

TISCORNIA MARSH HABITAT RESTORATION AND SEA LEVEL RISE ADAPTATION PROJECT

Draft Environmental Impact Report

SCH # 2021020362

City Case No. UP21-001, ED21-002, IS21-001

Canal Street/Spinnaker Point Drive

Prepared for
City of San Rafael

September 2021



TISCORNIA MARSH HABITAT RESTORATION AND SEA LEVEL RISE ADAPTATION PROJECT

Draft Environmental Impact Report

SCH # 2021020362

City Case No. UP21-001, ED21-002, IS21-001

Canal Street/Spinnaker Point Drive

Prepared for
City of San Rafael

September 2021

550 Kearny Street
Suite 800
San Francisco, CA 94108
415.896.5900
esassoc.com



Bend	Orlando	San Jose
Camarillo	Pasadena	Santa Monica
Delray Beach	Petaluma	Sarasota
Destin	Portland	Seattle
Irvine	Sacramento	Tampa
Los Angeles	San Diego	
Oakland	San Francisco	

OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

TABLE OF CONTENTS

Tiscornia Marsh Habitat Restoration and Sea Level Rise Adaptation Project

	<u>Page</u>
Summary	S-1
S.1 Introduction	S-1
S.2 Project Objectives	S-1
S.3 Summary of Project Description	S-2
S.4 Summary of Impacts and Mitigation Measures	S-2
S.5 Summary of Project Alternatives	S-26
S.6 Areas of Controversy and Issues to be Resolved	S-27
Chapter 1, Introduction	1-1
1.1 Purpose of the EIR.....	1-1
1.2 EIR Process	1-1
1.3 Organization of the EIR.....	1-4
1.4 References.....	1-4
Chapter 2, Project Description	2-1
2.1 Introduction	2-1
2.2 Project Description	2-6
2.3 Project Construction.....	2-11
2.4 Operations and Maintenance.....	2-23
2.5 References.....	2-24
Chapter 3, Environmental Setting, Impacts, and Mitigation Measures	3.1-1
3.1 Introduction to the Analysis.....	3.1-1
3.2 Aesthetics.....	3.2-1
3.3 Air Quality.....	3.3-1
3.4 Biological Resources	3.4-1
3.5 Greenhouse Gas Emissions	3.5-1
3.6 Hydrology and Water Quality.....	3.6-1
Chapter 4, Other CEQA Issues	4-1
4.1 Growth-Inducing Impacts	4-1
4.2 Significant Unavoidable Impacts.....	4-2
4.3 Significant Irreversible Environmental Changes.....	4-2
4.4 Mitigation Measures Proposed to Minimize Significant Effects.....	4-2
4.5 References.....	4-2
Chapter 5, Alternatives	5-1
5.1 Introduction	5-1
5.2 Proposed Project Alternatives Analysis.....	5-2
5.3 Comparison of Alternatives.....	5-12
5.4 Alternatives Considered but Rejected from Further Analysis.....	5-13

Chapter 6, Report Preparers.....6-1
 6.1 Lead Agency6-1
 6.2 Project Sponsor.....6-1
 6.3 Authors and Consultants Alternatives.....6-1

Appendices

A. Notice of Preparation/Scoping A-1
 B. Topics Not Requiring Detailed Environmental Analysis B-1
 C. Air Quality and Greenhouse Gas Emissions Supporting Documentation C-1
 D. Habitat Assessment D-1
 E. Sea-Level Rise Adaptation Technical Guidance Study, Geotechnical Investigation, and Conceptual Design Report..... E-1

List of Figures

Figure 2-1 Regional Setting.....2-2
 Figure 2-2 Project Location Existing Conditions2-3
 Figure 2-3 Proposed Project Elements2-7
 Figure 2-4 Beach Construction Phases 2-13
 Figure 2-5 Temporary Construction Access and Staging 2-16
 Figure 3.2-1 Photo Viewpoint Map..... 3.2-3
 Figure 3.2-2 Photos of the Project Site from Nearby Public Vantage Points 3.2-4
 Figure 3.2-3 Photos of the Project Site from Existing Public Spaces on and Adjacent to the Project..... 3.2-5
 Figure 3.2-4 Photos from the Project Site of On-Site and Adjacent Features..... 3.2-6
 Figure 3.4-1 Habitat Types..... 3.4-3

List of Tables

Table S-1 Summary of Impacts and Mitigation Measures S-3
 Table 2-1 Anticipated Regulatory Requirements.....2-5
 Table 2-2 Construction Schedule Overview 2-11
 Table 2-3 Construction Equipment 2-22
 Table 2-4 Estimated Earthwork Volumes 2-23
 Table 3.1-1 Projects in the Vicinity of the Proposed Project Evaluated for Cumulative Impacts 3.1-5
 Table 3.2-1 Summary of Aesthetics Impacts..... 3.2-13
 Table 3.3-1 Summary of Marin County Air Quality Monitoring Data (2015–2019)..... 3.3-5
 Table 3.3-2 State and Federal Ambient Air Quality Standards and Attainment Status for the San Francisco Bay Area Air Basin..... 3.3-9
 Table 3.3-3 Summary of Air Quality Impacts..... 3.3-18
 Table 3.3-4 Total unmitigated Average Daily construction Emissions 3.3-20
 Table 3.3-5 Results of health risk assessment for unmitigated Project Constructiona..... 3.3-23
 Table 3.3-6 Results of Health risk assessment for mitigated Project Constructiona . 3.3-23
 Table 3.3-7 Results of cumulative UNMitigated Project Health Risk Assessmenta... 3.3-26
 Table 3.3-8 Results of cumulative Mitigated Project Health Risk Assessmenta 3.3-26
 Table 3.4-1 Habitat Types by Acreages 3.4-2
 Table 3.4-2 Fish Managed under The Magnuson-Stevens Act..... 3.4-17
 Table 3.4-3 Summary of Biological Resources Impacts..... 3.4-27
 Table 3.4-4 Potential Impacts on Fish at Varying Noise Levels 3.4-39
 Table 3.4-5 Adopted Underwater Acoustic Criteria for Marine Mammals 3.4-39

Table 3.4-6	Preliminary Impacts on Potentially Jurisdictional Wetlands And Waters.....	3.4-43
Table 3.5-1	California Greenhouse Gas Emissions (million metric tons CO ₂ e)	3.5-2
Table 3.5-2	Summary of Greenhouse Gas Emissions Impacts	3.5-11
Table 3.5-3	Total and amortized Greenhouse gas Construction emissions	3.5-12
Table 3.6-1	Summary of Hydrology and Water Quality Impacts	3.6-16
Table 5-1	CEQA Alternatives	5-5
Table 5-2	Comparison of the Environmental Impacts of the CEQA Alternatives.....	5-6
Table 5-3	Alternatives Considered but Rejected from Further Consideration	5-13

This page intentionally left blank

ACRONYMS AND ABBREVIATIONS

µg/m ³	micrograms per cubic meter
µPa	microPascal
AADT	average annual daily traffic
AB	Assembly Bill
AB 32 Scoping Plan	Climate Change Scoping Plan
ABAG	Association of Bay Area Governments
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BASMAA	Bay Area Stormwater Management Agencies Association
Bay	San Rafael Bay
Bay Trail	San Francisco Bay Trail
BayWAVE	Marin Bay Waterfront Adaptation Vulnerability Evaluation
BCDC	San Francisco Bay Conservation and Development Commission
BERD	Built Environment Resources Directory
BFE	base flood elevation
BMP	best management practice
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
California Register	California Register of Historical Resources
Caltrans	California Department of Transportation
CAP	criteria air pollutant
CARB	California Air Resources Board
CCAP	Climate Change Action Plan
CCAP 2030	Final Draft Climate Change Action Plan 2030
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey

CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
City	City of San Rafael
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
Commission	City of San Rafael Planning Commission
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CY	cubic yards
dB	decibels
dBA	A-weighted decibels
DOC	California Department of Conservation
DOI	U.S. Department of the Interior
DPM	diesel particulate matter
DPR	California Department of Pesticide Regulation
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	Environmental Science Associates
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Mapping
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
Friant Ranch Case	<i>Sierra Club v. County of Fresno</i> case
FTA	Federal Transit Administration
FWCA	Fish & Wildlife Coordination Act
g/s	gram(s) per second
GE	geotechnical engineer
General Plan 2020	<i>The City of San Rafael General Plan 2020</i>
GHG	greenhouse gas

GIS	geographic information system
GPS	global positioning system
GWP	global warming potential
HMBP	Hazardous Materials Business Plan
HMRT	Hazardous Materials Response Team
HRA	health risk assessment
Hz	Hertz
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
ISP	Invasive Spartina Project
LCFS	Low Carbon Fuel Standard
L _{dn}	day-night average sound level
L _{eq}	energy-equivalent sound level
LGP	low ground pressure
LID	Low-Impact Development
L _{max}	instantaneous maximum noise level
LRA	Local Responsibility Area
LSAA	Lake or Streambed Alteration Agreement
LSM	Less than Significant with Mitigation significance determination
LTS	Less than Significant significance determination
MAS	Marin Audubon Society
MBTA	Migratory Bird Treaty Act
MCSTOPP	Marin County Stormwater Pollution Prevention Program
MEIR	maximally exposed individual receptor
MHW	mean high water
MLD	Most Likely Descendant
MMRP	mitigation monitoring and reporting program
MMWD	Marin Municipal Water District
Mph	miles per hour
MS4	municipal separate storm sewer system
MTAC	Metropolitan Transportation Commission
MTL	mean tide level
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NAVD88	North American Vertical Datum of 1988
NBWA	North Bay Watershed Association
NI	No Impact significance determination
NLD	National Levee Database
NMFS	National Marine Fisheries Service
NO	nitric oxide

NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
Non-VHFHSZ	Non-Very High Fire Hazard Severity Zone
NOP	notice of preparation
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWIC	Northwest Information Center
OEHHA	Office of Environmental Health Hazard Assessment
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	particulate matter 10 microns or less in diameter
PM _{2.5}	particulate matter 2.5 microns or less in diameter
Ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project, Proposed Project	Tiscornia Marsh Habitat Restoration and Sea Level Rise Adaptation Project
PSD	Prevention of Significant Deterioration
RCNM	Roadway Construction Noise Level
RMS	root mean square
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCWA	Sonoma County Water Agency
SEL	sound exposure level
SFBAAB	San Francisco Bay Area Air Basin
SO ₂	sulfur dioxide
SR	State Route
SRCS	San Rafael City Schools
STRAW	Students and Teachers Restoring a Watershed
SU	Significant and Unavoidable significance determination
SUSUMP	Standard Urban Stormwater Management Plans
SVP	Society of Vertebrate Paleontology
SWL	still water elevation level
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCM	Transportation Control Measure
TDM	Transportation Demand Management

TMDL	Total Maximum Daily Load
TWL	Total Water Level
U.S. 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled
WEAT	Worker Environmental Awareness Training
WGCEP	Working Group on California Earthquake Probabilities
ZEV	Zero Emissions Vehicle

This page intentionally left blank

EIR GLOSSARY

100-year base flood elevation (BFE): As defined by the Federal Emergency Management Agency (FEMA), the elevation to which the 100-year flood is anticipated to rise. The BFE is computed based on the 1-percent-annual-chance total water level, which includes the still-water elevation and wave runup. (FEMA defines “still water” as the flood level not including the effects of waves or tsunamis, but including storm surge and astronomic tide.) BFEs vary because of varying wave exposure and shoreline geometry.

100-year flood: A flood with a magnitude that has a 1 in 100 chance (1 percent probability) of occurring in any given year. The “100-year floodplain” encompasses lands with a 1 percent annual chance of such a flood.

500-year flood: A flood event that has a 0.2 percent probability of being exceeded in any given year.

Anthropogenic greenhouse gas emissions: Greenhouse gas emissions derived from the combustion of fossil fuels, as well as byproducts of certain human-managed biological processes, such as wastewater treatment.

Basin plan: A document that establishes the beneficial uses to be protected for the waters within a specified area, water quality objectives to protect those uses, and an implementation program for achieving the objectives.

Bay Mud: Highly plastic clay and silt estuary deposits that formed mudflats and marshlands throughout the margins of the Bay Area. Bay Mud was formed when eroded fine-grained silt and clay particles that were carried down streams to San Francisco Bay met the relatively quiet bay waters.

Biogenic greenhouse gas emissions: Greenhouse gas emissions derived from natural sources, including natural decomposition of biomass (non-fossilized organic matter from plants, animals, and microorganisms).

Carbon dioxide–equivalent (CO₂e) emissions: A way of measuring the different global warming potentials of various greenhouse gases emitted as a result of human activities. (“Warming potential” is the amount of heat trapped in the atmosphere by a certain mass of the gas.) Carbon dioxide (CO₂) is the most common reference gas for climate change, so emissions of other greenhouse gases are quantified and reported as CO₂-equivalent emissions.

Coarse beach: A man-made beach constructed of coarse-grained materials like gravel and cobbles.

Criteria air pollutant (CAP): As identified by the U.S. Environmental Protection Agency, an air pollutant that is a threat to public health and welfare. CAPs are called “criteria” air pollutants because standards have been established for each to meet specific public health and welfare criteria.

Critical habitat: Habitat needed to support the recovery of listed species.

Cumulative impact: An environmental impact created by the combination of the proposed project being evaluated and other projects causing related impacts: “...the change in the environment which results from the incremental impact of the project added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individual minor but collectively significant projects taking place over a period of time” (CEQA Guidelines Section 15355(b)).

Diked marsh: For purposes of this EIR, the City-owned area north of the Pickleweed Park playfields.

Ecotone: An area that acts as a transition or boundary between two ecosystems, such as an area of marshland between a river and the riverbank. Because this area is influenced by the two bordering ecosystems, a higher variety of species can be found within an ecotone. An ecotone can act as a buffer zone protecting the neighboring ecosystem from possible environmental damage; for example, a wetland area could absorb pollutants, preventing them from seeping into a river or estuary.

Ecotone slope: For purposes of this EIR, a slope that would be constructed along the raised, setback levee along the south end of Tiscornia Marsh, as well as the new levee between the soccer field and the diked marsh. The ecotone slope would be planted with native vegetation adapted to historic ecotones, intermixing high marsh and upland species adapted to infrequent flooding and salinity.

Flood Insurance Rate Mapping (FIRM) program: A program administered by FEMA that designates areas where flooding could occur during 100-year and 500-year flood events.

Habitat Area of Particular Concern: A subset of Essential Fish Habitat that exhibits one or more of the following traits: rare, stressed by development, provides important ecological functions for federally managed species, or especially vulnerable to anthropogenic degradation.

Flexible jetty: A jetty made of granular, porous material such as cobble instead of concrete.

Freeboard: As defined by the U.S. Army Corps of Engineers, a factor of safety usually expressed in feet above a flood level for purposes of designing flood protection facilities and for floodplain management. Freeboard tends to compensate for factors such as wave action, bridge obstructions, and the hydrologic effect of urbanization of the watershed.

Maximally exposed individual receptor: As defined by the U.S. Environmental Protection Agency, the single individual with the highest exposure (to an air pollutant) in a given population. Used synonymously with “worst-case.”

Mean high-water mark: For ocean and coastal waters, the line on the shore established by the average of all high tides. The high-water mark is established by survey based on available tidal data, preferably averaged over 18.6 years to reflect the variations in tides. If such data are unavailable, less precise information and methods may be used, such as physical markings, lines of vegetation, or a comparison with another area with similar physical characteristics for which tidal data are readily available.

Natural community: An assemblage of plant species that occur together in the same area and are defined by species composition and relative abundance.

Non-point source: With regard to surface water quality, a pollutant source that does not have a single, identifiable discharge point, but is rather a combination of many sources.

Ordinary high-water mark: “[T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding area” (Code of Federal Regulations Title 33, Section 328.3[c][7]).

Outboard: Bay-adjacent.

Point source: With regard to surface water quality, any discernible, confined, and discrete conveyance of pollutants to a water body (such as a pipe discharge) from a source such as an industrial facility or wastewater treatment plant.

San Rafael Canal: An informal name used locally to refer to San Rafael Creek between U.S. Highway 101 and San Rafael Bay. This EIR uses the formal name of San Rafael Creek for this area.

Scenic vista: A location from which the public can experience a unique and exemplary view, typically from an elevated vantage point that offers a panoramic view of great breadth and depth.

Seiche: A water-level oscillation in an enclosed or semi-enclosed body of water such as a lake, reservoir, or harbor that results from a seismic event, wind stress, volcanic eruption, underwater landslide, or local basin reflection of a tsunami.

Sensitive natural community: A natural community designated by a resource agency, such as the California Department of Fish and Wildlife, or in local policies and regulations, that is generally considered to have important functions or values for wildlife and/or is recognized as declining in extent or distribution, and is considered threatened enough to warrant some level of protection.

Sensitive receptor (air quality): A member of a population subgroup sensitive to the health effects of air pollutants. As defined by the Bay Area Air Quality Management District, these subgroups include children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities.

Sensitive viewer: A viewer with a strong stake or interest in the quality of the landscape and a greater sensitivity to changes that degrade or detract from the visual character of an area. Examples include travelers on designated scenic routes, park visitors, cyclists, pedestrians, and tourists; and for lighting and glare, people in residential buildings.

Sound exposure level: A metric that provides an indication of the amount of acoustical energy contained in a sound event.

Toxic air contaminant (TAC): An airborne substance that can cause adverse human health effects. TACs may be emitted by common sources such as gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Health effects can be either short-term (acute) or long-term (chronic), and may include injury or illness. TACs can also be carcinogenic (cause cancer).

Tsunami: An ocean wave generated by vertical movement of the sea floor, normally associated with earthquakes or volcanic eruptions.

Viewer exposure: The variables that affect the viewing conditions of a site: landscape visibility (ability to see the landscape); viewing distance (proximity of viewers to the project); viewing angle (whether the project would be viewed from a superior, inferior, or level line of sight); extent of visibility (whether the line of sight is open and panoramic to the project area or restricted by terrain, vegetation, and/or structures); and duration of view.

Viewshed: An area of land, water, or other urban or environmental element that is visible to the human eye from a fixed vantage point.

Visual character: A general description of the visual attributes of a particular setting. An area's visual character is defined to provide the context within which the viewing public is likely to perceive the visual quality of a particular site or locale.

Visual quality: The overall visual impression or attractiveness of a site or locale as determined by its aesthetic qualities (such as color, variety, vividness, coherence, uniqueness, harmony, and pattern).

Waters of the U.S.: Wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations and applicable U.S. Army Corps of Engineers guidance.