

**Final
Napa River Salt Marsh Restoration Project
Environmental Impact Statement**

Volume 1

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Acronyms and Abbreviations

1-D	one-dimensional
2-D	two-dimensional
AACL	acceptable ambient concentration level
ABA	Architectural Barriers Act
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
af	acre-feet
ANFO	ammonium nitrate with 5.3–8% fuel oil
ATCM	air toxic control measure
BAAQMD	Bay Area Air Quality Management District
Basin Plan	<i>Water Quality Control Plan, San Francisco Bay Region</i>
Bay-Delta	San Francisco Bay/Sacramento–San Joaquin River Delta
BCDC	San Francisco Bay Conservation and Development Commission
Bay Plan	BCDC Bay Plan
BMP	best management practice
BOD	biological oxygen demand
CAA	Clean Air Act
CAAQS	California ambient air quality standards
Cal/EPA	California Environmental Protection Agency
CALFED	CALFED Bay-Delta Program
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CAR	Fish and Wildlife Coordination Act Report
CARB	California Air Resources Board
CASAC	Clean Air Scientific Advisory Committee
CCMP	Comprehensive Conservation and Management Plan
CCR	California Code of Regulations
CDMG	California Division of Mines and Geology
CEQ	President’s Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide

Coastal Conservancy	California State Coastal Conservancy
Corps	U.S. Army Corps of Engineers
CTR	California Toxics Rule
CUPA	certified unified program agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DDE	dichlorodiphenyldichloroethelene
DDT	dichlorodiphenyltrichloroethane
DFG	California Department of Fish and Game
DHS	Department of Health Services
DO	dissolved oxygen
DOT	U.S. Department of Transportation
DTM	Digital Terrain Model
EFH	essential fish habitat
EIR/EIS	environmental impact report/environmental impact statement
EPA	U.S. Environmental Protection Agency
ER-L	Effects Range–Low
ER-M	Effects Range–Median
ERPP	Ecosystem Restoration Program Plan
ESA	federal Endangered Species Act
ESU	evolutionarily significant unit
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
GIS	geographic information systems
gpm	gallons per minute
H ₂ S	hydrogen sulfide
ha	hectare
HAP	hazardous air pollutant
HCP	habitat conservation plan
HDPE	high-density polyethylene
HMTA	Hazardous Materials Transportation Act
HSMEW	Hudeman Slough Mitigation and Enhancement Wetlands
I-80	Interstate 80
IARC	International Agency for Research on Cancer
kv	kilovolt
LC50	concentration lethal to 50% of an exposed test population
L _{dn}	day-night equivalent sound level
L _{eq}	equivalent sound level
LGVSD	Las Gallinas Valley Sanitary District
LOS	level of service
LUST	leaking underground storage tank
MAD	mosquito abatement district
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
µg/kg	micrograms per kilogram
MHHW	mean higher high water
MHW	mean high water

MMP	mitigation and monitoring plan
MOU	memorandum of understanding
MRL	method reporting limit
MSAT	Mobile Source Air Toxic
MTAG	Modeling Technical Advisory Group
MTC	Metropolitan Transportation Commission
MTL	mean tide level
N	nitrogen
NAAQS	national ambient air quality standards
Napa River Unit	Napa River Unit of the Napa-Sonoma Marshes Wildlife Area
NAVD	National Annual Vertical Datum
NCMAD	Napa County Mosquito Abatement District
ND	no data available
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO	nitric oxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NOI	notice of intent
Novato SD	Novato Sanitary District
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSD	Napa Sanitation District
NSMWA	Napa-Sonoma Marshes Wildlife Area
NTU	nephelometric turbidity unit
NWPRA	Northwestern Pacific Railroad Authority
O ₃	ozone
O ₃ Attainment Plan	<i>San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard</i>
O&M	operations and maintenance
P	phosphorus
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
pg/l	picograms per liter
PM10	particulate matter less than 10 micrometers in diameter
ppb	parts per billion
Ppm	parts per million
ppt	parts per thousand
project sponsors	California State Coastal Conservancy, U.S. Army Corps of Engineers, and California Department of Fish and Game
PVC	polyvinyl chloride
PWA	Philip Williams and Associates
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RMP	Regional Monitoring Program
RMS	Root-Mean-Square
ROG	reactive organic gases
ROW	right-of-way
RWQCB	regional water quality control board

SARA	Superfund Amendments and Reauthorization Act
SC	species of concern
SCWA	Sonoma County Water Agency
SFBAAB	San Francisco Bay Area Air Basin
SFBJV	San Francisco Bay Joint Venture
SFEP	San Francisco Estuary Project
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SNA	Significant Natural Area
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SR	State Route
SSC	species of special concern
SVCS	Sonoma Valley County Sanitation District
SWANCC	Solid Waste Agency of Northern Cook County
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TBT	tributyltin
TDS	total dissolved solids
TMDL	total maximum daily load
TNT	trinitrotoluene
TSS	total suspended solids
UBC	uniform building code
UCD	University of California, Davis
URL	Uniform Resource Locator
U.S. 101	U.S. Highway 101
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UTM	Universal Transverse Mercator
V _s	shear-wave velocity
WCB	Wildlife Conservation Board
WDR	waste discharge requirement
WWTP	wastewater treatment plant

Glossary

acute toxicity: For purposes of this project, a median of less than 90% survival, or less than 70% survival more than 10% of the time, of test organisms in a 96-hour static or continuous flow test. See also *chronic toxicity*.

adsorption: The adherence of a gas, liquid, or dissolved material on the surface of a solid.

anoxic: Greatly deficient in oxygen; oxygenless as with water.

anthropogenic: Involving the impact of humans on nature; induced, caused, or altered by the presence and activities of humans, as in water and air pollution.

benthic organisms: Those organisms living at or near the bottom of a body of water.

bioaccumulation: The increase in concentration of a chemical in organisms that reside in environments contaminated with low concentrations of various organic compounds. Also used to describe the progressive increase in the amount of a chemical in an organism resulting from rates of absorption of a substance in excess of its metabolism and excretion.

biotic: Pertaining to life or living things, or caused by living organisms.

bittern: Waste materials left over after table salt (sodium chloride) was harvested from the salt ponds. Shown in laboratory studies to have toxic effects on aquatic life.

bittern pond: A repository of concentrated soluble salts other than sodium chloride. For purposes of this project, refers to Pond 7.

brackish water: Water containing a mixture of seawater and fresh water; contains dissolved materials in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses.

CAC Pipeline: The pipeline proposed to carry recycled water from the City of American Canyon wastewater treatment plant as part of the Water Delivery Option.

channel density: The amount of channel habitat per acre of marshplain.

chronic toxicity: A detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. See also *acute toxicity*.

congeners: Elements belonging to the same group on the periodic table (e.g., sodium and potassium); compounds produced by identical synthesis reactions and procedures.

cytochemical: Related to the chemistry of cells.

demersal: Dwelling at or near the bottom of a body of water.

diadromous fishes: Fishes that migrate through estuaries on their way either to fresh water or to salt water. Includes anadromous species, which migrate from salt water to spawn in fresh water, and catadromous species, which migrate from fresh water to spawn in the ocean.

diurnal: Having a daily cycle.

donut: A circular water control structure that has multiple intakes and that is used to distribute water through the canal and siphon system.

essential fish habitat: Waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

eutrophication: Overenrichment of a lake or other water body with nutrients, resulting in excessive growth of organisms and the depletion of oxygen.

ground lurching: The horizontal movement of ground located adjacent to slope faces during strong, earthquake-induced ground motion.

hazardous air pollutant: The classification, under federal law, for a pollutant that increases the public's risk of developing cancer. See also *toxic air contaminant*.

hemiparasitic: Partially dependent on another host plant in order to survive.

high marsh: See *upper tidal marsh*.

histopathological: Pertaining to the tissue changes that affect a part or accompany a disease.

hygroscopic: Describing a chemical substance with an affinity for water, one that will absorb moisture, usually from the air.

hypoxic: Refers to natural waters that have a low concentration of dissolved oxygen (about 2 milligrams per liter as compared with a normal level of 8–10 milligrams per liter).

infauna: Aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom.

lateral spreading: The horizontal displacement of soil during strong, earthquake-induced ground motion.

lower ponds: The ponds in the project area located south of Napa Slough, i.e., Ponds 1, 1A, 2, 3, 4, 5, 6, and 6A.

lower tidal marsh: Habitat that occurs above mudflats along stream and slough channels and typically is found between mean tide level and mean high water (3.3(5.5 feet National Annual Vertical Datum 88)). Within the range of daily tidal fluctuations; ground surface and low-growing plants are exposed at low tides and completely inundated at higher tides and during periods of high stream discharge.

methylation: Conversion of sediment-bound mercury may through both biotic and abiotic processes to its more bioavailable methylated form. Methyl mercury has known neurological toxicity effects that tend to increase at each level up the food chain in aquatic environments. Thus, the availability of such contaminants, even in the seemingly insignificant parts per trillion range, often are ecologically important.

microtidal marsh, muted tidal marsh: A tidal marsh that receives less than full tidal flow because of a physical impediment. Muting can result from the presence of natural formations such as a sand bar or of human-made structures such as tide gates, culverts, or other water control structures. Muted tidal marshes exhibit many of the same features of fully tidal marshes, although they frequently lack the same range of plant diversity.

middle tidal marsh: Habitat that occurs between mean high water and mean high higher water (5.5(6.0 feet National Annual Vertical Datum 88)); inundated only during higher high tides.

mutagenicity: The capacity to induce a mutation or an abrupt change in the genetic constitution of an organism.

Napa Pipeline: The pipeline proposed to carry recycled water from the Napa Sanitation District wastewater treatment plant as part of the Water Delivery Option.

nonattainment areas: Areas that do not meet the national ambient air quality standards established in 1970 by the Clean Air Act.

organoarsenical: Of, relating to, or being an organic compound that contains arsenic.

pelagic: Referring to the open sea at all depths.

point-source discharge: A discharge of a pollutant from an identifiable point, such as a pipe, ditch, channel, sewer, tunnel, or container.

project sponsors: For purposes of this project, refers to the California State Coastal Conservancy, U.S. Army Corps of Engineers, and California Department of Fish and Game.

saline wedge: Viscous, dense brine that forms in the siphon when the denser, heavier saline water falls to the bottom of the siphon and blocks the passage of water.

sessile: Sitting directly on base without support, stalk, pedicel, or peduncle; attached or stationary as opposed to free living, or exhibiting or capable of movement.

soil liquefaction: The sudden and total loss of soil strength during earthquake-induced ground motion. Occurs in loose, saturated, clean sand where ground shaking increases effective pore pressure resulting in the displacement of individual sand grains and groundwater. The soil transforms into a fluid-like state, allowing displacement of water and the potential mobilization of sand if not confined.

Sonoma Pipeline: The pipeline proposed to carry recycled water from the Sonoma Valley County Sanitation District wastewater treatment plant as part of the Project Component of the Water Delivery Option.

specific yield: A measure of aquifer productivity; the volume of water drained divided by the total volume of the sample.

teratogenicity: The capacity to cause birth defects.

tertiary wastewater treatment: Selected biological, physical, and chemical separation processes to remove organic and inorganic substances that resist conventional treatment processes; the additional treatment of effluent beyond that of primary and secondary treatment methods to obtain a very high quality of effluent.

tidal muting: The restriction of tidal flow by friction; contributes to channel shape and form as a result of erosion and sedimentation.

tidal prism: The volume of water that flows into and out of a marsh.

Total Maximum Daily Load program: A quantitative assessment of a problem that affects water quality. Establishes the amount of a pollutant present in a water body and specifies an allowable load of the pollutant from individual sources to ensure compliance with water quality standards.

toxic air contaminant: The classification, under California law, for a pollutant that increases the public's risk of developing cancer. See also hazardous air pollutant.

trophic level: Stage in a food chain or web leading from primary producers (lowest trophic level) through herbivores to primary and secondary carnivores (consumers—highest level).

tsunami: A seismically induced flood caused by the transfer of energy from an earthquake epicenter to coastal areas by ocean waves.

turbidity: A measure of the reduced transparency of water due to suspended material that carries water quality implications.

upper ponds: The ponds in the project area located north of Napa Slough, i.e., Ponds 7, 7A, and 8.

upper tidal marsh: Habitat that occurs from mean high higher water and up several feet (>6.0 feet National Annual Vertical Datum 88) to the maximum elevation of tidal effects. This habitat is inundated only during higher high tides.

zooplankton: Floating and free-swimming invertebrates that are suspended in the water column.