

Table of Contents

<u>Section</u>	<u>Page No.</u>
ACRONYMS AND ABBREVIATIONS	vii
1 SUMMARY.....	1-1
1.1 Introduction.....	1-1
1.2 Project Overview	1-1
1.2.1 Project Location and Setting.....	1-1
1.2.2 Project Components	1-1
1.2.3 Project Objectives	1-2
1.3 Impact Summary	1-2
1.4 Alternatives to the Proposed Project.....	1-2
1.5 Known Areas of Controversy.....	1-3
1.6 Issues to be Resolved	1-3
2 INTRODUCTION	2-1-1
2.1 Purpose of the EIR.....	2-1-1
2.2 Project Overview	2-2-2
2.3 Scope of the EIR	2-3-2
2.4 Environmental Review and Approval Process	2-4-3
2.4.1 Scoping.....	2-4-3
2.4.2 Public Review of the Draft EIR	2-4-5
2.4.3 Final EIR and Consideration of Project Approval	2-4-6
2.4.4 Adoption of Mitigation Monitoring and Reporting Program.....	2-4-7
2.5 Use of the EIR	2-5-7
2.6 Organization of the EIR	2-6-8
3 PROJECT DESCRIPTION	3-1
3.1 Project Location and Setting.....	3-1
3.2 Existing Facilities	3-1
3.3 Project Background	3-6
3.4 Project Purpose and Objectives.....	3-7
3.4.1 Purpose and Need	3-7
3.4.2 Project Objectives	3-8
3.5 Project Design and Components	3-8
3.5.1 Project Overview	3-8
3.5.2 New Coanda Screen Intake Structure	3-9
3.5.3 Valve Vault and Creek Bank Components.....	3-14
3.5.4 Other Components.....	3-15
3.5.5 Modified Existing Components	3-15

<u>Section</u>	<u>Page No.</u>
3.6	Project Construction..... 3-16
3.6.1	Construction Schedule3-16
3.6.2	Construction Activities 3-16
3.6.3	Standard Construction Practices 3-20
3.7	Operations and Maintenance 3-25
3.8	Project Permits and Approvals..... 3-26
3.9	References..... 3-27
4	ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES 4.1-1
4.1	Introduction to Analysis..... 4.1-1
4.1.1	Scope of Analyses..... 4.1-1
4.1.2	Cumulative Impacts Overview 4.1-2
4.1.3	References 4.1-9
4.2	Impacts Not Found to be Significant..... 4.2-1
4.2.1	Aesthetics..... 4.2-1
4.2.2	Agriculture and Forestry Resources..... 4.2-2
4.2.3	Mineral Resources..... 4.2-3
4.2.4	Population and Housing 4.2-3
4.2.5	Public Services..... 4.2-3
4.2.6	Recreation 4.2-3
4.2.7	Utilities and Service Systems 4.2-4
4.2.8	Wildfire 4.2-4
4.2.9	References 4.2-4
4.3	Air Quality..... 4.3-1
4.3.1	Existing Conditions..... 4.3-1
4.3.2	Regulatory Framework..... 4.3-7
4.3.3	Impacts and Mitigation Measures 4.3-14
4.3.4	References 4.3-22
4.4	Biological Resources 4.4-1
4.4.1	Existing Conditions..... 4.4-1
4.4.2	Regulatory Framework..... 4.4-8
4.4.3	Impacts and Mitigation Measures 4.4-18
4.4.4	References 4.4-31
4.5	Cultural Resources and Tribal Cultural Resources..... 4.5-1
4.5.1	Existing Conditions..... 4.5-1
4.5.2	Regulatory Framework..... 4.5-12
4.5.3	Impacts and Mitigation Measures 4.5-17
4.5.4	References 4.5-24

<u>Section</u>	<u>Page No.</u>
4.6 Energy	4.6-1
4.6.1 Existing Conditions.....	4.6-1
4.6.2 Regulatory Framework.....	4.6-3
4.6.3 Impacts and Mitigation Measures	4.6-6
4.6.4 References	4.6-11
4.7 Geology and Soils	4.7-1
4.7.1 Existing Conditions.....	4.7-1
4.7.2 Regulatory Framework.....	4.7-9
4.7.3 Impacts and Mitigation Measures	4.7-11
4.7.4 References	4.7-17
4.8 Greenhouse Gas Emissions	4.8-1
4.8.1 Existing Conditions.....	4.8-1
4.8.2 Regulatory Framework.....	4.8-6
4.8.3 Impacts and Mitigation Measures	4.8-15
4.8.4 References	4.8-19
4.9 Hazards and Hazardous Materials	4.9-1
4.9.1 Existing Conditions.....	4.9-1
4.9.2 Regulatory Framework.....	4.9-3
4.9.3 Impacts and Mitigation Measures	4.9-8
4.9.4 References	4.9-13
4.10 Hydrology and Water Quality.....	4.10-1
4.10.1 Existing Conditions.....	4.10-1
4.10.2 Regulatory Framework.....	4.10-10
4.10.3 Impacts and Mitigation Measures	4.10-13
4.10.4 References	4.10-19
4.11 Land Use and Planning	4.11-1
4.11.1 Existing Conditions.....	4.11-1
4.11.2 Regulatory Framework.....	4.11-2
4.11.3 Impacts and Mitigation Measures	4.11-5
4.11.4 References	4.11-16
4.12 Noise	4.12-1
4.12.1 Existing Conditions.....	4.12-1
4.12.2 Regulatory Framework.....	4.12-9
4.12.3 Impacts and Mitigation Measures	4.12-16
4.12.4 References	4.12-25

<u>Section</u>	<u>Page No.</u>
4.13 Transportation	4.13-1
4.13.1 Existing Conditions.....	4.13-1
4.13.2 Regulatory Framework.....	4.13-3
4.13.3 Impacts and Mitigation Measures	4.13-5
4.13.4 References	4.13-12
5 OTHER CEQA CONSIDERATIONS	5.1-1
5.1 Significant Unavoidable Impacts	5.1-1
5.2 Significant Irreversible Environmental Changes.....	5.2-1
5.3 Growth-Inducing Impacts	5.3-2
6 ALTERNATIVES	6.1-1
6.1 Project Objectives	6.1-1
6.2 Overview of Significant Project Impacts.....	6.2-2
6.3 Alternatives Considered but Eliminated.....	6.3-3
6.3.1 Abandon Dam and Secure Alternate Water Source	6.3-3
6.3.2 Relocate Dam.....	6.3-4
6.3.3 Infiltration Gallery/Filter Bed.....	6.3-4
6.3.4 Reed Bed Filter/French Drain	6.3-5
6.3.5 Sediment Bypass Valve Improvements	6.3-5
6.4 Alternatives Selected for Further Analysis	6.4-5
6.4.1 No Project Alternative	6.4-7
6.4.2 Alternative 1: Spillway Gate and Fish Screen	6.4-8
6.4.3 Alternative 2: Plate Screen with Brush	6.4-16
6.5 Environmentally Superior Alternative	6.5-20
6.6 References.....	6.6-26
7 LIST OF PREPARERS	7.1-1
7.1 City of Santa Cruz	7.1-1
7.2 Dudek.....	7.2-1
7.2.1 Subconsultant.....	7.2-1

<u>Section</u>	<u>Page No.</u>
Figures	
Figure 3-1. Project Location and Vicinity.....	3-2
Figure 3-2. Project Site.....	3-3
Figure 3-3. Existing Schematic for the Facility.....	3-5
Figure 3-4. Proposed Site Plan and Construction Access/Staging.....	3-10
Figure 3-5. Proposed Project (Plan View).....	3-11
Figure 3-6. Proposed Project (Section Views).....	3-12
Figure 4.4-1. Project Area Biological Resources.....	4.4-2
Figure 4.4-2. Biological Resource Impacts	4.4-21
Figure 4.5-1. Cultural Resources Area of Potential Effects.....	4.5-2
Figure 4.7-1. Project Area Geology	4.7-2
Figure 4.7-2. Project Area Soils	4.7-3
Figure 4.7-3. Fault Map.....	4.7-6
Figure 4.10-1. Laguna Watershed.....	4.10-3
Figure 4.12-1. Noise Measurement Locations and Nearest Sensitive Receptor	4.12-7
Figure 4.13-1. Sight Distance Analysis.....	4.13-10
Figure 6-1. Alternative 1 – Spillway Gate and Fish Screen (Plan View)	6.4-11
Figure 6-2. Alternative 1 – Spillway Gate and Fish Screen (Section Views)	6.4-12
Figure 6-3. Alternative 2 – Plate Screen with Brush (Plan and Section View).....	6.4-17

Tables

Table 1-1. Summary of Project Impacts.....	1-4
Table 2-1. Scoping Comment Summary.....	2.4-4
Table 3-1. Key Proposed Project Components	3-13
Table 4.1-1. City of Santa Cruz Water Program Capital Improvement Projects.....	4.1-7
Table 4.3-1. Ambient Air Quality Standards	4.3-8
Table 4.3-2. North Central Coast Air Basin Attainment Classification	4.3-12
Table 4.3-3. Local Ambient Air Quality Data	4.3-13
Table 4.3-4. Construction Assumptions Used In Project-Generated Daily Emissions	4.3-16
Table 4.3-5. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions.....	4.3-19
Table 4.4-1. Special-Status Plant Species Potentially Occurring within the Study Area	4.4-4
Table 4.4-2. Special-Status Wildlife Species Detected or Potentially Occurring within the Study Area	4.4-5
Table 4.4-3. Biological Surveys Completed within the Study Area	4.4-19
Table 4.6-1. Construction Petroleum Demand for the Proposed Project.....	4.6-9
Table 4.7-1. Distances to Local Faults.....	4.7-7

<u>Section</u>	<u>Page No.</u>
Table 4.8-1. Greenhouse Gas Emissions Sources in California	4.8-3
Table 4.8-2. Estimated Annual Construction GHG Emissions	4.8-16
Table 4.8-3. Review of Association of Monterey Bay Area Governments' 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy Goals and Proposed Project	4.8-17
Table 4.10-1. Watershed Designations by Agency	4.10-2
Table 4.10-2. Summarized Historic Records of Daily Flow in Laguna Creek	4.10-5
Table 4.10-3. Summary of Water Quality Analyses for Laguna Creek (2011 to 2017)	4.10-7
Table 4.11-1. Review of County of Santa Cruz General Plan/Local Coastal Program and Implementing Ordinances	4.11-6
Table 4.12-1. Typical Noise Levels Associated With Common Activities	4.12-1
Table 4.12-2. Typical Levels of Groundborne Vibration	4.12-5
Table 4.12-3. Summary of Short-Term Ambient Noise Measurements	4.12-8
Table 4.12-4. Summary of Modeled Existing Traffic Noise Levels	4.12-9
Table 4.12-5. Summary of Land Use Noise Compatibility Guidelines.....	4.12-11
Table 4.12-6. Acceptable through Unacceptable Ranges of Noise Exposure by Land Use	4.12-13
Table 4.12-7. Maximum Allowable Noise Exposure Stationary Noise Sources	4.12-13
Table 4.12-8. Typical Construction Equipment Noise Emission Levels	4.12-19
Table 4.12-9. Construction Noise Model Results Summary	4.12-20
Table 4.12-10. Representative Vibration Levels for Construction Equipment	4.12-22
Table 4.13-1. Level of Service Definitions for Volume-to-Capacity Ratio	4.13-2
Table 4.13-2. Peak Day Construction Trip Generation Estimates	4.13-7
Table 6-1. Summary of Alternatives	6.4-6
Table 6-2. Ability of Alternatives to Meet Project Objectives.....	6.4-6
Table 6-3. Comparison of Design Features for Alternative 1 to the Proposed Project.....	6.4-9
Table 6-4. Comparison of Impacts from the Alternatives.....	6.5-21

Appendices

A	Notice of Preparation and Scoping Comments
B	Air Quality and Greenhouse Gas Emissions Calculations
C	Biological Resources Assessment
D	Cultural Resources Inventory, Evaluation, and Finding of Effect Report
E	Noise Modeling Outputs
F	Trip Generation Estimates

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AAQS	ambient air quality standards
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
Air Basin	North Central Coast Air Basin
AMBAG	Association of Monterey Bay Area Governments
amsl	above mean sea level
ANSI	American National Standards Institute
APE	area of potential effect
AQMP	air quality management plan
ASHCP	Anadromous Salmonid Habitat Conservation Plan
Basin Plan	<i>Water Quality Control Plan for the Central Coastal Basin</i>
BMPs	best management practices
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CAP	climate action plan
CARB	California Air Resources Board
CARE	California Alternate Rates for Energy
CAS	Climate Action Strategy
CCC	California Coastal Commission
CCE	Community Choice Energy
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	coastal development permit
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH ₄	methane
CHRIS	California Historical Resources Information System
CIP	Capital Improvement Program
City	City of Santa Cruz
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level

Acronym/Abbreviation	Definition
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent
County	County of Santa Cruz
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibels
dba	A-weighted decibels
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIA	U.S. Energy Information Administration
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
EV	electric vehicle
Facility	Laguna Creek Diversion Facility
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
g	percent of gravity
GHG	greenhouse gas
GIS	geographic information system
GWP	global warming potential
HA	hydrologic area
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbon
HMBP	Hazardous Material Business Plan
HMMP	Hazardous Materials Management Plan
HRI	Historic Resources Inventory
HSA	hydrologic subarea
HU	hydrologic unit
HUC	hydrologic unit code
Hz	Hertz

Acronym/Abbreviation	Definition
in/sec	inches per second
IPaC	Inventory for Planning and Conservation
IPCC	Intergovernmental Panel on Climate Change
ISTEA	Intermodal Surface Transportation Efficiency Act
kWh	kilowatt hours
LACM	Natural History Museum of Los Angeles County
LCP	Local Coastal Program
Legislature	California State Legislature
L_{eq}	equivalent noise level
L_{dn}	day-night average noise level
L_{max}	maximum noise level
L_{min}	minimum noise level
LOS	level of service
LUST	leaking underground storage tank
MBARD	Monterey Bay Air Resources District
MBCP	Monterey Bay Community Power
MCL	maximum contaminant level
mL	milliliters
MMT	million metric tons
mpg	miles per gallon
mph	miles per hour
MPN	most probable number
MPO	metropolitan planning organization
MT	metric ton
Mw	moment magnitude
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NI	no impact
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	nephelometric turbidity units
O_3	ozone
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCE	Passenger Car Equivalent
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
ppm	parts per million
PPV	peak particle velocity

Acronym/Abbreviation	Definition
Proposed Project	Laguna Creek Diversion Retrofit Project
PVC	polyvinyl chloride
R-M	Mountain Residential
R-R	Rural Residential
RA	Residential Agriculture
RCRA	Resource Conservation and Recovery Act
RFS	Renewable Fuel Standard
RMS	root mean square
ROG	reactive organic gas
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SAFE	Safer Affordable Fuel-Efficient
Santa Cruz Metro	Santa Cruz Metropolitan Transit District
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	supervisory control and data acquisition
SCCC	Santa Cruz County Code
SCP	Standard Construction Practice
SCS	Sustainable Communities Strategy
SCWD	Santa Cruz Water Department
SCWRP	Santa Cruz Water Rights Project
SEL	sound exposure level
SF ₆	sulfur hexafluoride
SLCP	short-lived climate pollutant
SLOAPCD	San Luis Obispo Air Pollution Control District
SO ₂	sulfur dioxide
SSC	species of special concern
SU	Special Use
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	total maximum daily load
TP	Timber Production
UCSC	University of California, Santa Cruz
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V/C	volume-to-capacity
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	waste discharge requirement