EXISTING WATER VALVE
	EXISTING STREET LIGHT
	PROPOSED STREET LIGHT
	PROPOSED STORM DRAIN LEACH TRENCH (7) – 7' X 15' X 48' TRENCHES, 336' TOTAL. SEE DETAIL ON SHEET 5

LOCATION MAP
NTS

SUBDIVISION NOTES:

1) PARCEL MAP INFORMATION:
TOTAL ACREAGE (TO CL): 44.970
NET ACREAGE: 40.197
TOTAL NUMBER OF LOTS: 172
UNITS PER GROSS ACRE: 3.82
AVERAGE LOT SIZE: 7,450 SF

2) GRADING WILL CONSIST OF THE CONSTRUCTION OF ROADWAYS AND BUILDINGS PADS. PRELIMINARY FINISH GRADES AND TYPICAL SECTIONS ARE SHOWN ON SHEETS 2–5.

3) THE FINAL MAP WILL INCLUDE A 10' WIDE P.S.E. ALONG ALL LOT FRONTAGES AND AS SHOWN HEREON.

4) THE PARCEL LIES IN FLOOD ZONE "X" AS SHOWN ON FIRM MAP NUMBER 06007C0788E DATED JANUARY 6, 2011.

5) STORM WATER QUANTITY AND QUALITY WILL BE PROVIDED BY DETENTION FACILITIES WITHIN THE PUBLIC RIGHT OF WAY LOCATED UNDER THE SIDEWALK.

6) NO WELLS OR SEPTIC SYSTEMS ARE KNOWN TO EXIST ON THE PROPERTY.

7) NO EXISTING STRUCTURES EXIST ON THE PROJECT SITE.

8) NO WATER COURSES OR AREA SUBJECT TO INUNDATION EXIST ON THE SITE. SEE NUMBER 4 ABOVE.

9) THERE ARE NO EXISTING OR PROPOSED EASEMENTS ON THE PROJECT SITE.

10) THERE ARE NO EXISTING SANITARY SEWERS, STORM DRAINS OR FIRE HYDRANTS ON THE PROJECT SITE. PROPOSED SANITARY SEWER MAINS, STORM DRAINS AND FIRE HYDRANTS TO BE SHOWN ON THE SUBDIVISION IMPROVEMENT PLANS.

11) PROPOSED LOT GRADING AND BUILDING PAD ELEVATIONS ARE SHOWN ON SHEETS 2, 3 AND 4.

12) ENGINEERING CALCULATIONS TO BE SUBMITTED WITH THE SUBDIVISION IMPROVEMENT PLANS.

13) STORM DRAINS SHOWN ON THIS MAP ARE PRELIMINARY. SIZING AND ALIGNMENT OF THE STORM DRAIN PIPES WILL BE SHOWN ON THE SUBDIVISION IMPROVEMENT PLANS.

N

0 40 80 160 Feet
SCALE: 1"=80'

THIS TENTATIVE SUBDIVISION MAP WAS PREPARED BY ME OR UNDER MY DIRECTION.

BY: _____ DATE: _____

WESLEY E. GILBERT
R.C.E. 31689
EXPIRES: 12/31/22

REGISTERED PROFESSIONAL ENGINEER WESLEY E. GILBERT No. 31689 EXP. 12/31/22 CIVIL STATE OF CALIFORNIA

OWNER
ALAN HARLAN
7614 N. FRESNO STREET, #102
FRESNO, CA 93720

SUBDIVIDER:
MD3 INVESTMENTS
893 MARSH STREET
SAN LUIS OBISPO, CA 93401

ENGINEER:
W. GILBERT ENGINEERING
WESLEY E. GILBERT, R.C.E. 31689
140 YELLOWSTONE DRIVE, SUITE 110
CHICO, CALIFORNIA 95973
(530) 809-1315

ASSESSOR'S PARCEL NUMBER:
030-230-098

LAND USE:
PRESENT: VACANT
FUTURE: SINGLE FAMILY RESIDENTIAL

ZONING:
PRESENT: ABP (AIRPORT BUSINESS PARK)
FUTURE: R-1

UTILITIES:
SANITARY SEWER: THERMALITO WATER AND SEWER DISTRICT
WATER: THERMALITO WATER AND SEWER DISTRICT
POWER: PACIFIC GAS & ELECTRIC
COMMUNICATIONS: AT&T
CABLE TV: COMCAST
STORM DRAIN: CITY OF OROVILLE

RECORD REFERENCES:
(R1) – RECORD OF SURVEY, BOOK 54 OF MAPS, PAGE 23
(R2) – "CALLE VISTA ESTATES, UNIT NO. 1", BOOK 126 OF MAPS, PAGES 82–85
(R3) – "CALLE VISTA ESTATES, UNIT NO. 2, PHASE 1", BOOK 174 OF MAPS, PAGES 38–42
(R4) – PARCEL MAP, BOOK 75 OF MAPS, PAGE 82

DESIGN MODIFICATIONS:
NO DESIGN MODIFICATIONS ARE REQUESTED.

FEATHER RANCH SUBDIVISION
VESTING TENTATIVE SUBDIVISION MAP
S __-__
(A PUBLIC STREET SUBDIVISION)

FOR
MD3 INVESTMENTS

BEING A DIVISION OF LOTS 1–8 OF BLOCK 124 AS SHOWN ON THAT CERTAIN MAP ENTITLED "MAP OF THERMALITO, BUTTE COUNTY, CALA.", RECORDED IN BOOK 54 OF MAPS, AT PAGE 23 CITY OF OROVILLE, COUNTY OF BUTTE, STATE OF CALIFORNIA

W. GILBERT ENGINEERING
140 YELLOWSTONE DRIVE, SUITE 110
CHICO, CALIFORNIA 95973
(530) 809-1315

JUNE 10, 2022

SHEET 1 OF 5

SITE PLAN

OVERALL ANALYSIS APPROACH

As noted above, this traffic impact study presents an analysis of the traffic-related effects of the Feather Ranch Project. This analysis is conducted using existing background conditions and long-term future background conditions. Future background conditions are based on the Butte County Association of Governments (BCAG) travel demand model (Butte County Association of Governments 2022). Analysis of traffic operating conditions under the following four scenarios is presented in this traffic impact study:

- Existing Conditions,
- Existing Plus Feather Ranch Project Conditions,
- Long-Term Future Cumulative No Feather Ranch Project Conditions, and
- Long-Term Future Cumulative Plus Feather Ranch Project Conditions.

Existing Conditions are based on traffic volume count data collected during 2022.

Existing Plus Feather Ranch Project conditions, also referred to in this traffic impact study as Existing Plus Project conditions, include existing traffic levels and traffic associated with the Proposed Project. In comparison with Existing conditions, this scenario identifies the direct traffic-related effects of the Feather Ranch Project.

Cumulative conditions are a long-term future background condition which includes future year forecasts of traffic volumes, based on development of surrounding land uses. This set of scenarios assumes conditions with future land use development throughout Butte County, including the City of Oroville.

Long-Term Future Cumulative No Feather Ranch Project conditions, also referred to in this traffic impact study as Cumulative No Project conditions, include future background traffic level, but not traffic associated with the Proposed Project.

Long-Term Future Cumulative Plus Feather Ranch Project conditions, also referred to in this traffic impact study as Cumulative Plus Project conditions, include future background traffic levels and traffic associated with the Proposed Project. In comparison with Cumulative No Project conditions, this scenario identifies the long-term future traffic-related effects of the Feather Ranch Project.

EXISTING SETTING

This section of this traffic impact study presents a description of existing conditions in the study area. Information presented in this section of the study is based on on-site field observations, traffic count data collected for this study, and other data available from local and state agencies.

This section of the traffic impact study also describes analysis methods applied for this study, and thresholds used to determine the significance of project-related effects.

The limits of the study area, study facilities, and analysis approaches applied in this traffic impact study were identified in consultation with City of Oroville staff (Ervin pers. comm.). The following is a description of the transportation network in the vicinity of the Project site.

STUDY AREA ROADWAYS

The roadway network that would provide access to the Project site is shown in **Figure 3** and is described below.

20th Street is a two-lane north-south local roadway adjacent to the eastern boundary of the Project site. The portion of 20th Street adjacent to the Project site has a northern terminus approximately 350 feet north of Feather Avenue, and does not intersect with Grand Avenue. This portion of 20th Street provides access to single family residential development east of 20th Street. A discontinuous portion of 20th Street is also present north of the Project site between Grand Avenue and Nelson Avenue. 20th Street intersects with Oroville Dam Boulevard, and extends south of Oroville Dam Boulevard as Larkin Road. Larkin Road extends to the south and southwest to the City of Live Oak. The *Oroville Sustainability Updates – Draft Supplemental EIR for the City of Oroville* (City of Oroville 2015a) 2035 roadway classification for Larkin Road is a two-lane minor arterial.

Feather Avenue is a two-lane east-west local roadway. The western terminus of Feather Avenue is at 20th Street, at the northeastern corner of the project site. The eastern terminus of this portion of Feather Avenue is at 10th Street. Short discontinuous portions of Feather Avenue are also present between 10th Street and the Feather River.

Onyx Circle (Avery Court) and Russell Proctor Way are short two-lane east-west local roadways that provide direct access to single family residential development east of 20th Street. The western terminus of both roadways is at 20th Street. The eastern terminus of Onyx Circle is approximately 1,000 feet east of 20th Street. Russell Proctor Way includes a right angle turn to the south, and has an eastern terminus approximately 400 feet east of 20th Street.

Oroville Dam Boulevard is a two-lane east-west roadway approximately one-third mile south of the Project site. It is designated SR 162 and has an interchange with SR 70 approximately 1.8 miles east of the Project site. East of SR 70, the roadway generally has a northeast-southwest alignment and continues to Lake Oroville. SR 162 continues approximately 100 miles west of the Oroville area, intersects with SR 99, and has interchanges with Interstate 5 and U.S. Highway 101. The

Oroville Sustainability Updates – Draft Supplemental EIR for the City of Oroville 2035 roadway classification for Oroville Dam Boulevard is a two-lane minor collector west of 20th Street and a two-lane major arterial east of east of 20th Street. A bicycle lane is present along the north side of Oroville Dam Boulevard from the Feather River to just west of 20th Street.

18th Street is a two-lane local roadway with a generally north-south orientation approximately one-quarter mile east of the Project site. The southern terminus of 18th Street is at an intersection with Oroville Dam Boulevard. Immediately north of Oroville Dam Boulevard, 18th Street has a northeast-southwest orientation. A discontinuous portion of 18th Street is also present south of Oroville Dam Boulevard. 18th Street intersects with Grand Avenue, and the northern terminus of 18th Street is approximately one-half mile north of Grand Avenue.

The intersection of Oroville Dam Boulevard & 20th Street has exclusive left-turn lanes for both the eastbound-to-northbound movement and the westbound-to-southbound movement. The intersection of Oroville Dam Boulevard & 18th Street has an exclusive left-turn lane for the eastbound-to-northbound movement. A center-two-way left-turn lane is present along Oroville Dam Boulevard east of 18th Street. The intersection of Oroville Dam Boulevard & 18th Street is approximately 275 feet east of the intersection of Oroville Dam Boulevard & 20th Street (measured as centerline-to-centerline). The limited distance between these two intersections constrains the lengths of both the westbound-to-southbound left-turn lane at the intersection of Oroville Dam Boulevard & 20th Street, and the eastbound-to-northbound left-turn lane at the intersection of Oroville Dam Boulevard & 18th Street.

PUBLIC TRANSPORTATION

Public transportation in Oroville is provided through the area's public bus service, commercial bus services, shuttle service, taxi service and park-and-ride facilities. BCAG operates the B-Line of the Butte Regional Transit system, which serves the residents of Oroville and provides intercity/regional and local fixed-route services. Oroville's B-Line service includes four local fixed transit routes within Oroville and three intercity/regional routes that provide commuter route service to Biggs, Chico, and Paradise. The B-Line service closest to the Project site is Route 24, which has a transit stop at the intersection of Grand Avenue & 14th Street, approximately one mile east-northeast of the Project site. (Butte Regional Transit 2022)

Commercial bus service is provided by Greyhound. Greyhound provides a limited-service bus stop in Oroville at the ARCO gas station located at 410 Oroville Dam Boulevard. Greyhound provides connections from Oroville to full-service stations located in the San Francisco Bay Area and the greater Sacramento area. Commercial bus service is also provided by Amtrak. Amtrak offers daily bus service between Medford (Oregon), Redding, Sacramento and Stockton.

Commercial shuttle service is provided by the North Valley Shuttle with service to Sacramento International Airport. Taxi services are provided by Yellow Cab Company of Oroville and are available on demand or by reservation.

PARK-AND-RIDE FACILITIES

Park-and-ride lots are free parking facilities for commuters to use as a convenient meeting place for carpools, transit, and vanpools. Park-and-ride lots provide a place for commuters in single-occupant vehicles to transfer to public transit or carpools. Oroville has one park-and-ride facility, which is owned by Butte County, northeast of the SR 70 interchange at Grand Avenue (City of Oroville 2015b).

PEDESTRIAN AND BICYCLE SYSTEMS

There are concrete and asphalt sidewalks at various locations along most City of Oroville streets, but they become less prevalent in sparsely developed areas such as the vicinity of the Project site. There are sidewalks on both sides of Feather Avenue and on the eastern side of 20th Street adjacent to the Project site. Currently, there are no sidewalks on the Project site.

According to Caltrans *Highway Design Manual* (California Department of Transportation 2022), bicycle facilities are generally divided into four categories:

- Class I Bikeway (Bike Path). A completely separate facility designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.

- Class II Bikeway (Bike Lane). A striped lane designated for the use of bicycles on a street or highway. Vehicle parking and vehicle/pedestrian cross-flow are permitted at designated locations.

- Class III Bikeway (Bike Route). A route designated by signs or pavement markings for bicyclists within the vehicular travel lane (i.e., shared use) of a roadway.

- Class IV Bikeway (Separated Bikeway). A bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

The *City of Oroville Bicycle Transportation Plan* (City of Oroville 2010) was adopted by the City on August 3, 2010. This Plan identifies numerous existing and proposed bicycle trails and on-street lanes throughout the City. As noted earlier, there is a bicycle lane on the north side of Oroville Dam Boulevard. There are currently no bicycle lanes on the streets immediately surrounding the Project site. However, 20th Street from Oroville Dam Boulevard to Nelson Avenue is identified as a second priority bikeway in the *City of Oroville Bicycle Transportation Plan*. According to the Plan, paths listed as first priority are considered necessary to facilitate bicycle transportation in the City limits. Second-priority bikeways will be added to create connectivity in the regional area. All proposed bikeways are Class I (separate facility) or Class II (on-road facility), unless noted otherwise (City of Oroville 2010).

STUDY AREA INTERSECTIONS

The traffic-related effects of the Proposed Project were assessed for this traffic impact study by analyzing traffic operations at intersections that would serve project-related travel. The following study facilities were selected for analysis in consultation with City of Oroville staff (Ervin pers. comm.).

The following six existing study intersections were analyzed for this traffic impact study:

1. Grand Avenue & 18th Street
2. Oroville Dam Boulevard & 20th Street / Larkin Road
3. Oroville Dam Boulevard & 18th Street
4. 20th Street & Feather Avenue
5. 20th Street & Onyx Circle / Street B
6. 20th Street & Russell Proctor Way / Street D

The following two intersections would only be present with construction of the Feather Ranch Project. As a result, these intersections were only analyzed under development conditions that included the Proposed Project:

7. 20th Street & Street F
8. 20th Street & Biggs Avenue

The locations of study intersections are presented in **Figure 3**. The numbers listed above correspond to the intersection numbers on this figure.

METHODOLOGY

The following is a description of the analysis methods used in this traffic impact study.

Level of Service Analysis Procedures

Level of service (LOS) analysis provides a basis for describing existing traffic conditions and for evaluating project-related traffic effects. Level of service measures the quality of traffic flow and is represented by letter designations from A to F, with a grade of A referring to the best conditions, and F representing the worst conditions. The characteristics associated with the various LOS for intersections are presented in **Table 1**.

Level of service was analyzed using methods presented in the *Highway Capacity Manual 6th Edition* (Transportation Research Board 2016). Methods described in the *Highway Capacity Manual 6th Edition* were used to provide a basis for describing traffic conditions and for evaluating project traffic effects. The *Highway Capacity Manual 6th Edition* methods, as implemented in the *Synchro* software package (Trafficware 2022), was used to analyze the study network.

Table 1. Intersection Level of Service Definitions

Level of Service	Signalized Intersections	Unsignalized Intersections
A	Vehicle progression is exceptionally favorable or the cycle length is very short. Delay ≤ 10.0 seconds/vehicle	Little or no delay. Delay ≤ 10 seconds/vehicle
B	Vehicle progression is highly favorable or the cycle length is short. Delay > 10 seconds/vehicle and ≤ 20 seconds/vehicle	Short traffic delays. Delay > 10 seconds/vehicle and ≤ 15 seconds/vehicle
C	Vehicle progression is favorable or the cycle length is moderate. Individual cycle failures may begin to appear at this level. Delay > 20 seconds/vehicle and ≤ 35 seconds/vehicle	Average traffic delays. Delay > 15 seconds/vehicle and ≤ 25 seconds/vehicle
D	Vehicle progression is ineffective or the cycle length is long. Many vehicles stop and the individual cycle failures are noticeable. Delay > 35 seconds/vehicle and ≤ 55 seconds/vehicle	Long traffic delays. Delay > 25 seconds/vehicle and ≤ 35 seconds/vehicle
E	Vehicle progression is unfavorable and the cycle length is long. Individual cycle failures are frequent. Delay > 55 seconds/vehicle and ≤ 80 seconds/vehicle	Very long traffic delays, failure, extreme congestion. Delay > 35 seconds/vehicle and ≤ 50 seconds/vehicle
F	Vehicle progression is very poor and the cycle length is long. Most cycles fail to clear the vehicle queue. Delay > 80 seconds/vehicle	Intersection blocked by external causes. Delay > 50 seconds/vehicle

Source: Transportation Research Board 2016.

For two-way stop-sign controlled unsignalized intersections (or one-way stop-sign controlled "T" intersections), the *Highway Capacity Manual 6th Edition* method considers gap acceptance and average delay of motorists on minor streets and in turn lanes to establish LOS. Level of Service is based on the length of the delay experienced by motorists on the worst single approach, rather than the intersection as a whole. It should be noted that overall intersection average LOS at unsignalized intersections is better, often much better, than LOS on the worst single approach.

Worksheets and output reports for the calculation of LOS and vehicle queues for all scenarios analyzed for this traffic impact study are presented in the technical appendix.

Signal Warrants Procedures

Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, because installation of signals would increase delays on the previously-uncontrolled major street, resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of certain types of accidents. Therefore, if signals are installed where signal warrants are not met, the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signal warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

For the analysis conducted for this traffic impact study, available data at unsignalized intersections are limited to a.m. and p.m. peak hour volumes. Thus, unsignalized intersections were evaluated using the Peak Hour Warrant (Warrant Number 3) from the California Department of Transportation document *California Manual on Uniform Traffic Control Devices* (California Department of Transportation 2021). This warrant was applied where the minor street experiences long delays in entering or crossing the major street for at least one hour of the day. The Peak Hour Warrant itself includes several components. Some of the components involve comparison of traffic volumes and vehicle delay to a series of standards. Another component involves comparison of traffic volumes to a nomograph.

Even if the peak hour warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the eight highest hours of the day, volumes during the four highest hours of the day, pedestrian traffic, and accident histories.

Signal warrant analysis worksheets for all stop sign-controlled intersections for all development conditions are presented in the technical appendix.

Roundabouts

Roundabouts were considered as possible roadway improvements in the analysis conducted for this traffic impact study. Analysis of delay, LOS and queuing at roundabouts was conducted using the Sidra Intersection software package version 9. A detailed description of the Sidra Intersection software package is provided at the Sidra Intersection internet website https://www.sidrasolutions.com/ (Akcelik and Associates 2022).

Worksheets and output reports for the calculation of LOS and vehicles queues for scenarios and locations where roundabouts are a recommended improvement in this traffic impact study are presented in the technical appendix.

Travel Forecasting

As noted earlier in the *Overall Analysis Approach* section of this traffic impact study, future year Cumulative conditions were analyzed for this study. Future year traffic volumes used in the analysis of Cumulative conditions are based on the BCAG Regional Travel Demand Model (Butte County Association of Governments 2022).

The BCAG Regional Travel Demand Model estimates both base year traffic volumes and forecasts of future year traffic volumes. Traffic volumes from the travel model were used to generate growth factors. These growth factors were applied to existing peak hour intersection turning movement traffic volumes. The development of future year intersection turning movement traffic volumes requires that the turning movements at each intersection "balance". To achieve the balance, inbound traffic volumes must equal the outbound traffic volumes, and the volumes must be distributed among the various left-turn, through, and right-turn movements at each intersection. The "balancing" of future year intersection turning movement traffic volumes was conducted using methods described in the Transportation Research Board's (TRB's) National Cooperative Highway Research Program (NCHRP) Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design* (Transportation Research Board 1982). The NCHRP 255 method applies the desired peak hour directional volumes to the intersection turning movement volumes, using an iterative process to balance and adjust the resulting forecasts to match the desired peak hour directional volumes.

LEVEL OF SERVICE AND SIGNIFICANCE THRESHOLDS

As noted earlier in this traffic impact study, LOS is used to describe the quality of traffic flow. Local agencies identify which LOS are considered acceptable and unacceptable in their jurisdiction. Significance thresholds are used in California Environmental Quality Act (CEQA) environmental documents to identify when the impacts of a project should be considered significant. Significance thresholds are the criteria used to determine the significance of impacts. The following is a description of the relationship between LOS and significance thresholds.

Level of Service

Traffic operating conditions considered acceptable and unacceptable are based on the *Oroville 2030 General Plan for the City of Oroville* (City of Oroville 2015b). The Circulation Element of the Oroville General Plan states,

> "Policy P2.1 of this Circulation Element sets forth the minimum operating standard of LOS D for all arterials, collector streets, and intersections, with some exceptions."

Policy P2.1 of the Oroville General Plan states,

> "Maintain a Level of Service (LOS) D or better as defined in the most current edition of the Highway Capacity Manual or subsequent revisions for roadways and intersections, except as specified below:"

Policy P2.1 of the Oroville General Plan lists exceptions to the policy of maintaining LOS D. None of the exceptions apply to the Feather Ranch Project study facilities.

In compliance with Policy P2.1 of the Oroville General Plan, LOS D or better will be considered acceptable LOS at all study intersections. LOS E or worse at these intersections will be considered unacceptable.

Significance Thresholds

Level of service has been used in the past in CEQA documents to identify the significance of a project's impact on traffic operating conditions. Recent changes to CEQA have changed how lead agencies use LOS in determining whether a project has a significant impact on transportation. As noted in the California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018),

> "Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. . . OPR has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)"

Consistent with the approach described in the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA*, LOS is not used in this traffic impact study as a basis for identifying significant impacts. Rather, the project-related effect on LOS is used to determine

whether the project is consistent or inconsistent with General Plan policies on LOS. A project is considered inconsistent with General Plan policies if implementation of the project would result in LOS changing from levels considered acceptable to levels considered unacceptable, or if the project would substantially worsen already unacceptable LOS.

In this traffic impact study, then, LOS is not used to identify a significant impact under CEQA; LOS is used to identify consistency with General Plan policies.

Vehicle Miles Traveled Significance Threshold

The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* provides recommended thresholds for determining the significance of VMT impacts associated with land use development projects. Specific thresholds are provided for residential, office, and retail commercial types of development. The technical advisory generally recommends establishing a 15 percent reduction in VMT, compared to a baseline, as a significance threshold. That is, if a project would result in a reduction of at least 15 percent in VMT, compared to a baseline, the project can be considered to have a less than significant impact. The significance threshold may be thought of as 85 percent of baseline conditions (100 percent less 15 percent equals 85 percent). A project that would not result in a reduction of at least 15 percent is considered to have a significant impact. The technical advisory notes,

> "In summary, achieving 15 percent lower per capita (residential) or per employee (office) VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State's emissions goals."

The *Oroville 2030 General Plan for the City of Oroville* (City of Oroville 2015b) supports the reduction of VMT. Policy P2.5 of the Oroville General Plan Circulation Element states,

> "Reduce the total vehicle miles traveled through designation of land uses that support multi-modal travel and provision of more direct routes to high activity locations."

The Oroville General Plan does not currently present quantitative significance thresholds or methods for assessing VMT.

BCAG has prepared a series of documents to assist local member jurisdictions in the implementation of SB 743. One of the documents, *BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices* (Butte County Association of Governments 2021b), provides a method for conducting qualitative screening-level assessments of project-related VMT. The document and method include maps showing whether VMT generated by land use development in geographic areas would be above or below 85 percent of baseline conditions. The maps show data for both residential land use development and employment-generating land use development. For residential land use development, the maps show home-based VMT per resident compared to regional average VMT.

BCAG prepared an update to the Regional Travel Demand Model for the purpose of developing traffic analysis zone (TAZ) level VMT estimates appropriate for SB 743 analysis (Lasagna pers. comm.). Data from the Regional Travel Demand Model updated for VMT estimates were used to:

- estimate average baseline VMT generated by land use development in each city in Butte County and by development in the unincorporated Butte County area, and

- quantitatively assess VMT generated by land use development in each TAZ.

The Regional Travel Demand Model updated for VMT estimates was used to generate both jurisdiction average baseline VMT data, and for the TAZ-level VMT data for both residential land use development and employment-generating land use development. For residential land use development, the model was used to calculate:

- home-based production VMT per resident, and
- home-based production VMT per household.

For this traffic impact study, guidance from the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* is used as the significance threshold for project-related impacts on VMT. If a project would generate VMT at a level equal to or lower than 15 percent below baseline conditions (i.e., equal to or less than 85 percent of baseline conditions), the project will be considered to have a less-than-significant impact on VMT. If a project would generate VMT at a level above 15 percent below baseline conditions (i.e., greater than 85 percent of baseline conditions), the project will be considered to have a significant impact on VMT.

The *BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices* and the data from the Regional Travel Demand Model updated for VMT estimates are used to determine whether VMT generated by the Feather Ranch Project would exceed a level 15 percent below baseline conditions.

EXISTING INTERSECTION TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following is a description of existing traffic operating conditions at the study intersections.

Traffic Volumes

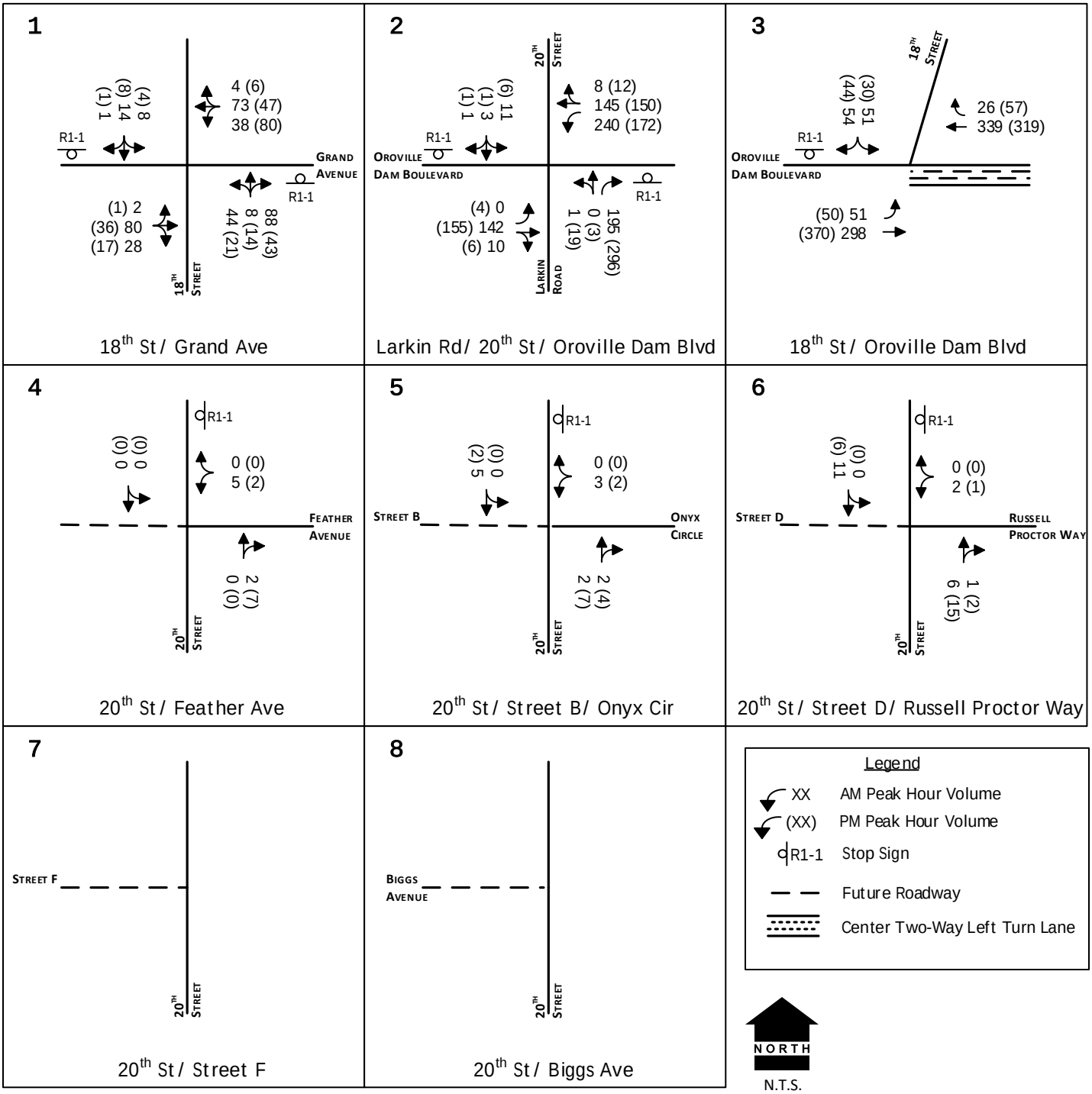
Intersection turning movement count data at the study intersections were collected for this traffic impact study on Tuesday March 1, 2022. Traffic count data collected for this traffic impact study are presented in the technical appendix. The peak period intersection turning movement count data were collected during the 7:00 a.m. to 9:00 a.m. period, and the 4:00 p.m. to 6:00 p.m. period. Volumes during the highest one-hour periods were used for this traffic impact study.

Figure 5 presents the existing lane configurations and existing a.m. peak hour and p.m. peak hour traffic volumes at the existing study intersections.

Intersection Levels of Service

Table 2 presents existing a.m. peak hour and p.m. peak hour LOS at the six existing study intersections. The worksheets presenting the calculation of LOS are included in the technical appendix.

All six existing study intersections operate at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. No improvements are needed at these intersections to achieve acceptable LOS.



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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2610-28 RA 1/2/2023

figure 5

Table 2. Level of Service - Existing Conditions

	Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour		PM Peak Hour		by Type of Inte
				LOS	Delay	LOS	Delay	
1	Grand Avenue & 18th Street	Unsignalized NB & SB Stop Sign	No					
	Overall Intersection			A	5.3	A	5.6	
	EB Left-Turn			A	7.4	A	7.3	
	WB Left-Turn			A	7.5	A	7.5	
	NB Approach			B	10.7	B	10.3	
	SB Approach			B	11.6	B	11.3	
2	Oroville Dam Boulevard & 20th Street / Larkin Road	Unsignalized NB & SB Stop Sign	No					
	Overall Intersection			A	5.9	A	6.7	
	EB Left-Turn			A	0.0	A	7.6	
	WB Left-Turn			A	8.2	A	8.0	
	NB Approach			B	10.6	B	12.3	
	SB Approach			D	29.6	D	28.5	
3	Oroville Dam Boulevard & 18th Street	Unsignalized SB Stop Sign	No					
	Overall Intersection			A	2.3	A	1.6	
	EB Left-Turn			A	8.3	A	8.3	
	SB Approach			B	13.6	B	12.7	
4	20th Street & Feather Avenue	Unsignalized EB & WB Stop Sign	No					
	Overall Intersection			A	5.3	A	1.7	
	WB Approach			A	8.5	A	8.5	
	SB Approach			A	0.0	A	0.0	

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

Table 2 (Continued). Level of Service - Existing Conditions

	Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour LOS	AM Peak Hour Delay	PM Peak Hour LOS	PM Peak Hour Delay
5	20th Street & Onyx Circle / Street B	Unsignalized EB & WB Stop Sign	No				
	Overall Intersection			A	2.2	A	1.1
	WB Approach			A	8.6	A	8.6
	SB Approach			A	0.0	A	0.0
6	20th Street & Russell Proctor Way / Street D	Unsignalized EB & WB Stop Sign	No				
	Overall Intersection			A	0.9	A	0.4
	WB Approach			A	8.6	A	8.6
	SB Approach			A	0.0	A	0.0

by Type of Inte

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

EXISTING PLUS PROJECT CONDITIONS

Existing Plus the Feather Ranch Project conditions represent a near-term future condition with the Proposed Project. This condition is also referred to in this traffic impact study as Existing Plus Project conditions.

The development of the Feather Ranch Project would result in vehicle traffic to and from the project site. The amount of additional traffic on a particular section of the street network depends on three factors:

- Trip Generation, the number of new trips generated by the project,
- Trip Distribution, the direction of travel for the new traffic, and
- Trip Assignment, the specific routes used by the new traffic.

Each of these three factors is described below.

TRIP GENERATION

Development of the Feather Ranch Project would generate new vehicle trips and potentially affect traffic operations on study facilities. The number of vehicle trips expected to be generated by the Proposed Project has been estimated using typical trip generation rates that have been developed based on the nature and size of project land uses. Data compiled by the Institute of Transportation Engineers (ITE) and presented in the publication *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers 2021) is the source of trip generation rates.

The trip generation rates used in this traffic impact study are presented in **Table 3**. The trip generation rates are applied to the amount of project-related land uses. The resulting trip generation estimates are presented in **Table 4**.

As shown in **Table 4**, the Proposed Project would generate:

- 120 trips during the a.m. peak hour, and
- 162 trips during the p.m. peak hour.

Table 3. Trip Generation Rates

Land Use and ITE Land Use Code	Units	Trips per Unit					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE Code 210)	Dwelling Units	0.18	0.52	0.70	0.59	0.35	0.94

Source: Institute of Transportation Engineers *Trip Generation Manual 11th Edition* .
Note: Trip generation rates are based on average rates.

Table 4. Trip Generation Estimates

Land Use and ITE Land Use Code	Quantity	Trips Generated					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE Code 210)	172 Dwelling Units	31	89	120	101	60	162

Source: Institute of Transportation Engineers *Trip Generation Manual 11th Edition* .
Total may not equal the sum of components due to rounding.

TRIP DISTRIBUTION

Project-related trips were geographically distributed over the study area roadway network. The geographical distribution of trips is based on the relative attractiveness or utility of possible destinations. Trip distribution percentages applied in this traffic impact study are presented in **Table 5**.

The BCAG Regional Travel Demand Model (Butte County Association of Governments 2022) was used to estimate trip distribution percentages. The travel demand model is considered to be a valid source for the trip distribution percentages because it directly addresses:

- the location of destinations of project-related trips,
- the magnitude of land uses that would attract project-related trips, and
- the quality of access to the destinations via the roadway network.

This traffic impact study includes analysis of scenarios based on two different background development conditions:

- Existing, and
- Cumulative Conditions.

The travel demand model was used to estimate trip distribution percentages for each of these two background conditions. Background (non-project) land uses are different in each of the two background conditions. The different land uses result in different geographic distributions of travel. As a result, the trip distribution percentages are different for each of the two background development conditions. **Table 5** presents the trip distribution percentages for each of the two background development scenarios.

A "select link" analysis was conducted using the travel demand model to determine the geographic distribution of project-related travel. The select link analysis identifies vehicle trips associated with the proposed Project site, and identifies the direction of travel to and from the Project site. Raw, pre-adjustment, traffic model results used in the development of trip distribution percentages are presented in the technical appendix.

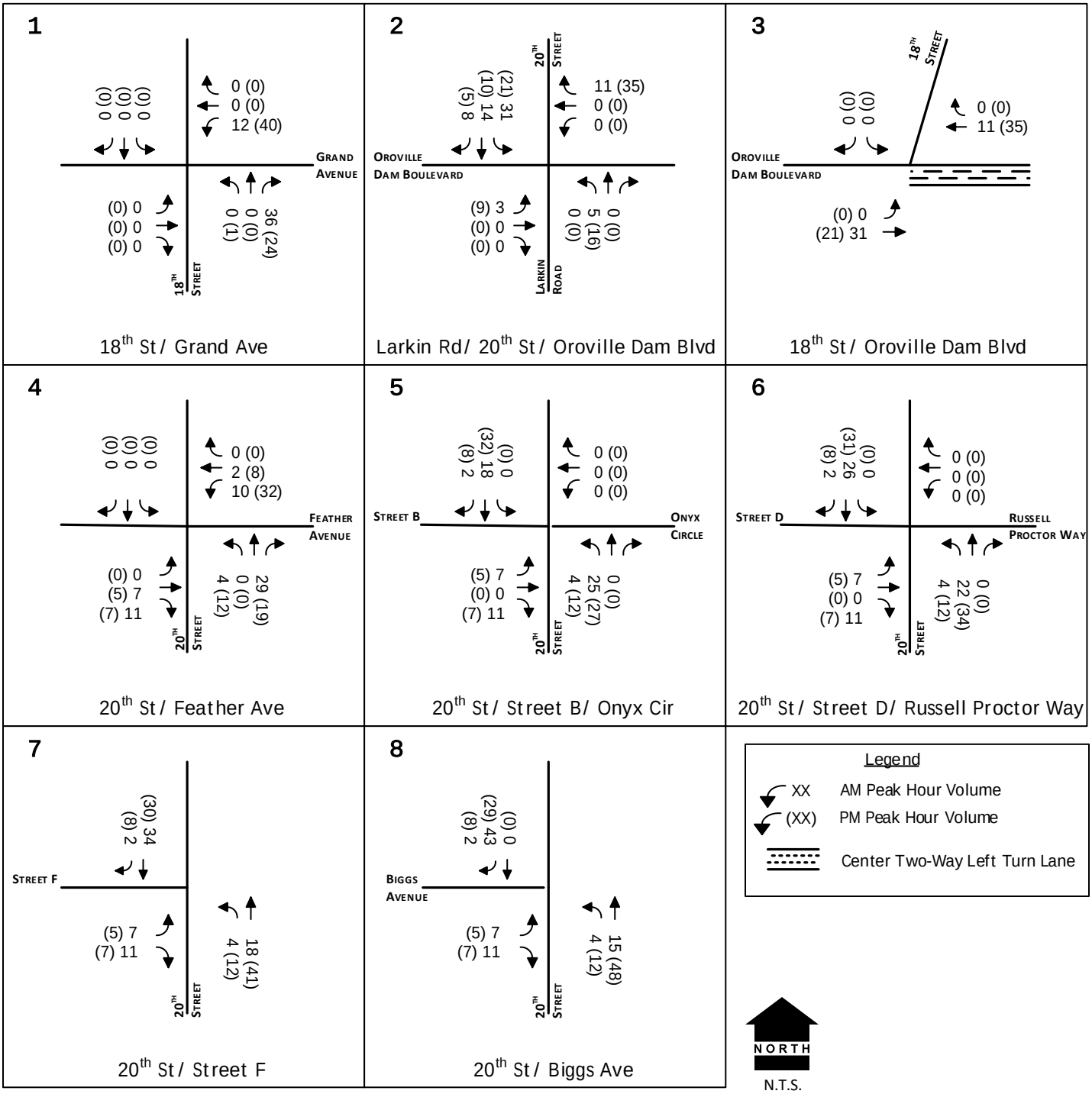
TRIP ASSIGNMENT

Traffic that would be generated by the Proposed Project was added to Existing volumes. **Figure 6** displays the project-related-only traffic volumes for each study intersection in the a.m. peak hour and p.m. peak hour. **Figure 7** displays the resulting Existing Plus Project traffic volumes anticipated for each study intersection in the peak hours.

Table 5. Feather Ranch Project Trip Distribution Percentages

Direction of Travel	Near-Term Background	Long-Term Cumulative Background
West on Grand Avenue	0.2	1.0
East on Grand Avenue	39.9	34.5
East on Feather Avenue	0.1	0.3
West on Oroville Dam Boulevard	9.1	7.8
South on Larkin Road	16.2	19.7
East on Oroville Dam Boulevard	34.5	36.7
TOTAL	100.0	100.0

Source: Butte County Association of Governments Travel Demand Model Select Link Analysis.



PROJECT ONLY TRAFFIC VOLUMES
EXISTING BACKGROUND CONDITIONS

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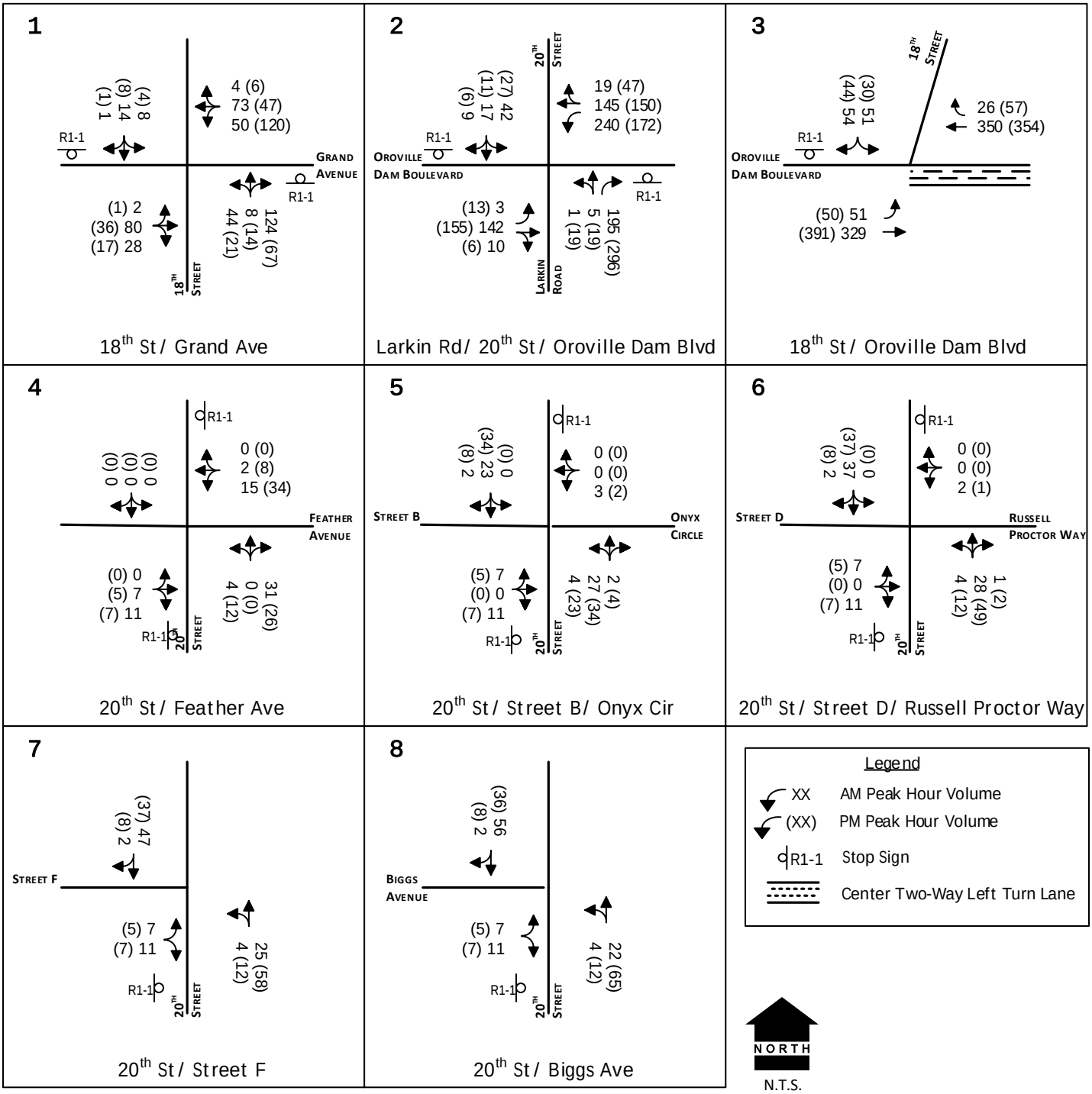
figure 6



EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 7

INTERSECTION LEVELS OF SERVICE

Table 6 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Existing Plus Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Existing Plus Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under Existing Plus Project conditions would be higher than under Existing conditions.

Under Existing Plus Project conditions, LOS at seven of the eight study intersections would be at acceptable LOS B or better during both the a.m. peak hour and the p.m. peak hour. With the Feather Ranch Project, traffic operations at these intersections would be consistent with General Plan policies on LOS and no improvements are recommended.

Under Existing Plus Project conditions, the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road would operate at unacceptable LOS E, which is considered to be inconsistent with the General Plan policy on LOS. The southbound approach to this intersection would operate at LOS E with 42.0 seconds of delay during the a.m. peak hour, and LOS E with 38.0 seconds of delay during the p.m. peak hour. LOS at this intersection would be acceptable under Existing Plus Project conditions with implementation of the following recommended improvement.

Recommended Improvement Traf-1 – Widen the Southbound Approach at the Intersection of Oroville Dam Boulevard & 20th Street / Larkin Road

Widening the southbound approach at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road would improve LOS to an acceptable level under Existing Plus Project conditions. The existing single-lane southbound approach should be replaced with an exclusive southbound-to-eastbound left-turn and a southbound combined through/right-turn lane.

Table 7 shows this intersection would operate at acceptable LOS D under Existing Plus Project conditions with implementation of this recommended improvement. The southbound approach to this intersection would operate at LOS D with 34.9 seconds of delay during the a.m. peak hour, and LOS D with 34.5 seconds of delay during the p.m. peak hour. LOS D is considered consistent with the General Plan policy on LOS.

Table 6. Level of Service - Existing Plus Project Conditions

Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour		PM Peak Hour		by Type of Inters
			LOS	Delay	LOS	Delay	
1 Grand Avenue & 18th Street	Unsignalized NB & SB Stop Sign	No					
Overall Intersection			A	6.0	A	6.3	
EB Left-Turn			A	7.4	A	7.3	
WB Left-Turn			A	7.6	A	7.6	
NB Approach			B	11.0	B	10.6	
SB Approach			B	12.1	B	12.5	
2 Oroville Dam Boulevard & 20th Street / Larkin Road	Unsignalized NB & SB Stop Sign	No					
Overall Intersection			A	8.5	A	8.1	
EB Left-Turn			A	7.6	A	7.7	
WB Left-Turn			A	8.2	A	8.0	
NB Approach			B	10.8	B	12.9	
SB Approach			E	42.0	E	38.0	
3 Oroville Dam Boulevard & 18th Street	Unsignalized SB Stop Sign	No					
Overall Intersection			A	2.2	A	1.5	
EB Left-Turn			A	8.3	A	8.5	
SB Approach			B	13.9	B	13.2	
4 20th Street & Feather Avenue	Unsignalized EB & WB Stop Sign	No					
Overall Intersection			A	4.8	A	6.2	
EB Approach			A	8.8	A	8.8	
WB Approach			A	8.9	A	9.1	
NB Approach			A	7.2	A	7.2	
SB Approach			A	0.0	A	0.0	

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

Table 6 (Continued). Level of Service - Existing Plus Project Conditions

	Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour		PM Peak Hour		by Type of Inters
				LOS	Delay	LOS	Delay	
5	20th Street & Onyx Circle / Street B	Unsignalized EB & WB Stop Sign	No					
	Overall Intersection			A	2.7	A	2.0	
	EB Approach			A	8.7	A	8.8	
	WB Approach			A	9.0	A	9.2	
	NB Approach			A	7.3	A	7.3	
	SB Approach			A	0.0	A	0.0	
6	20th Street & Russell Proctor Way / Street D	Unsignalized EB & WB Stop Sign	No					
	Overall Intersection			A	2.2	A	1.7	
	EB Approach			A	8.8	A	8.9	
	WB Approach			A	9.1	A	9.3	
	NB Approach			A	7.3	A	7.3	
	SB Approach			A	0.0	A	0.0	
7	20th Street & Street F	Unsignalized EB Stop Sign	No					
	Overall Intersection			A	2.0	A	1.6	
	EB Approach			A	8.8	A	8.9	
	NB Approach			A	7.3	A	7.3	
8	20th Street & Biggs Avenue	Unsignalized EB Stop Sign	No					
	Overall Intersection			A	1.8	A	1.4	
	EB Approach			A	8.8	A	8.9	
	NB Approach			A	7.3	A	7.3	

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

Table 7. Level of Service - Existing Plus Project Conditions With Recommended Improvements

Study Intersections and Approaches	Intersection Control	AM Peak Hour LOS	AM Peak Hour Delay	PM Peak Hour LOS	PM Peak Hour Delay
2 Oroville Dam Boulevard & 20th Street / Larkin Road	Unsignalized NB & SB Stop Sign				
Overall Intersection		A	7.9	A	7.9
EB Left-Turn		A	7.6	A	7.7
WB Left-Turn		A	8.2	A	8.0
NB Approach		B	10.8	B	12.9
SB Approach		D	34.9	D	34.5

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

IMPACT ON VEHICLE MILES TRAVELED

The impacts of the Feather Ranch Project on VMT were evaluated for this traffic impact study. As described earlier in the *Vehicle Miles Traveled Significance Threshold* section of this traffic impact study, the evaluation of the impacts of the Feather Ranch Project on VMT was conducted using:

- the BCAG document *BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices* (Butte County Association of Governments 2021b), and

- an update of the Regional Travel Demand Model prepared by BCAG for the purpose of developing traffic analysis zone (TAZ) level VMT estimates appropriate for SB 743 analysis (Lasagna pers. comm.).

Figure 4-A of the *BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices* document shows the Project site is located in an area where home-based VMT per resident would be greater than a level 15 below the baseline condition. That is, the method presented in this document indicates residential development in the Project site would result in the generation of VMT that is not below 85 percent of baseline conditions.

The assessment presented in the BCAG SB 743 Implementation document is quantified in greater detail in data from the updated Regional Travel Demand Model. The Project site is located in TAZ 911 of the travel demand model. This TAZ is bounded by:

- Grand Avenue on the north,
- 20th Street on the east,
- Oroville Dam Boulevard on the south, and
- the northerly extension of Wes Barrett Lane on the west.

On a per-resident level, data from the travel demand model shows residential land use development in TAZ 911 would generate 26.7 home-base VMT per resident, while the average for the City of Oroville would be 19.1 home-based VMT per resident. Therefore, the Project site would be expected to generate VMT at 140 percent of the baseline City of Oroville average (26.7 / 19.1 = 1.40).

On a per-household level, data from the travel demand model shows residential land use development in TAZ 911 would generate 63.3 home-base VMT per household, while the average for the City of Oroville would be 43.6 home-based VMT per household. Therefore, the Project site would be expected to generate VMT at 145 percent of the baseline City of Oroville average (63.3 / 43.6 = 1.45).

As shown in the *BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices* and in the updated travel demand model data, development of the Feather Ranch Project would generate VMT greater than 85 percent of baseline conditions. As a result, the impact of the Feather Ranch Project on VMT is considered significant.

Mitigation Measures

The *BCAG SB 743 Implementation – Mitigation Strategies* document (Butte County Association of Governments 2021b) is one of the documents in a series BCAG has prepared to assist local member jurisdictions in the implementation of SB 743. The document presents potential mitigation measures which reduce the impact of projects on VMT. The document presents a wide range of measures for:

- different types of land uses (e.g., residential versus employment-generating);
- different sizes of project; and
- different settings (e.g., urban core versus suburban).

A substantial portion of the measures presented in *BCAG SB 743 Implementation – Mitigation Strategies* apply only to employment-generating land use development projects and are, therefore, not applicable to the Feather Ranch Project.

BCAG SB 743 Implementation – Mitigation Strategies also provides information on the feasibility of measures and whether sufficient evidence is available for use of the measure as a mitigation measure in CEQA documents. The applicability, feasibility, and sufficiency of evidence for measures listed in *BCAG SB 743 Implementation – Mitigation Strategies* were reviewed for this traffic impact study to identify the following Mitigation Measures Traf-2 and Traf-3 for the Feather Ranch Project.

The descriptions of Mitigation Measures Traf-2 and Traf-3 include estimated ranges of effectiveness for each measure published in *BCAG SB 743 Implementation – Mitigation Strategies*. It should be noted the ranges of estimated effectiveness are not project-specific and would require additional analysis and interpretation to be applied to specific projects, including the Feather Ranch Project. In some cases, the high end of the ranges of effectiveness applies to large projects, projects in highly urban settings, and projects with substantial alternative transportation infrastructure, for example commute rail facilities.

As noted above, development of the Project site would be expected to generate VMT at 140 to 145 percent of the baseline City of Oroville average. Mitigating VMT to a level which would be less than 85 percent of the baseline level would require a reduction of approximately 40 percent from pre-mitigation levels (1 – [0.85 / 1.45] = 0.414). While the following measures would reduce the impact of the Project on VMT, implementation of measures needed to achieve a 40 percent reduction is not considered feasible. As a result, even with implementation of the following mitigation measures, the impact of the Feather Ranch Project on VMT is considered to be significant and unavoidable.

Mitigation Measure Traf-2 - Provide Pedestrian Network Improvements. Providing a pedestrian access network to link areas of the Project site encourages people to walk instead of drive. This mode shift results in people driving less and thus a reduction in VMT. The Project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site. The Project will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated. Some

aspects of this measure are already included in the Proposed Project. Increasing the use of pedestrian improvements would further reduce Project-related VMT. The range of effectiveness of this measure as described by BCAG is from 0.5 percent to 5.7 percent.

Mitigation Measure Traf-3 - Provide Traffic Calming Measures. Providing traffic calming measures encourages people to walk or use bicycles instead of using a vehicle. This mode shift will result in a decrease in VMT. Project design will include pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways will be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include: marked crosswalks, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others. Some aspects of this measure are already included in the Proposed Project. Increasing the use of traffic calming measures would further reduce Project-related VMT. The range of effectiveness of this measure as described by BCAG is from 0 percent to 1.7 percent.

Mitigation Measure Traf-4 – Contribute to a 20th Street Bicycle Facility. Providing bicycle facilities reduces VMT by encouraging use of non-vehicular forms of transportation. Connecting to existing bicycle facilities would provide access to Project site residents to a larger network of facilities. As noted earlier in the *Pedestrian and Bicycle Systems* section of this traffic impact study, the *City of Oroville Bicycle Transportation Plan* (City of Oroville 2010) includes a proposed bicycle facility on 20th Street from Oroville Dam Boulevard to Nelson Avenue. As a proposed facility, the Plan does not specify whether the bikeway would be a Class I (separate facility) or Class II (on-road facility). A bicycle facility along 20th Street between the Project site and Oroville Dam Boulevard would connect the Project site to the existing bicycle lane along Oroville Dam Boulevard, which would then provide bicycle facility access along Oroville Dam Boulevard east to the Feather River. Because the Bicycle Transportation Plan does not specify whether the 20th Street bikeway would be a Class I or Class II facility, it is not known whether the bikeway would be on 20th Street or separate from the roadway. For the same reason, it is not known what the cost of the bikeway would be. The Project applicant should contribute a fair share portion of the cost towards construction of the bikeway. The fair share portion should be negotiated between the applicant and the City of Oroville.

IMPACT ON PUBLIC TRANSIT SERVICE

As noted earlier in the *Public Transportation* section of this traffic impact study, the public transit stop closest to the Project site is approximately one mile away. Because of the distance, implementation of the Feather Ranch Project is not expected to adversely affect existing public transit service. As a result, the Project would have a less-than-significant impact on public transit service. No mitigation measures would be required.

Land use development in the immediate vicinity of the Project site is currently sparse. As a result, it is considered unlikely fixed route public transit service would be extended to the area in the near-term future. If future land use projects in the vicinity of the Project site result in greater development density, possible extension of public transit service to the area could be considered.

IMPACT ON BICYCLE AND PEDESTRIAN FACILITIES

Implementation of the proposed Feather Ranch Project would result in an increase in demand for bicycle and pedestrian facilities.

Currently, sidewalks on present on both sides of Feather Avenue and on the eastern side of 20th Street adjacent to the Project site. As described in the *Project Description* section of this traffic impact study, Project-related improvements to 20th Street and abutting Project vicinity roadways include curbs, gutters and sidewalks adjacent to the Project site. Sidewalks would front 20th Street, Biggs Avenue, and Feather Avenue as well as along all internal proposed roadways. Greenway space would be provided along internal sidewalks, around the proposed storm drainage retention basin at the northeastern corner of the Project site, and fronting 20th Street and Biggs Avenue. These facilities would provide bicycles and pedestrians an option to avoid traveling adjacent to vehicle traffic.

Because of these project-related improvements that would facilitate bicycle and pedestrian travel, the Feather Ranch Project is considered to have a less than significant impact on bicycle and pedestrian facilities. No mitigation measures are required.

Mitigation measures to reduce the impact of the Feather Ranch Project on VMT would also encourage bicycle and pedestrian travel. While not required to reduce the impact of the Project on bicycle and pedestrian facilities, implementation of the following measures would result in improvements to bicycle and pedestrian facilities:

- Mitigation Measure Traf-2 - Provide Pedestrian Network Improvements,
- Mitigation Measure Traf-3 - Provide Traffic Calming Measures, and
- Mitigation Measure Traf-4 – Contribute to a 20th Street Bicycle Facility.

These measures are described in more detail in the *Impact on Vehicle Miles Traveled* section of this traffic impact study.

CUMULATIVE NO PROJECT CONDITIONS

The Cumulative No Project condition represents a long-term future background condition. Future development of approved and planned land uses throughout the City of Oroville and County of Butte are assumed in this condition. The Cumulative No Project condition, therefore, serves as the baseline condition used to assess long-term project-related traffic effects.

TRAFFIC VOLUME FORECASTS

As previously described in the *Travel Forecasting* section of this traffic impact study, the BCAG Regional Travel Demand Model (Butte County Association of Governments 2022) was used to develop forecasts of background increases in traffic volumes under Cumulative No Project conditions. The increases in traffic volumes reflect development of long-term future land use development.

Application of the methods described in the *Travel Forecasting* section results in the a.m. peak hour and p.m. peak hour traffic intersection volumes presented in **Figure 8**.

INTERSECTION LEVELS OF SERVICE

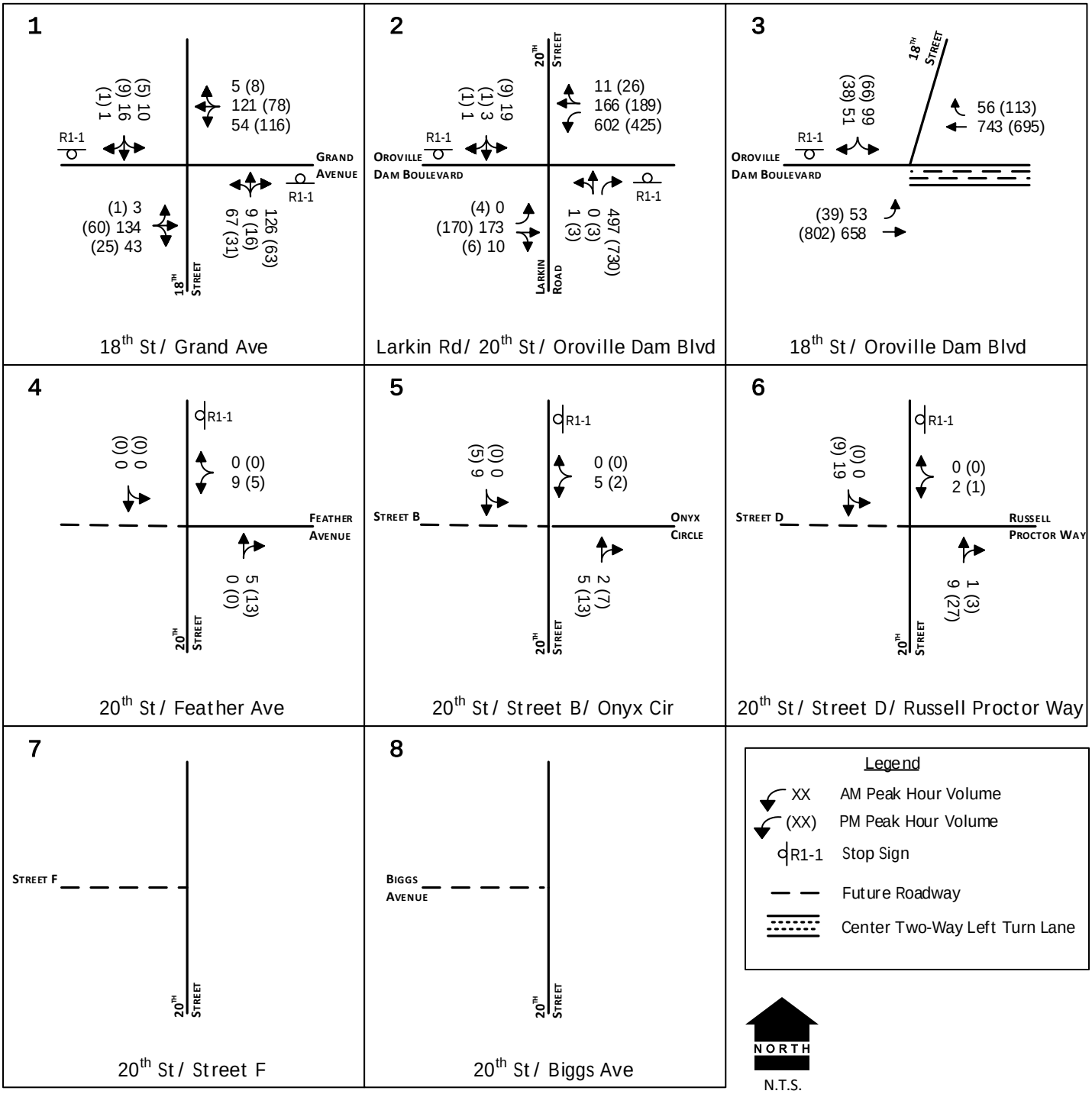
Table 8 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Cumulative No Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Cumulative No Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under Cumulative No Project conditions would be higher than under Existing conditions.

Under Cumulative No Project conditions, four of the six study intersections would operate at acceptable LOS B or better during both the a.m. peak hour and the p.m. peak hour and would be consistent with General Plan policy on LOS. No improvements are needed at these intersections to achieve acceptable LOS.

Under Cumulative No Project conditions, two study intersections would operate at unacceptable LOS, which is considered to be inconsistent with the General Plan policy on LOS.

- At the intersection of Oroville Dam Boulevard & 20th Street, overall intersection LOS would be E during the a.m. peak hour and F during the p.m. peak hour. The northbound approach to this intersection would operate at LOS E with 49.0 seconds of delay during the p.m. peak hour. The southbound approach would operate at LOS F with 1,673.8 seconds of delay during the a.m. peak hour, and LOS F with 11,383.4 seconds of delay during the p.m. peak hour.



CUMULATIVE NO PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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2610-28 RA 1/2/2023

figure 8

Table 8. Level of Service - Cumulative No Project Conditions

Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour		PM Peak Hour		by Type of Inte
			LOS	Delay	LOS	Delay	
1 Grand Avenue & 18th Street	Unsignalized NB & SB Stop Sign	No					
Overall Intersection			A	6.0	A	5.8	
EB Left-Turn			A	7.5	A	7.4	
WB Left-Turn			A	7.8	A	7.6	
NB Approach			B	13.4	B	11.7	
SB Approach			B	14.1	B	13.3	
2 Oroville Dam Boulevard & 20th Street / Larkin Road	Unsignalized NB & SB Stop Sign	Yes					
Overall Intersection			E	36.1	F	105.4	
EB Left-Turn			A	0.0	A	7.7	
WB Left-Turn			B	10.3	A	9.0	
NB Approach			C	17.9	E	49.0	
SB Approach			F	1,673.8	F	11,383.4	
With Recommended Improvement	*Roundabout*		*B*	*10.8*	*B*	*13.2*	
3 Oroville Dam Boulevard & 18th Street	Unsignalized SB Stop Sign	Yes					
Overall Intersection			A	4.0	A	2.0	
EB Left-Turn			B	10.2	B	10.1	
SB Approach			E	40.9	D	29.7	
With Recommended Improvement	*Roundabout*		*A*	*10.0*	*B*	*10.7*	
4 20th Street & Feather Avenue	Unsignalized EB & WB Stop Sign	No					
Overall Intersection			A	5.2	A	2.3	
WB Approach			A	8.6	A	8.6	
SB Approach			A	0.0	A	0.0	

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.
Italicized font indicates conditions with recommended improvements.

Table 8 (Continued). Level of Service - Cumulative No Project Conditions

Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour LOS	AM Peak Hour Delay	PM Peak Hour LOS	PM Peak Hour Delay
5 20th Street & Onyx Circle / Street B	Unsignalized EB & WB Stop Sign	No				
Overall Intersection			A	2.0	A	0.6
WB Approach			A	8.6	A	8.6
SB Approach			A	0.0	A	0.0
6 20th Street & Russell Proctor Way / Street D	Unsignalized EB & WB Stop Sign	No				
Overall Intersection			A	0.6	A	0.2
WB Approach			A	8.7	A	8.7
SB Approach			A	0.0	A	0.0

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

- At the intersection of Oroville Dam Boulevard & 18th Street, the southbound approach would operate at LOS E with 40.9 seconds of delay during the a.m. peak hour.

As shown in **Table 8**, both the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street would meet signal warrants under Cumulative No Project conditions. To improve LOS at these intersections, signalization was considered. However, signalization is considered to be infeasible because of:

- the relatively high traffic volumes on the westbound-to-southbound left-turn movement at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road, and

- the short spacing between the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street.

The relatively high traffic volumes on the left-turn movement would require substantial vehicle storage for the queuing. The short spacing between the two intersections would prevent construction of adequate vehicle storage. The lack of adequate vehicle storage would result in queuing from the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road interfering with the operation of the intersection of Oroville Dam Boulevard & 18th Street.

Installation of all-way stop-control (AWSC) at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street was also considered. As described above for signalization, the problem of relatively high traffic volumes on the westbound-to-southbound left-turn movement at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road, and the short spacing between the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street also would be present with AWSC. Construction of adequate vehicle storage for the queuing from the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road would not be possible. As a result, installation of AWSC is also considered to be infeasible.

LOS at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street would be acceptable under Cumulative No Project conditions with implementation of the following recommended improvement.

Recommended Improvement Traf-5 – Install a Paired Roundabout at the Intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the Intersection of Oroville Dam Boulevard & 18th Street

Under Cumulative No Project conditions, a paired roundabout should be installed at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street. The paired roundabout, sometimes referred to as a "peanut roundabout" because of its shape, would be a single roundabout that is longer in the east-west direction compared to the north-south direction, and would include both intersections.

As shown in **Table 8**, with installation of a paired roundabout:

- the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road would operate at LOS B with 10.8 seconds of delay in the a.m. peak hour and LOS B with 13.2 seconds of delay in the p.m. peak hour, and

- the intersection of Oroville Dam Boulevard & 18th Street would operate at LOS A with 10.0 seconds of delay in the a.m. peak hour and LOS B with 10.7 seconds of delay in the p.m. peak hour.

LOS A and B are considered acceptable and, with implementation of this mitigation measure, operation of the two intersections would be consistent with the General Plan policy on LOS.

LOS and queuing calculation worksheets for the two intersections under Cumulative No Project conditions with a paired roundabout are presented in the technical appendix.

CUMULATIVE PLUS PROJECT CONDITIONS

The analysis of Cumulative Plus Project conditions describes long-term future traffic operations assuming future development of planned land uses throughout the City of Oroville and Butte County, and also development of the Feather Ranch Project. Comparing traffic operations under Cumulative Plus Project conditions to traffic operations under Cumulative No Project conditions allows an identification of the long-term project-related effects of the Proposed Project.

The development of the Feather Ranch Project would result in vehicle traffic to and from the project site. Methods used to estimate project-related travel have been previously described in the *Existing Plus Project Conditions* section of this traffic impact study. **Figure 9** displays the project-related-only traffic volumes for each study intersection in the a.m. peak hour and p.m. peak hour under long-term future Cumulative background conditions.

Development of forecasts of future year background traffic volumes has been previously described in the *Cumulative No Project Conditions* section of this traffic impact study.

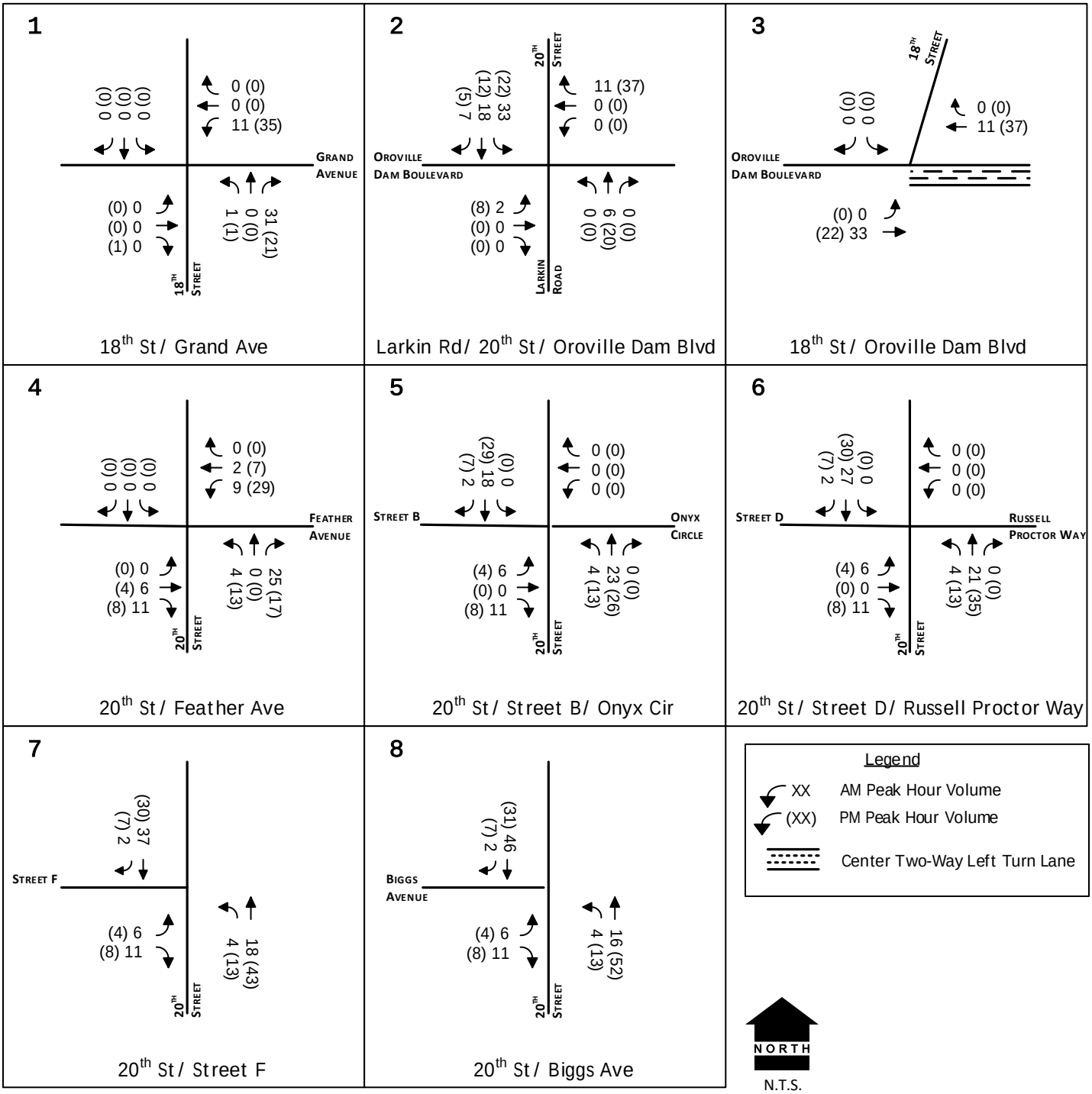
Cumulative Plus Project traffic volumes were calculated by adding project-related-only traffic volumes under long-term future Cumulative conditions to Cumulative No Project background traffic volumes. **Figure 10** displays the resulting Cumulative Plus Project traffic volumes anticipated for each study intersection in the peak hours.

INTERSECTION LEVELS OF SERVICE

Table 9 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Cumulative Plus Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Cumulative Plus Project conditions would be generally higher than under Cumulative No Project conditions and, as a result, vehicle delay under Cumulative Plus Project conditions would be higher than under Cumulative No Project conditions.

Under Cumulative Plus Project conditions, six of the eight study intersections would operate at acceptable LOS B or better during both the a.m. peak hour and the p.m. peak hour and would be consistent with General Plan policy on LOS. No improvements are needed at these intersections to achieve acceptable LOS.



PROJECT ONLY TRAFFIC VOLUMES
CUMULATIVE BACKGROUND CONDITIONS

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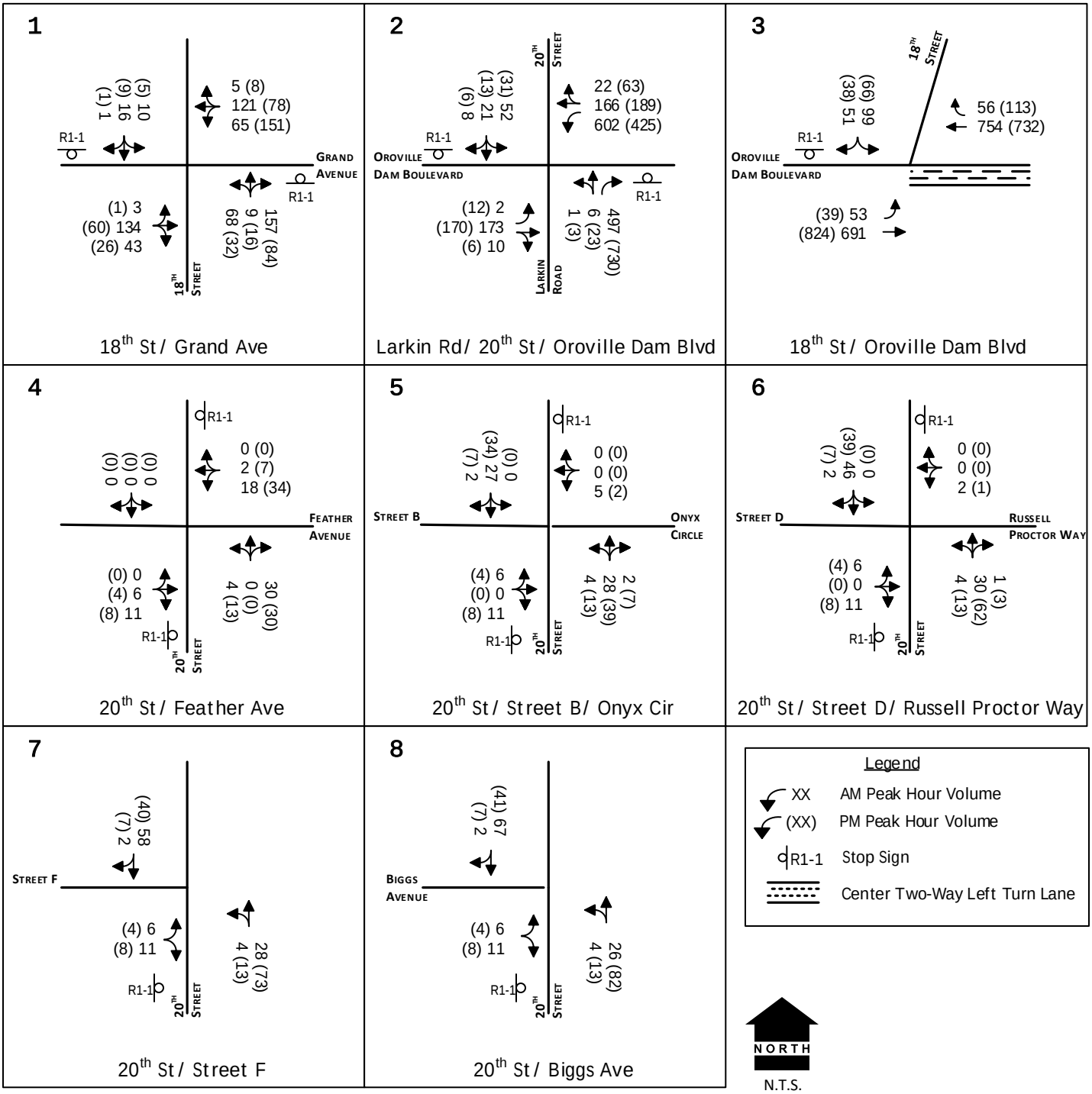
figure 9



CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 10

Table 9. Level of Service - Cumulative Plus Project Conditions

Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour LOS	AM Peak Hour Delay	PM Peak Hour LOS	PM Peak Hour Delay
1 Grand Avenue & 18th Street	Unsignalized NB & SB Stop Sign	No				
Overall Intersection			A	6.6	A	6.4
EB Left-Turn			A	7.5	A	7.4
WB Left-Turn			A	7.8	A	7.7
NB Approach			B	14.0	B	12.3
SB Approach			B	14.9	B	14.8
2 Oroville Dam Boulevard & 20th Street / Larkin Road	Unsignalized NB & SB Stop Sign	Yes				
Overall Intersection			F	239.9	D	26.8
EB Left-Turn			A	7.7	A	7.9
WB Left-Turn			B	10.3	A	9.0
NB Approach			C	19.3	E	49.9
SB Approach			F	4,424.4	F	61.0
With Recommended Improvement	*Roundabout*		*B*	*11.5*	*B*	*15.5*
3 Oroville Dam Boulevard & 18th Street	Unsignalized SB Stop Sign	Yes				
Overall Intersection			A	4.2	A	2.1
EB Left-Turn			B	10.2	B	10.3
SB Approach			E	43.7	D	32.0
With Recommended Improvement	*Roundabout*		*B*	*10.5*	*B*	*12.2*
4 20th Street & Feather Avenue	Unsignalized EB & WB Stop Sign	No				
Overall Intersection			A	4.9	A	5.9
EB Approach			A	8.7	A	8.7
WB Approach			A	8.9	A	9.2
NB Approach			A	7.2	A	7.2
SB Approach			A	0.0	A	0.0

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.
Italicized font indicates conditions with recommended improvements.

Table 9 (Continued). Level of Service - Cumulative Plus Project Conditions

	Study Intersections and Approaches	Intersection Control	Signal Warrant Met?	AM Peak Hour		PM Peak Hour		by Type of Inters
				LOS	Delay	LOS	Delay	
5	20th Street & Onyx Circle / Street B	Unsignalized EB & WB Stop Sign	No					
	Overall Intersection			A	2.6	A	1.9	
	EB Approach			A	8.7	A	8.8	
	WB Approach			A	9.0	A	9.3	
	NB Approach			A	7.3	A	7.3	
	SB Approach			A	0.0	A	0.0	
6	20th Street & Russell Proctor Way / Street D	Unsignalized EB & WB Stop Sign	No					
	Overall Intersection			A	1.9	A	1.5	
	EB Approach			A	8.8	A	8.9	
	WB Approach			A	9.1	A	9.5	
	NB Approach			A	7.3	A	7.3	
	SB Approach			A	0.0	A	0.0	
7	20th Street & Street F	Unsignalized EB Stop Sign	No					
	Overall Intersection			A	1.6	A	1.4	
	EB Approach			A	8.8	A	8.8	
	NB Approach			A	7.3	A	7.3	
8	20th Street & Biggs Avenue	Unsignalized EB Stop Sign	No					
	Overall Intersection			A	1.6	A	1.3	
	EB Approach			A	8.9	A	8.9	
	NB Approach			A	7.4	A	7.3	

Notes: "LOS" = Level of Service. Delay is measured in seconds per vehicle.
"NB" = Northbound. "WB" = Westbound. "SB" = Southbound. "EB" = Eastbound.

Under Cumulative Plus Project conditions, two study intersections would operate at unacceptable LOS, which is considered to be inconsistent with the General Plan policy on LOS.

- At the intersection of Oroville Dam Boulevard & 20th Street, overall intersection LOS would be F during the a.m. peak hour. The northbound approach to this intersection would operate at LOS E with 49.9 seconds of delay during the p.m. peak hour. The southbound approach would operate at LOS F with 4,424.4 seconds of delay during the a.m. peak hour, and LOS F with 61.0 seconds of delay during the p.m. peak hour.

- At the intersection of Oroville Dam Boulevard & 18th Street, the southbound approach would operate at LOS E with 43.7 seconds of delay during the a.m. peak hour.

As shown in **Table 9**, both the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street would meet signal warrants under Cumulative Plus Project conditions. To improve LOS at these intersections, both signalization and AWSC were considered. However, both signalization and AWSC are considered to be infeasible. A description of the reasons signalization and AWSC are considered infeasible is presented previously in the *Cumulative No Project Conditions* section of this traffic impact study.

LOS at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street would be acceptable under Cumulative Plus Project conditions with implementation of the following recommended improvement.

Recommended Improvement Traf-5 – Install a Paired Roundabout at the Intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the Intersection of Oroville Dam Boulevard & 18th Street

Under Cumulative Plus Project conditions, a paired roundabout should be installed at the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road and the intersection of Oroville Dam Boulevard & 18th Street. This is the same improvement recommended for these two intersections under Cumulative No Project conditions. A description of a paired roundabout is presented previously in the *Cumulative No Project Conditions* section of this traffic impact study.

As shown in **Table 9**, with installation of a paired roundabout:

- the intersection of Oroville Dam Boulevard & 20th Street / Larkin Road would operate at LOS B with 11.5 seconds of delay in the a.m. peak hour and LOS B with 15.5 seconds of delay in the p.m. peak hour, and

- the intersection of Oroville Dam Boulevard & 18th Street would operate at LOS B with 10.5 seconds of delay in the a.m. peak hour and LOS B with 12.2 seconds of delay in the p.m. peak hour.

LOS B is considered acceptable and, with implementation of this mitigation measure, operation of the two intersections would be consistent with the General Plan policy on LOS.

LOS and queuing calculation worksheets for the two intersections under Cumulative Plus Project conditions with a paired roundabout are presented in the technical appendix.

REFERENCES

DOCUMENTS CITED

Akcelik & Associates. 2022. Sidra Intersection Internet Website. https://www.sidrasolutions.com/

Butte County Association of Governments. 2021a. BCAG SB 743 Implementation – VMT Impact Significance Threshold – Assessing Lead Agency Choices. Chico, CA.

Butte County Association of Governments. 2021b. BCAG SB 743 Implementation – Mitigation Strategies. Chico, CA.

Butte County Association of Governments. 2022. Butte County Association of Governments Transportation Forecasting Internet Website. http://www.bcag.org/Planning/Transportation-Forecasting/index.html

Butte Regional Transit. 2022. Butte Regional Transit Internet Website. http://www.blinetransit.com/

California Department of Transportation. 2021. California Manual on Uniform Traffic Control Devices. 2014 Edition Revision 6 (March 30, 2021). Sacramento CA.

California Department of Transportation. 2022. Highway Design Manual Seventh Edition. Sacramento CA.

California Governor's Office of Planning and Research. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Sacramento, CA.

Institute of Transportation Engineers. 2021. Trip Generation Manual, 11th Edition. Washington, D.C.

Oroville, City of. 2010. City of Oroville Bicycle Transportation Plan. Oroville, CA.

Oroville, City of. 2015a. Oroville Sustainability Updates – Draft Supplemental EIR for the City of Oroville. Oroville, CA.

Oroville, City of. 2015b. Oroville 2030 General Plan for the City of Oroville. Oroville, CA.

Trafficware. 2022. Trafficware Internet Website. http://www.trafficware.com/

Transportation Research Board. 1982. National Cooperative Highway Research Program (NCHRP) Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design. Washington, D.C.

Transportation Research Board. 2016. Highway Capacity Manual 6th Edition - A Guide for Multimodal Mobility Analysis. Washington, D.C.

PERSONAL COMMUNICATIONS

Ervin, Wes. City Planner. City of Oroville. April 29, 2021 telephone conversation with Wayne Shijo, KD Anderson & Associates.

Lasagna, Brian. Regional Analyst. Butte County Association of Governments. October 8, 2020 E-mail message to Ken Anderson, KD Anderson & Associates.

TECHNICAL APPENDICES