INITIAL STUDY / PROPOSED MITIGATED NEGATIVE DECLARATION

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT WATER RIGHT CHANGE PETITIONS AND TRACY LAKE GROUNDWATER RECHARGE PROJECT

Prepared for the Lead Agency:

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

P.O. Box E
Victor, CA 95253
(209) 224-0349

Prepared by:

Robertson-Bryan, Inc.
Michael Bryan, Ph.D., Principal-in-Charge
Janelle Nolan, Resource Director, Terrestrial Biological Resources
Keith Whitener, Senior Aquatic Biologist
Jeff Lafer, Hydrology and Water Quality Specialist
Sara Reece, Terrestrial Biologist
Corinne Munger, Terrestrial Biologist

Ric Windmiller, Consulting Archaeologist

Walter E. Sadler, Consulting Engineer

Jennifer L. Spaletta, District Legal Counsel re Water Rights

January 2014

[PROPOSED] NEGATIVE DECLARATION

Project Title: North San Joaquin Water Conservation District Water Right Change Petitions and Tracy Lake Groundwater Recharge Project

Lead Agency: North San Joaquin Water Conservation District

Project Description

North San Joaquin Water Conservation District ("District") holds appropriative water right Permit 10477 to store, divert and use water from the Mokelumne River near Lodi, California. The District has petitioned the State Water Resources Control Board ("SWRCB") (1) for an extension of time to December 31, 2040 to place the water to beneficial use under the permit, (2) to expand the place of use for the permit to the District's current jurisdictional boundaries, (3) to add underground storage as a purpose of use under the permit, and (4) to add two new points of diversion.

The first new point of diversion would be the existing Woodbridge Irrigation District diversion at Lodi Lake which diverts water to the Lodi Water Treatment Plant. The second new point of diversion would be a new diversion structure located five miles downstream of Lodi Lake. The new diversion would serve the District's proposed Tracy Lake Groundwater Recharge Project.

The primary purpose of the Proposed Project is to implement conjunctive use of surface and groundwater resources, thereby conserving water resources over the long term and reducing existing groundwater overdraft conditions.

Project Location

Lodi, California

Project Proponent

North San Joaquin Water Conservation District

Negative Declaration

The North San Joaquin Water Conservation District has found that the Proposed Project would have less-than-significant effects on the environment upon implementation of identified mitigation measures.

Roger K. Masuda
Griffith & Masuda
A Professional Law Corporation
517 E. Olive Street
Turlock, CA 95380

On Behalf of

North San Joaquin Water Conservation District
P.O. Box E
Victor, CA 95253
(209) 224-0349

_____

(Roger Masuda), Legal Counsel, North San Joaquin Water Conservation District Board of Directors

Initial Study

The Initial Study documenting reasons to support findings of no significant effect on the environment is attached.

Summary of Mitigation Measures

Impacts of the Proposed Project to the following resources would be less than significant with incorporation into the project of mitigation measures:

- Biological Resources
- Cultural Resources
- Hydrology & Water Quality

The table below summarizes proposed mitigation measures.

Biological Resources	
Mitigation Measure BIO-1.	NSJWCD shall obtain authorization from SJCOG for the Tracy Lake Recharge Project under the SJMSCP. This coverage will allow NSJWCD to minimize and compensate for potential effects resulting from construction- and operation-related activities associated with the water diversion, pump station, conveyance pipeline, and outfall facilities through implementation of all applicable Measures to Minimize Impacts pursuant to Section 5.2.4 of the SJMSCP. NSJWCD shall provide mitigation pursuant to the compensation methods described in Section 5.3 of the SJMSCP. Additionally, NSJWCD shall pay all appropriate fees associated with coverage under the SJMSCP.
Mitigation Measure BIO-2.	Preconstruction special-status plant surveys shall be completed within the construction and staging areas and Tracy Lake lakebed in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys be conducted by a qualified biologist during appropriate blooming times in areas with characteristics likely to support special-status plant species. If special-status plant populations are identified within the Tracy Lake Recharge Project area, NSJWCD shall implement appropriate compensation and minimization measures described in Section 5.2.4.29 of the SJMSCP to the areas that are occupied by the species identified under the SJMSCP.

Mitigation Measure BIO-3.	Preconstruction surveys for California tiger salamander and western spadefoot toad shall be completed within the construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If California tiger salamander or western spadefoot toad are identified within the pipeline alignment portion of the Tracy Lake Recharge Project area, NSJWCD shall implement appropriate compensation and minimization measures described in 5.2.4.5 of the SJMSCP.
Mitigation Measure BIO-4.	NSJWCD shall complete and submit a wetland delineation and "significant hydrologic nexus" assessment, for the Tracy Lake Recharge Project area, including proposed construction and staging areas and the Tracy Lake lakebed. Based on USACE determination of jurisdictional Waters of the U.S. and isolated waters of the state, NSJWCD shall prepare and submit applications to obtain the following permits, as appropriate: (1) CWA Section 404 permit for discharge of dredge and fill material; (2) CWA Section 401 water quality certification from the Central Valley Regional Water Quality Control Board; and (3) Section 1602 SAA authorization from CDFW prior to the beginning of construction. All avoidance, protection, and mitigation measures included in these permits shall be implemented.
Mitigation Measure BIO-5.	Preconstruction surveys for western pond turtle and San Joaquin whipsnake shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If western pond turtle or San Joaquin whipsnake are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.8 through 5.2.4.10 of the SJMSCP.
Mitigation Measure BIO-6.	Preconstruction surveys for special-status birds shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If special-status birds are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.11 through 5.2.4.22 of the SJMSCP.
Mitigation Measure BIO-7.	Preconstruction surveys for special-status bats shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If special-status bats are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Section 5.2.4.28 of the SJMSCP.
Mitigation Measure BIO-8.	Preconstruction surveys for San Joaquin kit fox, American badger, and ringtail shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2.5 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If San Joaquin kit fox, American badger, or ringtail are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.25 through 5.2.4.26 of the SJMSCP.

Mitigation Measure BIO-9.	To compensate for impacts within 100 feet of the dripline of riparian vegetation along the Mokelumne River, NSJWCD shall implement the applicable Incidental Take Minimization Measures described in Section 5.2.4.31 of the SJMSCP.
Mitigation Measure BIO-10.	In order to avoid take (FGC § 86) of protected raptors (FGC § 3503.5), a pre-construction raptor nest survey shall be conducted within a quarter-mile (1320 feet) of the Tracy Lake Recharge Project site, and within 15 days prior to the beginning of construction activities by a California Department of Fish and Wildlife (DFW) approved biologist in order to identify active nests in the site vicinity. The results of the survey shall be submitted to the city of Stockton and the DFW. If active nests are found, a quarter-mile initial temporary nest disturbance buffer shall be established. If project-related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then an on-site biologist/monitor experienced with raptor behavior shall be retained by the project proponent to monitor the nest, and shall along with the project proponent, consult with the DFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be only allowed to proceed within the temporary nest disturbance buffer if raptors are not exhibiting agitated behavior such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of the DFW. The designated on-site biologist/monitor shall be on-site daily while construction related activities are taking place within the above quarter-mile buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior.
Mitigation Measure BIO-11.	The JSA flow requirements and EBMUD's mitigation measures in its EIR for the Permit 10478 Time Extension Project ensure that the extension of NSJWCD's permit to 2040 will have less-than-significant impacts to fish resources. NSJWCD agrees not to interfere with either the JSA flow requirements or EBMUD's mitigation measures.
Cultural Resources	
Mitigation Measure CR-1.	Because of the known presence of significant archaeological resources in areas surrounding Tracy Lakes, a qualified archaeologist shall be present to monitor initial ground disturbance in those areas of proposed construction for the pump station and pipeline alignment. A pre-construction meeting should be conducted with any inexperienced construction workers that will be operating clearing and excavation equipment to inform them of the potential for discovery of archaeological resources and the conditions of this mitigation requirement. The monitor should be present during all initial grading, grubbing, vegetation removal, and excavation to these areas. If an archaeological resource is encountered, all activity shall be halted in the immediate vicinity of the find and the lead agency shall determine if the site is a historical resource in reference to Public Resources Code Section 21084.1 and Guidelines Section 15126.4, and determine if further mitigation is required. If an archaeological resource does not meet the criteria in the above sections, but does meet the definition of a unique archaeological resource in Public Resources Code Section 21083.2, then the site shall be treated in accordance with the provisions in Public Resources Code Section 21083.2. If an archaeological site is neither a unique archaeological resource nor historical resource, the effects of the Tracy Lake Recharge Project on that resource shall not be considered a significant effect on the environment. The construction monitoring shall be included as a condition of the construction contract between NSJWCD and the responsible construction contractor(s), and as appropriate, shall additionally be included in final project designs and specifications that are prepared for the Tracy Lake Recharge Project.
Mitigation Measure CR-2.	In the event that a paleontological resource is encountered, all construction activity shall be halted in the immediate vicinity of the find. The lead agency shall consult with a qualified paleontologist to determine if the artifact is a unique resource. The decision to conduct paleontological salvage operations will be determined by

	the paleontologist in consultation with NSJWCD staff. Any salvage operation, if deemed necessary, shall be conducted in accordance with professional paleontological standards. This will include removal of identifiable paleontological remains, fossil preparation and subsequent curation of these remains at a recognized repository such as the University of California Museum of Paleontology.
Mitigation Measure CR-3.	Under California law, if human remains are encountered, all work must cease in the immediate vicinity of the find and the County Coroner must be notified. No further disturbance of the find shall occur until the coroner has made the necessary findings as to origin and disposition of the remains and any grave goods. If the coroner determines that no investigation of the cause of death is required and if the remains are of Native American origin, the coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend appropriate disposition of the remains and any grave goods. The human remains and grave goods will then be removed and treated in accordance with Public Resources Code Section 5097.98.
Hydrology and Water Quality	
Mitigation Measure WQ-1.	The BMPs outlined in Section 2 of the Initial Study (Project Description) have been incorporated into the Proposed Project by NSJWCD to minimize potential adverse effects of construction-related activities such as soil erosion, discharges of sediment associated with in-river construction, and spills of contaminants. The BMPs shall be included as conditions of the construction contract between NSJWCD and the responsible construction contractor(s), and as appropriate, shall additionally be included in final project designs and specifications that are prepared for the Tracy Lake Groundwater Recharge Project. Additionally, construction requirements specified in permits issued for the project, including, but not limited to, the Section 401 Water Quality Certification and Section 1602 Streambed Alteration Agreement, shall be included in the construction contract between NSJWCD and the construction contractor(s).

TABLE OF CONTENTS

SECTION PAGE

TABLE OF CONTENTS

SECTION PAGE

TABLE OF CONTENTS

SECTION PAGE

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1 INTRODUCTION

This document provides information to describe and evaluate the potential environmental effects of North San Joaquin Water Conservation District's ("NSJWCD" or "District") pending water right petitions for Permit 10477.

The District has petitioned the State Water Resources Control Board ("SWRCB") (1) for an extension of time to December 1, 2040 to place the water to beneficial use under the permit, (2) to expand the place of use for the permit to the District's current jurisdictional boundaries, (3) to add additional underground storage as a purpose of use under the permit, and (4) to add two new points of diversion.

The first new point of diversion would be the existing Woodbridge Irrigation District diversion at Lodi Lake, which diverts water to the Lodi Water Treatment Plant. No new construction would be required for this point of diversion. The second new point of diversion would be a new diversion structure located five miles downstream of Lodi Lake. The new diversion would serve the District's proposed Tracy Lake Groundwater Recharge Project. Appendix A contains a map and description of the existing and proposed points of diversion and place of use for Permit 10477.

The Tracy Lake Groundwater Recharge Project involves the construction of an in-river intake structure with fish screen to prevent entrainment of sensitive species, pump station located on the adjacent streambank, and an approximately 1,000-foot long, 30-inch diameter pipeline to convey the water to Tracy Lake. The new diversion will divert up to 40 cubic-feet-per second to the existing Tracy Lake for groundwater recharge and direct use for agricultural irrigation. Appendix B contains a detailed description of the Tracy Lake Groundwater Recharge Project . The Tracy Lake Groundwater Recharge Project is being funded in part by a U.S. Bureau of Reclamation (Reclamation) WaterSMART "Water and Energy Efficiency Grant." Assessments from a landowner improvement district within NSJWCD are funding the balance. Appendix B contains a detailed description of the Tracy Lake Groundwater Recharge Project.

For purposes of this document, the "Proposed Project" includes all of the pending petitions related to Permit 10477 as well as the new construction and operation of the Tracy Lake Groundwater Recharge Project. The primary purpose of the Proposed Project is to implement conjunctive use of surface and groundwater resources, thereby conserving water resources over the long term and reducing existing groundwater overdraft conditions. The project will enable the District to utilize all of its water right to reduce reliance on groundwater and reduce groundwater overdraft.

1.1 Regulatory Guidance and Purpose of this Document

This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) section 15000 et seq. This Initial Study (IS) was prepared by the NSJWCD (the Lead

Agency) to determine if the Proposed Project could have significant impacts on the environment. In accordance with CEQA Guidelines section 15064(a), an Environmental Impact Report (EIR) must be prepared if there is substantial evidence that a project may have significant impacts on the environment. If the Lead Agency determines that there is no substantial evidence for such impacts, or if the potential impacts can be reduced through project revisions or mitigation measures, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) can be prepared (Public Resources Code § 21064.5; CEQA Guidelines § 15070).

The IS identifies the potential environmental impacts associated with the Proposed Project using the CEQA environmental checklist format (i.e., CEQA Guidelines, Appendix G). The following terminology is used to describe the various levels of environmental impacts associated with such an activity.

- A finding of no impact is identified if the review concludes that the Proposed Project would not affect the particular resource category in any way.
- An impact is considered less than significant if the review concludes that it would cause no substantial adverse change in the environment and requires no mitigation.
- An impact is considered less than significant with mitigation incorporated if the review concludes that it would cause no substantial adverse change in the environment with the inclusion of environmental commitments and measures that would be incorporated by NSJWCD.
- An impact is considered potentially significant if the review concludes that a threshold of significance could be exceeded without additional mitigation measures being implemented that reduce the impact to less-than-significant levels.

1.2 Responsible and Trustee Agencies

The NSJWCD, as the lead CEQA agency, has the primary authority for project approval. Responsible and trustee agencies will have the opportunity to review this document during the public and agency review period and will use this information in consideration and issuance of any other required permits or approvals. Other agencies that may exercise permitting approval or review authority over the Proposed Project may include:

- California Department of Fish and Wildlife
- Regional Water Quality Control Board
- State Water Resources Control Board, Division of Water Rights
- State Lands Commission
- Central Valley Flood Protection Board

- National Oceanographic and Atmospheric Administration, National Marine Fisheries Service
- U.S. Fish and Wildlife Service
- United States Army Corps of Engineers

1.3 Public Review of the Document

The NSJWCD, as the CEQA lead agency for the Proposed Project, has determined that by implementing best management practices (BMPs) and/or mitigation measures that would be incorporated into the project approvals, there would be no potentially significant or significant impacts to any environmental resources from implementation of the Proposed Project. Accordingly, the NSJWCD has determined that an MND is the appropriate documents for compliance with CEQA and the CEQA Guidelines. In accordance with the CEQA Guidelines section 15073, this document will be circulated to local, state, and federal agencies and to interested organizations and individuals who may wish to review and comment on it. In reviewing this IS, affected public agencies and the interested public should focus on whether the document sufficiently identifies and analyzes the possible impacts on the environment.

A 30-day review and comment period for the IS/MND has been established in accordance with the CEQA Guidelines 15205(d). This IS/MND is available for public review on the NSJWCD's website (http://www.nsjgroundwater.org) and during regular business hours at the Lodi Public Library (201 W Locust St, Lodi, CA 95240). The 30-day public review period for the document is February 4, 2014 to March 6, 2014 at 5:00 p.m. Written comments on the IS/MND will be accepted during the comment period. If you wish to send written comments (including via e-mail), they must be received by NSJWCD by 5:00 p.m. on March 6, 2014. Postmarks will not be accepted if received after the close of the public review period.

Written or e-mailed comments should be addressed to:

North San Joaquin Water Conservation District

P.O. Box E

Victor, CA 95253

Email: wesadler@gmail.com

Following the close of the public review period, the NSJWCD's Board of Directors will consider the IS/MND, and public comments received on the document, for potential adoption of the proposed MND.

1.4 Document Organization

This document is organized in the following manner:

- **Section 1, Introduction.** This section provides an introduction and describes the purpose, scope, and organization of this document.
- **Section 2, Project Description.** This section describes the purpose and need of the Proposed Project, project objectives, and a description of the project's characteristics.
- **Section 3, Initial Study Discussion / CEQA Checklist.** This chapter provides an environmental setting for the Proposed Project and analyzes the environmental impacts of the Proposed Project. Resource topics appear in the order that they appear in the CEQA Environmental Checklist. The environmental checklist is taken from Appendix G of the State CEQA Guidelines. Mitigation measures are incorporated and discussed, where appropriate, to reduce "potentially significant" impacts to a "less-than-significant" impact level. Mandatory Findings of Significance also are presented in this section.
- **Section 4, List of Preparers.** This section identifies a list of people that assisted in the preparation of this document
- **Section 5, References.** This section identifies the references used in the preparation of this document.

1.5 Summary of Findings

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts resulting from implementation of the Proposed Project.

Based on the resources evaluated, it was determined that the Proposed Project would have no impact, or less-than-significant impacts, on the following resources:

- Aesthetics
- Agricultural & Forest Resources
- Greenhouse Gas Emissions
- Land Use & Planning
- Mineral Resources
- Noise

- Recreation
- Population & Housing
- Public Services
- Transportation/Traffic
- Geology, Soils & Seismicity
- Hazards & Hazardous Materials
- Utilities & Service Systems

Impacts of the Proposed Project to the following resources would be less than significant with incorporation into the project of mitigation measures described in Chapter 3 and the MND included with this document:

- Biological Resources
- Cultural Resources
- Hydrology & Water Quality

After completing the IS, the District determined that with project design and avoidance measures and proposed project-specific mitigation measures, there would be no significant impacts to any resource area from the Proposed Project and, therefore, adoption of the proposed MND by the NJSWCD is appropriate.

As required by CEQA, a Mitigation Monitoring and Reporting Program (MMRP) will be prepared and adopted at the time of project approval. It will include those mitigation measures that would reduce potentially significant environmental impacts to less-than-significant levels.

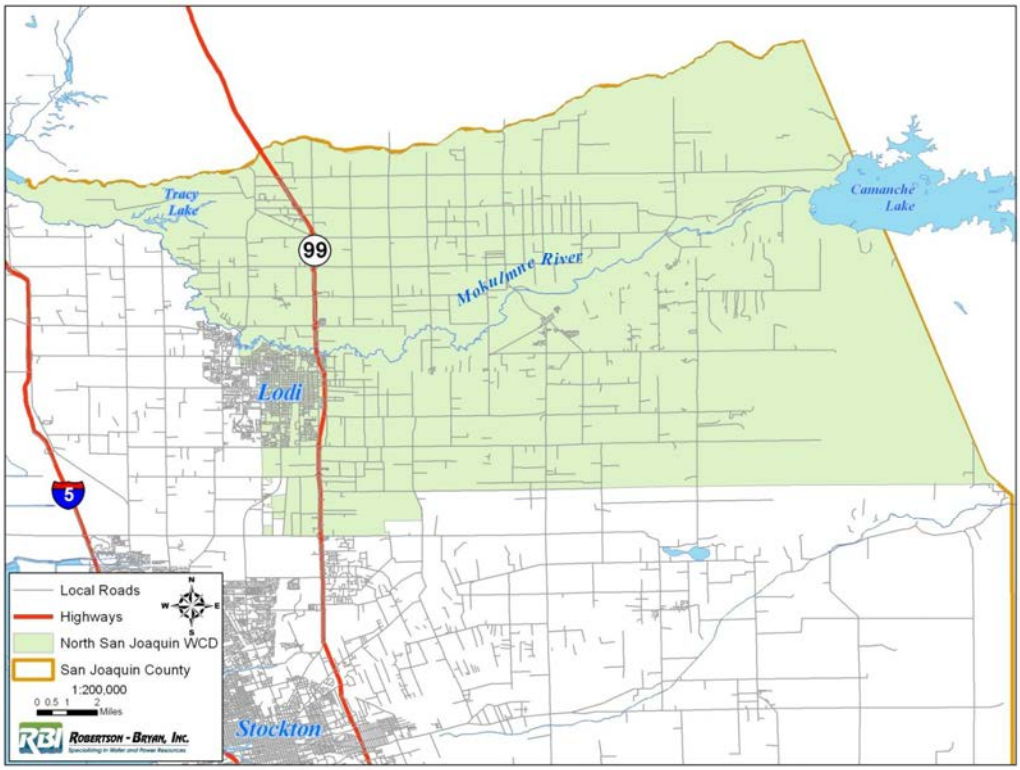
2 PROJECT DESCRIPTION

2.1 Background

2.1.1 Water Rights

The North San Joaquin Water Conservation District ("NSJWCD" or "District") was organized in 1948 under provisions of the Water Conservation District Act of 1931 and encompasses approximately 150,000 acres east and north of the City of Lodi in eastern San Joaquin County, California (**Figure 1**). The Mokelumne River passes through the NSJWCD service area, and the district lies within both the Cosumnes River and the Eastern San Joaquin sub-basins as defined in California Department of Water Resources (DWR) Bulletin 118. The major land uses in the area are agriculture and dry pasture areas. The District also includes most of the City of Lodi.

Figure 1: Regional Map



The State Water Resources Control Board (SWRCB) issued Permit 10477 to NSJWCD in 1956 in Decision 858 (D-858). Permit 10477 currently provides for:

- Direct diversion of 80 cfs with no more than 40 cfs diverted from any one facility.
- Direct diversion and diversion to storage must occur between December 1 and July 1 of the succeeding year.
- Direct diversion and diversion to storage are limited to 20,000 acre feet per year (afa). Pursuant to a 2008 Fish Bypass Agreement with Department of Fish and Wildlife, the District may only divert and use a maximum of 19,000 afa of the 20,000 afa and must bypass 5% of the supply available under Permit 10477 for fishery purposes in the Mokelumne River.
- Water may be beneficially used for the following purposes: recreation in Camanche Reservoir, and domestic, irrigation, municipal and industrial uses in the 45,000 acre authorized place of use (based on NSJWCD original district boundary).
- The authorized place of use is 45,000 net acres in the original NSJWCD service area, including Township 3, Ranges 6, 7, 8 East, and T4N, Ranges 6, 7 and 8 East, MDB&M.
- Authorized points of diversion include Camanche Reservoir and three existing diversion points, commonly called the North, South and Cal-Fed pumping stations. Each pumping station is equipped with a fish screen. The existing four points of diversion are shown in Appendix A.

Other water right holders for Mokelumne River water include Woodbridge Irrigation District, Amador County, Calaveras County, East Bay Municipal Utility District (EBMUD), and riparian and pre-1914 appropriative rights along the river.

In D-858 the SWRCB granted Permit 10477 as a temporary right under Water Code Section 1462, such that water is available under Permit 10477 only when surplus to EBMUD's municipal needs for water covered by EBMUD's Permit 10478. Historically, EBMUD has informed NSJWCD that water is available for Permit 10477 in about 60% of years and typically in years that are normal, above-normal and wet.

EBMUD operates the Pardee and Camanche dams and reservoirs on the Mokelumne River. There is an existing contract between EBMUD and NSJWCD under which EBMUD temporarily stores NSJWCD's Permit 10477 water in Camanche for later release. EBMUD's water rights on the Mokelumne are subject to certain regulatory requirements, including fishery releases and activities required by the "Joint Settlement Agreement" (JSA) between EBMUD, the United States Fish and Wildlife Service and the California Department of Fish and Game (now California Department of Fish and Wildlife). NSJWCD's must allow any water bypassed or released from Camanche Reservoir by EBMUD for the protection and/or enhancement of fish and wildlife to continue downstream. Thus, NSJWCD may only

divert natural flow or releases from storage in the Mokelumne River that are in excess of the JSA releases.

NSJWCD's historic diversions under Permit 10477 have been as high as 9,500 acre-feet per year. Recent diversions have averaged about 3,000 acre-feet per year. After the drought of the late 1980's and early 1990's many farmers who previously irrigated with surface water switched to groundwater and drip irrigation, which accounted for part of the decline. Lack of reliability of supply has also hampered the district's ability to convince farmers to take surface water because of the need for farmers to maintain dual surface water and groundwater delivery systems.

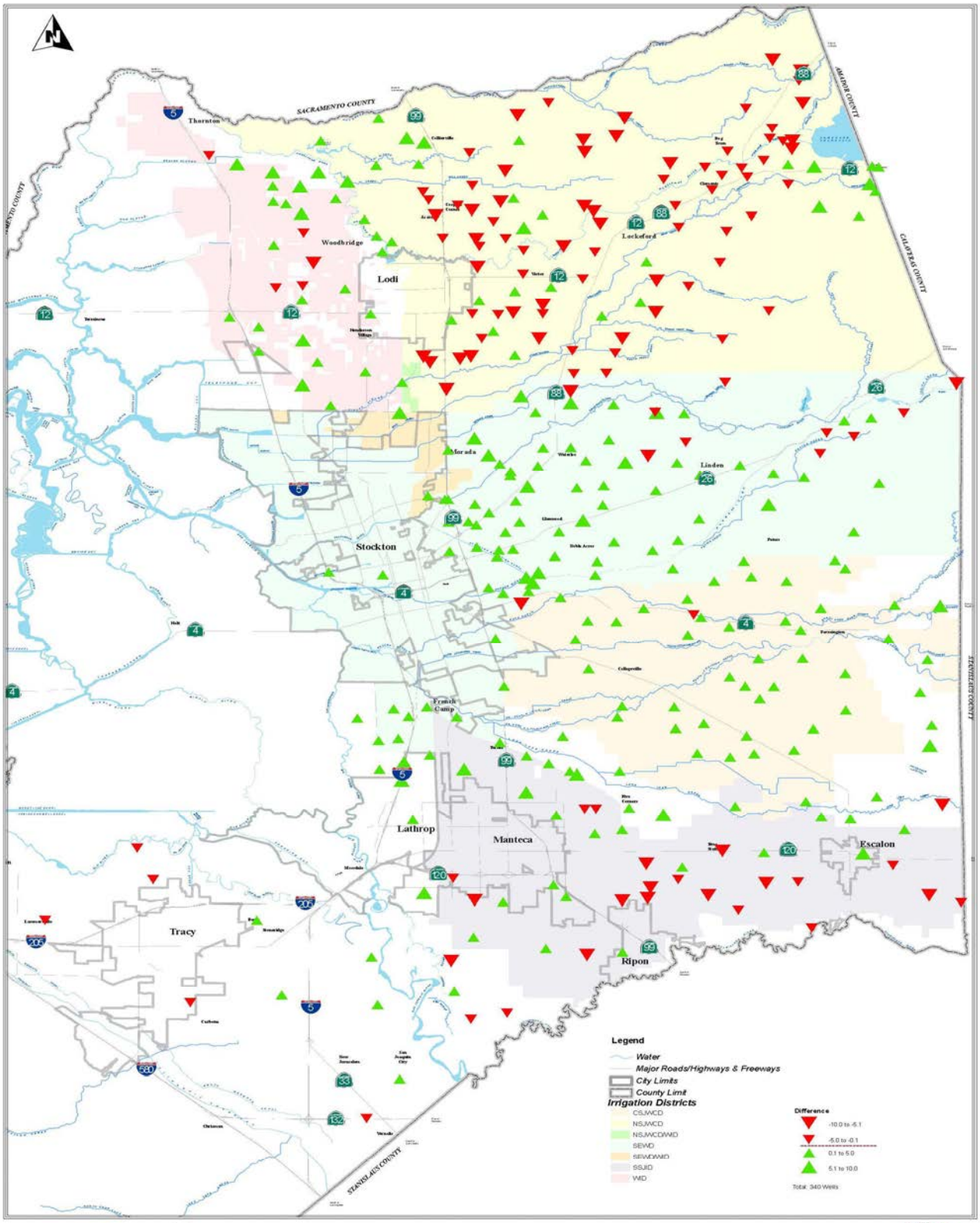
2.1.2 Groundwater Overdraft

The NSJWCD overlies the Eastern San Joaquin County Groundwater Basin where almost all of the agricultural water demands are met from groundwater pumped from this basin. The groundwater pumping has exceeded the amount of aquifer recharge over the years leading to overdrafting of the groundwater basin. Overdrafting of the aquifer began in the early 1900s; however, the State did not formally recognize the problem until 1982 when it designated the basin as being "critically overdrafted." A number of studies have been completed over the years, which concluded that the estimated overdraft to be anywhere from 130,000 to 200,000 AFA. The NSJWCD engineer's report in 2009 estimated that the current overdraft within the district boundaries was about 50,000 AFA. Only 100,000 acres of the NSJWCD have been developed, and the annual groundwater use within the NSJWCD boundaries is about 173,000 AFA. About 50,000 acres are dry pasture areas, which may be developed into irrigated agricultural lands or urban land uses at some time in the future. This development has already started in the NSJWCD where in the past 2-3 years vineyards and houses are moving into the dry pasture area. Assuming a new groundwater annual demand of 1.75 acre-feet per acre, development of the 50,000 acres will increase the NSJWCD overdraft to 137,500 AFA.

Groundwater levels in monitoring wells within the NSJWCD show various levels of decline in water levels since the 1960s, with an average drop of 17 feet, or about 0.3 feet per year. In general, the lowest groundwater levels were reached in the late 1970s, recovering 10 to 20 feet, but then declined again in the mid-1990s. The rate of decline during the last 5 years increased to 1 foot per year due to the drought conditions.

While other parts of San Joaquin County have seen some stabilization of groundwater levels since 1992, groundwater levels in the area of NSJWCD have continued to decline. See Figure 2.

Figure 2. Differences in Groundwater Elevations between Fall 2012 and Fall 1992



Differences in Groundater Elevations Fall 2012 vs Fall 1992

San Joaquin County Public Works Water Resources
1810 East Hazelton Avenue, Stockton CA 95205

The information on this map is based on the most current information available to San Joaquin County Water Resources. The County of San Joaquin does not warrant its accuracy or suitability for any particular purpose. The information on this map is not intended to replace engineering, financial or primary records research.

1 inch = 3.31 miles

Kilometers 0 1.25 2.5 5

Miles 0 1.25 2.5 5

Prepared by: Gerardo Dominguez

2.1.3 Existing Groundwater Overdraft and Water Supply Management Actions

Groundwater overdraft, as exacerbated by projected increase reliance on ground water resources presents numerous problems for sustained economic and environmental conditions. These problems include increased energy costs, well replacements riparian and wetland habitat sustenance – all of which are substantial concerns of NSJWCD. In 1996, NSJWCD adopted a Groundwater Management Plan to address declining groundwater levels, degradation of groundwater quality, and securing reliable surface water supplies. Plan elements include the continued effort to seek a reliable supplemental surface water supply from the Mokelumne River and other sources, promotion of more efficient irrigation water application methods, participation in regional groundwater management efforts, and development of groundwater recharge facilities.

NSJWCD received a $300,000 USBR Grant for the Tracy Lake Groundwater Recharge Project due to the project's groundwater recharge benefits. In 2011, Landowners near the Tracy Lake Groundwater Recharge Project formed an Improvement District to finance the balance of the capital cost and the operating and maintenance costs for the Tracy Lake Groundwater Recharge Project .

NSJWCD is in the process of working with landowners along its existing South Distribution System to form another Improvement District to finance capital improvements to that system to facilitate greater deliveries from the south system. Landowners have expressed serious interest in this project due to declining groundwater levels and increasing costs of groundwater. The District has also applied for grant funding for this project, as well as improvements to its existing north distribution system, through the San Joaquin County Groundwater Banking Authority, Integrated Regional Water Management Program.

NSJWCD is continuing to seek grant funding and landowner interest to fund improvement projects related to its other two existing diversion points (the North and Cal-Fed pumps) to maximize the use of surface water and improve groundwater conditions in the district. As groundwater levels continue to decline, and pumping costs increase, landowners are expressing more interest in these projects.

2.2 Purpose and Objectives of the Proposed Project

Implementing additional conjunctive use of the available Mokelumne River surface water supply and groundwater supply within NSJWCD boundaries, as a means to reduce groundwater overdraft, is the primary purpose of the Proposed Project. This will be accomplished by obtaining the requested permit changes and extension of time for Permit 10477 from the SWRCB and constructing and operating the Tracy Lake Groundwater Recharge Project .

NSJWCD's pending petitions before the SWRCB, if approved, will enable the District to pursue its current plan to put the full 20,000 acre-feet of water under Permit 10477 to beneficial use. The pending petitions include:

1. **Request to extend the time to put the full amount of water under Permit 10477 to beneficial use to December 31, 2040.** The purpose of this request is to enable the District sufficient time to construct and operate the new Tracy Lake Groundwater Recharge Project , and to increase

deliveries of surface water along the existing North and South distribution systems. The District has been working with landowners along the systems to identify interest in surface water and identify funding for any necessary repairs.

2. **Request to add underground storage of as much as 17,000 acre-feet per year as an authorized purpose of use.** The purpose of this request is to enable the district to expand recharge programs such as the existing Cal-Fed recharge project and the new Tracy Lake Groundwater Recharge Project, as well as other recharge opportunities in the future. The map in Appendix A includes designation of some potential future groundwater recharge sites. However, the District has not identified any specific projects at these sites, and thus they are not further analyzed in this document.

3. **Request to add the existing Woodbridge Irrigation District dam at Lodi Lake, as an authorized point of diversion under the permit.** The purpose of this request is to facilitate the transfer of Mokelumne River water to the City of Lodi to reduce the City's reliance on groundwater and enable the City to maximize use of its treatment plant when surface water is available from NSJWCD and not from other sources. The City has expressed an ability to use between 200 and 1000 afa between October and March. The transfers are subject to approval of a final agreement between the City and the District and an agreement with Woodbridge Irrigation District for use of its facilities.

4. **Request to add the new Tracy Lake Groundwater Recharge Project diversion facility as an authorized point of diversion.**

5. **Request to expand the authorized place of use under the permit to the current jurisdictional boundary of the District.** The current place of use for Permit 10477 is based on the original 52,000 acre jurisdictional boundary of the District. The District's current boundary is approximately 150,000 acres. This requested change will match the place of use for Permit 10477 with the District's current jurisdictional boundary to facilitate use of water from Permit 10477 in the entire District.

The specific locations of the existing and proposed new points of diversion and place of use are shown and described in Appendix A.

2.3 Project Location

The Project location is the existing North San Joaquin Water Conservation District jurisdictional boundary as depicted in Figure 1. The specific location details for the current and proposed points of diversion and place of use are shown in Appendix A.

The only new construction contemplated for the Project is the Tracy Lake Groundwater Recharge Project . Tracy Lake and the diversion facility is located approximately seven miles northwest of the City of Lodi California, in Section 8, Township 4 North, Range 6 East, Mount Diablo Range and Meridian. Access to the project is provided from West Brovelli Woods Lane, which is accessed via Jahant Road and Highway 99. The diversion facility and pump station will be located adjacent to the Mokelumne River downstream from the Woodbridge Irrigation District Diversion Dam and approximately 1,000 feet south of South Tracy Lake. Detailed construction drawings are included in Appendix B.

2.4 Existing Facilities and Operations

Currently North San Joaquin Water Conservation District has three diversion facilities on the Mokelumne River. These facilities are referred to as the North, South and CalFed facilities. All three have a cone fish screen approved by the Department of Fish and Wildlife. The North and South Pumps are rated for 30 cubic feet per second and the Cal Fed Pump is rated for 15 cubic feet per second. The map in Appendix A labels these three pump stations as existing points of diversion #2, #3 and #4.

The District's water from Permit 10477 is typically stored temporarily in Camanche Reservoir and then released by EBMUD from Camanche pursuant to existing agreements between the District and EBMUD.

2.5 Proposed Project Construction and Operations

If all aspects of the District's requested changes to Permit 10477 are approved by the SWRCB, the District would divert and use 19,000 afa of water from the Mokelumne River under Permit 10477, when the water is available, with some combination of the following:

Table 1: Estimated Water Use by NSJWCD by Diversion Location

Diversion	Use	Quantity Range
Diversions from the existing South Pump	Irrigation along existing/repaired south distribution system	3,000 to 10,000 afa
Diversion from the new Tracy Lake Groundwater Recharge Project Pump	Groundwater recharge and irrigation to adjacent vineyards	5,460 to 13,600 afa

Diversion at the existing Woodbridge Irrigation District Dam	Delivery to City of Lodi Water Treatment Plant to facilitate in-lieu recharge of groundwater	200 to 1000 afa
Diversions from the existing North Pump	Irrigation along existing/repaired north distribution system	1,000 to 5,000 afa
Diversions from the existing Cal-Fed Pump	Groundwater recharge	1,000 to 2,000 afa
TOTALS		**10,660 to 19,000 afa***

Total diversions would be capped at 19,000 afa due to the Fish Bypass Agreement. Diversions from each facility may vary from year to year.

Regarding construction, all aspects of the proposed project involve use of the District's existing facilities or the existing facilities of Woodbridge Irrigation District and the City of Lodi, other than the construction and operation of the new Tracy Lake Groundwater Recharge Project.

Key components of the Tracy Lake Groundwater Recharge Project involve new construction and operation associated with a new water diversion intake structure with fish screen in the Mokelumne River and a new pump station and pipeline to convey the diverted water to Tracy Lake. Appurtenances for these facilities would include installing a power line for the pump station, and an access road to the pump station and fish screen location. Water diverted to Tracy Lake will either be (1) recharged into the groundwater basin, or (2) diverted from the lake by adjacent landowners for irrigation. A detailed description of the Tracy Lake Groundwater Recharge Project components, construction and operation is provided in Appendix B.

Regarding operations, the Project includes increased used of the District's current diversions and distribution systems, as well as two new operations. The first new operation would be the Tracy Lake Groundwater Recharge Project . The second new operation would be delivery of water to the City of Lodi. Each is discussed below.

Tracy Lake Groundwater Recharge Project Operations

Operation of the Tracy Lake Groundwater Recharge Project would occur in phases. Phase 1 anticipates operation at 15 cfs, with maximum diversions estimated at 5,460 afa. Phase 2 anticipates operation at 40 cfs with maximum diversions estimated at 13,600 afa.

Table 2 – Tracy Lake Reservoir Operation With 15 cfs Diversion –presented below provides an estimated overview of the operation of Tracy Lake with a 15 cfs diversion from the Mokelumne River to

Tracy Lake. Estimated losses from evaporation and percolation together with diversions for irrigation were used to estimate Tracy Lake storage at the end of the month.

Table 2: Tracy Lake Reservoir Operation With 15 cfs Diversion

Month	Diversion from Mokelumne River to Tracy Lake (ac-ft)	Evaporation and Percolation (ac-ft)	Water Supplied for Irrigated Land (ac-ft)	End of Month Tracy Lake Storage (ac-ft)
Jan	0	19	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Apr	900	329	133	439
May	900	527	240	572
Jun	510	460	280	342
Jul	930	503	372	397
Aug	930	488	360	479
Sep	480	457	200	299
Oct	810	417	120	572
Nov	0	366	33	173
Dec	0	155	0	18
Total	**5,460**	**3,722**	**1,738**	

Table 3 below presents an overview of the estimated operation of the reservoir with a 40 cfs diversion from the Mokelumne River to Tracy Lake. Estimated losses from evaporation and percolation together with diversions for irrigation were used to estimate Tracy Lake storage at the end of the month. The 40 cfs diversion would be accomplished by operating the 15 cfs and 25 cfs pumps at the same time.

Table 3: Tracy Lake Reservoir Operation With 40 cfs Diversion

Month	Diversion from Mokelumne River to Tracy Lake (ac-ft)	Evaporation and Percolation (ac-ft)	Water Supplied for Irrigated Land (ac-ft)	End of Month Tracy Lake Storage (ac-ft)
Jan	0	4	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Apr	1,840	391	988	462
May	1,760	504	1,368	350
Jun	2,160	532	1,596	382
Jul	2,400	426	2,120	234
Aug	2,480	384	2,052	278
Sep	1,840	433	1,140	545
Oct	1,120	424	684	557
Nov	0	323	122	112
Dec	0	109	0	3
Total	**13,600**	**3,530**	**10,070**	

Upon full build out, the diversions would alternate between 15, 25 and 40 cfs as needed to maintain lake level through the permissible diversion season. A 40 cfs diversion would serve approximately 7,000 acres of irrigated land with a water demand of 10.070 acre-feet per year. These Tables were developed to show the boundaries of the Lake operation, minimum diversion and maximum diversion. Losses due to percolation and evaporation are estimates; therefore, some field adjustments will be necessary to balance the input to the lake to match the outputs. It should be noted that some reduction in diversion during May and October may be required to keep the lake level from exceeding 16 feet, which is associated with a storage volume of approximately 450 acre-feet.

Delivery of Water to the City of Lodi

The District is proposing to add the existing Woodbridge Irrigation Dam as a new authorized point of diversion under Permit 10477 to facilitate temporary transfers of surface water to the City of Lodi for use in its Surface Water Treatment Plant. NSJWCD may transfer up to 1,000 afa to the City of Lodi for use within the portion of the City of Lodi that is within NSJWCD's existing place of use for Permit 10477. The use would be for municipal and industrial purposes, which are existing approved uses for Permit 10477. The water would be diverted at WID's existing facility and delivered to the existing City of Lodi water treatment plant pursuant to an agreement between the City of Lodi and WID for the use of this WID facility.

The purpose of the transfer would be to enable the City to use surface water, in-lieu of pumping groundwater, to meet existing demand. The water would be delivered to the City between October 15th and March 30th, provided water is available under Permit 10477 during those times. All operations pursuant to the transfer would be subject to non-interference with prior rights and the fishery obligations of the Joint Settlement Agreement.

The transfer is desirable to maximize the use of surface water in the NSJWCD service area to alleviate groundwater overdraft. The change in flow in the Mokelumne River as a result of the transfer would likely range from 5-7 cfs, released at a constant rate over several months. The transfer of such a small quantity of water will have *di minimus* impact on the environment.

Operations Using Existing North, South and Cal-Fed Pumps

Diversions and use of water for irrigation from the South Pump and along the District's existing South Distribution System are expected to increase from current levels of 3,000 afa up to 10,000 afa.

If there is additional water available under Permit 10477, the District will operate the recharge facility near the Cal-Fed Pump and/or repair the North Distribution System and increase diversions and deliveries from the North Pump.

The District may also conduct additional groundwater recharge with recharge ponds or field flooding along its existing distribution systems. However, no specific projects have been identified at this time. When and if these additional recharge projects are identified, they will subject to further review.

3 INITIAL STUDY / PROPOSED MITIGATED NEGATIVE DECLARATION

This document was prepared, consistent with the California Environmental Quality Act (CEQA) pursuant to the Public Resources Code section 21000 et seq. and the State CEQA Guidelines (Title 14, California Code of Regulations, section 15000 et seq.).

3.1 Use of the Initial Study / Proposed Negative Declaration

The IS may be used by the CEQA "lead agency," which is the NSJWCD, to support the adoption of the proposed MND, pursuant to the State CEQA Guidelines sections 15070-15075. The IS/MND documentation is anticipated to be used to support the acquisition of environmental permits to construct the diversion facilities, which at this time are anticipated to consist of the following:

- SWRCB approval of pending petitions for extension of time, underground storage supplement, change in place of use and changes in point of diversion.
- DFW Streambed Alteration Permit
- Army Corps of Engineers Section 404 permit
- Regional Water Quality Control Board Section 401 water quality certification
- Central Valley Flood Protection Board permit
- State Lands Commission Lease

The NSJWCD's Board of Directors must adopt the MND prior to taking action on the project. To adopt the MND, the Board of Directors must find, on the basis of the whole record before it, that there is no substantial evidence that implementation of the project would result in any significant effect on the environment, and that the MND reflects the Board of Director's independent judgment and analysis of the potential environmental effects of undertaking the project. After the MND is adopted and all information is considered, the Board of Directors may take action on the project. Using its independent judgment, the Board of Directors may approve, make changes to, or reject the Proposed Project.

3.2 Approach to the Initial Study

Several aspects of the Project have been previously analyzed for environmental impacts. The use of 20,000 afa by NSJWCD under Permit 10477, through December 31, 2040, was analyzed by EBMUD in 2013 in its Draft Environmental Impact Report, available at

http://www.ebmud.com/water-and-wastewater/water-supply/water-right-permit-extension.

The increase in use of water under Permit 10477 by NSJWCD was also previously analyzed by the Northeastern San Joaquin County Groundwater Banking Authority in its September 2009 Eastern San Joaquin Basin Integrated Conjunctive Use Program Programmatic Environmental Impact Report, available at:

http://www.gbawater.org/news_events/public_notices.html.

The impacts associated with use of 20,000 afa from the NSJWCD's existing points of diversion were analyzed in the above two documents and are not further analyzed in detail here.

The construction and operation of the City of Lodi's Surface Water Treatment Plant, including the use of the Woodbridge Irrigation District Dam to divert Mokelumne River Water for use by the City, was previously analyzed by the City of Lodi in its 2010 Initial Study and Mitigated Negative Declaration, State Clearinghouse #2010052016. The draft IS and MND is available at:

http://www.lodi.gov/community_development/EIR%20pdfs/2010%20pfs/Surface_Water_Treatment_Draft_IS_MND051110.pdf

The City approved the MND, finding no significant impacts. Operation of the City's SWTP is not further analyzed here.

This impacts analysis in this document focuses primarily on impacts associated with the new construction and operation of the Tracy Lake Groundwater Recharge Project, which has not been previously analyzed.

ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION		
1.	Project Title:	North San Joaquin Water Conservation District Permit 10477 Petitions for Change and Tracy Lake Groundwater Recharge Project
2.	Lead Agency Name and Address:	North San Joaquin Water Conservation District, PO Box E, Victor, CA 95253
3.	Contact Person and Phone Number:	Walter Sadler, Project Manager, (916) 213-2300
4.	Project Location:	Lodi, CA and surrounding areas in the District's jurisdictional boundary
5.	Project Sponsor's Name and Address:	same
6.	General Plan Designation:	Agriculture, City of Lodi
7.	Zoning:	Agriculture, Residential and Commercial in City of Lodi
8.	Description of Project:	See Chapter 2, Project Description
9.	Surrounding Land Uses and Setting:	Agricultural, riparian habitats
10:	Other public agencies whose approval is required:	Bureau of Reclamation grant funding; USACE Section 404 Nationwide Permit, DFG Streambed Alteration Agreement, RWQCB Section 401 Water Quality Certification, Central Valley Flood Protection Board, State Water Resources Control Board, State Lands Commission

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	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance
☒ None With Mitigation		

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposed 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 proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed 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 proposed 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 proposed project, nothing further is required. ☐

Signature	Date
Walter Sadler	District Engineer
Printed Name	Title
North San Joaquin Water Conservation District	
Agency	

3.3 Aesthetics

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

3.3.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than those related to construction and operation of the Tracy Lake Groundwater Recharge Project .

The Project Site for the Tracy Lake Groundwater Recharge Project is an existing agricultural area that includes the termination of the Jahant slough in Tracy Lake. The site does not lie within a scenic vista route as designated in Volume I, VI-6 of the San Joaquin County General Plan. The project as proposed will therefore not have an impact on scenic resources.

3.3.2 Discussion

Operation of Tracy Lake will provide for increase in waterfowl populations during years when water can be diverted from the Mokelumne River. This will enhance the habitat potential for the area. No adverse impacts were identified, thus no mitigation is necessary.

3.4 Agriculture Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	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?	❑	❑	❑	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	❑	❑	❑	☑
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	❑	❑	❑	☑

3.4.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than related to construction and operation of the Tracy Lake Groundwater Recharge Project .

The Project Site for the Tracy Lake Groundwater Recharge Project is not subject to a Williamson Act Contract and the project will not result in the conversion of Farmland to a non-agricultural use. The 2004 Important Farmland Map and Soil Survey of San Joaquin classified the soil as Farmland of Local Importance, Unique Farmland and Grazing land. The combination of soil categories demonstrates that the existing soils as being of lesser quality. The proposed project will store diverted surface water in Tracy Lake for recharge of the groundwater basin and use for irrigation of adjacent lands that are already cultivated irrigated with groundwater.

3.4.2 Discussion

No adverse impacts to agricultural resources were identified as the project will enhance the agricultural opportunities in the immediate and surrounding areas due to enhance reliability of water for irrigation as a result of groundwater recharge from the project.

3.5 Air Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☑
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☑
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☑

3.5.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project is located within the San Joaquin Valley Air Pollution Control District (SJVAPCD). Emissions from construction equipment during construction of the diversion pump station and pipeline will result in short-term air quality impacts.

3.5.2 Discussion

The construction contractor will be required to meet current SJVAPCD requirements for emissions and dust control. Therefore, any impact to air quality associated with construction of the Tracy Lake Groundwater Recharge Project will be reduced to less than significant. The Tracy Lake Groundwater Recharge Project will use electric driven pumps; therefore there will be no local air quality impacts as result of operating the project, and thus no impacts.

3.6 Biological Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	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 Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
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 Game or US Fish and Wildlife Service?	☐	☑	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑	☐
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?	☐	☐	☑	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
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?	☐	☐	☐	☑

3.6.1 Setting

3.5.1.1 Methods

This section summarizes the methods and results of the literature review and reconnaissance-level terrestrial field surveys completed to determine the presence of special-status plant, wildlife, and fish species, or their habitat in the project area. Reconnaissance-level field surveys were conducted only within the location of the proposed construction and staging zones for the water diversion, pump station, conveyance pipeline alignment, and outfall and stilling basin within the Tracy Lake lakebed. Descriptions of the greater Tracy Lake area are based on a literature review, as described below.

For the purposes of this document, a special-status plant species is defined as any species that is granted status by a federal, state, or local agency. Federally listed species are defined as those species granted status by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA) and include threatened (FT), endangered (FE), proposed threatened or endangered (FPT, FPE), candidate (FC), or listed species proposed for delisting (FPD). State of California listed plant species, which are granted status by California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA), include rare (SR), threatened (ST), or endangered (SE) species. Under CEQA, special-status plants include species listed by the California Native Plant Society (CNPS) as rare, threatened, or endangered in California (CNPS Lists 1B and 2) (CNPS 2012).

A special-status fish or wildlife species is defined in this document as any species that is granted status by a federal, state, or local agency. The federal agency for listed fish species is the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries). Federally listed species are those granted status by federal agencies as FT, FE, FPT, FPE, FC, or FPD. Also included are those species listed by USFWS as Birds of Conservation Concern (BCC) which include "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA of 1973" (USFWS 2008). State of California listed fish wildlife species are defined as those species granted status as ST, SE, California Fully Protected species (CFP), and California Species of Special Concern (CSC).

Literature Review

Biologists performed a search of key databases to identify previously-documented special-status species occurrences in the vicinity of the Tracy Lake Groundwater Recharge Project. Database searches included the nine U.S. Geological Survey (USGS) 7.5 minute quadrangles surrounding the Tracy Lake Groundwater Recharge Project, which encompasses an approximately 10-mile radius around the area. Database searches included a review of:

- CDFW's Natural Diversity Database (CNDDB) (CDFW 2012);
- CNPS's Electronic Inventory of Rare and Endangered Vascular Plants (CNPS 2012); and
- USFWS's Species List of federally endangered, threatened, and candidate species (USFWS 2012).

To further identify special-status species or sensitive habitats potentially occurring in the vicinity of the Tracy Lake Groundwater Recharge Project, biologists also reviewed:

- The Preliminary Jurisdictional Delineation Report for the Tracy Lake Groundwater Recharge Project (Sycamore Environmental Consultants, July 2013)
- The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) (San Joaquin County 2000);

- The biological resources section of the Environmental Impact Report (EIR) developed for the Buckeye Ranch Project, a housing development proposed in the early 1990s in the vicinity of Tracy Lake (Mills Associates 1991);

- USFWS National Wetland Inventory (NWI) (USFWS 2013);

- The Natural Resource Conservation Service (NRCS) soil survey (NRCS 2013); and

- Other pertinent information on previous biological studies conducted in the area.

Available documentation pertinent to the biological resources of the Tracy Lake Groundwater Recharge Project area was compiled, reviewed, and analyzed. Because reconnaissance-level field surveys were only conducted within the pipeline alignment portion of the project area, the literature review was used to determine potential presence of sensitive habitats or special-status species in the Tracy Lake inundation area.

Biological Resource Surveys

Vegetation Community and Fish/Wildlife Habitat Field Surveys

Focused reconnaissance-level field surveys of the terrestrial and aquatic site conditions were conducted by Robertson-Bryan, Inc (RBI) biologists on December 7, 2012, as well as conducting several other site visits to the Tracy Lake Groundwater Recharge Project area in 2012. Vegetation communities were assessed in the field based on observed overstory and understory plant species composition. Based on species composition, vegetation communities were classified based on A Manual of California Vegetation, Second Edition (Sawyer, Keeler-Wolf, and Evens 2011) and cross-referenced with wildlife habitat types as classified in California Statewide Wildlife Habitat Relationships System (CWHR) (Mayer and Laudenslayer 1988).

Sensitive Wetland and Riparian Habitats

Sensitive natural communities, as defined by CDFW, include areas of high ecological importance due to being considered rare within the region, likely to support sensitive plants or animals, or provide connectivity between other sensitive habitats, and include wetlands and riparian areas within the area of the Tracy Lake Groundwater Recharge Project.

Wetland delineation field surveys were conducted for the Tracy Lake Groundwater Recharge Project area for NSJWCD by Sycamore Environmental Consultants biologists during June and July 2013. The delineation was conducted in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987) (Wetland Delineation Manual), USACE Jurisdictional Determination Form Instructional Guidebook (USACE 2007), and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region 2.0 (USACE 2010) (Regional Supplement). Other potential wetlands or other water features (e.g., Tracy Lake) are described based on

a review of available literature pertinent to the biological resources of the area of the Tracy Lake Groundwater Recharge Project.

The USACE has regulatory authority over "Waters of the U.S," which include wetlands pursuant to Section 404 of the CWA. Jurisdictional Waters of the U.S. have been further defined in USACE regulatory guidance developed in response to U.S. Supreme Court decisions in *Rapanos v. United States* and *Carabell v. United States*. Accordingly, waters of the use include:

- Traditional navigable waters (TNWs) and wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs called relatively permanent waters (RPWs) that flow year-round or have continuous flow at least seasonally and wetlands that directly abut such tributaries.

In addition, the USACE may, on a case-by-case basis, exert jurisdiction over the following:

- Wetlands that are adjacent to but that do not directly abut a RPW.
- Non-navigable tributaries that are not relatively permanent and wetlands adjacent to such tributaries.

Specifically, wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987).

Waters of the State, which include all surface water or groundwater, including saline waters, within the boundaries of the state of California, are regulated by the State Water Resources Control Board (SWRCB). Alteration of waters of the U.S. involving any federal activity are further regulated by the SWRCB under the CWA Section 401 water quality certification program.

Riparian habitat is defined as areas adjacent to the banks of rivers, streams, or other waterways that contain vegetation that is distinct from upland species. Typical riparian species include cottonwoods (*Populus spp.*), alders (*Alnus spp.*), ashes (*Fraxinus spp.*) and willows (*Salix spp.*) These habitats are important to wildlife for foraging, nesting, refuge, and as migratory corridors. Riparian habitats are protected by CDFW under Fish and Game Code sections 1600–1616.

3.5.1.2 Existing Conditions for Terrestrial Vegetation and Wildlife

Below is a description of the vegetation and wildlife communities and habitats within the area of the proposed Tracy Lake Groundwater Recharge Project based on the literature review and field reconnaissance surveys. Because no significant impacts to terrestrial vegetation and wildlife will occur as a result of the change petitions other than for the Tracy Lake Groundwater Recharge Project , the discussion focuses on the Tracy Lake Groundwater Recharge Project .

Interior Live Oak Woodland

The pipeline alignment area is largely vegetated by Interior Live Oak Woodlands (Sawyer, Keeler-Wolf, and Evens 2011), with a corresponding wildlife habitat community of Valley Foothill Hardwood (Mayer and Laudenslayer 1988). These areas are dominated by interior live oak (*Quercus wislizeni*), interspersed with valley oak (*Quercus lobata*), with a continuous to intermittent tree canopy cover. Subdominant and understory species include box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), and blackberry (*Rubus* sp.). Ground cover in interior oak woodland areas is composed of similar species to those found in annual grassland areas (see below). The pipeline alignment area is at the southeastern edge of what is locally known as Brovelli Woods, which is a large stand (approximately 90 acres) of valley foothill hardwood extending to the northwest of the Tracy Lake Groundwater Recharge Project area along the Mokelumne River (Mills Associates 1991).

Annual Grassland

The staging area and a portion of the pipeline alignment area are within a pre-disturbed area consisting of Annual Grasslands (Sawyer, Keeler-Wolf, and Evens 2011; Mayer and Laudenslayer 1988). These areas are vegetated by species such as bromegrass (*Bromus* spp.), wild oats (*Avena* spp.), yellow starthistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), gum plant (*Grindelia camporum*), curly dock (*Rumex crispa*), prickly lettuce (*Lactuca* serriola), and other native and non-native annuals.

Sensitive Habitats

Sensitive habitats, including waters of the U.S. and riparian habitat, were identified in the Tracy Lake Groundwater Recharge Project area. A description of the location of these habitats is provided below. The Tracy Lake Groundwater Recharge Project area does not contain any vernal pools habitat.

<u>Waters of the U.S/Waters of the State, including Wetlands</u>

Tracy Lake consists of two basins, a northern lake and larger southern lake, which serve as terminal drainage areas for the Jahant Slough watershed that originates east of the Tracy Lake Groundwater Recharge Project area. The southern Tracy Lake is the only basin that is a component of the proposed Tracy Lake Groundwater Recharge Project and is approximately 122 acres and is classified as a wetland by the USFWS National Wetlands Inventory (USFWS 2013). Water levels in Tracy Lake vary greatly throughout the year, typically filling during winter runoff periods (November-April) and completely, or mostly, drying out during the summer dry season (i.e., by October or November). During extremely wet years, Tracy Lake can be drained to either the northern lake basin or the Mokelumne River through existing gates and ditches to facilitate more rapid drying of the soils and pasture growth. North Tracy Lake is located approximately 1,000 feet northwest of Tracy Lake and is the other terminal drainage sink for the Jahant Slough. Together, these two wetlands drain approximately 17.5 square miles (Mills Associates 1991). North Tracy Lake, including its hydrologic regime, would not be affected by the Tracy Lake Groundwater Recharge Project and it is therefore not considered part of the project area.

In the past, the bed of Tracy Lake has been used during the spring-fall for agricultural purposes, which included the planting and harvesting of grasses, as well as soil disking, which led to the colonization of

the lake bed and shoreline by dense stands of weed species such as curly dock (*Rumex crispus*), horseweed (*Conyza canadensis*), and cocklebur (*Xanthium sp.*) (Mills Associates 1991).

Wetland delineation surveys conducted in the Tracy Lake Groundwater Recharge Project area have identified seasonal wetlands in the area, including the lakebed and riparian areas located between Tracy Lake and the Mokelumne River channel. The seasonal wetlands appear to be supported primarily by incidental precipitation and sheetflow runoff from adjacent areas that provides perched water availability in shallow subsurface clayey layers, giving rise to saturation in the root zone and ponding. NSJWCD is preparing a wetland delineation and related "significant hydrologic nexus" assessment for review by USACE staff, which could result in the Tracy Lake lakebed being classified as an isolated water of the state and not designated waters of the U.S.

Riparian Habitat

Portions of the pipeline alignment area within approximately 20 feet of the Mokelumne River, including the area where a pump station would be installed, are dominated by box elder and Oregon ash. There is also a grove of large Fremont cottonwoods (*Populus fremontii*) near the Mokelumne River outside of and adjacent to the pipeline alignment portion of the project area associated with the existing man-made channel that connects Tracy Lake to the Mokelumne River.

Riverine Habitat

The Mokelumne River, in the project area, represents aquatic riverine habitat. The Mokelumne River converges with the Cosumnes River approximately 5 miles downstream from the Tracy Lake Groundwater Recharge Project area and eventually flows into the San Joaquin River in the Sacramento-San Joaquin River Delta.

Special-Status Plants and Wildlife

Based on information obtained from the literature review and regulatory agencies, 19 special-status plant species and 24 special-status wildlife species were identified as potentially occurring in the project area (Tables 4 and 5). Special-status plant or wildlife species that only occur outside the elevation or geographic range of the project area, or for which no appropriate habitat is present in the project area, are not discussed further in this document. The following discussion focuses only on special-status species that could potentially occur in the project area. See Tables 4 and 5 for a complete list of special-status plants and wildlife evaluated for this section, including those that are unlikely to occur in the project area. The project area does not contain any vernal pools habitat. Therefore, special-status species that are specifically associated with vernal pools were excluded from further evaluation.

Special-Status Plant Species

Nineteen special-status plant species were identified as potentially occurring in the Tracy Lake Groundwater Recharge Project area. See **Table 4** for a complete list of potentially occurring special-status plant species. Protocol-level special-status plant surveys were not conducted prior to

development of this CEQA document. The closest known occurrence consists of 1993 CNDDB record for legenere (*Legenere limosa*) near North Tracy Lake, outside of the Tracy Lake Groundwater Recharge Project area. There are no other records for special-status plants in the direct vicinity of the Tracy Lake Groundwater Recharge Project area.

Special-Status Amphibians

- **California tiger salamander, central population (*Ambystoma californiense*) – FT**

  The California tiger salamander (CTS) is restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to 2,000 feet, in central California. They require refuges provided by ground squirrels and other burrowing mammals in which to enter estivation during the dry months. There are USFWS records and critical habitat for CTS located approximately 14 miles northeast of the Tracy Lake Groundwater Recharge Project area near Camanche Reservoir. CTS could potentially be present in annual grassland, valley foothill hardwood, or riparian habitat in the Tracy Lake Groundwater Recharge Project area and could potentially use Tracy Lake for aquatic breeding habitat.

- **Western spadefoot toad (*Scaphiopus hominid*) – CSC**

  The western spadefoot toad has a range that includes all of the Central Valley and surrounding foothills, Coast Range valleys, and southern coastal California, as well as northern Baja California. It is reported as extinct throughout much of lowland California. The western spadefoot toad prefers areas of open vegetation and sandy to gravely soil. It is found primarily in grasslands, and occasionally in valley foothill hardwood habitat, and breeds in shallow, temporary pools formed by heavy winter rains. Most of the year is spent in estivation within underground burrows. The western spadefoot toad could potentially be present in annual grassland or valley foothill hardwood habitat in the Tracy Lake Groundwater Recharge Project area. Because of Tracy Lake's large size and depth, this species is unlikely to use the area for aquatic breeding habitat.

Special-Status Reptiles

- **Western pond turtle (*Actinemys marmorata*) – CSC**

  Western pond turtles require slow-moving rivers and pools with a minimum depth of approximately two feet, suitable basking sites (e.g., boulders and downed woody debris), and suitable refugia (e.g., undercut banks, willow boulders, overhanging or emergent vegetation and other submerged woody debris). Western pond turtles were observed in the Tracy Lake area during field surveys conducted for the Buckeye Ranch EIR (Mills Associates 1991). There are also CNDDB records for the western pond turtle in the vicinity of the Tracy Lake Groundwater Recharge Project area. Therefore, this species could potentially occur in riparian and wetland portions of the area that provide appropriate habitat.

- **San Joaquin whipsnake (*Thamnophis gigas*) – CSC**

  This species inhabits open, dry environments with little or no tree cover in grasslands in the San Joaquin Valley. Mammal burrows are used for underground refugia and oviposition sites. While there are no records for this species in the vicinity of the Tracy Lake Groundwater Recharge Project area, the San Joaquin whipsnake could potentially occur in annual grassland habitat in the area.

Special-Status Birds

- **Cooper's hawk (*Accipiter cooperi*) – CSC**

  The Cooper's hawk is a year-round resident in California in wooded areas below 9,000 feet. Breeding season extends from March through August. While there are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area, this species is a potential year-round breeding resident in woodland habitat within the area.

- **Golden eagle (*Aquila chrysaetos*) – CFP**

  This species inhabits grasslands and early successional stages of forest and shrub habitats for foraging at elevations up to 11,500 feet. It requires secluded cliffs with overhanging ledges or large trees in open areas with unobstructed view for nesting. Breeding season for this species extends from late January through August. There are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area; however, this species could potentially forage or breed within the area.

- **Swainson's hawk (*Buteo swainsoni*) – ST**

  The Swainson's hawk forages and breeds in grasslands with adjacent woodland or riparian areas. This species migrates to the Central Valley from South America in late March to nest. Breeding season for this species extends from March to August. This species is known to forage and breed in grassland, riparian, and woodland habitats in the direct vicinity of the Tracy Lake Groundwater Recharge Project area. Therefore, the Swainson's hawk is a potential summer forager and breeding resident within and surrounding the area.

- **Northern harrier (*Circus cyaneus*) – CSC**

  This species is a year-round resident or migrant in open grasslands and wetlands in the Central Valley. Nesting season extends from April through September. While there are no recorded occurrences for this species within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area, the northern harrier could potentially forage or breed in open grasslands and wetlands in the area.

- **White-tailed kite (*Elanus leucurus*) – CFP**

This species requires open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Breeding season for this species extends from February to October. There are several CNDDB occurrences within 10 miles of the Tracy Lake Groundwater Recharge Project area. The white-tailed kite is therefore a potential year-round breeding resident in grassland, riparian, and wetland habitats within and surrounding the Tracy Lake Groundwater Recharge Project area.

- **Greater sandhill crane (*Grus canadensis tabida*) – ST, CFP**

  This species breeds only in Siskiyou, Modoc, and Lassen counties, and in Sierra Valley, which is in Plumas and Sierra counties. In summer it occurs in and near wet meadow, shallow lacustrine, and emergent wetland habitats. It winters in the Central Valley in grassland/cropland habitats and open, emergent wetlands. While there are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area, the greater sandhill crane is a potential migrant or year-round, non-breeding resident in the area.

- **Long-billed curlew (*Numenlus americanus*) – BCC**

  This species breeds from April to September in wet meadow habitat in northeastern California. It is a winter visitant from early July to early April in grasslands and croplands in the Central Valley. Additionally, non-breeders may remain in the Central Valley through the summer. There are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area. However, the long-billed curlew is a potential migrant or year-round, non-breeding resident in the area.

- **Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) – FC, BCC**

  The western yellow-billed cuckoo breeds and forages in riparian areas with low woody vegetation in lowland California, especially willow-cottonwood habitat. Breeding season extends from June to August. While there are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area, this species is a potential summer breeding resident or forager in densely vegetated riparian areas in the area.

- **Short-eared owl (*Asio flammens*) – CSC**

  This species is a winter migrant or year round breeder in the Central Valley in open areas with tall grasses, brush, or wetlands for cover. Breeding season extends from March to July. There are no recorded occurrences within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area. However, it is a potential winter migrant or year round breeder in grassland or wetland habitats in the Tracy Lake Groundwater Recharge Project area.

- **Burrowing owl (*Athene cunicularia*) – BCC, CSC**

  The burrowing owl inhabits open, dry annual or perennial grasslands, is dependent upon burrowing mammals, and nests underground. Breeding season for this species extends from

March to August. There are several CNDDB records for this species in the vicinity of the project area and appropriate habitat is present in the Tracy Lake Groundwater Recharge Project area. The burrowing owl could therefore potentially forage or nest in annual grassland areas within the Tracy Lake Groundwater Recharge Project area.

- **Loggerhead shrike (*Lanius ludovicianus*) – BCC, CSC**

  This species is a non-breeding resident or winter visitor in open habitats with scattered trees or other perches in the Central Valley. It breeds March through May at latitudes north of the Tracy Lake Groundwater Recharge Project area. It is therefore a potential non-breeding resident or winter visitor in open portions of the Tracy Lake Groundwater Recharge Project area.

- **Bank swallow (*Riparia riparia*) – ST**

  The bank swallow is a colonial nester, nesting primarily in riparian and other lowland habitats in California. It requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or the ocean to dig a nesting hole. There are no recorded occurrences of the bank swallow within a 10-mile radius of the Tracy Lake Groundwater Recharge Project area. While there is no appropriate nesting habitat in the project area, this species is a potential spring and fall migrant through the Tracy Lake Groundwater Recharge Project area.

- **Yellow warbler (*Dendroica petechia brewsteri*) – BCC, CSC (nesting)**

  Nearly extirpated from the Central Valley, the yellow warbler breeds in riparian vegetation along streams or in wet meadows, especially in willows and cottonwoods. Breeding season for this species extends from April to August. There is a 1995 CNDDB record for breeding pair along Mokelumne River approximately 11 miles east of the Tracy Lake Groundwater Recharge Project area. Suitable nesting and/or foraging habitat (riparian vegetation) for yellow warbler is present along the Mokelumne River, and potential foraging habitat is present in wetland areas within and surrounding the Tracy Lake Groundwater Recharge Project area.

- **Tricolored blackbird (*Ammodramus savannarum*) – CSC**

  There are several recorded occurrences for this species in the vicinity of the Tracy Lake Groundwater Recharge Project, the closest of which is approximately 4 miles east of the project area. Breeding season for this species extends from April to late July. The tricolored blackbird requires open water, protected nesting substrate, and a foraging area with insect prey within a few kilometers of the colony. Appropriate foraging and nesting habitat for this species is present within the Tracy Lake Groundwater Recharge Project area.

<u>Special-Status Mammals</u>

- **Townsend's big-eared bat (*Corynorhinus townsendii*) – CSC**

  This species is found in all but alpine and subalpine habitats; it is most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other man-made structures for roosting.

It is extremely sensitive to disturbance and may abandon a roost if disturbed. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat for this species. There is no appropriate roosting habitat present within the Tracy Lake Groundwater Recharge Project area. This species could therefore potentially forage within the Tracy Lake Groundwater Recharge Project area.

- **Western red bat (*Lasiurus blossevilli*) – CSC**

  This species roosts in the foliage of large shrubs and trees near forests, rivers, fields and urban areas. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat, while woodland areas within the Tracy Lake Groundwater Recharge Project area represent potential roosting habitat. The western red bat could therefore potentially forage and roost in the Tracy Lake Groundwater Recharge Project area.

- **Western mastiff bat (*Eumops perotis californicus*) – CSC**

  This species is a potential year-round resident that roosts in rock crevices or buildings. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat for this species. There is no appropriate roosting habitat present within the Tracy Lake Groundwater Recharge Project area. This species could therefore potentially forage within the Tracy Lake Groundwater Recharge Project area.

- **San Joaquin kit fox (*Vulpes macrotis mutica*) – FE, ST**

  The San Joaquin kit fox inhabits grasslands and shrubland areas with friable soils for building underground dens, mostly in the southern and western San Joaquin Valley and foothills. Denning begins around September, mating occurs from December to March, and pups are born February through April. The closest known occurrence is located approximately 30 miles south of the Tracy Lake Groundwater Recharge Project. USFWS has not designated critical habitat for this species. This species could potentially forage and den in grassland portions of the Tracy Lake Groundwater Recharge Project area.

- **Ringtail (*Bassariscus astustus*) – CFP**

  The ringtail occurs in a variety of riparian or woodland habitats, usually within 0.6 mile from permanent water. Because the Tracy Lake Groundwater Recharge Project area represents potential foraging habitat, and contains potential denning or resting habitat, such as hollow trees, this species could potentially occur in riparian or woodland habitats in the Tracy Lake Groundwater Recharge Project area.

- **American badger (*Taxidea taxus*) – CSC**

  This species occupies a variety of habitats, including grasslands, savannas, and mountain meadows where soils are suitable for digging rodents. The closest known occurrence consists of a 1938 CNDDB record approximately 15 miles northwest of the Tracy Lake Groundwater

Recharge Project. Appropriate habitat for the American badger is present in the project area in places with friable soils in woodland, grasslands, and riparian habitats. This species could potentially forage, den, or rest in the Tracy Lake Groundwater Recharge Project area.

Table 4. Special-Status Plant Species Potentially Occurring in the Tracy Lake Project Area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Amsinckia grandiflora Large-flowered fiddleneck	FE	SE CNPS 1B.1	Grassy slopes below 1,000 feet in the San Joaquin Valley.	Potential for occurrence in annual grasslands within the Tracy Lake Groundwater Recharge Project area.
Astragalus tener var. *tener* Alkali milk-vetch	-	CNPS 1.B2	Alkaline flats and vernally moist meadows below 200 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Atriplex cordulata heartscale	-	CNPS 1.B2	Valley grassland, wetland, riparian, or scrub areas below 1,000 feet.	Potential for occurrence in annual grassland, seasonal wetland, or riparian areas within the Tracy Lake Groundwater Recharge Project area.
Atriplex depressa brittlescale	-	CNPS 1.B2	Alkaline or clay soils in valley grassland, wetland, riparian, or scrub areas below 1,000 feet.	Unlikely to occur. No appropriate soils are present in the Tracy Lake Groundwater Recharge Project area.
Brasenia schreberi watershield	-	CNPS 2.3	Slow moving water in wetlands, marshes, and ponds below 7,000 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Calycadenia hooveri Hoover's calycadenia	-	CNPS 1.B3	Rocky, exposed places in grassland or foothill woodlands between 300 and 1,300 feet.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project is below the elevation range of this species.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Castilleja campestris ssp. *succulenta* succulent owl's-clover	FE	SE CNPS 1B.2	Moist sites in vernal pools, often with acidic soils, below 2,500 feet.	Unlikely to occur. No vernal pools are present in the Tracy Lake Groundwater Recharge Project area. Closest USFWS Critical Habitat is located approximately 5 miles northeast of the Tracy Lake Groundwater Recharge Project area.
Carex comosa bristly sedge	-	CNPS 2.1	Wet places below 1,350 feet in valley and foothill grassland.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	-	CNPS 2.1	Marshes and wetlands with coastal, fresh, or brackish water below 700 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Cirsium crassicaule slough thistle	-	CNPS 1.B1	Freshwater marshes in the Central Valley below 300 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Delphinium californicum ssp. *interius* Hospital Canyon larkspur	-	CNPS 1.B2	Slopes in foothill woodland on the eastern side of the coast ranges between 900–3,300 feet.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project area is outside of the geographic and elevation range of this species.
Delphinium recurvatum Recurved larkspur	-	CNPS 1.B2	Poorly drained, fine, alkaline soils in grasslands below 2,000 feet.	Unlikely to occur. No appropriate soils are present in the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Downingia pusilla dwarf downingia	-	CNPS 2.2	Moist sites and vernal pools in valley and foothill grassland below 1,600 feet.	Potential for occurrence along margins of Tracy Lake within the Tracy Lake Groundwater Recharge Project area.
Eryngium racemosum Delta button-celery	-	SE CNPS 1B.1	Seasonally flooded clay depressions in floodplains below 100 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Eschscholzia rhombipetala Diamond-petaled California poppy	-	CNPS 1B.1	Open areas and grasslands below 1,000 feet.	Potential for occurrence in annual grasslands within the Tracy Lake Groundwater Recharge Project area.
Gratiola heterosepala Bogg's Lake hedge-hyssop	-	SE CNPS 1B.2	Shallow water, wetlands, and margins of vernal pools.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow	-	CNPS 1B.2	Freshwater wetlands, wet banks, and marshes below 400 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Juncus leiospermus var.*leiospermus*	-	CNPS 1B.1	Vernal pool margins and wet places in chaparral or woodland between 900 and 1,700 feet.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project is below the elevation range of this species.
Lathyrus jepsonii var. *jepsonii* Delta tule pea	-	CNPS 1B.2	Marshes and swamps (freshwater and brackish) in the Central Valley below 100 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Legenere limosa legenere	-	CNPS 1B.1	Wet areas, vernal pools, ponds below 3,200 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area. 1993 CNDDB record for this species in Buckeye Ranch, near North Tracy Lake, approximately 0.25 mile from the Tracy Lake Groundwater Recharge Project.
Leptosyne (=*Coreopsis*) *hamiltonii* Mt. Hamilton tickseed	-	CNPS 1B.2	Dry exposed slopes between 1,900 and 4,300 feet.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project is below the elevation range of this species.
Lilaeopsis masonii Mason's lilaeopsis	-	SR CNPS 1B.1	Marshes and swamps (brackish or freshwater), streambanks, or riparian scrub below 150 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area or within riparian areas along Mokelumne River.
Limosella australis Delta mudwort	-	CNPS 1B.2	Muddy or sandy intertidal flats (brackish water) below 50 feet.	Unlikely to occur. No appropriate habitat is present in the Tracy Lake Groundwater Recharge Project area.
Madia radiata Showy madia	-	CNPS 1B.1	Grassy or open slopes, generally clayey soils or shale.	Unlikely to occur. No appropriate soils are present in the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Orcuttia viscid Sacramento Orcutt grass	FE	SE CNPS 1B.1	Vernal pools below 350 feet.	Unlikely to occur. No vernal pools are present in the Tracy Lake Groundwater Recharge Project area. USFWS Critical Habitat located approximately 11 miles northeast of the Tracy Lake Groundwater Recharge Project.
Sagittaria sanfordii Sanford's arrowhead	-	CNPS 1B.2	Standing or slow-moving freshwater ponds, marshes, and ditches below 2,000 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Scutellaria galericulata marsh skullcap	-	CNPS 2.2	Wet sites, meadows, streambanks, conifer forest; 3,200–6,900 feet.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project is below this species elevation range.
Scutellaria lateriflora side-flowering skullcap	-	CNPS 1B.2	Marshes, wet meadows below 1,700 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Symphyotrichum lentum Suisun Marsh aster	-	CNPS 1B.2	Marshes (brackish and freshwater) below 1,000 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area.
Trichocoronis wrightii var. *wrightii* Wright's trichocoronis	-	CNPS 2.1	Marshes, wet meadows, vernal pools and riparian areas below 1,700 feet.	Potential for occurrence in seasonal wetlands within the Tracy Lake Groundwater Recharge Project area or within riparian areas along the Mokelumne River.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Trifolium hydrophilum saline clover	-	CNPS 1B.2	Salt marshes, open areas in alkaline soils below 1,000 feet.	Unlikely to occur. No appropriate habitat is present in the Tracy Lake Groundwater Recharge Project area.
Tropidocarpum capparideum Caper-fruited tropidocarpum	-	CNPS 1B.1	Alkaline soils in valley grasslands below 1,400 feet.	Unlikely to occur. No appropriate soils are present in the Tracy Lake Groundwater Recharge Project area.
Tuctoria greenei Orcutt grass	FE	SR CNPS 1B	Vernal pools.	Unlikely to occur. No vernal pools are present in the Tracy Lake Groundwater Recharge Project area. USFWS Critical Habitat located approximately 11 miles northeast of the Tracy Lake Groundwater Recharge Project.

Table 5. Special-Status Wildlife Species Potentially Occurring in the Tracy Lake Project Area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Special-status Invertebrates				
Branchinecta conservatio conservancy fairy shrimp	FE	-	Require vernal pools or seasonal wetlands of sufficient depth and area with appropriate seasonality (water in winter/early spring, dry in summer) for completion of life cycle. Presence of appropriate vernal pool/wetland plant species is a good indicator of the presence of habitat for these species. Require pools that lack a deep thatch layer on the pool	The Tracy Lake Groundwater Recharge Project area does not support any vernal pools. There are no records for these species in the vicinity of the Tracy Lake Groundwater Recharge Project. The nearest USFWS critical habitat is located approximately 12 miles northeast of the Tracy Lake Groundwater Recharge Project area.
Branchinecta lynchi vernal pool fairy shrimp	FT	-		

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Lepidurus packardi vernal pool tadpole shrimp	FE	-	substrate.	While conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp may potentially occur in seasonal wetlands with appropriate hydrological characteristics such as Tracy Lake, the lake does not represent habitat for these species for several reasons. In the past, Tracy Lake has been drained and used for agricultural purposes that are incompatible with the presence of these invertebrates. Such uses include planting and harvesting of grasses, and disking the soil, which would interfere with the dormant cyst phase of the life cycle of these species. In addition, disking and baring of the soil has led to the colonization of the lake by dense stands of weed species such as curly dock and cocklebur. The presence and decomposition of dense vegetation can deplete oxygen in the water for invertebrates. Finally, presence of predators such as bull frogs would reduce the likelihood that these species are present.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT	-	VELB habitat is defined by USFWS to include elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level, located within California's Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west (USFWS 1999).	Unlikely to occur. No elderberry shrubs were documented during reconnaissance surveys of the pipeline alignment work and staging areas. In addition, the Tracy Lake Groundwater Recharge Project area within the OHWM of Tracy Lakes does not provide the appropriate conditions for the establishment or survival of elderberry shrubs. A study conducted for USFWS in Stanislaus County showed a survival rate of less than 2% for elderberry shrubs flooded for a period of 3 to 5 months, the lowest survival rate for any native riparian species observed in the study (River Partners 2008). Since Tracy Lake within the OHWM is currently inundated for up to 6 months each year, it is unlikely that elderberry shrubs could establish within the OHWM of Tracy Lakes. The nearest USFWS critical habitat for VELB is located approximately 25 miles north of the Tracy Lake Groundwater Recharge Project, along the American River near Rancho Cordova.
Special-status Amphibians				

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Ambystoma californiense California tiger salamander, central population	FT	-	Vernal pools and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to 2,000 feet, in central California.	Potential for occurrence in the project area. USFWS records and Critical Habitat located approximately 14 miles northeast of the Tracy Lake Groundwater Recharge Project area just north of Camanche Reservoir.
Scaphiopus hammondi western spadefoot toad	-	CSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow, temporary pools formed by heavy winter rains are essential for breeding and egg-laying.	Potential for occurrence in the Tracy Lake Groundwater Recharge Project area. Grassland and woodland habitat in the Tracy Lake Groundwater Recharge Project area may represent upland habitat for this species. Unlikely to breed in Tracy Lake due to the lake's size and depth.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Rana boylii foothill yellow-legged frog	-	CSC	Perennial rocky (pebble or cobble) streams with cool, clear water in a variety of habitats from valley and foothill oak woodland, riparian forest, ponderosa pine, mixed conifer, coastal scrub, and mixed chaparral at elevations below 6,370 feet.	Unlikely to occur. No appropriate habitat is present. This species typically does not occur on the Central Valley floor (San Joaquin County 2000). Closest known occurrence consists of a 1958 CNDDB record in the Mokelumne River approximately 3 miles east of the Tracy Lake Groundwater Recharge Project.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Rana draytonii California red-legged frog	FT	CSC	Breeds in aquatic areas with dense, shrubby, or emergent riparian vegetation and a permanent source of deep (greater than 2 1/3 feet deep) still or slow-moving water below 4,000 feet elevation. Water must remain long enough in most years to allow for metamorphosis of most of the tadpoles (generally between July and September). Upland dispersal within 1 mile of aquatic breeding habitat with no impassable dispersal barriers (suburban areas, suburban developments, wide or fast flowing rivers or streams, lakes greater than 50 acres, and heavily traveled roads without underpasses or culverts).	Unlikely to occur. While the Tracy Lake Groundwater Recharge Project area is within the historic range for California red-legged frog (CRLF), this species typically does not occur on the Central Valley floor (San Joaquin County 2000). Tracy Lakes does not represent appropriate habitat for CRLF because it does not retain water long enough to allow for completion of the species' life cycle. There are no records within 10 mile radius of the Tracy Lake Groundwater Recharge Project, and the closest known USFWS designated critical habitat unit (CAL-1) is located approximately 29 miles east of the project area in Calaveras County.
Special-status Reptiles				

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Emys marmorata western pond turtle	-	CSC	Perennial wetlands and slow moving creeks and ponds, below 6,000 feet in elevation, with overhanging vegetation and suitable basking sites such as logs and rocks above the waterline.	Potential for occurrence in the Tracy Lake Groundwater Recharge Project area. Observed in the vicinity of the Tracy Lake Groundwater Recharge Project during field surveys conducted in 1991 for Buckeye Ranch EIR. CWHR habitat extends inland 325 feet from shoreline of perennial water.
Masticophis flagellum ruddocki San Joaquin whipsnake	-	CSC	Inhabits open, dry environments with little or no tree cover in valley grassland and saltbrush scrub in the San Joaquin Valley. Mammal burrows are used for refuge and oviposition sites.	Potential for occurrence in grassland portions of the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Thamnophis gigas giant garter snake	FT	ST	Habitat is defined by USFWS to include "agricultural wetlands and other waterways, such as irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Essential habitat components consist of (1) adequate water during the snake's active season (early spring through mid-fall) to provide adequate permanent water to maintain dense populations of food organisms; (2) emergent, herbaceous wetlands vegetation, such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.) for escape and cover during the active season; (3) upland habitat with grassy banks and opening in waterside vegetation for basking; and (4) higher elevation upland habitats for cover and refuge from flood waters during the snake's inactive winter season. Giant garter snake is absent from larger rivers, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and the absence of prey populations" (USFWS 1999b).	Unlikely to occur. The Tracy Lake Groundwater Recharge Project area lacks essential habitat components to support this species. Because Tracy Lake currently dries out during the summer dry season (April-October) it does not provide adequate water during the snake's active season (early spring through mid-fall). Additionally, Tracy Lake lacks emergent, herbaceous vegetation, which is required for escape and cover during the active season. Riparian habitat within the project area along the Mokelumne River does not represent potential giant garter snake habitat due to its wooded overstory creating excessive shade for this species. Several CNDDB occurrences within 10 miles of the Tracy Lake Groundwater Recharge Project, the closest of which is approximately 6 miles from the Tracy Lake Groundwater Recharge Project.
Special-status Birds				

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	FD	-	Winter resident in wetlands, grasslands, and croplands in the Central Valley. Breeds in far northern portions of California.	Unlikely to occur in the project area during implementation of the Tracy Lake Groundwater Recharge Project (April-October). Potential winter resident (October through April) or migrant in wetlands, grasslands, and croplands within and surrounding the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Pelecanus erthrorhynchos American white pelican	-	CSC	Winter visitor on large lakes and estuaries in the Central Valley.	Unlikely to occur in the project area during implementation of the Tracy Lake Groundwater Recharge Project (April-October). Potential winter forager in Tracy Lakes in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project. However, several dozen individuals were photographed flying over Tracy Lakes during a site visit by Project engineers in February 2012.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Accipiter cooperi Cooper's hawk	-	CSC	Year-round breeding resident in wooded areas below 9,000 feet. Breeding season extends from March through August.	Potential year-round breeding resident in woodland habitat within the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Aquila chrysaetos golden eagle	-	CFP	Grasslands and early successional stages of forest and shrub habitats for foraging at elevations up to11,500 feet. Secluded cliffs with overhanging ledges or large trees in open areas with unobstructed view for nesting.	Potential migrant, year round resident or breeder within the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Buteo swainsoni Swainson's hawk	-	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Potential summer breeding resident in annual grassland, riparian, and forest habitats within and surrounding the Tracy Lake Groundwater Recharge Project area. Several CNDDB occurrences within 10 miles of the project area, the closest of which is approximately 0.5 mile from the Tracy Lake Groundwater Recharge Project. Two nesting sites were identified during field surveys for 1991 Buckeye Ranch EIR in the vicinity of the pipeline alignment area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Circus cyaneus northern harrier	-	CSC	Year-round breeding resident in open grasslands and wetlands in the Central Valley. Nesting season extends from April through September.	Potential year-round breeding resident in annual grasslands and wetlands in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Elanus leucurus white-tailed kite	-	CFP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Potential year-round breeding resident in annual grassland, riparian, and wetland habitats within and surrounding the Tracy Lake Groundwater Recharge Project area. Several CNDDB occurrences within 10 miles of the Tracy Lake Groundwater Recharge Project.
Laterallus jamaicensis coturniculus California black rail	BCC	ST CFP	Salt marshes bordering larger bays and freshwater and brackish marshes at least 1 acre in size and supporting at least 1 inch of water. Vegetation composition is dependent on habitat type and includes *Scirpus*, *Juncus*, *Cyperaceae*, *Typha, Grindelia*, and *Poaceae* spp. Nesting habitat includes areas concealed in dense vegetation – deep loose cup at ground level or elevated several inches.	Unlikely to occur. Tracy Lakes lacks appropriate dense marsh vegetation and therefore does not represent potential habitat for this species. CNDDB occurrences within 10 miles of the Tracy Lake Groundwater Recharge Project.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Grus Canadensis tabida greater sandhill crane	-	ST CFP	This species breeds only in Siskiyou, Modoc, and Lassen counties, and in Sierra Valley, Plumas and Sierra counties. In summer it occurs in and near wet meadow, shallow lacustrine, and emergent wetland habitats. It winters in the Sacramento and San Joaquin valleys, in grassland/cropland habitats and open, emergent wetlands.	Potential year-round, non-breeding resident in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Charadrius montanus mountain plover	FPT BCC	CSC	Winter resident from September through March in short grasslands and plowed fields in the Central Valley. Does not breed in California.	Unlikely to occur in the project area during implementation of the Tracy Lake Groundwater Recharge Project (April-October). Potential winter, non-breeding resident in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Numenlus americanus long-billed curlew	BCC	-	Breeds from April to September in wet meadow habitat in northeastern California. Potential winter visitant from early July to early April in grasslands and croplands in the Central Valley. Additionally, non-breeders may remain in the Central Valley through the summer.	Potential year-round, non-breeding resident in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Coccyzus americanus occidentalis western yellow-billed cuckoo	FC BCC	-	Breeds and forages in riparian areas with low woody vegetation in lowland California, especially willow-cottonwood habitat.	Potential summer breeding resident in densely vegetated riparian areas in the vicinity of the Tracy Lake Groundwater Recharge Project. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project area.
Asio flammens short-eared owl	-	CSC	Winter migrant or year round breeder in the Central Valley in open areas with tall grasses, brush, or wetlands for cover.	Potential winter migrant or year round breeder in annual grassland or wetland habitats in the Tracy Lake Groundwater Recharge Project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Athene cunicularia burrowing owl	BCC	CSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Potential year-round breeding resident in annual grassland habitats within the Tracy Lake Groundwater Recharge Project area. Several CNDDB records within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Lanius ludovicianus loggerhead shrike	BCC	CSC	Non-breeding resident or winter visitor in open habitats with scattered trees or other perches in the Central Valley. Breeds March through May at latitudes north of the project area.	Potential non-breeding resident or winter visitor in open portions of the Tracy Lake Groundwater Recharge Project area.
Riparia riparia bank swallow	-	ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or the ocean to dig nesting hole.	Potential for spring and fall migration through the Tracy Lake Groundwater Recharge Project area. Unlikely to nest in the Tracy Lake Groundwater Recharge Project area as no appropriate nesting habitat is present. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Dendroica petechia brewsteri yellow warbler	BCC	CSC (nesting)	Breeds in riparian woodlands from coastal and desert lowlands at elevations below 8,000 feet. Also breeds in montane chaparral, open ponderosa pine, and mixed conifer habitats with substantial amounts of brush.	Potential for occurrence in riparian areas within and surrounding the Tracy Lake Groundwater Recharge Project area. 1995 CNDDB record for breeding pair along Mokelumne River approximately 11 miles east of the Tracy Lake Groundwater Recharge Project.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Ammodramus savannarum grasshopper sparrow	-	CSC	Dense grasslands on rolling hills, lowland plains, in valleys & on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs & scattered shrubs. Loosely colonial when nesting.	Unlikely to occur. No appropriate habitat is present in the project area. No recorded occurrences within a 10 mile radius of the Tracy Lake Groundwater Recharge Project.
Agelaius tricolor tricolored blackbird	BCC	CSC	Highly colonial species, most numerous in the Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, & a foraging area with insect prey within a few kilometers of the colony.	Potential year-round breeding resident in annual grassland, riparian, and wetland habitats in the Tracy Lake Groundwater Recharge Project area. Several CNDDB occurrences in the vicinity of the Project, the closest of which is approximately 4 miles east of the Tracy Lake Groundwater Recharge Project.
Special-status Mammals				

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Corynorhinus townsendii Townsend's big-eared bat	-	CSC	Found in all but alpine and subalpine habitats; most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other man-made structures for roosting. Extremely sensitive to disturbance and may abandon a roost if disturbed.	Potential for occurrence in the Tracy Lake Groundwater Recharge Project area. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat for this species. There is no appropriate roosting habitat present within the Tracy Lake Groundwater Recharge Project area.
Lasiurus blossevilli western red bat	-	CSC	Occurs from British Columbia to South America. In California, occurs from Shasta County to the Mexican border west of the Sierra crest. Roosts solitarily in foliage in forests and woodlands from sea level through mixed coniferous forest. In California known to roost in cottonwood and willow.	Potential year round resident. Interior live oak woodland areas represent potential roosting habitat. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat.
Eumops perotis californicus western mastiff bat	-	CSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban areas. Typically roosts in caves, crevices, or other rock formations. Found mostly below 4,000 feet in elevation.	Potential year-round resident. The Mokelumne River and Tracy Lake represent potential aquatic foraging habitat for this species. There is no appropriate roosting habitat present within the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Sylvilagus bachmani riparius riparian brush rabbit	FE	SE	Yearlong resident of dense, brushy areas, and of early successional stages of oak and conifer habitats. The *riparius* subspecies is found only at Caswell Memorial State Park on the Stanislaus River in San Joaquin County.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project area is outside of this species' geographic range.
Neotoma fuscipes riparia riparian (=San Joaquin Valley) woodrat	FE	CSC	Yearlong resident of riparian woodlands with abundant dead branches and downed woody material. The *riparia* subspecies is found only at Caswell Memorial State Park on the Stanislaus River in San Joaquin County.	Unlikely to occur. The Tracy Lake Groundwater Recharge Project area is outside of this species' geographic range.
Vulpes macrotis mutica San Joaquin kit fox	FE	ST	Grasslands and shrubland areas with friable soils for building underground dens, mostly in the southern and western San Joaquin Valleys and foothills. The most northerly USFWS current distribution records are approximately 30 miles south of the project area. Denning begins around September, mating occurs from December to March, and pups are born February through April.	Potential for occurrence in annual grasslands within the Tracy Lake Groundwater Recharge Project area.
Bassariscus astustus ringtail	-	CFP	Potential permanent resident in riparian or woodland habitats within 0.6 mile from permanent water.	Potential for occurrence in riparian or woodland habitats in the Tracy Lake Groundwater Recharge Project area.

Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence in Project Area
Taxidea taxus American badger	-	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Potential for occurrence in the Tracy Lake Groundwater Recharge Project area. Closest known occurrence consists of a 1938 CNDDB record approximately 15 miles northwest of the Tracy Lake Groundwater Recharge Project.

Federal Status
FT = Federal Threatened
FE = Federal Endangered
FC = Federal Candidate

FPT=Federal Proposed Threatened
FPD = Federal Proposed for Delisting
FD = Delisted Species
BCC = USFWS Birds of Conservation Concern

State Status
SR = California Rare
ST = California Threatened
SE = California Endangered
SCT = Candidate for listing as California Threatened
SCE = Candidate for listing as California Endangered
CFP = California Fully Protected
CSC = California Species of Special Concern

CNPS=California Native Plant Society Rating
1B=rare, threatened or endangered in California and elsewhere.
2=rare in California but more common elsewhere.
3=need more information
4=plants of limited distribution; a watch list.
_.1=Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
_.2=Fairly endangered in California (20-80% occurrences threatened)
_.3=Not very endangered in California (<20% of occurrences threatened or no current threats known)

3.5.1.3 Existing Conditions for Fisheries Resources

Below is a description of the fisheries resources and available habitats in the Mokelumne River within the project area based on the literature review and field reconnaissance surveys. The focus of the assessment is the Mokelumne River, which is a perennial flowing river. The assessment is not focused on Tracy Lake because it is an inland water body not connected to any permanent river, dries up seasonally, and thus would not support any federal or state special-status species.

Water Bodies Potentially Affected by the Project

The lower Mokelumne River, located within the Lower Cosumnes-Lower Mokelumne Hydrologic Unit (USGS Hydrologic Unit #18040005), would potentially be affected by the Proposed Project. The Mokelumne River drains a watershed of about 660 square miles, reaching from the high Sierras to the Central Valley where it joins the San Joaquin River in the Sacramento River-San Joaquin River Delta (Delta). Two large reservoirs are located on the Mokelumne River, Pardee Reservoir and Camanche Reservoir, which are both owned by EBMUD. Pardee Reservoir has a capacity of approximately 210,000 ac-ft and is operated for water supply, and electricity generation, while Camanche Reservoir has a capacity of approximately 430,000 ac-ft and is used primarily for flood control, electricity generation, and to meet instream flow requirements below Camanche Dam. The lower Mokelumne River is defined as the approximately 64-mile long reach extending from Camanche Dam to the confluence with the San Joaquin River in the Delta. Woodbridge Dam is the only dam on the lower Mokelumne River, which is located at the city of Lodi and serves to impound water (forming Lodi Lake) for WID's water diversion and intake facilities and operations. Woodbridge Dam contains a fish ladder, and Camanche Dam does not have a fish ladder, and thus Camanche Dam is the upper extent of accessible river habitat for anadromous salmonids.

Mokelumne River Streamflow Conditions

Average monthly flows along the lower Mokelumne River that are released from Camanche Reservoir peak during the spring months of April through June as a result of seasonal snow melt in the upper watershed, ranging from approximately 1,300 to 2,200 cfs during these months. Winter flood events are largely contained by the existing reservoirs. The seasonal low-flow period occurs during the months of September through December, with average flows typically less than 400 cfs.

On March 23, 1998, a Joint Settlement Agreement (JSA) was entered into between EBMUD, the USFWS, and CDFW, which requires EBMUD to make minimum releases from Camanche Reservoir for fishery protection (**Table 6**). The amounts of water that EBMUD is required to release from Camanche Reservoir for fishery protection each year (i.e., "Agreed Release from Camanche") vary based upon the quantity of

water available in that water year (i.e., from October 1 to September 30). The JSA release requirements vary according to two separate components of water availability, resulting in the four water year types: Normal and Above, Below Normal, Dry and Critical. The two separate components consist of:

- Total Pardee and Camanche reservoir storage on November 5 of each year, which determines EBMUD's minimum releases from Camanche Reservoir from October through March; and,

- California Department of Water Resources (DWR) April 1 forecast of unimpaired water year runoff into Pardee Reservoir defines April through September required releases.

The JSA "Expected Flows Below Woodbridge" reflects the minimum regulated instream flows anticipated to pass by the proposed Tracy Lake diversion location. The "Below Woodbridge" instream flow requirements are not mandatory for EBMUD except during the months of April and October. Agreements between EBMUD and WID prescribe operational obligations of the two entities that serve to facilitate EBMUD's compliance with the JSA requirements. One such agreement is the obligation of WID to operate its diversion to ensure that instream flow below Woodbridge Dam is in compliance with the JSA-specified Expected Flows below Woodbridge in October of any year that it is diverting water under its Regulated Base Supply (which is 60,000 ac-ft per year).

Table 6. Minimum flow standards for the Mokelumne River downstream of Camanche Reservoir and the expected flows downstream of Woodbridge Dam for each water year type under the Joint Settlement Agreement.

Water Year Type	Unimpaired Runoff (ac-ft)	Pardee/Camanche Storage (ac-ft)	Release from Camanche (cfs)		Expected Flow Below Woodbridge Dam (cfs)	
			Oct-Jun	Jul-Sep	Oct-Jun	Jul-Sep
Normal and Above	890,000 or more	Max Allowable	325	100	100-300*	25
Below Normal	889,000 to 500,000	400,000 or more	250	100	100-200*	20
Dry	499,000 to 300,000	399,000 to 270,000	100-220*	100	20-150*	20
Critical	299,000 or less	269,000 or less	100-130	100	15-75*	15

* Minimum releases from Camanche Dam and expected flows below Woodbridge Dam vary within the indicated ranges, on a bi-weekly or monthly basis.

Fish Habitat Conditions

Instream fisheries habitat conditions of the lower Mokelumne River were characterized by Merz and Setka (2004). The extent of tidal influence depends largely on river flows and tidal elevations, and normally extends to the confluence with the Cosumnes River near river mile 24, which is approximately 8 miles downstream of the diversion location for the Tracy Lake Groundwater Recharge Project. Glides, the most prevalent habitat type, comprise 100% of the lower Mokelumne River channel downstream of Woodbridge Dam to the extent of tidal influence in the Delta, and comprise 42% of the entire lower Mokelumne River. Riffles are scarce, comprising no more than 2% of available habitat types in all of the lower Mokelumne River. The river reach downstream of Woodbridge Dam is characterized as a low-gradient channel with low suitability for spawning by anadromous salmonids. This river reach is used almost exclusively as a migration corridor for anadromous salmonids to and from the reach extending from Lodi Lake upstream to Camanche Dam, where almost all Chinook salmon and steelhead spawning occurs. Substrate composition ranges from gravel/cobble/sand mixture in reaches near Camanche Dam to a mixture of mud, sand, and rooted vascular plants in areas downstream of Woodbridge Dam. The tidally influenced reach of the lower Mokelumne River downstream of the Cosumnes River confluence is characterized by a relatively uniform channel cross-section confined between constructed levees.

Water Quality Conditions for Fish

Water quality along the lower Mokelumne River below Camanche Reservoir is affected by natural and regulated inflows to the upper Mokelumne River channel and its tributaries, Pardee and Camanche reservoir operations, downstream diversions that reduce river flows, and runoff associated with agriculture and urban land uses. Water quality conditions in the Mokelumne River are generally considered excellent, being clear and having low mineral and contaminant content as a result of the source water being snowmelt and runoff of an alpine Sierra Mountain watershed.

Water temperature patterns in the lower Mokelumne River are affected by the overall storage and release operations of Pardee and Camanche reservoirs. In accordance with the JSA and EBMUD's hydropower operating license from the Federal Energy Regulatory Commission (FERC), EBMUD operates to meet objectives for temperature control of the lower Mokelumne River for support of the anadromous salmonid populations. EBMUD must use best efforts to maintain a minimum of 28,000 ac-ft of hypolimnetic water volume (the volume of water colder than 16.4 ºC (about 61 ºF) in Camanche Reservoir through October whenever Pardee Reservoir total volume is greater than 100,000 ac-ft. EBMUD also must operate the upper and lower level outlets in Camanche Reservoir to maintain the best possible release temperature to the lower Mokelumne River. EBMUD's operations have successfully maintained thermal stratification in Camanche Reservoir, sufficient cold water pool availability, and acceptable temperature conditions in the lower Mokelumne River throughout the fall months (East Bay Municipal Utility District 2012).

EBMUD also manages the lower Mokelumne River according to a Water Quality and Resource Management Program (WQRMP) developed in accordance with the JSA and overseen by representatives of EBMUD, USFWS, NOAA Fisheries, and CDFW, and a technical advisory committee. The WQRMP consists of a comprehensive monitoring program and applied research integrated with actions to adaptively manage EBMUD's water and power supply operations, flood control, lower Mokelumne River Fish Hatchery operations, and ecosystem rehabilitation actions. Under the WQRMP, EBMUD is collaborating with local entities and landowners on habitat stewardship and restoration projects along the lower Mokelumne River to reduce invasive species in the riparian corridor and reduce erosion and fine sediment input to the river (East Bay Municipal Utility District 2012).

Fisheries Resources

Available data indicate that over 40 fish species occur in the lower Mokelumne River, Camanche Reservoir, and Pardee Reservoir. The fish assemblage is comprised of a diverse variety of native and non-native species. At least 15 of the species present are endemic to California, of which five species have been given a special-status designation by the NOAA Fisheries, USFWS, and/or CDFW due to concern over declining numbers. The five special-status species of primary management concern for the resource agencies are discussed in detail below.

Other native species that have been documented in surveys of fish distribution and abundance conducted between 1997 and 2004 in the reach of the lower Mokelumne River downstream of Woodbridge dam to the region of Delta tidal influence near the confluence of the Cosumnes River include hitch (*Lavinia exilicauda*), Pacific lamprey (*Lampetra tridentata*), Prickly sculpin (*Cottus asper*), Sacramento blackfish (*Orthodon microlepidotus*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and Tule perch (*Hysterocarpus traski*) (Merz and Saldate 2004). These survey data indicate that the majority of total fish abundance is comprised of Prickly sculpin, Sacramento pikeminnow, and Sacramento sucker. Other native species that may be present downstream of the project site include Riffle sculpin (*Cottus gulosus*), river lamprey (*Lampetra ayresi*), Speckled dace (*Rhinichthys osculus*), Threespine stickleback (*Gasterosteus aculeatus*), Western brook lamprey (*Lampetra richardsoni*), and White sturgeon (*Acipenser transmontanus*) (University of California Davis 2013).

The remaining 27 fish species occurring in the lower Mokelumne River have been introduced into California water bodies, either intentionally or unintentionally. The non-native fish species present in the lower Mokelumne River represent a diverse array of trophic levels and adaptations. Many centrarchids (e.g., largemouth bass [*Micropterus salmnoides*], smallmouth bass [*Micropterus dolomieui*], sunfish [*Lepomis* spp.]), and ictalurids (i.e., catfish and bullheads) may prey on eggs, juveniles, and small-bodied adult native and non-native fish. Green sunfish (*Lepomis cyanellus*) are known to compete with

native Sacramento perch (*Archoplites interruptus*) by aggressively chasing them from their spawning areas (Fuller et al. 1999). American shad (*Alosa sapidissima*) and striped bass (*Morone saxatilis*), both introduced intentionally to provide a sport fishery, may also feed on juvenile fish, including native fishes. Western mosquitofish (*Gambusia affinis*), introduced as a mosquito-control agent, provide a forage base for native and non-native piscivores.

Camanche Reservoir supports a host of warmwater and coldwater fish species and provides a recreational sport fishery for numerous species. Numerous non-native warmwater fish species occur in the reservoir, including largemouth bass, smallmouth bass,bluegill (*Lepomis macrochirus*), green sunfish, black crappie (*Pomoxis nigromaculatus*), white catfish (*Ameiurus catus*), and channel catfish (*Ictalurus punctatus*) (U.S. Army Corps of Engineers 1991). In addition, the reservoir is stocked annually with Kokanee salmon (*Oncorhynchus nerka*), and rainbow trout (*Oncorhynchus mykiss*) to provide a coldwater sport fishery (U.S. Army Corps of Engineers 1991). Many of these fish species rely on the near-shore areas of the reservoir for foraging and spawning. Consequently, any substantial reductions in the amount of near-shore aquatic habitat associated with the project could adversely affect the fish community of Camanche Reservoir.

Special-status Fish

The special-status fish species addressed in this section include those fish species or races that have been designated as endangered, threatened, Species of Special Concern/Species of Concern, or are proposed for listing (i.e., candidate species) under the federal ESA or CESA, and have the potential to occur in the Mokelumne River within the project area. There are no records of special-status fish for Jahant Slough and Tracy Lake. Because Jahant Slough and Tracy Lake are inland water bodies not connected to any permanent river, and dry up seasonally, Tracy Lake lakebed would not support any federal or state special-status species.

- **Fall-run Chinook Salmon (*Oncorhynchus tshawytscha*) – FC, CSC**

  Central Valley ESU fall-run (and late fall-run) Chinook salmon were transferred from the federal candidate species list to the federal Species of Concern list in 2004 (64 FR 19975; April 15, 2004). Fall-run Chinook salmon currently maintain self-sustaining populations in the Mokelumne River, partially supplemented by stocking from the Mokelumne River Fish Hatchery, which is owned by EBMUD and operated by CDFW. Data collected from studies conducted by EBMUD and CDFW indicate that the long-term (1964–2011) mean annual fall run Chinook salmon escapement in the Mokelumne River was about 4,600 fish, and has ranged from 250 to 18,600 fish annually (California Department of Fish and Wildlife 2012). Chinook salmon numbers have generally increased since implementation of the JSA-specified instream flow requirements, however, the size of the return of combined hatchery and natural adults has varied considerably from very

low numbers (e.g., 400 fish in 2008) to record high numbers (e.g., 18,600 fish in 2011) (California Department of Fish and Wildlife 2012).

Adult fall-run Chinook salmon migrate into the lower Mokelumne River from September into early January, with peak immigration occurring in November. Spawning generally occurs from late October through January. Salmon eggs incubate in the gravel and hatch between late October and April, depending on time of spawning and water temperature. Fry emergence occurs from January to April and a small portion of these fish may emigrate toward the Delta immediately following emergence as post-emergent fry; however, the majority of juveniles rear near the spawning areas for a period of several weeks. Emigration from the lower Mokelumne River is complete by July. The lower Mokelumne River at the proposed Tracy Lake diversion provides juvenile rearing habitat and serves as a migratory corridor for adult Chinook salmon. Suitable spawning habitat does not occur at or near the Project site.

- **Central Valley Steelhead (*Oncorhynchus mykiss)* – FT**

  Central Valley ESU steelhead were listed as threatened under the FESA on March 19, 1998 (63 FR 13347); no State designation has been made. Critical habitat was designated for the Central Valley Distinct Population Segment (DPS) steelhead on September 2, 2005 (70 FR 52488) and includes the lower Mokelumne River downstream of Camanche Dam. Steelhead, the anadromous form of rainbow trout, was once abundant in California coastal and Central Valley drainages from the Mexican to Oregon borders. Populations have declined significantly in recent decades, due to loss of habitat and other factors.

  Steelhead spawning migrations into the lower Mokelumne River begin as early as August, peak in October and November, and extend into March (Merz and Saldate 2004). Spawning occurs from December through April with peak spawning occurring in January and February. The majority of fry emerge from the gravel in May and early June. Fry remain in the river for one to three years before undergoing smoltification, a physiological transformation preparing fish for living in saltwater environments, prior to emigration to the ocean. Steelhead mature in one to four years at sea before returning to their natal streams to spawn. Unlike Chinook salmon, steelhead are iteroparous (i.e., able to spawn repeatedly) and may spawn for up to four consecutive years before dying; however, it is rare for steelhead to spawn more than twice and the majority of repeat spawners are females (Busby et al. 1996). Emigration of 1- to 3-year old, sub-adult fish to the ocean generally occurs from December through August, with peak months being January through March (McEwan 2001).

  Steelhead are reared and released from the Mokelumne River Hatchery but are also planted annually at numerous locations in the lower Mokelumne River per hatchery management

objectives. The number of steelhead spawning in the Mokelumne River is unknown; however, monitoring by EBMUD indicates that small numbers are detected annually at Woodbridge Dam during the Chinook salmon immigration period. The majority of spawning occurs in the reach extending from Woodbridge Dam upstream to Camanche Dam, where habitat suitability is greatest. Likewise, the vast majority of juvenile steelhead rear in this upstream reach, although they are found all the way down to the Cosumnes River confluence (Merz and Saldate 2004). The lower Mokelumne River at the proposed Tracy Lake diversion provides only rearing habitat and serves as a migratory corridor for steelhead and suitable spawning habitat does not occur at the site. The lower Mokelumne River at the proposed Tracy Lake diversion provides juvenile rearing habitat and serves as a migratory corridor for adult steelhead. Suitable spawning habitat does not occur at or near the Project site.

- **North American Green Sturgeon (*Acipenser medirostris*) – FT**

  The Southern DPS of North American green sturgeon includes fish that spawn and live in the Sacramento River, Delta, and San Francisco Bay. Critical habitat for the Southern DPS was designated by NOAA Fisheries on October 9, 2009 (50 CFR 226), and includes the jurisdictional Delta. No green sturgeon has ever been documented in the San Joaquin River or its tributaries, although small numbers of adult white sturgeon have been observed (NOAA Fisheries 2005). The Project site is located upstream of the jurisdictional Delta, and thus is not within critical habitat area for green sturgeon. Two juvenile sturgeon collected by EBMUD staff in the lower Mokelumne River below the Woodbridge Dam in 2003, which were unidentified at the time, were submitted to University of California (Davis) staff and positively identified as white sturgeon (East Bay Municipal Utility District 2004). Green sturgeon are not expected to occur within the action area for the Project and critical habitat would not be affected by the Project; thus, green sturgeon are not discussed further in this document.

- **Delta Smelt (*Hypomesus transpacificus*) – FT, SE**

  Delta smelt were listed under the FESA as threatened on March 5, 1993 (58 FR 12854) and are listed as endangered under the CESA. Critical habitat was designated December 19, 1994 (59 FR 65256) and includes the Mokelumne River up to North Ray Road (approximately 8.7 miles downstream of Woodbridge Dam), as defined in Section 12220 of the California Water Code.

  Delta smelt are pelagic (live in open waters near the surface) and tend to form large schools. Adult spawning migrations begin in late winter and last through early summer. Spawning occurs in shallow waters of dead-end sloughs upstream of the brackish water of the estuary. These waters are located within the tidally influenced zone of the Delta and, therefore, would not be affected by any flow changes associated with the Project. Eggs sink to the bottom and adhere to

the substrate. Adult fish die following spawning. Eggs incubate for 10–14 days and, following hatching, the planktonic (drifting in the water column) larvae are transported downstream by currents to zones of freshwater/saltwater mixing from late March through July.

Delta smelt are a small, slender-bodied euryhaline (i.e., occur in a wide range of salinities) fish endemic to the Delta. They occur throughout upper reaches of the Delta, including the lower reaches of the Mokelumne River. Delta smelt are captured infrequently in the lower Mokelumne River (i.e., downstream of the Cosumnes River confluence) during fish surveys conducted by EBMUD (J. Merz, EBMUD, pers. comm., 2005).

- **Sacramento Splittail (*Pogonichthys grandis*) – CSC**

  Sacramento splittail are large, relatively long-lived cyprinids (minnows) native to California. Splittail are listed as a Species of Special Concern in California and were removed from threatened status by USFWS in 2003. Reasons cited for concern include: 1) changed estuarine hydraulics, especially reduced outflows; 2) modification of spawning habitat; 2) climatic variation; 4) toxic substances; 5) introduced species; 6) predation; and 7) exploitation (Moyle et al. 1995).

  Floodplains provide important spawning and rearing habitats for splittail (Crain et al. 2004) and they are found seasonally throughout lower reaches of the Mokelumne River (Merz and Saldate 2004). Splittail spawn in large numbers from January to June on flooded vegetation (Whitener and Kennedy 1998; Moyle et al. 1995). Juveniles remain in the shallow, near-shore areas with abundant vegetation, moving to deeper water as they grow. Juvenile emigration into the estuary begins in late winter (e.g., February) and continues throughout the summer.

- **Hardhead (*Mylopharodon conocephalus*) – CSC**

  Hardhead, a relatively large cyprinid species, is listed as a California Species of Special Concern. No federal designation has been made. Although this species is widespread and abundant throughout the Sacramento River and San Joaquin River systems, recent declines in numbers have raised concern. Reasons for declines are thought to be primarily due to habitat loss/alteration and predation from non-native fish species (e.g., smallmouth bass) (Moyle et al. 1995). Hardhead are found in relatively undisturbed low- to mid-elevation streams and reservoirs, and may occur in relatively small numbers near the project area (Merz and Saldate 2004; UC Davis Cosumnes Research Group 1999).

3.5.1.4 Regulatory Framework

Regulations, policies, and ordinances related to protection of biological resources considered in the evaluation of the Proposed Project are listed below.

- Federal Endangered Species Act
- Federal Migratory Bird Treaty Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Clean Water Act (CWA), Sections 401 and 404
- California Endangered Species Act
- California Fish and Game Code Section 1602 (Streambed Alteration Agreement)
- California Fish and Game Code Fully Protected Species
- California Fish and Game Code Sections 3503 and 3503.5 – Protection of birds and bird nests and raptors and raptor nests
- California State Wetlands Conservation Policy
- California Native Plant Protection Act (California Fish and Game Code Sections 1900 to 1913)
- San Joaquin County Multi Species Habitat Conservation Plan

3.5.2 Discussion

a) *The Proposed Project will not 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 CDFW, USFWS, or NOAA Fisheries with implementation of mitigation.*

1. Special-Status Plants

The Tracy Lake Groundwater Recharge Project area represents potential habitat for 19 special-status plant species. Valley foothill hardwood, annual grassland, or riparian habitat in the diversion pipeline alignment and staging area represent potential habitat for special-status plant species such as Mason's lilaeopsis (*Lilaeopsis masonii*) (SR and CNPS 1B.1), as well as additional CNPS List 1B and 2 species such as bristly sedge (*Carex comosa*), diamond-petaled California poppy (*Eschsholzia rhombipetala*), wooly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*), or dwarf downingia (*Downingia pusilla*). Additionally, seasonal wetland areas represent potential habitat for special-status species such as Delta button-celery (*Eryngium racemosum*) (SE and CNPS 1B.1).

Construction-related Effects

Construction-related activities including ground disturbance (e.g., grading and excavation), tree removal, material staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas could potentially damage or destroy special-status plants, if populations are present. Direct effects resulting from the Tracy Lake Groundwater Recharge Project, including loss or disturbance of special-status plants, or indirect effects including loss or disturbance of habitat, would be considered a potentially significant impact.

Potential impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP) and BIO-2 (pre-construction surveys). If special-status plant populations are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status plants identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Section 5.2.4.29 of the SJMSCP. Implementation of Mitigation Measure BIO-1 and BIO-2 would reduce impact to special-status plants potentially present within the construction and staging areas to less-than-significant.

Operations-related Effects

In the past, the bed of Tracy Lake has been used during the spring-fall for agricultural purposes, which included the planting and harvesting of grasses, as well as soil disking, which led to the colonization of the bare soil in the lake bed and shoreline by dense stands of weed species. These conditions make it unlikely that special-status plant species are present within the lakebed. However, protocol-level surveys have not been conducted within the lakebed to determine the presence or absence of special-status plant species. Seasonal wetlands within Tracy Lake, therefore, represent potential habitat for several special-status plant species, including, but not limited to, Bogg's Lake hedge-hyssop (*Gratiola heterosepala*) and Mason's liaeopsis, SE and SR, respectively, as well as additional CNPS List 1B and 2 species such as watershield (*Brasenia schreberi*), bristly sedge, Bolander's water hemlock (*Cicuta maculata* var. *bolander*), dwarf downingia, woolly rose-mallow, Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), legenere, Sanford's arrowhead (*Sagitarris sanfordii*), side-flowering skullcap (*Scutellaira lateriflora*), or Suisun marsh aster (*Symphyotrichum lentum*) (Table 4).

As part of the Tracy Lake Groundwater Recharge Project, water would be pumped from the Mokelumne River into Tracy Lake April through November, resulting in an increased depth and duration of seasonal inundation of Tracy Lake during wet years. If present, special-status plant species could be affected by year-round inundation of wetlands directly through submersion underwater and indirectly through modification of habitat. Direct effects resulting from the loss or disturbance of special-status plants, or indirect effects including loss or disturbance of habitat, would be considered a potentially significant impact.

Potential impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP) and BIO-2 (pre-construction surveys). If any special-status plants are found within Tracy Lake, NSJWCD would implement minimization and mitigation measures in accordance with Sections 5.2.4 and 5.3 of the SJMSCP. Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce the impact to special-status plants potentially present within Tracy Lake to less-than-significant.

2. Special-Status Amphibians

Annual grassland habitats, grassy understory areas in valley foothill hardwood, and riparian habitats represent potential habitat for the CTS, which typically estivate in subterranean refugia for most of the year. Grassland areas and valley foothill hardwood habitats represent potential habitat for the western spadefoot toad, which also spend most of the year in underground burrows.

Construction-related Effects

Construction-related activities including ground disturbance (e.g., grading and excavation), tree removal, material staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas could potentially disturb CTS or western spadefoot toad, if present. Construction could potentially result in erosion and sedimentation, thereby altering aquatic habitat through impacts to water quality in the construction area, including the Tracy Lake lakebed. Potential construction-related erosion and water quality effects could disturb California tiger salamander breeding activity, if present. Tracy Lake does not represent breeding habitat for western spadefoot toad, as described above, thus, potential erosion or water quality effects would not affect this species. The potential direct effects resulting from the Tracy Lake Groundwater Recharge Project including loss or disturbance of special-status amphibians, or indirect effects including loss or disturbance of habitat, is considered a potentially significant impact.

Impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-3 (pre-construction surveys), BIO-4 (acquire permits), and Best Management Practices (BMPs) implemented as part of the Proposed Project (described in the Project Description). If CTS or western spadefoot toad populations are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status amphibians identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Section 5.2.4.5 of the SJMSCP. Mitigation Measure BIO-4 requires that all appropriate permits would be obtained prior to any work within Waters of the U.S./Waters of the State and all avoidance, protection, and mitigation measures included in these permits would be

implemented. The BMPs include implementation of erosion control measures during the precipitation season (October–April) to minimize the likelihood of transporting soil off site. Additionally, to reduce potential contamination by spills, all refueling, storage, servicing, and maintenance of equipment shall be performed at designated sites and all maintenance materials would be stored at staging areas. Implementation of Mitigation Measures BIO-1, BIO-3, and BIO-4 would reduce the impact to special-status amphibians potentially present within the construction and staging areas to less-than-significant.

Operations-related Effects

CTS breeding and egg-laying typically occur in seasonal ponds, vernal pools, or year-round ponds from December through early February, with larval transformation completed by late spring or early summer. While Tracy Lake represents potential breeding habitat for the CTS, the presence of predators such as bullfrogs reduces the likelihood that this species is present. Because CTS are able to utilize permanently watered habitats for breeding and egg-laying, the project-related changes in seasonal inundation of Tracy Lake in wet years would have no impact on breeding CTS. Following implementation of the Tracy Lake Groundwater Recharge Project, Tracy Lake would still provide potential breeding habitat for CTS. Western spadefoot toad breeding and egg-laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains. Because of its large size and depth, Tracy Lake does not represent breeding habitat for this species. Therefore, year-round inundation of Tracy Lake would have no impact on breeding western spadefoot toad. Because year-round inundation of Tracy Lake would not affect these species, the operations-related effects of the Tracy Lake Groundwater Recharge Project to special-status amphibians is considered a less-than-significant impact and no mitigation is necessary.

3. Special-Status Reptiles

Construction-related Effects

Annual grassland habitats, valley foothill hardwood, and wetland habitats represent potential foraging or basking habitat for the western pond turtle. The Mokelumne River and Tracy Lake (when water is present) currently represent aquatic habitat for the western pond turtle. Annual grassland habitats represent potential habitat for the San Joaquin whipsnake. Construction-related activities including in-river construction activity, ground disturbance (e.g., grading and excavation), tree removal, material staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas could potentially disturb these species, if present. Construction also could potentially result in erosion and sedimentation, thereby altering aquatic habitat for the western pond turtle through impacts to water quality in the construction area, including the Mokelumne River and Tracy Lake lakebed, if turtles are present. The potential direct effects resulting from the Tracy Lake

Groundwater Recharge Project including loss or disturbance of special-status reptiles, or indirect effects including loss or disturbance of habitat, is considered a potentially significant impact.

Impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-5 (pre-construction surveys), BIO-4 (acquire permits), and BMPs implemented as part of the Proposed Project (described in the Project Description). If San Joaquin whipsnake or western pond turtle populations are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status amphibians identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Sections 5.2.4.9 and 5.2.4.10 of the SJMSCP. Mitigation Measure BIO-4 requires that all appropriate permits would be obtained prior to any work within Waters of the U.S./Waters of the State and all avoidance, protection, and mitigation measures included in these permits would be implemented. The c BMPs include implementation of erosion control measures during the precipitation season (October–April) to minimize the likelihood of transporting soil off site. Additionally, to reduce potential contamination by spills, all refueling, storage, servicing, and maintenance of equipment shall be performed at designated sites and all maintenance materials would be stored at staging areas. Implementation of Mitigation Measures BIO-1, BIO-5, BIO-4, and the BMPs would reduce the impact to special-status reptiles potentially present within the construction and staging areas to less-than-significant.

Operations-related Effects

The western pond turtle is associated with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. Because it is not a perennial water body, Tracy Lake does not currently meet these year-round habitat requirements for the western pond turtle. However, with implementation of the Tracy Lake Groundwater Recharge Project, the depth and duration of inundation would increase in Tracy Lake during wet years, which would represent improved aquatic habitat for the western pond turtle. Therefore, operations-related effects of the Tracy Lake Groundwater Recharge Project to special-status reptiles is considered a less-than-significant impact and no mitigation is necessary.

4. Special-Status Birds

Construction-related Effects to Nesting or Foraging Birds

Several special-status bird species are known to or could potentially forage or nest in annual grassland, valley foothill hardwood, riparian, and wetland habitats within and surrounding the Tracy Lake Groundwater Recharge Project area, including the Swainson's hawk, which is known to nest and forage

in the vicinity of the Tracy Lake Groundwater Recharge Project. See **Table 5** for a complete list of potentially occurring bird species. If present, special-status birds could be disturbed by construction-related activities including ground disturbance (e.g., grading and excavation), tree removal, material staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas. Direct effects resulting from the Tracy Lake Groundwater Recharge Project including loss or disturbance of special-status birds, or indirect effects including loss or disturbance of habitat, is considered a potentially significant impact.

Potential impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-6 (pre-construction surveys), and BMPs implemented as part of the Proposed Project (described in the Project Description). If special-status bird populations are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status birds identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Sections 5.2.4.11 through 5.2.4.22 of the SJMSCP. Furthermore, disturbances to birds potentially nesting or foraging in the Tracy Lake Groundwater Recharge Project area would be minimized through implementation of BMPs which require that construction activities are limited to the designated work area, which would be clearly identified on the construction drawings and would be staked and flagged where necessary prior to initiation of construction activities. Additionally, construction activities would be limited to the daylight hours and construction equipment must have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust system. Implementation of Mitigation Measures BIO-1, BIO-6, and the BMPs would reduce the impact to special-status birds potentially present within the construction and staging areas to less-than-significant.

Construction-related Effects to Foraging or Breeding Habitat

Installation of the pipeline would require the removal of up to nine trees within the pipeline alignment area. Potential adverse effects of tree removal would be minimized through implementation of the BMPs, which require that construction activities avoid, where possible, damage and removal of mature trees and that activities within the drip-line of trees are minimized. Because tree-removal would be limited in nature, consisting of nine trees and confined to the pipeline alignment area, impacts to valley foothill hardwood habitat and potential foraging and breeding habitat for special-status birds is considered less-than-significant.

Construction-related Effects to Aquatic Foraging Habitat

Construction-related activities including ground disturbance (e.g., grading and excavation), tree removal, material staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas could potentially result in erosion and sedimentation, thereby altering aquatic foraging habitat for special-status birds such as the tricolored blackbird, yellow warbler, and other special-status birds through impacts to water quality in Tracy Lake and the Mokelumne River. These potential effects would be minimized through implementation of BMPs as part of the Proposed Project, including erosion control during the precipitation season (October–April) to reduce the likelihood of transporting soil off site. Additionally, to reduce potential contamination by spills, all refueling, storage, servicing, and maintenance of equipment shall be performed at designated sites and all maintenance materials would be stored at staging areas. Furthermore, permits would be obtained under Mitigation Measure BIO-4 prior to any work within Waters of the U.S./Waters of the State, including implementation of all avoidance, protection, and mitigation measures included in these permits. Because the potential adverse effects to aquatic foraging habitat would be limited in nature, and implementation of BMPs and permit requirements would further limit disturbances, the Tracy Lake Groundwater Recharge Project would have a less-than-significant impact on potential aquatic foraging habitat for special-status birds.

Operations-related Effects to Special-status Birds or Habitat

The operations-related activities including pump station operation and maintenance, and water diversions, would involve minimal noise or other disturbances in the Tracy Lake Groundwater Recharge Project area, and thus would not directly affect special-status bird nesting or foraging activities. The effects of increased depth and duration of seasonal inundation in Tracy Lake during wet years could improve and expand aquatic foraging habitat for potentially occurring special-status birds such as the tricolored blackbird and yellow warbler. Therefore, operations-related effects are considered a potentially beneficial effect of the Tracy Lake Groundwater Recharge Project for special-status birds.

5. Special-Status Mammals

Construction-related Effects to Foraging or Roosting Special-status Bats

Tracy Lake and the Mokelumne River represent potential aquatic foraging habitat for special-status bat species such as Townsend's western big-eared bat, western red bat, and western mastiff bat. Townsend's western big-eared bat and western mastiff bat are unlikely to roost within the Tracy Lake Groundwater Recharge Project area because no appropriate roosting habitat is present (caves, cliffs, bridges, or structures). However, woodland portions of the Tracy Lake Groundwater Recharge Project area represent potential roosting habitat for the western red bat, which roosts in trees. Construction-related activities, including ground disturbance (e.g., grading and excavation), tree removal, material

staging and vehicular traffic, and general facility construction activities for the pump station, pipeline alignment, and outfall areas, could potentially disturb these species, if present. Construction also could potentially result in erosion and sedimentation, thereby altering aquatic habitat for special-status bats through impacts to water quality in the construction area, including the Tracy Lake lakebed, if present. The potential direct effects resulting from the Tracy Lake Groundwater Recharge Project, including loss or disturbance of special-status bats, or indirect effects including loss or disturbance of habitat, is considered a potentially significant impact.

Impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-7 (pre-construction surveys), BIO-4 (acquire permits), and BMPs implemented as part of the Proposed Project (described in the Project Description). If special-status bat populations are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status bats identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Section 5.2.4.28 of the SJMSCP. Mitigation Measure BIO-4 requires that all appropriate permits would be obtained prior to any work within Waters of the U.S./Waters of the State and all avoidance, protection, and mitigation measures included in these permits would be implemented. The BMPs include implementation of erosion control measures during the precipitation season (October–April) to minimize the likelihood of transporting soil off site. Additionally, to reduce potential contamination by spills, all refueling, storage, servicing, and maintenance of equipment shall be performed at designated sites and all maintenance materials would be stored at staging areas. Implementation of Mitigation Measures BIO-1, BIO-5, BIO-4, and BMPs would reduce the impact to special-status bats potentially present within the construction and staging areas to less-than-significant.

Operations-related Effects to Special-status Bats

The effects of increased depth and duration of seasonal inundation in Tracy Lake during wet years could improve and expand aquatic foraging habitat for potentially occurring special-status bats such as Townsend's western big-eared bat, western red bat, and western mastiff bat. Therefore, operations-related effects are considered a potentially beneficial effect of the Tracy Lake Groundwater Recharge Project for special-status bats.

Construction-related Effects to Foraging, Resting, or Denning San Joaquin Kit Fox, Ringtail, and American Badger

Places with friable soils in annual grassland areas represent appropriate habitat for the San Joaquin kit fox, while areas with friable soils in valley foothill hardwood, annual grasslands, and riparian habitats

represent appropriate habitat for the American badger. The Tracy Lake Groundwater Recharge Project area also contains appropriate habitat for the ringtail in riparian and woodland habitats along the Mokelumne River. If present, these special-status species could be disturbed by construction noise and tree removal activities associated with the Tracy Lake Groundwater Recharge Project. Direct effects resulting from the Tracy Lake Groundwater Recharge Project, including loss or disturbance of these species, or indirect effects including loss or disturbance of habitat, is considered a potentially significant impact.

Potential impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-8 (pre-construction surveys), and BMPs implemented as part of the Proposed Project (described in the Project Description). If any of these special-status species are identified in the construction or staging areas, NSJWCD would incorporate Measures to Minimize Impacts pursuant to Section 5.2 and Measures to Mitigate Impacts pursuant to Section 5.3 of the SJMSCP. Any special-status species identified within the construction area during pre-construction surveys would be protected pursuant to the measures described in Sections 5.2.4.25 through 5.2.4.26 of the SJMSCP. Furthermore, disturbances to species potentially foraging, roosting, or denning in the Tracy Lake Groundwater Recharge Project area would be minimized through implementation of BMPs which require that construction activities are limited to the designated work area, which would be clearly identified on the construction drawings and would be staked and flagged where necessary prior to initiation of construction activities. Additionally, construction activities would be limited to the daylight hours and construction equipment must have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust system. Implementation of Mitigation Measures BIO-1, BIO-8, and the BMPs would reduce the impact to foraging, resting, or denning San Joaquin kit fox, ringtail, and American badger to less-than-significant.

6. Special-Status Fish

Construction-related Effects to Special-status Fish

As part of the Tracy Lake Groundwater Recharge Project, in-river construction work with heavy machinery would occur during the seasonally dry months with low streamflow (likely within the August through October timeframe), and site restoration activities would be completed prior to October 31. Therefore, all life stages of steelhead have the potential to occur in the project area site during construction. Adult fall-run Chinook salmon immigration into the lower Mokelumne River occurs from September to early January with peak immigration occurring in November, and thus, would not likely be present in the action area in substantial numbers, if at all. All life-stages of hardhead and splittail also could be present in the project area during periods of construction activity.

The potential for significant effects on special-status fish from construction-related activities was evaluated based on the intensity, duration, and timing of the various disturbances to aquatic resources, which would primarily occur from in-river construction activities for the fish screen, intake pipe, and pump station. The evaluation of potential construction-related effects to special-status species include direct mortality and sub-lethal effects associated with impeding or interfering with passage by the construction site, effects of noise, harmful water quality changes or contaminant discharges, and temporary alteration of habitat.

Effects of In-River Disturbance and Potential Entrapment. Construction of a cofferdam, or other means of silt-curtain containment for in-water construction work at the site, could entrap and affect fish upon dewatering. Potential adverse effects associated with entrapment of fish in the construction site would be avoided through implementation of fish rescue operations with installation of the containment and dewatering operations, as described in the project description.

Effects of Noise. In-river excavation activities, pile installation, pile removal (if a cofferdam is constructed), and general construction activities may result in elevated noise levels. Noise-generating activities in the river would likely occur intermittently, during daytime hours only, and for a relatively short period of 2 to 3 weeks within the overall 4- to 6-month long construction period. If a sheet pile coffer dam is constructed, the sheet pile installation and removal activity would be anticipated to last approximately 3-4 days total. Piling installation and removal is accomplished with a crane-mounted vibratory or impact hammer method, which would be anticipated to be the largest noise sources of any equipment used for construction.

High levels of underwater acoustic noises have been shown to have adverse impacts upon fish within close proximity of the noise source. Adverse effects can range from physical damage to the exposed fish, sometimes resulting in death, to lesser impacts, such as behavioral modifications or increased susceptibility to predation, which do not necessarily result in death or long term adverse impacts. The specific effects of pile driving on fish depend on a wide range of factors including the type of pile, type of hammer, fish species, life stage, and body size, presence/absence of a swim bladder, and peak sound pressure and frequency of the noise (Hastings and Popper 2005).

The California Department of Transportation (Caltrans), working with the NOAA Fisheries Southwest and Northwest divisions, USFWS, Oregon and Washington transportation agencies, and CDFW developed non-regulatory interim sound thresholds for effects of pile driving on fish (California Department of Transportation 2009). The Caltrans report identifies thresholds for non-auditory tissue damage, auditory tissue damage (hair cell damage), and temporary threshold shift effects (non-injury related responses) for the categories of hearing-generalist and hearing-specialist fish species, and different fish sizes. In California, virtually all fish of concern are hearing generalists. Sound measurement data

compiled by Caltrans indicates that for 12-inch piles or smaller, neither impact nor vibratory hammer installation methods exceed peak sound threshold levels at a distance of 10m from the source (California Department of Transportation 2007).

Fish could be exposed to higher sound levels if passing closer than 10m of the pile driving operation. However, fish would generally be anticipated avoid the pile driving operations in response to the visual disturbances associated with construction activity in the channel. Therefore, the exposure period of individual fish would be short as a result of movement away from the visual and noise disturbance. Experimental studies using caged juvenile coho salmon in a marine impact hammer pile driving operation identified that visual stimuli of the observations caused a greater startle response than the sound levels of the operation (Port of Seattle 2008). Additionally, the lower Mokelumne River is approximately 75 to 100 feet (22-30 m) wide at the Tracy Lake Groundwater Recharge Project site during the late summer period, thus, it is expected that there would be sufficient distance from the edge of the construction activity for fish to pass the site outside the range of the greatest noise levels. Therefore, fish would not likely be exposed to peak or repetitive sound levels from the Tracy Lake Groundwater Recharge Project site that would exceed sound thresholds.

Effects of Construction-related Runoff and Contaminant Discharges. In-river construction activities would involve the use of large equipment (e.g., excavators, crane, and vibratory or impact hammer). Excavation activities would temporarily disturb river substrates and may result in the discharge of suspended solids and turbidity to the lower Mokelumne River downstream of the construction site through direct in-river disturbance of the bed and channel bank, upland disturbance immediately adjacent to channel, or from storm water runoff upon the initial storm events following construction. Suspended solids and turbidity can have numerous adverse effects on fish and benthic macroinvertebrates, including (but not limited to) sedimentation of habitat, reduced respiratory efficiency (Kemp 1949, Waters 1995), and reduced feeding efficiency (Madej 2004). Construction-related activities also have the potential to result in direct discharges or accidental spills of construction materials (e.g., concrete, cleaners, paint, solvents) and petroleum products from machinery to the lower Mokelumne River. Physiological responses to toxic contaminants may include loss of respiratory function, increased stress levels, increased vulnerability to disease, and reduced growth and survival (Moyle and Cech 1996).

The potential for discharges and contaminant spills of construction materials and petroleum based products, and related adverse impacts to water quality would be minimized for several reasons: (1) the area of in-river and inland construction disturbances is small (<1 acre); (2) in-river construction would occur within a coffer dam or other form of silt-curtain enclosure; (3) the duration of construction would occur in the dry summer months when rainfall and runoff is not expected to occur; (4) in-river

construction activity would be short-term (2-3 weeks); and, (5) lower Mokelumne River streamflow would provide dilution for minor discharges.

Effects of Physical Disturbance and Habitat Alteration. Construction of the fish screen and intake pipe would result in temporary disturbance of in-river habitat. However, the aquatic area that would be disturbed from construction would be very small. Construction of a cofferdam/silt curtain enclosure also could alter the local channel hydraulics and stream current immediately adjacent to the site, which could provide additional temporary holding areas for predatory fish species, and thus increase predation pressures on juvenile steelhead relative to existing conditions. Several species of native and non-native piscivorous fishes are known to occur in the lower Mokelumne River (e.g., Sacramento pikeminnow, largemouth bass, striped bass, and sunfishes). However, by the time in-river construction activity would be initiated in the summer/fall period, juvenile steelhead are of a size that would limit potential predation. In addition, the duration of the in-water construction period is anticipated to be relatively short (2 to 3 weeks), further minimizing the potential for predation. Additionally, the removal of up to nine riparian trees near the pump station site would affect a relatively small area of the overall river corridor and would not be expected to measurably or adversely degrade available shaded riparian aquatic habitat.

Summary – Construction-related Effects to Special-status Fish. It is anticipated that most fish would be able to avoid the construction site disturbances, including presence of construction personnel, heavy machinery, and noise. Because work would occur only during daylight hours, the opportunity for fish passage by the construction site would exist during nighttime hours. For these reasons, construction-related lethality or direct injury to special-status fish would not be anticipated, nor would construction activities result in any blockage or delay in migration of anadromous or resident special-status fish.

Moreover, as described in the Project Description (Section 2), NSJWCD has identified BMPs that will be implemented as part of the Proposed Project. These measures would be implemented to minimize soil and sediment disturbances, and habitat alteration, associated with excavation and construction activities. Additionally, NSJWCD will coordinate with resource agencies for authorization of the Tracy Lake Groundwater Recharge Project under the Section 1602 Streambed Alteration Agreement, CWA Section 404 Nationwide permit for effects to jurisdictional water bodies, and Section 401 Water Quality Certification permit programs prior to initiation of any construction activities associated with excavation and inundation of the site of the Tracy Lake Groundwater Recharge Project. These permits include terms and conditions that must be met, including BMPs, for minimizing disturbance of the streambed and riparian habitat.

<u>Operations-related Effects to Special-status Fish</u>

This operations-related effects assessment addresses the potential effects to special-status fish associated with implementation of the Tracy Lake Groundwater Recharge Project and approval of the petitions for change. It assesses the long-term effects to habitat, hydrologic and water quality changes associated with any altered reservoir storage, lower Mokelumne River flow conditions, and water diversion to Tracy Lake.

By April, when diversions for the Tracy Lake Groundwater Recharge Project begin, Chinook salmon have completed their spawning, egg incubation, and fry emergence life stages, and rearing and post-emergent fry emigration is occurring. Near the end of the potential diversion period in October, adult Chinook salmon could begin to return to the river prior to the spawning run and thus be present. In April and throughout the diversion period, juvenile steelhead rearing and emigration of sub-adults could be occurring, and thus these life stages may be present in the action area. Adult steelhead could be present either in the fall before the spawning run or spring during emigration to the ocean. The resident special-status fish Sacramento splittail and hardhead may be present in the lower Mokelumne River at any time during the April-October diversion period.

Habitat Alteration and Predation Effects. The placement of a permanent fish screen facility and rip rap for bank stabilization would cover a small area of the river bed and therefore, only minimally alter the available near-shore streambed and bank habitats for fish in the lower Mokelumne River. Streamflow hydraulics (e.g., velocity, turbulence, and eddies) may be slightly altered by the fish screen and foundation pilings, which may attract predatory fish species, potentially resulting in higher predation rates on juvenile salmonids in the lower Mokelumne River. However, the fish screen structure would be a relatively small feature within the river, and thus would not be expected to measurably or adversely increase the risk of predation of salmonids in the action area.

Maintenance-related Effects. The Tracy Lake Groundwater Recharge Project would not involve the long-term use of any chemicals that could enter the water. Additionally, the fish screen is a self-cleaning system, and routine long-term maintenance activities associated with the screen and the pump station would be minimal. Any maintenance activities such as supplemental external cleaning, debris removal, or facility repairs would be expected to occur over a short time duration (1-2 days) and not require disturbance of the river or channel substrate.

Effects on Reservoir and Lower Mokelumne River Storage, Streamflow, and Temperature Conditions. The release of stored water in Camanche Reservoir during April through October to accommodate the Proposed Project diversion to Tracy Lake would result in greater reservoir drawdown relative to existing conditions by up to 13,600 ac-ft annually in the normal and above water year-types. Accordingly, water released from storage would result in increased flows in the lower Mokelumne River between Camanche Dam and the diversion location. Table 7 shows the estimated reduction in Camanche

Reservoir storage calculated by subtraction of 13,600 ac-ft from the historical average and minimum end-of-October storage values. The assessment is based on data available only from the normal and above year-types, and only for water years since 1997 to reflect the beginning of EBMUD changes in its operation to comply with the JSA. The normal and above water years for the period assessed includes 1997, 1998, 2005, 2006, and 2011. The estimated change in surface water elevation is calculated from the empirical storage to water level relationship in Camanche Reservoir based on measured data (California Data Exchange Center 2013).

The assessment indicates that Camanche Reservoir storage would decrease by an average of about 5%, resulting in a reduction in surface water elevation of 2.3 feet relative to either the historical minimum or average end-of-October conditions that would otherwise exist without the Project diversions.

Table 7. Camanche Reservoir end-of-October storage and elevation under existing conditions and the Tracy Lake Groundwater Recharge Project.

Parameter	Existing Conditions [1]		Tracy Lake Groundwater Recharge Project [2]		Change	
	Min.	Avg.	Min.	Avg.	Min.	Avg.
Storage (ac-ft)	250,720	291,320	237,120	277,720	-5.4%	-4.7%
Elevation (ft)	209.9	216.7	207.6	214.4	2.3	2.3

Notes:
1 End-of-October reservoir storage and water surface elevation conditions calculated for "Normal and Above" water year types during the period of October 1996 through October 2012.
2 Change in storage calculated by subtraction of 13,600 ac-ft from minimum and average end-of-month values.

The increase in lower Mokelumne River streamflow rate associated with the release of Camanche storage water would be equivalent to the proposed monthly average diversion rate for the Tracy Lake Groundwater Recharge Project. Accordingly, under the Tracy Lake Groundwater Recharge Project the anticipated lower Mokelumne River flows upstream of the diversion location can be estimated by the addition of the monthly average April-October diversion rates for an annual diversion of 13,600 ac-ft (see Section 2, Project Description) to the historical average and minimum flow rates measured at the U.S. Geological Survey gage downstream of the Woodbridge Dam. Table 8 shows the estimated increase in lower Mokelumne River flows based on data collected since 1997 for normal and above water year-types only. The assessment indicates that the release under average background streamflow conditions would result in modest flow increases (e.g., up to about 9.4% in September). During drier

conditions when EBMUD would normally be releasing water only to meet WID and other water demands and JSA-specified minimum instream flows below Woodbridge Dam, the additional release for the Tracy Lake Groundwater Recharge Project would result in streamflow increases during July through September ranging from 34% to 114%. During average conditions, the relative streamflow increases during July-September would be smaller, ranging from 3.0% to 9.4% above existing conditions.

Table 8 Estimated lower Mokelumne River streamflow in reach between Woodbridge dam and diversion location under existing conditions and the Tracy Lake Groundwater Recharge Project .

Month	Existing Conditions [1]		Camanche Release [2] (cfs)	Tracy Lake Groundwater Recharge Project [3]		Change	
	Min. (cfs)	Avg. (cfs)		Min. (cfs)	Avg. (cfs)	Min. (%)	Avg. (%)
Apr	645	2180	30.9	676	2211	4.8	1.4
May	321	1941	28.6	350	1969	8.9	1.5
Jun	311	1601	36.3	347	1637	12	2.3
Jul	58	1310	39.0	97	1349	67	3.0
Aug	35	671	40.3	76	711	114	6.0
Sep	91	331	30.9	122	361	34	9.4
Oct	126	343	18.2	144	362	14	5.3

Notes:

1 Average monthly and minimum average monthly streamflow values measured at the U.S. Geological Survey gage below Woodbridge Dam (#11325500) calculated for "Normal and Above" water year types during the period of October 1996 through September 2011.

2 Camanche Dam release assumed equivalent to Proposed Project monthly rate for total 13,600 ac-ft diversion.

3 Change in streamflow calculated by subtraction of 13,600 ac-ft from minimum and average end-of-month values.

Water diversions under the Proposed Project would occur only in years when there is surplus water, which reflect hydrologic conditions where runoff amounts, reservoir storage, and water quality characteristics (e.g., temperature) are typically favorable for fisheries and aquatic resources. Because diversions under the Proposed Project would occur in years with generally favorable hydrologic conditions, result in relatively small project-related changes in reservoir storage, and result in increased

streamflow in the lower Mokelumne River, the effects of streamflow and temperature changes were assessed qualitatively. Accordingly, the assessment consisted of evaluating the proposed timing and magnitude of changes relative to current variability in operational conditions to evaluate the potential effects to fisheries resources.

Effects on Reservoir and Lower Mokelumne River Storage: Streamflow Effects. The relative changes in flow downstream of Woodbridge Dam compared to background conditions during the months of April through June would be small (less than 10%), and therefore would not adversely affect Chinook salmon rearing habitat or steelhead rearing or post-emergent fry emigration. Rather, increased streamflow could incrementally increase habitat conditions for these life stages. During the months of July through October, flow changes below Woodbridge Dam also would be small under average conditions (less than 10% change). While the maximum changes in flow would be large on a percentage basis in July through October, the absolute increase ranging from 30-40 cfs is small relative to the normal range of flows in the channel. During the entire April-October diversion period, the relative change in flows between Camanche Dam and Woodbridge Dam would be considerably less than downstream of Woodbridge Dam because flows in this upstream reach are generally high to meet WID's demand. As noted above, the increased flows would not adversely affect salmonid rearing or migration conditions; and the modest flow changes would not adversely affect resident special-status fish that are accustomed to larger routine changes in flow conditions in the lower Mokelumne River. Moreover, the increased river stage may incrementally increase wetted habitat in most locations for anadromous and resident special-status fish.

In addition, EBMUD's operation of the Camanche Dam ensures that release of stored water under the Proposed Project would not alter streamflow in a way that significantly impacts Chinook salmon or steelhead. EBMUD, as the owner/operator of Camanche Dam, has primary control of compliance with the JSA requirements, which contains comprehensive flow and non-flow measures to protect and enhance the Mokelumne fishery. In implementing the JSA requirements, EBMUD takes into account NSJWCD's 20,000 acre-foot water right.

The JSA requirements include ramping rates to minimize the potential for adverse anadromous fish stranding and redd dewatering. The JSA stipulates that except during emergencies or when flood-control releases are being made, decreases in flow should not be more than 50 cfs per day during October 16 through March 31 (the spawning and incubation period for fall-run Chinook salmon and steelhead) and not more than 100 cfs per day the rest of the year. Because EBMUD is expected to operate the system to maintain a consistent flow pattern throughout the diversion period, the release of stored water from Camanche Reservoir for the Proposed Project would not impose sudden or significant changes in flows that could strand fish at any time during the diversion period of April through October.

The JSA measures also include minimum release requirements that range from 100 to 325 cfs during normal and above-normal runoff water year types, 100 to 250 cfs during below-normal years, 100 to 220 cfs during dry years, and 100 to 130 cfs during critically dry years. These releases help provide adequate passage for adult fall-run Chinook salmon and adult steelhead. Based on observations of fish passage at Woodbridge Dam at low flows, flows of 100 cfs below Woodbridge Dam from September through December and from September through February have been observed to provide adequate passage for adult fall-run Chinook salmon and adult steelhead, respectively.[1] In certain years, however, JSA releases nonetheless may not provide sufficient flows to permit passage of migrating adult Chinook salmon and steelhead below Woodbridge Dam.[2] To ensure sufficient flows, EBMUD in its draft EIR for the Permit 10478 Time Extension Project agreed to the following mitigation measures:

1. EBMUD will release from Camanche Dam up to a total of 2,000 acre-feet of additional water above required releases during the September through February period in Below Normal and Dry water years to facilitate adult salmonid fish passage below Woodbridge Dam.

2. During Critically Dry water years, EBMUD will survey the reach below Woodbridge Dam prior to spawning season to identify any significant blockages or obstructions to instream passage. At least 25% of the entire width of a potential passage impediment will be reconfigured to provide at least 0.9 foot in water depth. If a blockage is identified EBMUD will work with the appropriate entity to remove or reduce the impediment, to ensure that there is a depth of at least 0.9 foot to facilitate adult salmonid fish passage.[3]

EBMUD determined that implementation of the above measures would ensure adequate water depth in the lower Mokelumne River.[4] Because EBMUD contemplated NSJWCD's water right (which is derivative of EBMUD's) in reaching its conclusion, potential streamflow impacts from NSJWCD's continued exercise of its right under Permit 10477 are already addressed. Consequently, the Proposed Project is not

[1] EBMUD Permit 10478 Time Extension Project, Draft Environmental Impact Report, 3.2-35.
[2] EBMUD Permit 10478 Time Extension Project, Draft Environmental Impact Report, 3.2-35.
[3] EBMUD Permit 10478 Time Extension Project, Draft Environmental Impact Report, 3.2-60.
[4] EBMUD Permit 10478 Time Extension Project, Draft Environmental Impact Report, 3.2-60.

anticipated to cause permanent alteration of lower Mokelumne River streamflow conditions that would cause long-term adverse individual or population-level effects to fish resources.

Effects on Reservoir and Lower Mokelumne River Storage: Water Temperature Effects. Water temperature conditions in the lower Mokelumne River can be affected by changes in Pardee and Camanche reservoir storage levels and overall streamflow conditions. Water temperature patterns in the lower Mokelumne River are a concern for overall protection of fisheries resources. In particular, potential reduction in Camanche Reservoir storage is a concern if the coldwater reserves in the hypolimnion, defined as the colder and denser bottom water layer (less than about 16.4 °C or 61.5 °F), become substantially depleted. The hypolimnion is generally resistant to mixing when the reservoir is thermally stratified, or overlain with warmer and less dense surface water. The JSA specifies that EBMUD will make best efforts to preserve a coldwater pool of no less than 28,000 ac-ft in Camanche Reservoir until the end of October whenever Pardee Reservoir storage exceeds 100,000 ac-ft. EBMUD manages temperature conditions in Camanche Reservoir by keeping the reservoir thermally stratified from May until November when seasonally cooler air temperatures naturally cool the water, and releasing cold water from Pardee to maintain the target volume of the hypolimnion in Camanche Reservoir. EBMUD's reservoir coldwater pool management operations ensure that temperature conditions in the lower Mokelumne River are suitable for fisheries protection. EBMUD's operations for temperature management include routine monitoring of temperature conditions, modeling, and forecasting of future conditions, and appropriate scheduling of operations.

In the years since EBMUD has operated under the JSA requirements, the minimum end-of-October Camanche Reservoir storage was approximately 145,000 ac-ft and Pardee Reservoir storage was 159,000 ac-ft in the dry 2008 water year. EBMUD reduces water releases from Pardee Reservoir to Camanche Reservoir in the summer months to conserve the coldwater pool for the period of Chinook salmon spawning in October and November. The coldwater pool fell to below the target level of 28,000 ac-ft in 2008, but EBMUD operations successfully maintained thermal stratification in Camanche Reservoir and facilitated the preservation and release of sufficient cold water (less than 16.4 °C) from Pardee and Camanche reservoirs to maintain acceptable temperature conditions in the lower Mokelumne River throughout the fall months (East Bay Municipal Utility District 2009). With respect to the normal and above water year types when additional releases of stored water would occur to facilitate the diversion to Tracy Lake, the minimum Camanche Reservoir storage is expected to exceed about 237,120 ac-ft. Therefore, Camanche Reservoir storage would on average be about 92,000 ac-ft greater, and the reservoir pool depth would be about 15.4 feet deeper, than the low conditions observed in 2008. Consequently, the additional storage reductions of about 13,600 ac-ft and change in reservoir depth of 2.3 feet under the Proposed Project would not appreciably reduce, or encroach upon, the available coldwater pool in Camanche Reservoir in the water year types when diversions to Tracy

Lake would generally occur. Thus, the diversions to Tracy Lake would not be expected to measurably or adversely affect water temperature patterns in releases from Camanche Reservoir.

Additionally, the release of additional water from Camanche Reservoir and increased streamflow in the lower Mokelumne River during the months of April through October associated with the Tracy Lake Groundwater Recharge Project diversions would result in incrementally increased stream velocity. Consequently, the travel time of flows in the lower Mokelumne River from Camanche Dam to the Tracy Lake diversion location would decrease incrementally. The incremental reduction in travel time would reduce the potential total heat input to river water flowing between Camanche Dam and the diversion location, thus reducing the potential water temperature increase in the lower Mokelumne River compared to existing conditions. Under average conditions, the reduction in travel time and temperature effect is likely not measurable. During conditions when instream flows are at a minimum to just meet JSA requirements, the small reductions in flow travel time and water temperature may provide some beneficial effects to anadromous salmonids and resident special-status fish.

Finally, EBMUD is primarily responsible for compliance with the JSA and operational planning to maintain sufficient coldwater pool in the Camanche Reservoir hypoliminion, such that water released from storage results in acceptable temperature patterns in the lower Mokelumne River. Therefore, EBMUD's operational compliance with the JSA provides assurance that diversions for the Proposed Project would be consistent with fisheries protection objectives for the lower Mokelumne River. In years when there is less surplus water available to facilitate the full diversion under NSJWCD's water right, then diversions would be curtailed to ensure that water temperature management objectives are met.

Summary – Operations-related Effects to Special-status Fish. The assessment of potential operations- and maintenance-related effects to long-term habitat conditions and predation, reservoir storage, and lower Mokelumne River streamflow and temperature conditions indicates that water diversions would not result in substantial changes relative to existing conditions. Consequently, implementation of the Proposed Project is not anticipated to cause permanent alteration of lower Mokelumne River habitat, streamflow, or temperature conditions that would cause long-term adverse individual or population-level effects on special-status fish species.

Summary of Construction-related and Operations-related Effects to Special-status Fish

Based on the findings discussed above, temporary construction-related effects and long-term operations-related effects of the Proposed Project would not interfere substantially with the movement of any resident or migratory fish, or otherwise adversely affect an aquatic species' long-term population

level. Consequently, implementation of the Proposed Project would have a less-than significant impact on special-status fish species.

Riparian Habitat and Other Sensitive Natural Communities

b) *The Proposed Project would not 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 CDFW or USFWS with implementation of mitigation.*

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

Construction-related Effects to Riparian Habitat

Riparian habitats are protected under the California Fish and Game Code sections 1600–1616, as well as under San Joaquin County Ordinance (Division 15, Natural Resources Regulations; Chapter 9-1510). However, the San Joaquin County ordinance is applicable only to discretionary development, and normal agricultural activity such as the Tracy Lake Groundwater Recharge Project is exempt from the ordinance. Riparian habitat is present in the Tracy Lake Groundwater Recharge Project area within approximately 20 feet of the Mokelumne River. Construction activities would require the removal of up to nine trees measuring between 6 and 32 inches diameter at breast height (dbh) from the riparian area in the construction area for pump station near the Mokelumne River. The removal of riparian trees is considered a potentially significant impact.

Potential impacts to these species would be avoided or minimized through the implementation of Mitigation Measures BIO-1 (participation in SJMSCP), BIO-9 (riparian mitigation), and BMPs implemented as part of the Proposed Project (described in the Project Description). The compensation requirements of the SJMSCP are triggered when a project involves disturbance within 100 feet of the outer edge of the driplines of riparian vegetation (Section 5.2.4.31). Implementation of Mitigation Measure BIO-9 requires NSJWCD to implement the applicable Incidental Take Minimization Measures described in Section 5.2.4.31 of the SJMSCP. In addition, the BMPs incorporated into the Proposed Project to protect riparian habitat include restricting staging areas and access routes to developed areas, and avoiding impacts to riparian vegetation adjacent to the construction areas. Implementation of these mitigation measures would reduce project-related impacts to riparian habitat to less than significant.

Construction-related Effects to Oak Woodland Habitat

The majority of the approximate 1-acre site where construction would occur is characterized by interior live oak woodland habitat, and the site itself is set within a broader 90-acre oak woodland. Implementation of the Tracy Lake Groundwater Recharge Project would require removal of one oak tree greater than 32 inches dbh from within the oak woodland habitat. California Senate Bill (SB) 1334 amended CEQA to require counties to determine whether projects they consider may result in a conversion of oak woodlands that would have a significant effect on the environment. A conversion is defined as "removing 30 percent or more of the canopy from an oak woodland and changing the land use so that the converted acreage would not sustain oak species functioning as a biological unit in the future, or undertaking an activity within the dripline of an oak tree in order to convert the land into another use." Removal of the one tree from within the existing 90-acre oak woodland would not change the density of canopy cover by more than 30 percent, and would not result in a change in land use or impair the biological functioning of the oak woodland, and therefore, does not represent a conversion of oak woodlands. All other trees in the oak woodland would be protected throughout Proposed Project implementation. Therefore, this impact is considered less than significant.

c) *The Proposed Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means with incorporation of mitigation*.

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The location and extent of wetlands considered either jurisdictional Waters of the U.S. according to CWA code and USACE regulations, or isolated waters of the state, has not been determined through formal coordination and review by USACE staff. NSJWCD is preparing a wetland delineation and "significant hydrologic nexus" assessment for the Tracy Lake Groundwater Recharge Project area to be submitted to USACE. Based on this assessment, USACE would determine the jurisdictional Waters of the U.S. and isolated waters of the state in the Tracy Lake Groundwater Recharge Project area. As part of the Tracy Lake Groundwater Recharge Project, the outfall and stilling basin to be located in the Tracy Lake lakebed would involve placement of up to approximately 220 cubic yards of rock fill in an area of approximately 0.06 acres. The fill would potentially affect seasonal wetland habitat that may be considered Waters of the U.S. In addition, water would be pumped from the Mokelumne River into Tracy Lake April through November, resulting in increased depth and duration of inundation in Tracy Lake during wet years. While the operations-related water diversions would result in changes to the

hydrology of the open water areas in the lake and associated wetlands, it would not result in a net loss of wetland habitat.

As identified above, NSJWCD would implement Mitigation Measure BIO-4 which consists of submittal of the wetland delineation and acquisition of the appropriate CWA Section 404 permits, CWA Section 401 water quality certification, and CDFW Section 1602 SAA for construction-related disturbances that would occur in aquatic and wetland areas and implementation of all avoidance, protection, and mitigation measures included in these permits, as well as payment of any required mitigation fees. Because the potential adverse effects to jurisdictional wetlands, if present, would be limited in nature, and implementation of the permit (via Mitigation Measure BIO-4) would further limit disturbances, the impact to any jurisdictional wetlands is considered less than significant.

d) *The Proposed Project would not 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 with implementation of mitigation.*

Construction-related Effects to Terrestrial Wildlife

Construction activities associated with the installation of the pipeline would disturb approximately 1 acre of valley foothill hardwood and annual grassland habitat. This includes a strip of land approximately 20 feet wide by 1,000 feet long extending from the Mokelumne River to Tracy Lake where the pipeline would be installed, as well as a staging area in a pre-disturbed field. The diversion pipe would be buried underground, therefore would have no permanent impacts on the movement of wildlife or potential native wildlife nursery sites. Construction-related activities, ground disturbance, and tree removal for the Tracy Lake Groundwater Recharge Project could potentially interfere temporarily with the movement of wildlife in the area. However, these temporary impacts would be minimized through implementation of BMPs incorporated as part of the Proposed Project, which would limit the work area, construction hours, and noise levels.

Furthermore, there is extensive annual grassland habitat and valley foothill hardwood outside of and in the vicinity of the Tracy Lake Groundwater Recharge Project, including the adjacent 90 acre Brovelli Woods, that would remain undisturbed and would continue to be available for wildlife movement or use as a wildlife nursery site throughout Tracy Lake Groundwater Recharge Project implementation. Therefore, the potential effects of the Tracy Lake Groundwater Recharge Project on the movement of any native resident wildlife species, migratory wildlife corridors, or native wildlife nursery sites is considered less than significant.

Construction- and Operations-related Effects to Fisheries Resources

The assessment of potential construction-related and operations-related effects of the Proposed Project to anadromous and resident special-status species above for checklist question "a" also reflect applicable and similar potential effects that could occur to other migratory and resident fish species of the lower Mokelumne River. This assessment also addresses potential operations-related effects to fish species that inhabit Camanche Reservoir.

As summarized for question a) above, it is anticipated that potential construction-related effects to fish would be minimal because the in-river construction area would be small and fish would be expected to generally avoid construction site disturbances. The opportunity for fish passage past the construction site would exist at all times, particularly during nighttime hours because work would occur only during daylight hours. Therefore, construction-related lethality or direct injury to fish would not be anticipated to occur, nor would construction result in blockage or delay of fish migrations, or access to and use of any nursery sites.

The assessment of potential operations- and maintenance-related effects to long-term habitat conditions and predation, reservoir storage, and lower Mokelumne River streamflow and temperature conditions indicates that water diversions would not result in substantial changes relative to existing conditions. The change in reservoir water surface elevation, relative to existing conditions, would occur incrementally over the April-October diversion period resulting in relatively small monthly reductions (less than 4 inches) and total reduction (2.3 feet). Therefore, the water surface elevation reduction would be small relative to the range of normal reservoir water surface fluctuations and would not be anticipated to measurably affect shallow nearshore fish nesting or juvenile rearing habitat.

Moreover, as discussed in a) above, EBMUD's operation of the Comanche Dam consistent with the JSA requirements and established mitigation measures takes into account NSJWCD's water use under Permit 10477, and ensures that flows below Woodbridge Dam are sufficient to permit adequate movement of migratory fish. As a mitigation measures (Mitigation Measure BIO-11), NSJWCD will avoid interfering with the JSA requirements and EBMUD's implementation of its mitigation measure identified in EBMUD's draft EIR for the Permit 10478 Time Extension Project. Consequently, the implementation of the Tracy Lake Groundwater Recharge Project and the approval of the petitions for change are not anticipated to cause permanent alteration of lower Mokelumne River habitat, streamflow, or temperature conditions that would cause long-term adverse individual or population-level effects to fish.

e) *The Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance with implementation of mitigation.*

Terrestrial Vegetation and Wildlife

The Tracy Lake Groundwater Recharge Project involves the removal of up to nine trees, including one oak tree greater than 32 inches dbh. As described previously, potential construction-related effects of the Tracy Lake Groundwater Recharge Project to riparian habitats would be minimized through participation in the SJMSCP (Mitigation Measure BIO-1 and BIO-9) to mitigate for disturbance within 100 feet of the dripline of riparian trees, and effects of tree removal would be further minimized through implementation of BMPs that would limit tree removal and other disturbances. With participation in the SJMSCP and implementation of Mitigation Measure BIO-9, and implementation of the BMPs, there would be no conflict with local policies or ordinances.

Fisheries Resources

As described above, NSJWCD will implement BMPs have been incorporated into the Proposed Project (Section 2) to minimize potential adverse effects to fisheries and aquatic resources. Consequently, the potential effects of the Proposed Project would be consistent with local San Joaquin County General Plan objectives and policies designed to protect sensitive biological resources to the extent possible.

f) *The Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan with implementation of mitigation.*

In 2000, San Joaquin County adopted the SJMSCP. Participation in the SJMSCP fulfills ESA, CESA, NEPA, and CEQA requirements, provides consistent mitigation measures, and streamlines the project permitting process. NSJWCD is not a pre-approved permittee covered under SJMSCP. However, non-permittees can request coverage under the SJMSCP via the San Joaquin Council of Governments (SJCOG) Habitat Technical Advisory Committee. SJCOG approved the inclusion of the Tracy Lake Groundwater Recharge Project under the SJMSCP in November 2012. This coverage would allow NSJWCD to minimize and compensate for Tracy Lake Groundwater Recharge Project impacts within the project area through implementation of Mitigation Measure BIO-1 (and other mitigation measures). These measures require preconstruction surveys pursuant to the methods described in Section 5.2.2 of the SJMSCP, implementation of all applicable Measures to Minimize Impacts and Mitigate Impacts pursuant to Sections 5.2.4 and 5.3 of the SJMSCP, as well as payment of appropriate fees associated with coverage under the SJMSCP.

There are no other approved local, regional, or state habitat conservation plans in the vicinity of the project area. Therefore, the Tracy Lake Groundwater Recharge Project is consistent with the SJMSCP and would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Fish are not covered in the local San Joaquin County MSHCP, and no other HCP or NCCP cover the lower Mokelumne River, thus, implementation of the Tracy Lake Groundwater Recharge Project and the approval of the petitions for change would not conflict with any such plan.

3.6.3 Mitigation Measures

NSJWCD would mitigate for impacts to biological resources through implementation of the following mitigation measures.

MITIGATION MEASURE BIO-1. PARTICIPATE IN AND IMPLEMENT REQUIREMENTS OF SJMSCP AUTHORIZATION.

NSJWCD shall obtain authorization from SJCOG for the Tracy Lake Groundwater Recharge Project under the SJMSCP. This coverage will allow NSJWCD to minimize and compensate for potential effects resulting from construction- and operation-related activities associated with the water diversion, pump station, conveyance pipeline, and outfall facilities through implementation of all applicable Measures to Minimize Impacts pursuant to Section 5.2.4 of the SJMSCP. NSJWCD shall provide mitigation pursuant to the compensation methods described in Section 5.3 of the SJMSCP. Additionally, NSJWCD shall pay all appropriate fees associated with coverage under the SJMSCP.

MITIGATION MEASURE BIO-2. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS PLANTS AND MINIMIZE DISTURBANCES.

Preconstruction special-status plant surveys shall be completed within the construction and staging areas and Tracy Lake lakebed in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys be conducted by a qualified biologist during appropriate blooming times in areas with characteristics likely to support special-status plant species. If special-status plant populations are identified within the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Section 5.2.4.29 of the SJMSCP to the areas that are occupied by the species identified under the SJMSCP.

MITIGATION MEASURE BIO-3. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS AMPHIBIANS AND MINIMIZE DISTURBANCES.

Preconstruction surveys for California tiger salamander and western spadefoot toad shall be completed within the construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Groundwater Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If California tiger salamander or western spadefoot toad are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in 5.2.4.5 of the SJMSCP.

MITIGATION MEASURE BIO-4. ACQUIRE AND IMPLEMENT REQUIREMENTS OF CONSTRUCTION-RELATED PERMITS TO MINIMIZE HABITAT DISTURBANCES.

NSJWCD shall complete and submit a wetland delineation and ñsignificant hydrologic nexusòassessment, for the Tracy Lake Groundwater Recharge Project area, including proposed construction and staging areas and the Tracy Lake lakebed. Based on USACE determination of jurisdictional Waters of the U.S. and isolated waters of the state, NSJWCD shall prepare and submit applications to obtain the following permits, as appropriate: (1) CWA Section 404 permit for discharge of dredge and fill material; (2) CWA Section 401 water quality certification from the Central Valley Regional Water Quality Control Board; and (3) Section 1602 SAA authorization from CDFW prior to the beginning of construction. All avoidance, protection, and mitigation measures included in these permits shall be implemented.

MITIGATION MEASURE BIO-5. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS REPTILES AND MINIMIZE DISTURBANCES.

Preconstruction surveys for western pond turtle and San Joaquin whipsnake shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Proposed Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If western pond turtle or San Joaquin whipsnake are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.8 through 5.2.4.10 of the SJMSCP.

MITIGATION MEASURE BIO-6. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS BIRDS AND MINIMIZE DISTURBANCES.

Preconstruction surveys for special-status birds shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Groundwater Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If special-status birds are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.11 through 5.2.4.22 of the SJMSCP.

MITIGATION MEASURE BIO-7. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS BATS AND MINIMIZE DISTURBANCES.

Preconstruction surveys for special-status bats shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy Lake Groundwater Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If special-status bats are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Section 5.2.4.28 of the SJMSCP.

MITIGATION MEASURE BIO-8. CONDUCT PRE-CONSTRUCTION SURVEYS FOR SPECIAL-STATUS PLANTS AND MINIMIZE DISTURBANCES.

Preconstruction surveys for San Joaquin kit fox, American badger, and ringtail shall be completed within the pipeline construction and staging areas in accordance with Section 5.2.2.5 of the SJMSCP. The SJMSCP requires that surveys are conducted by a qualified biologist within 30 calendar days of Tracy

Lake Groundwater Recharge Project implementation, using survey methodologies consistent with Section 5.2.2.5 of the SJMSCP. If San Joaquin kit fox, American badger, or ringtail are identified within the pipeline alignment portion of the project area, NSJWCD shall implement appropriate compensation and minimization measures described in Sections 5.2.4.25 through 5.2.4.26 of the SJMSCP.

MITIGATION MEASURE BIO-9. IMPLEMENT RIPARIAN HABITAT MITIGATION REQUIREMENTS OF SJMSCP AUTHORIZATION.

To compensate for impacts within 100 feet of the dripline of riparian vegetation along the Mokelumne River, NSJWCD shall implement the applicable Incidental Take Minimization Measures described in Section 5.2.4.31 of the SJMSCP.

MITIGATION MEASURE BIO-10. CONDUCT PRE-CONSTRUCTION SURVEYS FOR PROTECTED RAPTORS AND MINIMIZE DISTURBANCES.

In order to avoid take (FGC § 86) of protected raptors (FGC § 3503.5), a pre-construction raptor nest survey shall be conducted within a quarter-mile (1320 feet) of the Tracy Lake Groundwater Recharge Project site, and within 15 days prior to the beginning of construction activities by a California Department of Fish and Wildlife (DFW) approved biologist in order to identify active nests in the site vicinity. The results of the survey shall be submitted to the city of Stockton and the DFW. If active nests are found, a quarter-mile initial temporary nest disturbance buffer shall be established. If project-related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then an on-site biologist/monitor experienced with raptor behavior shall be retained by the project proponent to monitor the nest, and shall along with the project proponent, consult with the DFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be only allowed to proceed within the temporary nest disturbance buffer if raptors are not exhibiting agitated behavior such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of the DFW. The designated on-site biologist/monitor shall be on-site daily while construction related activities are taking place within the above quarter-mile buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior.

MITIGATION MEASURE BIO-11. AVOID INTERFERING WITH THE JSA REQUIREMENTS AND EBMUD'S MITIGATION MEASURES IN ITS EIR FOR THE PERMIT 10478 TIME EXTENSION PROJECT

The JSA flow requirements and EBMUDôs mitigation measures in its EIR for the Permit 10478 Time Extension Project ensure that the extension of NSJWCDôs permit to 2040 will have less-than-significant impacts to fish resources. NSJWCD agrees not to interfere with either the JSA flow requirements or EBMUDôs mitigation measures.

3.7 Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

3.7.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The following section summarizes information presented in Appendix C, which contains a comprehensive cultural resources assessment of known and potential historical, archaeological, and paleontological resources in the Tracy Lake Groundwater Recharge Project area. The report was prepared for NSJWCD by Ric Windmiller, Consulting Archaeologist.

The North Central Information Center, California Historical Resources Information System conducted a records search and provided a report on previous studies, previously identified cultural resources, as well as historic maps and the results of its search of various listings of historical resources. The records search included a review of the National Register of Historic Places, the California Register of Historical Resources, the California Inventory of Historic Resources, California Historical Landmarks, California Points of Historical Interest, Directory of properties in the Historic Property Data File for San Joaquin County, Archaeological Determinations of Eligibility, Caltrans State and Local Bridge Survey, General Land Office plats and other pertinent historic maps on file at the information center. The University of California Museum of Paleontology's (UCMP) database was searched for records of local finds. The Native American Heritage Commission conducted a sacred lands file search and provided the consultant with a list of one Native American contact. The consultant apprized the contact of the Tracy Lake

Groundwater Recharge Project and requested any information on known sites of importance to Native American groups. To date, this contact has not responded to the data request.

In addition, the Tracy Lake Groundwater Recharge Project location and the area of anticipated ground disturbance along the proposed pipeline route, including the construction staging area was inspected on August 6, 2013 by Ric Windmiller, a Registered Professional Archaeologist, in a further effort to identify cultural resources. Inspection was conducted along zig-zagging transects approximately five meters apart, or less. Shovel tests were made at intervals of five to 10 meters in search for any evidence of historic or prehistoric cultural deposits, artifacts or features such as house pits. Along the pipeline route and in the staging area, both west of the road, the ground bears the scars of vehicle wheel ruts and other past disturbances. Despite the obstacles of ground cover and disturbances, it is unlikely that any surface indications of significant archaeological resources were overlooked.

Geology/Paleontology

The Tracy Lake Groundwater Recharge Project vicinity includes the Pleistocene Modesto formation (mapped as "Qm1") and Pleistocene Riverbank formations (Qr2, Qr3) and Holocene alluvium (Qha) (Marchand and Atwater 1979). The Tracy Lake lakebed, and a broad area west of the lake extending to the Mokelumne River, consists of Holocene alluvium and dune sands (Qds). The approximate southern half of the proposed conveyance pipeline alignment for the Tracy Lake Groundwater Recharge Project also lies on this recent Holocene alluvium. Higher ground across which the northern portion of the proposed pipeline is routed rests on the middle unit of the Pleistocene Riverbank Formation (Qr2), which consists of older, undifferentiated alluvial deposits. The rim around both the northern smaller lakebed and Tracy Lake proper, and the south side of the Mokelumne River on the opposite side of the river from the Tracy Lake Groundwater Recharge Project construction area, also lie on ancient Riverbank alluvium. The south side of the Mokelumne River is mapped as late Pleistocene Modesto Formation (Qm1).

The paleontological records search of the UCMP database revealed 29 late Pleistocene vertebrate fossils (i.e., Rancholabrean fauna) from 15 localities in San Joaquin County. Among them are *Thomomys* (smooth-footed pocket gopher), *Megalonyx jeffersoni* (Jefferson's ground sloth), *Camelops hesternus* (Yesterday's camel), an indeterminate fissiped (carnivore), *Mammut* (mastodon), *Mammuthus columbi* (Columbian mammoth), *Bison* (bison), and *Equus* (horse). These Rancholabrean vertebrate fossils are rare and considered "unique" paleontological resources for the purposes of CEQA. There are two Holocene vertebrate localities listed, but the collected specimens have yet to be entered into the database. Consequently, both Pleistocene units consist of alluvial sediments have a high sensitivity for unique Rancholabrean fossils, but likely exhibit a low potential for yielding fossils. The southern portion of the proposed pipeline alignment location located on lower elevation Holocene alluvium does not

have potential to contain unique paleontological resources because the Holocene alluvium is too young to be considered fossiliferous.

Archaeology/Prehistory

The known sequence of local prehistoric cultures in the Tracy Lake vicinity is the so-called "Delta" sequence, knowledge of which has evolved over decades of archaeological excavations in the Sacramento River-San Joaquin River Delta's deep village mounds. Native American people constructed and rebuilt villages over periods of hundreds, even thousands of years, often at the same location along rivers, creeks and sloughs on natural clay knolls and levees that stood above springtime flood waters.

A recent updated synthesis of Central Valley archaeology has synthesized previous schemes of classifying cultural periods, and updated the time span of each period based on new radiocarbon determinations adjusted with modern calibration curves (Rosenthal et al. 2007:150) as follows:

Paleo-Indian (11,550-8550 cal B.C.)

Lower Archaic (8550-5550 cal B.C.)

Middle Archaic (5550-550 cal B.C.)

Upper Archaic (550 cal B.C.-cal A.D. 1100)

Emergent (cal A.D. 1100-Historic)

While it appears to some scholars that most of the archaeological deposits associated with the Central Valley's ancient landforms have been either destroyed or buried beneath more recent alluvial deposits, the locality around Tracy Lake has yielded evidence of a Paleo-Indian presence such as a Clovis point fragment noted in 1938, as well as late prehistoric and early historic period settlements.

Ethnography/Ethnohistory

The Tracy Lake area represents a small portion of the central strip of former Plains Miwok territory–an alluvial plain largely devoid of rocks, but dotted with oaks. Gallery forests of mixed woods and tules lined the Mokelumne and sloughs. The adjacent plains were subject to annual flooding during late spring. Because of the annual potential for inundation, the native people sought clay knolls, natural levees and other high places for their villages.

Archeologist James Bennyhoff fixed the Tracy Lake vicinity as the location of the Seuamne tribelet (Bennyhoff 1977). The tribelet center (principal village) was identified as about a quarter mile southeast

of the Tracy Lake Groundwater Recharge Project . Bennyhoff indicated that earlier excavations yielded evidence of continuous occupation at the site from prehistoric times into the historic Sutter period. Bennyhoff suggested that there may have been 11 major villages along the Mokelumne River, or one principal village every 3.3 miles. Bennyhoff also suggested that each tribelet probably controlled a north-south strip including portions of Dry Creek and Bear Creek (Bennyhoff 1977:108).

In 1811, intensive proselytizing activities of Mission San Jose reached as far as the North Delta. By 1828 nearly the entire Delta region was depopulated of native people as they were removed to the missions. The more northerly Miwok groups along the Sacramento River continued to supply converts to the missions until effective secularization in 1836. However, they resisted baptism and sheltered fugitives from the missions until after the 1833 plague. Malaria brought south by trappers from Oregon decimated the population and many villages were abandoned at this time (Bennyhoff 1977:58).

Some of the groups were still organized sufficiently to make treaties in 1837 with the Mexican governor, Vallejo, and launch reprisals against the horse-stealing Seuamne in 1838 (Bennyhoff 1977:58, 113). The Seuamne were second in importance among the Mokelumne River tribelets. They were probably the dominant member of the lower Mokelumne cooperative group that included the Locolomne and the lower Cosumnes Tihuechemne. The Seuamne population continued to decline after the 1833 epidemic, although its tribelet center apparently remained occupied until 1847. Bennyhoff indicated that by 1852, the survivors were absorbed by the most important group on the river, the Muquelemne (Bennyhoff 1977:113).

History

The Tracy Lake Groundwater Recharge Project site is located within what once was the *Rancho Sanjon de los Moquelumnes*, a land grant of 35,508 acres made by the Mexican governor Manual Micheltorena on January 24, 1844. The grant was made to Anastasio Chabolla (or Chaboya), who populated the land with horses and cattle brought from his other land holdings near San Jose. A large house for the overseer, bunkhouse for the vaqueros and corrals were built along the Cosumnes River. By 1846, the rancho boasted of 300 head of cattle and 50 horses (Smith 2004:141).

Early maps of Sanjon de los Moquelumnes do not show any man-made features near the Tracy Lake Groundwater Recharge Project site. The old Stockton to Sacramento Road was two miles to the east. There was an adobe residence about 10 miles north of the Tracy Lake Groundwater Recharge Project site along the Cosumnes near present day Highway 99. The locality around the site was apparently grazing land.

A 1991 cultural resources study of the Tracy Lake locality identified a subsequent landowner, John F. McCauly, a Virginian who acquired the land in 1861. McCauly raised mules for the United States Army.

McCauly became a prominent figure in San Joaquin County. Upon his death in 1892, his wife, Caroline Wilson McCauly managed the ranch. Mrs. McCauly became prominent in promoting agriculture, sponsoring construction of 10 miles of levees along the Mokelumne and funded construction of the Catholic Church in Galt. Caroline's granddaughter inherited more than 5,000 acres of land, which was then known as "Forest Lake." The granddaughter, also named Caroline, married Angelo Brovelli in 1933 and the location became known as "Brovelli Woods" (Ananian and Rice 1991:2-12).

Other individuals settled on the old Chabolla Grant in the Tracy Lake vicinity through the late 1800's early 1900's. Ananian and Rice (1991:2-12) reported that the Brovelli land was leased to the Mencarini family in the 1920s and 1930s, who raised livestock and drained the lakes to raise grain, beans and potatoes in the lake bottom. Neighboring landowners of the period included the Steffen family, who dredged a canal to drain north Tracy Lake in 1929. South Tracy Lake was drained in the 1940s. By 1949, the Brovellis sold 1,800 acres to the Steffens. During the 1940s, the Brovellis raised row crops and grain and grazed cattle. Other crops included Sudan grass, milo, sunflowers and beans. Leveling the field for these crops exposed human burials and numerous artifacts. By the 1960s, local landowners/tenants included Brovelli, Steffens, Wollenberg and Sandoval.

Existing Conditions for Cultural Resources

The Tracy Lake locality has been the subject of both informal and formal archaeological surveys over a period of many years. The two formal, on-the-ground archaeological surveys are those of the Mills and Associates team, Benjamin Ananian and Carolyn Rice (1991), and the BioSystems Analysis archaeologist, Kim Tremaine (1992). The Ananian and Rice survey encompassed both Tracy Lake and the smaller lake to the north connected to Tracy Lake via a historic ditch. Ananian and Rice conducted background research and a pedestrian inspection of approximately 870 acres around both lakes. The lake beds were surveyed on an intuitive basis.

The results of previous on-the-ground inspections of the Tracy Lake locality identified six Native American archaeological sites located along the rim of Tracy Lake and its smaller neighbor to the north (Native American sites CA-SJO-13, -237, -238, -240, and field numbers 9/15/92-1 (CA-SJO-245), 9/17/92-2 (CA-SJO-247); two historic ditch features (P-39-348/CA-SJO-235-H); and four large excavated pits of unknown origin on the north shore of Tracy Lake (CA-SJO-236-H)). Information on the location of these archeological resources is kept confidential to avoid risk harm to the resources.

Two of the village sites (CA-SJO-13 and CA-SJO-237) are located adjacent to the smaller northern lake. These sites would thus not be affected by construction or operation of the Tracy Lake Groundwater Recharge Project, and are not discussed further. None of the recorded historical or archaeological resources are located within, or overlie the area immediately adjacent to, the construction areas for the

pump station, conveyance pipeline, or outfall to Tracy Lake components of the Tracy Lake Groundwater Recharge Project.

P-39-348/CA-SJO-235-H (Ditches/Drains). These two historic features are ditches (Feature 1 and Feature 2). Feature 1 links Tracy Lake with the smaller lake to the north. The Tracy Lake Groundwater Recharge Project would not affect this ditch and it is not considered further in this assessment. Feature 2 drains Tracy Lake into the Mokelumne River and also measures approximately 30 feet across the top and 900-feet long Feature 2 incorporates a pipeline for a portion of its length.

P-39-349/CA-SJO-236-H (Four Pits). These four large pits are located on the north shore of Tracy Lake. The pits are each approximately 40 feet in diameter and 15-feet deep. Ananian and Rice indicated on their site record forms that the origin of the pits (and presumably their function) was unknown. The excavations were made into alluvium at the north shore of Tracy Lake. No artifacts were observed in association with the pits.

CA-SJO-238 (Village Site) CA-SJO-240 (Village Site), CA-SJO-245 (Village Site), and CA-SJO-247 (Remnant Village Site). These four village sites are located adjacent to Tracy Lake and most recently comprehensively described by Tremaine. All of the sites are described as containing one or more archaeological resources (e.g., midden, shell fragments, and bone fragments). The village sites also contain evidence of one or more of the following: large and small house pits, assembly house pits, or sweat houses. The CA-SJO-247 site (Remnant Village Site) may represent the remains of a village or camp site. Artifacts only were recorded and recovered from the CA-SJO-247 site include baked clay objects, pestle, fire-fractured rock, metate fragment, mano fragment flaked green bottle glass and chipped stone debitage including obsidian and other materials. Several components or periods of occupation may be represented at this camp site, including possibly the Post-Sutter period.

3.7.2 Discussion

Under the California Environmental Quality Act (CEQA), historical resources are recognized as a part of the environment (Public Resource Code §§ 21001(b), 21083.2, 21084(e), 21084.1). A "historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant, or important in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California (Public Resources Code § 5021.1).

The California Register of Historical Resources is an authoritative listing and guide for state and local agencies and private groups and citizens in identifying historical resources. This listing and guide indicates which resources should be protected from substantial adverse change. The California Register includes historical resources that are listed automatically by virtue of their appearance on or eligibility for certain other lists of important resources. The Register includes historical resources

that have been nominated by application and listed after public hearing. Also included are historical resources listed as a result of an evaluation by specific criteria and procedures adopted by the State Historical Resource Commission.

Any building, site, structure, object or historic district meeting one or more of the following criteria may be eligible for listing in the California Register:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Eligibility for the California Register also depends on the integrity, or the survival of characteristics of the resource that existed during its period of significance. Eligible historic resources must not only meet one of the above criteria; they must also retain enough of their historic character or appearance to convey the reasons for their importance, or retain the potential to yield significant scientific or historical information or specific data.

The California Register evaluations include the consideration of seven aspects of integrity: location, design, setting, materials, workmanship, feeling and association. The evaluation of integrity must be judged with reference to the particular criterion or criteria under which a resource may be eligible for the California Register. However, the implementing regulations specifically caution that alterations of a historic resource over time may themselves have historical, cultural or architectural significance.

If an archaeological resource does not meet the definition of a "historical resource," it may meet the definition of a "unique archaeological resource" under Public Resource Code § 21083.2. An archaeological resource is "unique" if it:

1. Is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory;
2. Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions;
3. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
4. Is at least 100 years old and possesses substantial stratigraphic integrity; and

5. Involves important research questions that can be answered only with archaeological methods.

The following summarizes the findings of the cultural resources assessment (Appendix C) and whether identified cultural resources not located within the proposed construction area would be considered historical, eligible for the California Register of Historical Resources, or otherwise considered unique archaeological resources.

P-39-348/CA-SJO-235-H (Feature 2). Feature 2 does not qualify under any of the criteria for eligibility for the California Register. As explained in Appendix C, it is unknown how the excavation of Feature 2 fits into the larger trend of reclamation in the Sacramento-San Joaquin Delta. Because mere association with historic events or trends is not enough in and of itself to qualify a cultural resource for California Register eligibility, Feature 2 is not eligible under Criterion 1. Because no association could be established with the information at hand that the ditch has a direct association with an individual important in California history, Feature 2 is also not eligible under Criterion 2. Feature 2 is not eligible under Criterion 3 as it is not a distinctive representative of ditch design or engineering in local, regional, or California history. In addition, considerable water erosion appears to have deepened and widened the ditch since its construction in the 1940s, and Feature 2 thus retains only a weak association with ditch and canal construction and the history of local, regional and state-wide agriculture in general. Finally, because Feature 2 is not an uncommon excavation in the Sacramento and San Joaquin valleys, it does not appear to have the potential to yield important information, and thus is not eligible under Criterion 4.

P-39-349/CA-SJO-236-H (Four Pits). This site does not qualify under any of the criteria for eligibility for the California Register. For California Register eligibility under Criterion 1, the pits must be associated with a significant historic event or trend and the association itself must be important. No such association could be established with the available information. Under Criterion 2, the pits must have a direct association with an individual important in history. No such association could be made. Eligibility under Criterion 3, which here would most likely pertain to significance in engineering, design or method of excavation, is not supported by the information available. Finally, the pits have not, nor are they likely to yield, information important in history to meet Criterion 4. Therefore, the site is not eligible for the California Register under any criterion, nor does the site qualify as a "unique archaeological resource" under CEQA.

CA-SJO-238 (Village Site) CA-SJO-240 (Village Site), CA-SJO-245 (Village Site), and CA-SJO-247 (Remnant Village Site). These sites are eligible for listing on the California Register. All of the sites are described as containing one or more archaeological resources (e.g., midden, shell fragments, and bone fragments). The village sites also contain evidence of one or more of the following: large and small

house pits, assembly house pits, or sweat houses. House pits that visibly survive on the ground surface in the greater delta region usually represent very late Native American occupation from the Emergent to Post-Sutter periods. The survival of house pits dating to earlier periods is not common due to a variety of factors, not the least of which is bioturbation, or the disturbances caused by ground burrowing animals. This and other similar sites in the Tracy Lake vicinity play a role in the Native American community's historically rooted beliefs, customs and practices, particularly for the descendants of the Miwok-speaking people who once lived there. These sites are thus eligible for the California Register under Criterion 1. They are also eligible under Criterion 4. Throughout the history of archaeological excavations at sites in the greater Sacramento-San Joaquin Delta, archaeological methods focused mainly on digging sondages or "telephone booths" to document the sequence of historic and prehistoric occupation components or "settlements." Little work has been accomplished by archaeologists to excavate laterally across a site to identify activity areas belonging to a single settlement. These village sites, with their extant house pits offers the potential to define activity areas within houses and in the areas between houses, as well as to reconstruct the actual components of structures from residences to assembly houses, sweat houses and possibly acorn granaries, sun shades and other as yet unknown structures.

a) *The Proposed Project would not adversely change the significance of any historical resource.*

Previous intensive cultural resources surveys of the Tracy Lakes area, and surveys conducted for the Tracy Lake Groundwater Recharge Project, indicate no historical resources listed on or eligible for the California Register of Historical Resources or that meet the definition of "unique archaeological resources" are located within, or adjacent to, the proposed construction areas for the pump station, pipeline alignment, or outfall to Tracy Lake. Therefore, no impacts to historical resources are anticipated and there would be no impact. No mitigation is required.

b) *The Proposed Project would not be anticipated to cause a substantial adverse change in the significance of an archaeological resource.*

Potential Construction Impacts

Previous intensive cultural resources surveys of the Tracy Lakes area, and surveys conducted for the Tracy Lake Groundwater Recharge Project, indicate no archaeological resources are anticipated to be located within, or adjacent to, the proposed construction areas for the pump station, pipeline alignment, or outfall to Tracy Lake. Though highly unlikely, it is possible to encounter significant buried archaeological resources during construction. Buried archaeological resources may include but are not limited to deposits of stone, bone and shell artifacts, dark gray "midden" sediments, historic trash deposits, and stone or adobe foundations. Therefore, the impact is considered potentially significant.

Implementation of Mitigation Measure Cultural-1 would reduce this impact to a less-than-significant level.

Potential Impacts Due to Maintaining Lake Water Levels

The Tracy Lake Groundwater Recharge Project will modify the filling and draining of Tracy Lake compared to existing conditions. The existing full pool level of the lake is about 26 feet above mean sea level (AMSL), but has rarely been known to achieve that level. Typical wet-year full pool conditions are about 18 feet AMSL which is considered the ordinary high water mark in the lakebed. The proposed operating conditions are to fill the lake to 17.5 feet AMSL and keep the pool level in the range of 14 to 17.5 feet AMSL during the diversion period of April through October. The resulting operations would not change water level conditions above 17.5 feet, because the diversions would not occur if the lake is already that full naturally. During diversion years, the lake would retain water to at least 14 feet AMSL through about October, which may reflect generally higher pool levels at later months of the year than occur currently. The lake water would further evaporate, be diverted for agricultural irrigation, and infiltrate to groundwater following completion of diversions in November/December, and, thus, reflect no substantial change from existing conditions in the winter months until diversions begin in an April of any subsequent year.

Inundation of midden sites is known to adversely affect the provenience of artifacts, particularly heavy artifacts such as pestles, mortars, manos and milling stones. As midden becomes saturated, the heavy materials sink to the bottom of the site. Upon flooding, or fluctuations in the pool level of a lake or reservoir, archaeological resources are exposed to wave action, as well. In addition, repeated saturation and drying of sites destroys organic material such as bone and shell.

P-39-348/CA-SJ0-235-H, Features 1 and 2 (Ditches/Drains). Neither feature is eligible for the California Register nor do they qualify as "unique archaeological resources." Therefore, no further consideration is warranted.

P-39-348/CA-SJ0-236-H (Four Pits). The site is not eligible for the California Register, nor does it qualify as a "unique archaeological resource." Therefore, no further consideration is warranted.

CA-SJO-238 (Village Site) CA-SJO-240 (Village Site), CA-SJO-245 (Village Site), and CA-SJO-247 (Remnant Village Site). Operation-related effects on Tracy Lake pool levels are not anticipated to change the maximum level of inundation that currently occurs. Because diversions would only occur in wetter year types, operation-related effects also would not substantially change the wet year patterns of inundation that currently occur. All of the recorded village sites located adjacent to Tracy Lake were shown as generally occurring in the elevation range of 20 to 27 feet AMSL. Substantial archaeological sites such as this will be surrounded by surface and perhaps slightly subsurface artifacts over widely varying densities. As distance from a site increases, the density of artifacts gradually drops to an insignificant level. When determining a site boundary, the archaeologist is usually marking the area of significant cultural deposits or significant densities of surface artifacts. Consequently, it is unlikely that

maintaining an estimated 14-17.5 foot elevation range in the proposed pool area would affect the main deposit of the archaeological sites surrounding Tracy Lake. Therefore, the potential operations-related impact of changes in Tracy Lake storage to cultural resources is considered less than significant.

c) *The Proposed Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.*

No paleontological resources or unique geological features were identified via database record search of previous investigations in the Tracy Lake Groundwater Recharge Project vicinity. Tracy Lake Groundwater Recharge Project excavations are likely to encounter late Pleistocene alluvial sediments of the Riverbank Formation beneath the surface layers of artificial fill overlying agriculturally disturbed soil. The Riverbank Formation includes several vertebrate fossil localities in Sacramento County and is, therefore, considered to have a high paleontological sensitivity. Previously recovered fossils include those of horse, camel, Columbian mammoth, ground sloth, dire wolf, coyote, bison, pocket gopher, wood rat, broad-footed mole, garter snake and blackfish. However, the potential of impacting these resources is low because vertebrate fossils in floodplain sediments like those of the Riverbank Formation are distributed as localized deposits and their occurrence is therefore unpredictable.

Though considered unlikely, it is possible to encounter unique buried paleontological resources during construction. Buried unique paleontological resources of concern would include fossilized vertebrate animal bones. Therefore, the impact is considered potentially significant. Implementation of Mitigation Measure Cultural-2 would reduce this impact to a less-than-significant level.

d) *The Proposed Project is not anticipated to disturb any human remains.*

Intensive previous archaeological resource surveys of the Tracy Lakes area revealed no indication of known human remains located in the vicinity of the proposed construction areas for the pump station, pipeline alignment, or outfall to Tracy Lake. However, though highly unlikely, it is possible to encounter human remains during construction. Therefore, the impact is considered potentially significant. Implementation of Mitigation Measure Cultural-3 would reduce this impact to a less-than-significant level.

3.7.3 Mitigation Measures

NSJWCD would mitigate for impacts to cultural resources through implementation of the following mitigation measures.

Mitigation Measure CR-1. Protection of human remains.

Because of the known presence of significant archaeological resources in areas surrounding Tracy Lakes, a qualified archaeologist shall be present to monitor initial ground disturbance in those areas of proposed construction for the pump station and pipeline alignment. A pre-construction meeting should be conducted

with any inexperienced construction workers that will be operating clearing and excavation equipment to inform them of the potential for discovery of archaeological resources and the conditions of this mitigation requirement. The monitor should be present during all initial grading, grubbing, vegetation removal, and excavation to these areas.

If an archaeological resource is encountered, all activity shall be halted in the immediate vicinity of the find and the lead agency shall determine if the site is a historical resource in reference to Public Resources Code Section 21084.1 and Guidelines Section 15126.4, and determine if further mitigation is required. If an archaeological resource does not meet the criteria in the above sections, but does meet the definition of a unique archaeological resource in Public Resources Code Section 21083.2, then the site shall be treated in accordance with the provisions in Public Resources Code Section 21083.2. If an archaeological site is neither a unique archaeological resource nor historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment. The construction monitoring shall be included as a condition of the construction contract between NSJWCD and the responsible construction contractor(s), and as appropriate, shall additionally be included in final project designs and specifications that are prepared for the Tracy Lake Groundwater Recharge Project.

Mitigation Measure CR-2. Protection of historic artifacts and other cultural resources.

In the event that a paleontological resource is encountered, all construction activity shall be halted in the immediate vicinity of the find. The lead agency shall consult with a qualified paleontologist to determine if the artifact is a unique resource. The decision to conduct paleontological salvage operations will be determined by the paleontologist in consultation with NSJWCD staff. Any salvage operation, if deemed necessary, shall be conducted in accordance with professional paleontological standards. This will include removal of identifiable paleontological remains, fossil preparation and subsequent curation of these remains at a recognized repository such as the University of California Museum of Paleontology.

Mitigation Measure CR-3. Protection of paleontological resources.

Under California law, if human remains are encountered, all work must cease in the immediate vicinity of the find and the County Coroner must be notified. No further disturbance of the find shall occur until the coroner has made the necessary findings as to origin and disposition of the remains and any grave goods. If the coroner determines that no investigation of the cause of death is required and if the remains are of Native American origin, the coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend appropriate disposition of the remains and any grave goods. The human remains and grave goods will then be removed and treated in accordance with Public Resources Code Section 5097.98.

3.8 Geology, Soils, and Seismicity

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
	ii) Strong seismic ground shaking?	☐	☐	☐	☑
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
	iv) Landslides?	☐	☐	☐	☑
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
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?	☐	☐	☐	☑

d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	❑	❑	❑	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	❑	❑	❑	☑

3.8.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project involves the construction of a pump platform, intake structure, discharge pipeline and erosion protection facilities in the River and on the outfall. Construction will take place on native soils that are stable.

3.8.2 Discussion

All above ground project features will be built to current codes and will not expose people to potentially adverse effects. Erosion protection will be provided where appropriate; therefore impacts from this project will be less than significant.

3.9 Greenhouse Gases and Climate Change

Would the project:		Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	❑	❑	❑	☑
b)	Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	❑	❑	❑	☑

3.9.1 Setting

Certain natural gases and anthropogenic-formed air pollutants are classified as greenhouse gases (GHGs). GHGs have a major role in affecting the earth's surface temperature through their ability to trap some of the infrared radiation (i.e., thermal heat) that is reflected from the earth's surface back into the atmosphere. Increased concentrations of GHGs in the atmosphere may result in increased trapping of the infrared radiation, relative to lower levels of GHGs, thus resulting in warming of the atmosphere. Increasing GHG emissions related to human activities are now widely recognized as an intensifying factor of the greenhouse effect which has led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (Intergovernmental Panel on Climate Change 2013). The primary GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

3.9.2 Regulatory Framework

GHGs are not regulated like conventional or toxic air pollutants, because GHGs do not directly cause health effects. At this time, there also are no federal or state attainment concentration standards established for GHGs. However, the state legislature adopted Assembly Bill 32 (AB 32) in 2006, which primarily established a cap on statewide GHG emissions, and requirement for the state to establish GHG regulations to reduce GHG emissions to 1990 levels by 2020. In December 2009, the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) adopted a policy to address the CEQA requirements to address GHG emissions from stationary sources. Under this policy, a project's GHG emissions are found to be less-than-significant if it results in reductions that are consistent with the AB 32 emission reduction targets. The SJVUAPCD has not adopted a significance threshold for short-term construction activities.

3.9.3 Discussion

a) The Proposed Project would not generate greenhouse gas emissions that may have a significant impact on the environment.

Implementation of the Tracy Lake Groundwater Recharge Project would result in only a minimal amount of short-term and temporary construction-related emissions of potential GHGs, which would not contribute measurably to the current global emissions of GHGs. Moreover, the Tracy Lake Groundwater Recharge Project would not result in any change in irrigated agricultural activities in the project area, and would be anticipated to result in reduced energy consumption over the long-term, relative to the existing conditions, as a result of reduced groundwater pumping which requires more energy than

surface water pumping. A net reduction in long-term energy consumption would potentially result in a corresponding reduction in GHG emissions that may be produced with carbon energy sources (e.g., gas, coal). Therefore, the impact of any GHG emissions associated with the Tracy Lake Groundwater Recharge Project is considered less than significant and no mitigation is required.

b) The Proposed Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Because construction-related emissions of GHGs are not explicitly regulated by the SJVUAPCD, and the Tracy Lake Groundwater Recharge Project potentially would result in a net reduction in long-term GHG emissions, and would not conflict with any plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Therefore, there would be no impact.

3.10 Hazards & Hazardous Materials

	Would the project…	Potentially Significant Impact	Less than Significant with Mitigation	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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

3.10.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No

environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project will not generate any hazardous materials as it is a surface water diversion and groundwater recharge project. Equipment used during construction will contain diesel fuel, gasoline and hydraulic fluids. The fish screen will be operated by a hydraulic motor that uses food-grade hydraulic oil.

3.10.2 Discussion

With regard to the construction equipment, "Best Management Practices" for site management will be employed by the contractor to avoid hazardous material spills. The hydraulic fluid used to operate the fish screen is food grade and has been approved by NOAA for fish screens. In addition the oil reservoir has a level switch that shuts down the unit in the event of any oil leakage. Therefore, there will be no impact from hazardous materials associated with this Project.

3.11 Hydrology and Water Quality

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	☐	☑	☐	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☑	☐

e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	❑	❑	❑	☑
f)	Otherwise substantially degrade water quality?	❑	❑	☑	❑
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❑	❑	❑	☑
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	❑	❑	☑	❑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	❑	❑	☑	❑
j)	Inundation by seiche, tsunami, or mudflow?	❑	❑	❑	☑

3.11.1 Setting

Climate and Hydrology

The Mokelumne River drains a watershed of about 660 square miles, reaching from the high Sierras to the Sacramento River-San Joaquin River Delta (Delta). A substantial portion of the river's flow is supplied by snowmelt, which is regulated by the Salt Springs Reservoir on the North Fork Mokelumne River (owned and operated by Pacific Gas and Electric), and the Pardee and Camanche reservoirs located at lower elevations on the mainstem Mokelumne River, which are both owned and operated by the East Bay Municipal Utility District (EBMUD). Pardee Reservoir's approximately 210,000 acre-feet (ac-ft) capacity is operated for water supply, and electricity generation, while Camanche Reservoir's 430,000 ac-ft capacity is used primarily for flood control, electricity generation, and to meet instream flow requirements below Camanche Dam and below the Woodbridge Irrigation District diversion dam (Woodbridge Dam) near Lodi.

Average flows in the lower Mokelumne River downstream of Camanche Dam peak during the spring months of April through June. Winter flood events are substantially contained by the existing reservoirs, and low flow periods of less than 400 cubic feet per second (cfs) occur during October through December. Instream flow rates for the river reach between Camanche Dam and Woodbridge Dam, and the lowest reach downstream of Woodbridge Dam, are regulated according to the Joint Settlement Agreement (JSA) adopted in 1998 between EBMUD and state and federal agencies for the purpose of protecting fisheries resources in the lower Mokelumne River (see Table 6, Section 3.5, Biological Resources). EBMUD began implementing the flows in late 1996 for the JSA, and since then average

lower Mokelumne River streamflow rates downstream of Woodbridge Dam during the months of April through October when the Tracy Lake Groundwater Recharge Project diversions would occur have ranged from about 2,180 cfs (April) to 330 cfs (August) (see Table 8, Section 3.5, Biological Resources). The minimum monthly average flows have ranged from 645 cfs (April) to 35 cfs (August).

Tracy Lake, and the unnamed lake immediately north of Tracy Lake, are terminal lakes for the Jahant Slough watershed, which forms an intermittent stream draining to the lakebeds. Precipitation averages about 16 to 18 inches annually in the Tracy Lake Groundwater Recharge Project area, and occurs essentially all as rain during primarily the months of November through April. There is no streamflow data for Jahant Slough, but anecdotal information of existing and previous landowners in the area indicate that the lakebeds are frequently inundated each winter from watershed runoff, and can completely fill during exceptionally wet years. There is no natural outlet from the lakes, however both lakes have been drained to the Mokelumne River in years they filled to facilitate drying the lakebeds to support mowing, grazing, and pasture production activities.

The entire Tracy Lake Groundwater Recharge Project area including the location of the proposed diversion facility and fish screen, and all of Tracy Lake, lies within the designated 100-year floodplain for the lower Mokelumne River. The 100-year floodplain represents the area and elevation of surface water inundation that has a one percent (1%) probability of occurring in any given year. The lower Mokelumne River at the proposed diversion location is not considered a historically navigable waterway by the U.S. Army Corps of Engineers, and thus the encroachment into the river channel by the proposed fish screen structure is not subject to the federal River and Harbors Act (U.S. Army Corps of Engineers 2012).

Groundwater

The Tracy Lake Groundwater Recharge Project is located in the Central Valley within the Cosumnes groundwater basin designated by the Department of Water Resources (DWR Basin No. 5-22.16), which is further defined as the area between the lower Mokelumne River and the Cosumnes River to the north. The Eastern San Joaquin County groundwater basin lies south of the lower Mokelumne River (DWR Basin No. 5-22.01). The geologic formations that contain groundwater in these basins include a surface alluvium layer deposited along the channels of active lower Mokelumne River, Dry Creek, and Cosumnes River channels (South Area Water Council 2011). The unconfined alluvium aquifer consists primarily of unconsolidated silt, fine-to-medium grained sand, and gravel up to a maximum thickness of about 100 feet. The Laguna and Riverbank formations cover much of the sub-basin away from recent alluvium deposits and are characterized as older alluvium layers consisting of loosely to moderately compacted sand, silt and gravel deposits with discontinuous interbedded lenses of clay. Within the Cosumnes basin, the average thickness of the Laguna and Riverbank formations is about 290 ft (South Area Water Council 2011). The Laguna and Riverbank layers also form generally unconfined aquifers ranging in thickness

from 100 to 650 feet, and wells tapping sand layers in the formations yield high amounts of groundwater. The Mehrten formation is the deepest freshwater bearing aquifer with a thickness of between 200 and 1,200 feet and consisting of black volcanic sand, silt, and clay interbedded with intervals of dense tuff breccia. Sand intervals in the Mehrten formation are highly permeable and wells can have moderate to high yield.

Agricultural production within the NSJWCD boundaries, and within the Tracy Lake Groundwater Recharge Project area, is almost entirely supported by groundwater, and groundwater also is the primary supply for municipal uses in the nearby regional population centers of Lodi and Galt. With the introduction of the deep well turbine pump in the 1930's, agriculture-related groundwater use increased substantially in the Central Valley. Consequently, groundwater levels have declined across the region, and DWR's Bulletin 118-80 issued in 1980 designated the Eastern San Joaquin County basin as "critically overdrafted" which refers to the long-term conditions where groundwater pumping rates exceed sources of aquifer recharge (Northeastern San Joaquin County Groundwater Banking Authority 2007). Groundwater levels in the Cosumnes basin were not considered critically overdrafted in DWR's Bulletin 118-80, however, groundwater levels in wells analyzed over the period of 1963 to 2007 exhibit a steady decline of between 10 and 50 feet (South Area Water Council 2011). The NSJWCD in 2009 estimated that annual overdrafting within district boundaries was about 50,000 ac-ft, and with increasing conversion of the existing and available dryland pasture to vineyards would likely increase the overdrafting to about 137,500 ac-ft per year in the future (North San Joaquin Water Conservation District 2011).

Decreasing groundwater levels have varied depending on the water year conditions, with maximum declines generally observed across the Cosumnes and East San Joaquin County basin at the end of the 1987 through 1992 drought period, then recovering from about 1996 through 2000 to water levels near those in the mid-1980s, and declining again in the recent generally drier hydrologic conditions in 2000 through 2007 (Northeastern San Joaquin County Groundwater Banking Authority 2007). Overdraft of the groundwater aquifers has created groundwater "cones of depression" east of Lodi and east of Galt. Areas adjacent to the groundwater recharge zones underlying streambeds have not experienced as severe of long-term groundwater declines as the average conditions across the region (South Area Water Council 2011). The groundwater level in the vicinity of Tracy Lake is at about 50 feet below ground surface, and increases with distance away from the lake to about 150 feet at about 1.5 miles northeast of the lake (North San Joaquin Water Conservation District 2011).

Water Quality

Water quality in the lower Mokelumne River is affected by natural and regulated inflows in the upper watershed, changes that occur within Pardee and Camanche reservoirs, and runoff in the lower watershed

associated with agriculture and urban land uses. The lower Mokelumne River is included on the Central Valley Regional Water Quality Control Board's Clean Water Act Section 303(d) list of impaired water bodies for chlorpyrifos, copper, mercury, zinc, low dissolved oxygen, and unknown toxicity (State Water Resources Control Board 2011). EBMUD also operates a pure oxygen hypolimnetic oxygenation system in Camanche Reservoir on a seasonal basis, typically in the late summer and fall, to attenuate hydrogen sulfide and other potential constituents that may affect taste and odor in the water that is treated and delivered for municipal uses in its service area (East Bay Municipal Utility District 2012). EBMUD also manages Pardee and Camanche reservoirs to maintain thermal stratification through October, and uses two release points within the Camanche Reservoir water column, to actively manage for temperature control in the lower Mokelumne River for fisheries protection.

No entity conducts routine and comprehensive water quality monitoring in the lower Mokelumne River. However, EBMUD monitors temperature in Pardee and Camanche reservoirs and in the lower river. Additionally, since 2005 a coalition of agricultural districts have monitored the river near Lodi periodically for selected parameters for compliance with the Regional Water Quality Control Board's irrigated agricultural waiver program (San Joaquin County & Delta Water Quality Coalition 2012). The agricultural coalition monitoring collects a comprehensive suite of data focused on parameters typically affected by agriculture (e.g., pH, dissolved oxygen, salinity, nutrients [nitrogen and phosphorus], turbidity/total suspended solids, E. coli, trace metals, pesticides [carbamates, chlorinated hydrocarbon, and organophospate pesticides], herbicides, and aquatic and sediment toxicity). The agricultural coalition monitoring data indicates that the lower Mokelumne River does not exceed any federal or state municipal drinking water quality maximum contaminant levels (MCLs) (San Joaquin County & Delta Water Quality Coalition 2012). However, periodic elevated concentrations of E. coli bacteria, which likely reflect stormwater runoff and farm animal waste discharge, indicates that water quality objectives for total coliform bacteria are likely exceeded. Overall, the agricultural coalition data indicate that the lower Mokelumne River has low levels of contaminants, with average concentrations of constituents that are representative of municipal water quality, and corresponding MCLs if applicable, as follows:

- Nitrate (0.06 mg/L N, compared to the 10 mg/L primary MCL);
- Electrical conductivity (48 µmhos/cm, compared to 900 µmhos/cm secondary MCL);
- Total hardness (27 mg/L as $CaCO_3$); and
- E. coli bacteria (49 most probable number per 100 mL).

Groundwater in most areas of Cosumnes and Eastern San Joaquin basin aquifers have excellent mineral quality for agricultural and municipal uses (Department of Water Resources 2003). Calcium-magnesium and calcium-sodium bicarbonate water types are most common within the basins. The major regional

issue of significant water quality impairment is Delta salinity intrusion along the western edge of the San Joaquin basin where it threatens the quality of groundwater underlying the City of Stockton (Northeastern San Joaquin County Groundwater Banking Authority 2007). Local impairments are generally characterized by constituents of concern including salinity, nitrate, boron, and organic compounds (Department of Water Resources 2003) and the City of Galt has areas of elevated arsenic with wells averaging 8.8 µg/L in 2011 compared to the drinking water MCL of 10 µg/L (City of Galt 2012). The City of Lodi 2011 annual water quality monitoring report for its municipal wells indicates that the groundwater complies with all of the municipal water quality MCLs (City of Lodi 2012). The average concentrations of some constituents that are representative of general groundwater quality conditions for municipal use include nitrate (1.8 mg/L N for Lodi, not detectable in Galt wells), electrical conductivity (306 µmhos/cm for Lodi, 184 µmhos/cm for Gal), and total hardness (124 mg/L as CaCO3 for Lodi, and 49 mg/L as CaCO3 for Galt).

3.11.2 Regulatory Framework

Regulations, plans or policies relevant to the management of hydrology and water quality in the Tracy Lake Groundwater Recharge Project area and considered in this evaluation include:

- Federal Clean Water Act
- Safe Drinking Water Act
- Porter-Cologne Water Quality Control Act
- Water Quality Control Plan for the Sacramento River and San Joaquin River Basins
- San Joaquin County General Plan

3.11.3 Discussion

a) *The Proposed Project would not violate any water quality standards or waste discharge requirements with implementation of mitigation.*

Construction-Related Effects

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project would involve temporary grading, excavation, and construction activities that have the potential to result in temporary increases in soil erosion and

discharges of construction contaminants from the construction site. Additionally, construction for the fish screen and diversion intake pipeline would involve construction activities in the Mokelumne River channel that has the potential to result in direct disturbance of the river bed and discharge of sediment downstream of the site. The total area of disturbance for the construction site, including the construction staging area, is anticipated to be less than about 1 acre. The in-river construction activities for the Tracy Lake Groundwater Recharge Project are anticipated to take only approximately 2-3 weeks, and all construction would be entirely during a portion of the dry summer months of June through October. Disturbed areas would be stabilized from erosion by the time of onset of winter rain events in the fall. Therefore, the potential exposure of bare soils and disturbed construction areas to erosion and rainfall runoff is anticipated to be low.

Nevertheless, the potential exists for temporary erosion and discharges of contaminants through exposure of the site to rainfall and stormwater runoff when winter rains begin in the fall months following completion of the construction activities. Therefore, contaminated stormwater runoff could be generated from these previously disturbed areas, which could travel offsite to drainage ditches, Tracy Lake, or the Mokelumne River, which may include suspended solids and turbidity, or remnant toxic organic compounds remaining from construction (e.g., fuels, oil and grease). Aquatic life (i.e., fish and other aquatic organisms) is likely to be the most sensitive beneficial use to discharges affected by suspended solids and construction-related contaminants. The potential for temporary construction-related increases in erosion and discharge of contaminants to receiving water bodies in the Tracy Lake Groundwater Recharge Project area, and associated adverse effects to aquatic organisms and other potential beneficial uses downstream, is considered a potentially significant impact. However, implementation of Mitigation Measure WQ-1 would reduce this potential impact to a less-than-significant level.

Operations-Related Effects

The purpose of the proposed diversion of Mokelumne River water for the Tracy Lake Groundwater Recharge Project is to actively increase groundwater recharge of the local aquifer via percolation of water in Tracy Lake. The recharge operations have the potential to adversely affect existing groundwater quality underlying Tracy Lake if the recharge water would contribute constituents in the Mokelumne River that exceed applicable regulatory municipal MCLs. However, the lower Mokelumne River exhibits very low levels of potential water quality contaminants as a result primarily of its origin as snowmelt from undeveloped areas of the Sierra Nevada mountains, and lack of substantial waste inputs to the river along its course between Camanche Dam and the proposed diversion location at Tracy Lake. Available monitoring data indicates that Mokelumne River does not exceed any chemical water quality standards for municipal use, the beneficial use that would most likely be affected by changes to groundwater quality underlying Tracy Lake. Periodic detections of E. coli bacteria indicates that the recharge water may contain elevated concentrations of other forms of coliform bacteria and related pathogens, however, the

surface soil layers of the Tracy Lake lakebed would be expected to provide effective filtration of pathogens to greatly reduce, if not completely prevent, the transmission downward to groundwater. Moreover, coliform bacteria (and other potential pathogens derived from the intestinal tracts of animals) are adapted for survival in conditions that are extremely different from water and soil environments. Therefore, the viability and concentrations of pathogens that may infiltrate and be conveyed in groundwater would be greatly reduced due to the long travel time and exposure to hostile conditions causing their death and decay. Finally, because the Mokelumne River exhibits very low mineral and contaminant content, the diversion mixed with existing Jahant Slough/Tracy Lake water would likely result in an improved recharge water quality compared to existing conditions. The Jahant Slough watershed drainage consists largely of runoff from areas of agricultural land uses, which likely contains higher levels of typical agricultural constituents (e.g., nutrients, pesticides), and thus the contribution of Mokelumne River water to Tracy Lake would provide dilution and reduce concentrations of the existing constituents. Consequently, the potential groundwater recharge operations would not result in water quality criteria being exceeded with a frequency, magnitude, or geographic extent that would result in adverse impacts on one or more beneficial uses.

b) *The Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.*

Groundwater recharge is dependent on the permeability of soils and amount of recharge that occurs. Construction for the Tracy Lake Groundwater Recharge Project includes installation of only the gravel access road and pump station pad that may reduce infiltration of precipitation; however, the small area affected would not result in measurable reduction in groundwater recharge. Moreover, the purpose of the Tracy Lake Groundwater Recharge Project is to increase recharge of the local groundwater aquifer through diversion of Mokelumne River water to Tracy Lake. Therefore, net groundwater recharge in the local area would substantially increase as a result of long-term operations of the Tracy Lake Groundwater Recharge Project .

Beyond the Tracy Lake Groundwater Recharge Project , approval of the petition for an extension of time and other change petitions for Permit 10477 is expected to have a positive effect on groundwater recharge due to direct and in-lieu groundwater recharge caused by use of water under Permit 10477, and would not substantially deplete groundwater supplies. A reduction in groundwater recharge could result from reduced river contact with the substrate caused by reduced channel width and depth. However, approval of the change petition is unlikely to have much effect on channel shape because reduction in flow would be very small. Therefore, there would be no adverse impact to groundwater hydrology. No mitigation is required.

c) *The Proposed Project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on- or off-site.*

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project would involve temporary construction-related excavation and grading, which could temporarily alter drainage patterns in the site. However, all construction work would be conducted over a short period in the dry summer months of the year and no disturbed areas would be exposed to rainfall and stormwater drainage and runoff. The Tracy Lake Groundwater Recharge Project area is located on rural undeveloped lands and stormwater drainage and runoff occurs as overland flow, and would not involve any constructed drainage features or modification of existing topography that would alter runoff patterns within the project area. The installation of the fish screen and intake pipeline in the Mokelumne River adjacent to the north streambank may change river currents that could alter channel erosion and sedimentation patterns. However, the streambank area overlying the intake pipeline would be stabilized with rip-rap or other appropriate revetment material to prevent future channel scour. As such, this impact would be less than significant and no mitigation is required.

d) *The Proposed Project would not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.*

Drainage patterns and surface runoff amounts are the result of a number of factors including: slope, soil permeability, vegetation cover, and general topography. Land disturbances that alter any of these characteristics of a site, such as vegetation removal or compaction/paving of permeable soils, may result in a net increased rate or volume of surface runoff. As noted in the responses to (b) and (c) above, the Tracy Lake Groundwater Recharge Project would not measurably increase the amount of impervious surface, or alter any drainage conveyance routes. A purpose of the Proposed Project is to divert Mokelumne River water to Tracy Lake, which would increase the frequency and duration of inundation of the lakebed compared to existing inundation that occurs as a result of natural runoff within the Jahant Slough watershed. However, the additional inundation in years when EBMUD has surplus water available, and longer duration of storage in Tracy Lake from April through October, is not considered adverse because the seasonal inundation already occurs and would not adversely affect adjacent landowners. Consequently, implementation of the Tracy Lake Groundwater Recharge Project and approval of the change petitions would not substantially increase the rate or amount of surface runoff within the project area over the long-term nor cause or contribute to adverse

flooding effects. Therefore, this impact would be less than significant and no mitigation is required.

e) *The Proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff*.

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

As noted in the responses to (b-d) above, the Tracy Lake Groundwater Recharge Project would not increase the amount of impervious surface, alter any drainage conveyance routes, or increase the rate or amount of surface runoff within the project area over the long-term. Additionally, the Tracy Lake Groundwater Recharge Project does not involve any long-term operations-related uses of contaminants that could contribute polluted runoff. Thus, there would be no impact to existing or planned stormwater drainage systems or additional polluted runoff. No mitigation is required.

f) *The Proposed Project would not substantially degrade water quality.*

As discussed above in the response to (a), the short-term construction-related effects to water quality would be mitigated through the implementation of specific erosion and contaminant control measures and therefore, would not cause or contribute to any long-term water quality degradation. As noted above in the response to (e), the Tracy Lake Groundwater Recharge Project would not involve long-term operations-related uses of contaminants that could contribute polluted runoff. The Mokelumne River water diverted to Tracy Lake is expected to contain lower concentrations of potential contaminants than the existing Jahant Slough watershed drainage, and is known to contain generally lower concentrations of minerals and other constituents of municipal concern compared to available groundwater data, as indicated by Galt's and Lodi's well monitoring data. Thus, the long-term operations-related effects of the additional groundwater recharge in Tracy Lake would not substantially degrade existing groundwater quality, and groundwater concentrations would remain well below applicable MCLs for municipal use. Additionally, groundwater recharge would be expected to result in beneficial effects by contributing to generally lower constituent concentrations, and reducing the rate of groundwater overdraft which helps to prevent other sources of degradation such as salinity intrusion from Delta groundwater sources. Thus, there would be no potential for long-term degradation of surface or groundwater quality of sufficient magnitude to substantially

increase the risk of exceeding objectives or to cause adverse effects to municipal beneficial uses or any other beneficial uses of groundwater.

Apart from the effects from the Tracy Lake Groundwater Recharge Project , the only water quality constituents with potential to be negatively affected from approval of the petition for an extension of time are dissolved oxygen and water temperature. EBMUD's draft EIR for the Permit 10478 Time Extension Project considered potential impacts to water quality from extending its water right to the year 2040, taking into account NSJWCD's water right (which is derivative of EBMUD's), and found potential impacts to be less than significant.[5] EBMUD concluded that extending permit 10478 would have only a small effect on dissolved oxygen in the Mokelumne River, and that it would not cause dissolved oxygen concentration in the Mokelumne River to fall below the 7.0 mg/L objective of the CVRWQCB. The potential effects of the Proposed Project on water temperature is discussed in Section 3.5, Biological Resources. As explained in Section 3.5, EBMUD's operational compliance with the JSA provides assurance that diversions for the Proposed Project would be consistent with fisheries-protection objectives for the lower Mokelumne River. In years when there is less surplus water available to facilitate the full diversion rate to Tracy Lakeunder NSJWCD's water right, diversions would be curtailed to ensure that water temperature management objectives are met. Therefore, this impact would be less than significant and no mitigation is required.

g) *The Proposed Project would not involve the placement of any housing within a 100-year flood hazard area.*

The Proposed Project would not involve the placement of any housing within a 100-year flood hazard area. Therefore, there would be no impact and no mitigation is required.

h) *The Proposed Project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows beyond a negligible amount.*

[5] EBMUD Permit 10478 Time Extension Project, Draft Environmental Impact Report, 3.1-48.

No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project would involve placement of the fish screen, pump station, and outfall facilities in the FEMA-designated 100-year floodplain of the lower Mokelumne River. The fish screen would be inundated under all river flow conditions, and the outfall facilities in Tracy Lake would be constructed essentially level with the existing grade of the land, and thus would not measurably affect flood flows or storage. The pump station with a diameter of about 8 feet would be a minor floodplain encroachment compared to the designated floodplain zone that covers an approximately 1 mile-wide area along the north bank of the lower Mokelumne River. Therefore, the pump station would not substantially impede or redirect flood flows in the floodplain at the diversion location. Consequently, any potential change in channel inundation characteristics (e.g., depth or location of inundation) as a result of the Tracy Lake Groundwater Recharge Project would be expected to be negligible. Therefore, this impact would be less than significant and no mitigation is required.

i) *The Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding.*

No relevant environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

As noted above in the responses to (d) and (g-h), the Tracy Lake Groundwater Recharge Project would not increase the rates of runoff or place any housing within a 100-year flood hazard area that would expose people to additional flooding hazards. Additionally, the Tracy Lake Groundwater Recharge Project area is within the area of potential flooding in the event of an upstream dam failure such as for Pardee or Camanche dams. The placement of the fish screen, pump station, and outfall facilities would reflect minor floodplain encroachments that would not substantially alter flood flows, inundation, or floodplain form or function, and thus would not change the exposure to flooding and flooding hazards. Therefore, this impact would be less than significant and no mitigation is required.

j) *The Proposed Project is not located in an area potentially exposed to seiche, tsunami, or mudflow.*

The Proposed Project area site is not located in an area potentially exposed to seiche, tsunami, or mudflow. Therefore, there would be no impact and no mitigation is required.

3.11.4 Mitigation Measures

NSJWCD would mitigate for impacts to hydrology and water quality through implementation of the following mitigation measures.

MITIGATION MEASURE WQ-1. IMPLEMENT CONSTRUCTION EROSION CONTROL, SPILL CONTROL, AND WATER QUALITY PROTECTION MEASURES.

The BMPs outlined in Section 2 (Project Description) have been incorporated into the Proposed Project by NSJWCD to minimize potential adverse effects of construction-related activities such as soil erosion, discharges of sediment associated with in-river construction, and spills of contaminants. The BMPs shall be included as conditions of the construction contract between NSJWCD and the responsible construction contractor(s), and as appropriate, shall additionally be included in final project designs and specifications that are prepared for the Tracy Lake Groundwater Recharge Project. Additionally, construction requirements specified in permits issued for the project, including, but not limited to, the Section 401 Water Quality Certification and Section 1602 Streambed Alteration Agreement, shall be included in the construction contract between NSJWCD and the construction contractor(s).

3.12 Land Use and Planning

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

3.12.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The proposed Tracy Lake Groundwater Recharge Project will not divide an established community, nor conflict with any applicable land use plan, policies, or regulations. The project site is currently surrounded by vineyards with scattered residences and is inundated during winter storm events.

3.12.2 Discussion

Use of the project site for water storage and groundwater recharge during years when surface water is available will provide for enhanced habitat. Therefore, there is no impact to current land use or planning associated with this project.

3.13 Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	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?	❑	❑	❑	☑
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?	❑	❑	❑	☑

3.13.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The proposed Tracy Lake Groundwater Recharge Project will not involve the altering or removal of any mineral resource.

3.13.2 Discussion

Soil material on site that is to be excavated during construction will be replaced on site; therefore no impact will occur.

3.14 Noise

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

3.14.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The Tracy Lake Groundwater Recharge Project site is surrounded by vineyards and scattered residences, with some adjacent riparian habitat.

3.14.2 Discussion

The proposed project will involve some excavation in soils during construction for installation of the pipeline and diversion structure and pump station. Thus, the level of noise generated will be less than significant.

3.15 Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Induce substantial 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)?	❑	❑	❑	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☑

3.15.1 Population and Housing Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

Housing near the Tracy Lake Groundwater Recharge Project is scattered rural residential and the population density is very low.

3.15.2 Population and Housing Discussion

No substantial population growth will result from the project and no housing will be displaced by the operation of the project. Therefore, the proposed project will have no impact on population and housing.

3.16 Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Would the project 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:				
i) Fire protection?	❑	❑	❑	☑
ii) Police protection?	❑	❑	❑	☑
iii) Schools?	❑	❑	❑	☑
iv) Parks?	❑	❑	❑	☑
v) Other public facilities?	❑	❑	❑	☑

3.16.1 Public Services Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

Near the Tracy Lake Groundwater Recharge Project , current land uses are not commercial or higher density residential; therefore, the current demand on public services is minimal.

3.16.2 Public Services Discussion

The proposed project site does not involve any change in land uses where population increases are anticipated that would require any additional public services. Therefore, the project will have no impact on public services.

3.17 Recreation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Would the project 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?	❑	❑	❑	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	❑	❑	❑	☑

3.17.1 Recreation Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

There are no local or regional parks in the general vicinity of the proposed Tracy Lake Groundwater Recharge Project .

3.17.2 Recreation Discussion

The proposed project will not create a demand for recreation facilities. Therefore, the proposed project will have no impact on neighborhood or regional recreational facilities.

3.18 Transportation/Traffic

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Result in inadequate parking capacity?	☐	☐	☐	☑
g) Conflict with applicable adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

3.18.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The proposed Tracy Lake Groundwater Recharge Project site is accessed via Brovelli Lane which is connected to Jahant Road. Brovelli Lane is a private road with restricted access. Existing traffic volumes on Jahant Road and Brovelli Lane are very low.

3.18.2 Discussion

There will be minimal truck traffic associated with the construction of the project. Therefore, the proposed project will have a less than significant impact on Jahant Road and Brovelli Lane.

3.19 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	❑	☑
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	☑
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	☑
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	❑	❑	❑	☑
e) 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 providers existing commitments?	❑	❑	❑	☑
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	❑	☑
g) Comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	☑

3.19.1 Setting

The Project Site for the changes to the water right change petition includes existing diversion structures and agricultural areas in the District's jurisdictional boundary and permitted place of use. No environmental changes will occur as a result of the change petition other than for the Tracy Lake Groundwater Recharge Project .

The proposed Tracy Lake Groundwater Recharge Project does not have access to public water, public sewer, or public stormwater drainage facilities.

3.19.2 Discussion

No facilities or services are proposed for this project and as a result the project will not require new public utility systems. Therefore, the proposed project will have no impact on existing water, sewer, or stormwater utilities or service systems.

3.20 Mandatory Findings of Significance

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a)	Does the project have the potential to 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, 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?	☐	☑	☐	☐
b)	Does the project 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)?	☐	☐	☑	☐

c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	❑	❑	❑	☑

3.20.1 Discussion

a) *The project does not have the potential to 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, 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.*

Biological Resources

With respect to terrestrial wildlife resources, as discussed in Section 3.5 (Biological Resources), implementation of the Tracy Lake Groundwater Recharge Project has the potential to result in temporary construction-related disturbance to several terrestrial wildlife species, if present during construction. However, the implementation of specific mitigation measures would reduce the potential impacts in the project area to a less than significant level for all potential impacts identified in the analyses. Moreover, NSJWCD is participating with the SJCOG in the SJMSCP program, which provides mitigation and fee compensation for SJCOG to fund and implement regional species protection actions.

With respect to fisheries resources, implementation of the Tracy Lake Groundwater Recharge Project has the potential to result in temporary construction-related aquatic habitat disturbances and a small amount of permanent in-river habitat disturbance associated with the fish screen and intake facility and bank stabilization. The habitat disturbances would not result in substantial adverse effects to fisheries habitat, affect migration, nor result in a substantial increased risk of predation. Water diversion for the Proposed Project during the months of April through October would result in reduced Camanche Reservoir storage, and increased streamflow in the lower Mokelumne River between Camanche Dam and the diversion location. However, as described in Section 3.5, the long-term water diversions would occur in years with surplus water and thus, the long-term operations would result in small changes in streamflow, would not affect water quality, and would not be anticipated to measurably change temperature patterns. In addition, EBMUD's operation of the Comanche Dam consistent with the JSA

requirements and established mitigation measures ensure that streamflows are sufficient to permit movement of migratory fish, even with NSJWCD's exercise of its water right under Permit 10477. Therefore, the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a species, cause the population to drop below self-sustaining levels, threaten to eliminate a community, or reduce the number or restrict the range of the species. Accordingly, this impact would be less than significant with implementation of mitigation.

b) Does the project have impacts that are individually limited, but cumulatively considerable?

The initial study identifies potential effects of the project relating to biological resources, hydrology, water quality, cultural resources, aesthetic resources, agricultural resources, air quality, mineral resources, recreational resources, utilities and service systems, transportation/traffic, public services, population and housing, noise, land use and planning, hazards and hazardous materials, greenhouse gases and climate change, and geology, soils, and seismicity, that may contribute to other past, present, and reasonably foreseeable activities that may result in cumulative impacts. This assessment evaluates whether the effects of the Proposed Project would contribute considerably to any future significant cumulative impacts. The Project-related contribution to the potential or known future significant environmental impacts depends on the timing, location, seasonality, and magnitude of the effects relative to the future cumulative condition. As identified in this document, the temporary construction activities could cause short-term impacts to a number of resources. However, NSJWCD has identified BMPs that will be implemented as part of the Proposed Project, and project-specific mitigation measures, that would avoid and minimize potential construction-related impacts relating to terrestrial vegetation, wildlife, and fisheries resources, hydrology and water quality, cultural resources, aesthetic resources, agricultural resources, air quality, mineral resources, recreational resources, utilities and service systems, transportation/traffic, public services, population and housing, noise, land use and planning, hazards and hazardous materials, greenhouse gases and climate change, and geology, soils, and seismicity.

The following provides an assessment of potential cumulative impacts to special-status fish species in the Mokelumne River associated with the long-term operations-related effects of the Proposed Project. Fisheries resources in the lower Mokelumne River in the project area have experienced degraded conditions compared to those conditions that existed prior to the industrial era as a result of many past and present landscape-level changes. In particular, the construction of the major dams in the upper watershed eliminated access of the upper watershed to migratory anadromous fish and resulted in substantial hydrologic changes through diversion and control of streamflow for water supply and flood control operations, and land use changes in the lower watershed have resulted in alterations and loss of historical riparian habitat and discharges of contaminants associated with agricultural and urban runoff.

Introduced fish species also have altered the fish community and reduced the historic distribution and abundance of some native species.

In the future, agricultural water demands of direct riparian diverters along the lower Mokelumne River, and agricultural areas served by WID and NSJWCD, including demands in the project area, would be expected to be relatively stable because crop land uses are largely stable. EBMUD's future water demand will increase as a result of anticipated population growth and urbanization in its service area, which will reduce available water supplies for instream flows to the lower Mokelumne River and end-of-year storage in Pardee and Camanche reservoirs. However, EBMUD's water rights for Mokelumne River water, and provisions of its FERC license and the JSA, are conditioned to accommodate the water supply operations with appropriate environmental protections for lower Mokelumne River resources. Thus, as water demands increase, the reservoir storage provisions, instream flows, and other environmental protection measures would still be implemented.

Fall-run Chinook salmon and steelhead stocks have been supported through the operation of the Mokelumne River Fish Hatchery; however, steelhead continue to be designated a threatened species. Protection and restoration conditions have been imposed on the major water supply, flood control, and development actions that occur in the Central Valley via the Biological Opinions of NOAA Fisheries and USFWS on the coordinated State Water Project and federal Central Valley Project operations, and additional restoration actions are anticipated to result from the ongoing Bay Delta Conservation Plan process. These regulatory actions are intended to improve and restore salmonid and native fish populations; however, the success of the actions to future conditions is uncertain. Therefore, the currently depressed conditions of special-status fish species that reside in the lower Mokelumne River (e.g., steelhead and Delta smelt), and other species of concern, are considered significant adverse conditions and would be expected to be no more adverse, or slightly improved, compared to existing conditions.

Cumulative effects on ESA-listed anadromous salmonids and resident species could potentially occur due to changes in habitat conditions (including critical habitat) within the action area and downstream water bodies. There are no known major existing or planned activities in the action area that would reduce habitat for ESA-listed fish in the lower Mokelumne River. Therefore, because potential effects of the Proposed Project to fish habitat would be small associated with the permanent placement of the fish screen, and small potential reduction in SRA habitat, it would not contribute considerably to any future cumulative adverse habitat loss effects.

The effects of anticipated total water use in the lower Mokelumne watershed and effects to fisheries resources were evaluated in the State Water Board hearings for EBMUD's water rights that began in 1992 (and which addressed the effects of WID and NSJWCD water rights) and in the State Water Board's

water rights hearings for the State Water Project (SWP) and Central Valley Project (CVP) operations and compliance with the 1995 Bay-Delta Water Quality Control Plan, which resulted in the adoption of water rights Decision 1641 (D-1641) in 1999. The hearings process, and D-1641 deliberations in particular, culminated in the State Water Board modifying the EBMUD and WID water rights to incorporate the instream flow provisions of the JSA, which codified the flow requirements for fisheries protections agreed upon by the stakeholders and resource agencies (State Water Resources Control Board 2000). As described above, NSJWCD's use of all water under its water rights (including the Proposed Project) is subject to surplus water availability, and EBMUD operations (including WID's obligations) are subject to compliance with JSA requirements for temperature management of the Camanche Reservoir hypolimnion and lower Mokelumne River instream flows for protection of fisheries resources. EBMUD must also comply with mitigation measures intended to ensure adequate flows that were established in its draft EIR for the Permit 10478 Time Extension Project. Surplus water availability, and thus Project diversion opportunity, is only available during about 60% of the years (i.e., the wettest years) when the water supply is more abundant. Because compliance with instream flow and temperature objectives is readily achievable in the wetter year types when total available water supply conditions are favorable, the Proposed Project operations would not contribute significantly to any future cumulative adverse instream flow or temperature conditions for special-status fish species, their critical habitat, or other fish species.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project results in minor and temporary construction-related effects, and minimal operations-related effects to hydrologic and aquatic resources in the lower San Joaquin. The purpose and objectives of the project activities are primarily to support existing water supply uses for agriculture, municipal, and groundwater recharge beneficial uses. Further, all additional diversions by the District of water under Permit 10477 will be made consistent with water right priorities and will not interfere with diversions by other under prior rights. Diversions will be closely coordinated with requested releases from Camanche to ensure that water released for NSJWCD has arrived at the diversion location in the river prior to commencing diversions, to avoid injury to fisheries due to diversion of flow intended for fish, or injury to riparian and pre-1914 diverters. Therefore, there would be no anticipated adverse effects to human beings.

4 REFERENCES

4.1 Printed References

References for Project Description and Section 3.5 (Biological Resources)

State Water Resources Control Board, Revised Water Right Decision 1631. 2000F.

Busby, P.J., T.C. Wainwright, and G.J. Bryant. 1996. Status Review of West Coast Steelhead from Washington, Oregon and California. NOAA Technical Memorandum NMFS-NWFSC-27. National Marine Fish populations Service. Seattle WA.

California Data Exchange Center. 2013. Camanche Reservoir storage and water surface elevation data for the period of January 1988 to January 2013. Available at: <http://cdec.water.ca.gov/queryTools.html>. Accessed January 22, 2013.

California Department of Fish and Wildlife (CDFW). 2012. California Natural Diversity Database (CNDDB). RareFind 4. California Department of Fish and Game, Rancho Cordova, CA. Accessed December 2012.

California Department of Fish and Wildlife. 2012. GrandTab salmonid escapement estimate data (April 23, 2012). Available at: <http://www.calfish.org/Programs/CDFGAnadromousResourcesAssessment/tabid/213/Default.aspx>. Accessed January 18, 2013.

California Department of Transportation. 2007. Compendium of Pile Driving Sound Data. Prepared by Illinworth & Rodkin. (September). Sacramento, CA

California Department of Transportation. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Prepared by ICF Jones and Stokes and Illingworth and Rodkin. (July) Available at: <http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf>.

California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v7-11oct). California Native Plant Society. Sacramento, CA. Accessed December 2012 from http://www.cnps.org/inventory

Crain, P.K., K. Whitener, and P.B. Moyle. 2004. Use of a restored central California floodplain by larvae of native and alien fishes. American Fish populations Society Symposium 39: 125-140.

City of Lodi. 2010. Initial Study and Mitigated Negative Declaration for the Surface Water Treatment Facility. Available at:

http://www.lodi.gov/community_development/EIR%20pdfs/2010%20pfs/Surface_Water_Treatment_Draft_IS_MND051110.pdf.

East Bay Municipal Utility District. 2004. Downstream Fish Migration Monitoring at Woodbridge Irrigation District Dam Lower Mokelumne River, January 2004 through June 2004 September 2004. Prepared by Michelle Workman. (September).

East Bay Municipal Utility District. 2009. 2008 Project Operations Report. Lower Mokelumne River Project. FERC Project No. 2916. Prepared for the Federal Energy Regulatory Commission. (February).

East Bay Municipal Utility District. 2012. 2011 Project Operations Report. Lower Mokelumne River Project. FERC Project No. 2916. Prepared for the Federal Energy Regulatory Commission. (February).

East Bay Municipal Utility District. 2013. Draft Environmental Impact Report for the Permit 10478 Time Extension Project. Available at: http://www.ebmud.com/water-and-wastewater/water-supply/water-right-permit-extension.

Fuller, P.L., L.G. Nico, and J.D. Williams. 1999. Nonindigenous fishes introduced into inland waters of the United States. American Fish populations Society. Special Publication 27, Bethesda, Maryland.

Hastings, M. C. and A. N. Popper. 2005. Effects of Sound on Fish. Subconsultants to Jones & Stokes Under California Department of Transportation Contract No. 43A0139, Task Order 1. (January) Sacramento, CA

Kemp, H.A. 1949. Soil Pollution in the Potomac River Basin. American Water Works Association l 41 (9): 792-796.

Kjeldsen, Sinnock, Neudeck (KSN) Inc. 2011. Reference map developed by consulting engineers and land surveyors for Brovelli Woods, LLC. (December). Stockton, CA.

Madej, A. 2004. How suspended organic sediment affects turbidity and fish feeding behavior. USGS Sound Waves. Available at: <http://soundwaves.usgs.gov/2004/11/research2.html>.Merz, J.E., and M.S. Saldate. 2004. Lower Mokelumne River fish community survey. 1 January 1997 through 30 June 2004. East Bay Municipal Utility District, Lodi, California.

Mayer, Kenneth E and William F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California, State of California, Resources Agency, Department of Fish and Game, Sacramento, CA.

McEwan, D.R. 2001. Central Valley steelhead. In Contributions to the biology of Central Valley anadromous salmonids. R. Brown, ed. California Department of Fish and Game, Fish Bulletin 179, Vol. 1: 1-43.

Merz, J.E. and J.D. Setka. 2004. Riverine habitat characterization of the Lower Mokelumne River. Prepared for East Bay Municipal Utility District. (July). Lodi, CA

Merz, J.E. and M.S. Saldate. 2004. Lower Mokelumne River fish community survey. 1 January 1997 through 30 June 2004. East Bay Municipal Utility District, Lodi, CA

Mills Associates. 1991. Biological Resources Section of the Environmental Impact Report developed for Buckeye Ranch, a housing development proposed near Tracy Lake in the early 1990s.

Moyle, P. B. and J. J. Cech, Jr. 1996. Fishes: an Introduction to Ichthyology. 3rd Edition. Prentice-Hall: Upper Saddle River, N. J.

Moyle, P.B., R.M. Yoshiyama, J.E. Williams, and E.D. Wikramanayake. 1995. Fish species of special concern in California, second edition. Prepared for the State of California, the Resources Agency, Department of Fish and Game, Inland Fish populations Division. Rancho Cordova, California.

Natural Resources Conservation Service (NRCS). 2013. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov Custom Soil Resource Report generated for Tracy Lake Project Area December 30, 2013.

NOAA Fisheries. 2005. Green Sturgeon (Acipenser medirostris) Status Review Update. Prepared by Biological Review Team, Santa Cruz Laboratory, Southwest Fisheries Science Center. (February).

Northeastern San Joaquin County Groundwater Banking Authority. 2009. Eastern San Joaquin Basin Integrated Conjunctive Use Program Programmatic Environmental Impact Report. Available at: http://www.gbawater.org/news_events/public_notices.html.

Port of Seattle. 2008. Behavioral Response and Survival of Juvenile Coho Salmon Exposed to Pile Driving Sounds. Prepared by Natural Resource Consultants (Seattle, WA). (July). Seattle, WA

River Partners. 2008. Effects of Long Duration Flooding on Riparian Plant Species in Restoration Plantings. San Joaquin River National Wildlife Refuge, Stanislaus County, California.

San Joaquin County. 2000. The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. November 14, 2000. Modesto, CA.

Sawyer, John 0., T. Keeler-Wolf, and J.M. Evens. 2011. A Manual of California Vegetation. 2nd Edition. California Native Plant Society Press. Sacramento, CA.

State Water Resources Control Board, Division of Water Rights. 1992. Permit 10477 for Diversion and Use of Water.

State Water Resources Control Board, Division of Water Rights. 2006. Order WR 2006-0018-DWR.

State Water Resources Control Board, Division of Water Rights. 2008. Order WR 2008-0016.

State Water Resources Control Board, Division of Water Rights. 2009. Order WR 2009-0056-EXEC.Sycamore Environmental Consultants. 2013. Preliminary Jurisdictional Delineation Report for the Tracy Lake Groundwater Recharge Project. Prepared for the North San Joaquin Water Conservation District. (July). Sacramento, CA.

U.S. Army Corps of Engineers. 1991. Mokelumne River and tributaries, California reconnaissance report. Department of the Army, Sacramento District, Corps of Engineers, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS). 1999a. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. U.S. Fish and Wildlife Service, Sacramento, CA.

UC Davis Cosumnes Research Group. 1999. Fish species of the Cosumnes River watershed. Available at: <<http://watershed.ucdavis.edu/crg/reports.html>>.

University of California Davis. 2013. California Fish Website, Lower Cosumnes-Lower Mokelumne Watershed information. Available at: <<http://calfish.ucdavis.edu/location/?ds=241&reportnumber=735&catcol=3105&categorysearch=Lower%20Cosumnes%2DLower%20Mokelumne%20Watershed>>.

US Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1). Environmental Laboratory, Department of the Army, USACE. Waterways Experimental Station. Vicksburg, MS.

USACE. 2007. Jurisdictional Determination Form Instructional Guidebook. May 2007.

USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains Valley and Coast Region. May 2010.

USFWS. 1999b. Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas). U.S. Fish and Wildlife Service, Portland, OR.

USFWS. 2008. Birds of Conservation Concern 2008. USFWS Division of Migratory Bird Management. Arlington, VA.

USFWS. 2012. Species list. Available online at: http://www.fws.gov/sacramento/es/spp_list.htm. Accessed December 2012.

USFWS. 2013. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/ Accessed January 4, 2013.

Waters, T.F. 1995. Sediment in streams: sources, biological effects and control. American Fisheries Society, Monograph 7, Bethesda, MD.

Whitener, K., and T. Kennedy. 1998. Evaluation of fish populations relating to floodplain restoration on the Cosumnes River Preserve. Fishery Foundation and The Nature Conservancy.

References for Section 3.06 (Cultural Resources)

Windmiller, R. and Finger, K. 2012. Tracy Lake Groundwater Recharge Project: Cultural Resources Assessment San Joaquin County, CA.

Ananian, B. and C. Rice. 1991. Draft Report: Archaeological Investigation Buckeye Ranch Project, Phase I. Benjamin Ananian. Submitted to San Joaquin County Community Development Department. Copies available from the Central California Information Center, California State University, Stanislaus, Turlock, CA.

Bennyhoff, J. A. 1977. *Ethnogeography of the Plains Miwok.* Center for Archaeological Research at Davis 5, University of California, Davis, CA.

Marchand, D. E. And B. F. Atwater. 1979. Preliminary Geologic Map Showing Quaternary Deposits of the Lodi Quadrangle, California. U.S. Geological Survey Open-File Report OF-79-933, Denver, CO.

Smith, W. 2004. *Garden of the Sun: A History of the San Joaquin Valley: 1772-1939.* Edited and revised with additions by W. B. Secrest, Jr. Linden Publishing Inc., Fresno, CA.

Tremaine, K. J. 1992Archaeological Identification Studies for the Buckeye Ranch Project, San Joaquin County, California. BioSystems Analysis, Inc. Submitted to Robertson Homes. Copies available from the Central California Information Center, California State University, Stanislaus, Turlock, CA.

United States Census. 1880. Great Register, Alameda County, p. 17.

References for Section 3.08 (Greenhouse Gases and Climate Change)

Intergovernmental Panel on Climate Change. 2013. Summary for Policymakers. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available <http://www.climatechange2013.org>.

References for Section 3.10 (Hydrology and Water Quality)

City of Galt. 2012. Annual Drinking Water Quality Report - 2011. Galt, CA. Available: <<http://www.ci.galt.ca.us/Modules/ShowDocument.aspx?documentid=8550>>.

City of Lodi. 2012. Annual Water Quality Report for 2011. (April). Lodi, CA. Available: <<http://www.lodi.gov/public_works/water.html>>.

Department of Water Resources. 2003. California's Groundwater, Bulletin 118, Update 2003. (October). Sacramento, CA. Available: <<http://www.water.ca.gov/groundwater/bulletin118/update2003.cfm>>.

East Bay Municipal Utility District. 2012. 2011 Project Operations Report, Lower Mokelumne River Project, FERC Project No. 2916. Prepared for the Federal Energy Regulatory Commission. (February). Oakland, CA

North San Joaquin Water Conservation District. 2011. Tracy Lake Groundwater Recharge Project Divert NSJWCD Mokelumne River Water to Tracy Lake and Replace Groundwater Pumping with the Diverted Water. WaterSmart Water and Energy Efficiency grant application submitted to U.S. Bureau of Reclamation. (February). Lodi, CA.

Northeastern San Joaquin County Groundwater Banking Authority. 2007. Eastern San Joaquin Integrated Regional Water Management Plan. (July). Available: <<http://www.gbawater.org/>>.

San Joaquin County & Delta Water Quality Coalition. 2012. Annual Monitoring Report (prepared by Michael L. Johnson, LLC). (March). Stockton, CA.

South Area Water Council. 2011. South Basin Groundwater Management Plan. Prepared by Robertson-Bryan, Inc. and WRIME. (October). Elk Grove, CA. Available: <<http://ohwd.org/southgmp.html>>.

State Water Resources Control Board. 2011. 2010 CWA Section 303(d) List of Water Quality Limited Segments. Approved by U.S. EPA on December 23, 2011. Available: <<http://www.swrcb.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/index.shtml#currentrpt>>.

U.S. Army Corps of Engineers. 2012. List of navigable waters in the Central Valley, California. Sacramento District, Regulatory Branch. Website information available at: <<http://www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/NavigableWatersoftheUS.aspx>>.

References for Section 3.19 (Mandatory Findings of Significance)

State Water Resources Control Board. 2000. Final Action Regarding the Lower Mokelumne River Hearing - East Bay Municipal Utility District's Water Right Applications 4228, 4768, 5128, 13156, 15201, and 25026. Letter from Harry M. Schueller (Chief, Division of Water Rights) to enclosed mailing list. (October). Sacramento, CA.

5 LIST OF PREPARERS

Robertson-Bryan, Inc.

- Michael Bryan, Ph.D., Principal-in-Charge
- Janelle Nolan, Resource Director, Terrestrial Biological Resources
- Keith Whitener, Senior Aquatic Biologist
- Jeff Lafer, Hydrology and Water Quality Specialist
- Sara Reece, Terrestrial Biologist
- Corinne Munger, Terrestrial Biologist

Ric Windmiller, Consulting Archaeologist

Walter E. Sadler, Consulting Engineer

Jennifer L. Spaletta, District Legal Counsel re Water Rights

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

APPENDICES TO INITIAL STUDY AND DRAFT MITIGATED NEGATIVE DECLARATION

PROJECT: WATER RIGHT CHANGE PETITIONS AND TRACY LAKE RECHARGE PROJECT

JANUARY 2014

APPENDICES:

APPENDIX A: Description and Map of Current and Proposed Permit 10477 Place of Use and Points of Diversion

APPENDIX B: Detailed Project Description for Tracy Lake Recharge Project

APPENDIX A:

Description and Map of Current and Proposed Permit 10477 Place of Use and Points of Diversion

North San Joaquin Water Conservation District
Permit 10477 (Application 12842)

Petition for Change - Existing and Proposed Points of Diversion and Rediversion

POINTS OF DIVERSION OR REDIVERSION

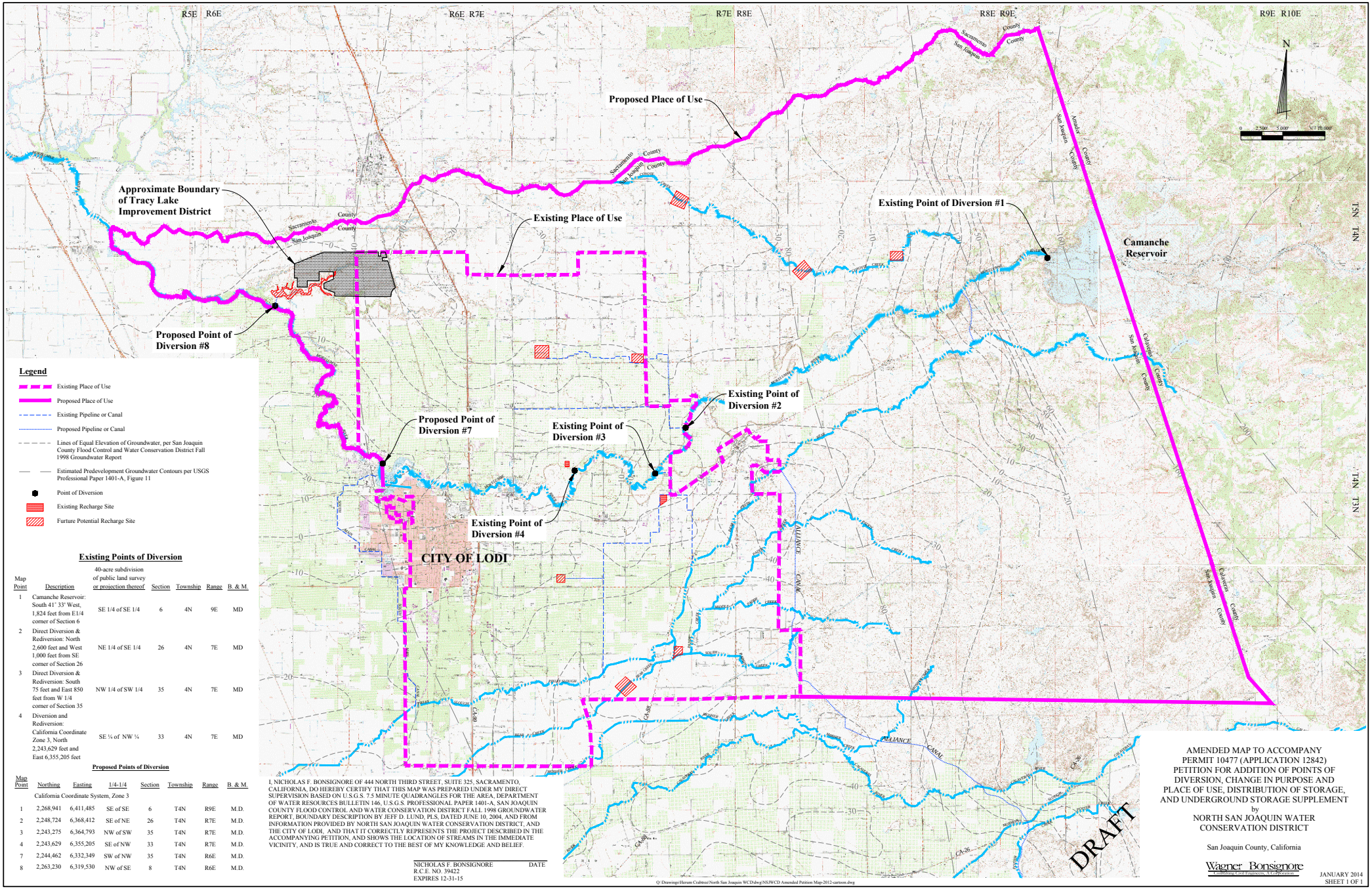
Present:

Map Point	Description	40-acre subdivision of public land survey or projection thereof	Section	Town-ship	Range	Base and Meridian
1	**Camanche Reservoir:** South 41° 33' West, 1,824 feet from E1/4 corner of Section 6	SE 1/4 of SE 1/4	6	4N	9E	MD
2	**Direct Diversion & Rediversion:** North 2,600 feet and West 1,000 feet from SE corner of Section 26	NE 1/4 of SE 1/4	26	4N	7E	MD
3	**Direct Diversion & Rediversion:** South 75 feet and East 850 feet from W 1/4 corner of Section 35	NW 1/4 of SW 1/4	35	4N	7E	MD
4	**Diversion and Rediversion:** California Coordinate Zone 3, North 603,200 feet and East 1,793,790 feet	SE ¼ of NW ¼	33	4N	7E	MD

Proposed:

Map Point	Northing*	Easting*	¼ - ¼	Section	Township	Range	B. & M.
1	2,268,941	6,411,485	SE of SE	6	T4N	R9E	M.D.
2	2,248,724	6,368,412	SE of NE	26	T4N	R7E	M.D.
3	2,243,275	6,364,793	NW of SW	35	T4N	R7E	M.D.
4	2,243,629	6,355,205	SE of NW	33	T4N	R7E	M.D.
7	2,244,462	6,332,349	SW of NW	35	T4N	R6E	M.D.
8	2,263,230	6,319,530	NW of SE	8	T4N	R6E	M.D.

* California Coordinate System, Zone 3



Legend

- Existing Place of Use
- Proposed Place of Use
- Existing Pipeline or Canal
- Proposed Pipeline or Canal
- Lines of Equal Elevation of Groundwater, per San Joaquin County Flood Control and Water Conservation District Fall 1998 Groundwater Report
- Estimated Predevelopment Groundwater Contours per USGS Professional Paper 1401-A, Figure 11
- Point of Diversion
- Existing Recharge Site
- Furture Potential Recharge Site

Existing Points of Diversion

Map Point	Description	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	B. & M.
1	Camanche Reservoir: South 41° 33' West, 1,824 feet from E1/4 corner of Section 6	SE 1/4 of SE 1/4	6	4N	9E	MD
2	Direct Diversion & Rediversion: North 2,600 feet and West 1,000 feet from SE corner of Section 26	NE 1/4 of SE 1/4	26	4N	7E	MD
3	Direct Diversion & Rediversion: South 75 feet and East 850 feet from W 1/4 corner of Section 35	NW 1/4 of SW 1/4	35	4N	7E	MD
4	Diversion and Rediversion: California Coordinate Zone 3, North 2,243,629 feet and East 6,355,205 feet	SE ¼ of NW ¼	33	4N	7E	MD

Proposed Points of Diversion

Map Point	Northing	Easting	1/4-1/4	Section	Township	Range	B. & M.
	California Coordinate System, Zone 3						
1	2,268,941	6,411,485	SE of SE	6	T4N	R9E	M.D.
2	2,248,724	6,368,412	SE of NE	26	T4N	R7E	M.D.
3	2,243,275	6,364,793	NW of SW	35	T4N	R7E	M.D.
4	2,243,629	6,355,205	SE of NW	33	T4N	R7E	M.D.
7	2,244,462	6,332,349	SW of NW	35	T4N	R6E	M.D.
8	2,263,230	6,319,530	NW of SE	8	T4N	R6E	M.D.

I, NICHOLAS F. BONSIGNORE OF 444 NORTH THIRD STREET, SUITE 325, SACRAMENTO, CALIFORNIA, DO HEREBY CERTIFY THAT THIS MAP WAS PREPARED UNDER MY DIRECT SUPERVISION BASED ON U.S.G.S. 7.5 MINUTE QUADRANGLES FOR THE AREA, DEPARTMENT OF WATER RESOURCES BULLETIN 146, U.S.G.S. PROFESSIONAL PAPER 1401-A, SAN JOAQUIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT FALL 1998 GROUNDWATER REPORT, BOUNDARY DESCRIPTION BY JEFF D. LUND, PLS, DATED JUNE 10, 2004, AND FROM INFORMATION PROVIDED BY NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT, AND THE CITY OF LODI, AND THAT IT CORRECTLY REPRESENTS THE PROJECT DESCRIBED IN THE ACCOMPANYING PETITION, AND SHOWS THE LOCATION OF STREAMS IN THE IMMEDIATE VICINITY, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NICHOLAS F. BONSIGNORE DATE
R.C.E. NO. 39422
EXPIRES 12-31-15

Q:\Drawings\Herum Crabtree\North San Joaquin WCD\dwg\NSJWCD Amended Petition Map-2012-cartoon.dwg

AMENDED MAP TO ACCOMPANY PERMIT 10477 (APPLICATION 12842) PETITION FOR ADDITION OF POINTS OF DIVERSION, CHANGE IN PURPOSE AND PLACE OF USE, DISTRIBUTION OF STORAGE, AND UNDERGROUND STORAGE SUPPLEMENT

by

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

San Joaquin County, California

Wagner Bonsignore
Consulting Civil Engineers, A Corporation

JANUARY 2014
SHEET 1 OF 1

APPENDIX B

Tracy Lake Groundwater Recharge Project Detailed Description

Tracy Lake Groundwater Recharge Project Detailed Project Description

Key components of the proposed project involve construction and operation associated with a new water diversion intake structure with fish screen in the Mokelumne River for the Tracy Lake Groundwater Recharge Project. This proposed project would include a new pump station and pipeline to convey the diverted water to Tracy Lake. Appurtenances for these facilities would include installing a power line for the pump station, and an access road to the pump station and fish screen location.

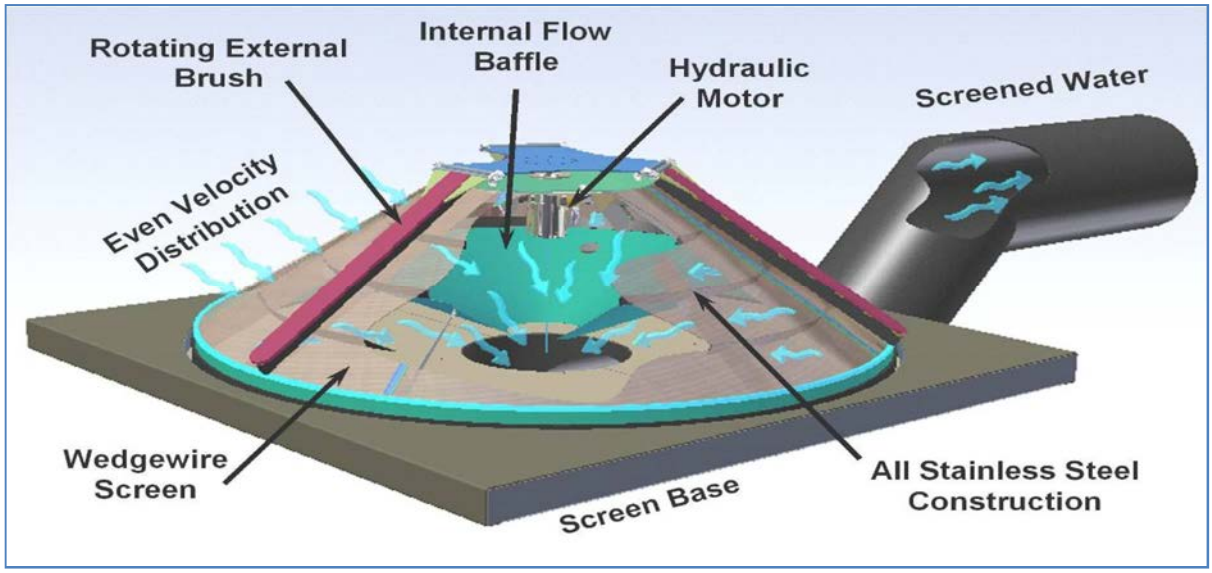
A. Tracy Lake Diversion and Recharge Facilities

The Mokelumne River intake structure would consist of a 12-foot diameter cone shaped fish screen with self-cleaning system supported on a metal base and anchored to four new steel pipe piles in the river. The cone-shaped fish screen rests on top of a docking-inlet. The docking inlet supports the screen and also conveys water into the pump-station inlet pipe. Water flows through the fish screen surface and into the inlet pipe. The screen material must stay clean for the water to flow properly. To clean the fish screen periodically, three external brushes slowly rotate around the cone screen to brush away material that may have accumulated on the wedge wire screen. The brush arms are both double-hinged and weighted so that they maintain an even load distribution and do not need adjustment and can also rotate around screens in either a clockwise or counter-clockwise direction.

The fish screen system includes a Hydraulic Power Unit (HPU) consisting of a hydraulic motor located inside the screen, pump utilizing food-grade oil, directional control valves, oil reservoir, pressure gauge, and control switches all located inside the panel enclosure. The HPU uses a 3-Phase 480 Volt, 1-1/2 HP Motor with a Pump to operate the hydraulic motor-driven brushes on the screen. The enclosure can be easily accessed for inspection of oil levels and to perform routine maintenance as it is located on the pump station platform which is above the 100-year flood level. Hydraulic hoses are pumbed from this HPU to the screen unitôs hydraulic motor. Oil used in the hydraulic system is Chevronôs Clarity Hydraulic oil which has been approved by NOAA Fisheries for use in similar fish screen systems. The unit would have an oil level switch in the hydraulic tank, so if there is a leak the power unit would shut off with minimal fluid loss. A control panel is used to control the operation of the hydraulic system and report the system status.

The fish screen would meet the fish screen criteria requirements set forth by the NOAA Fisheries and the California Department of Fish and Wildlife to protect the salmon run in the river. The cone screen has a surface area of approximately 131.9 square feet with wedgewire screens that provide for an open slot area of approximately 1.75 millimeter and an approach velocity of approximately 0.33 feet per second at a diversion rate of 40 cfs. This system is a replica of fish screens on NSJWCDôs other three diversion structures on the Mokelumne River - North Diversion, South Diversion, and CalFed. The screens at all three of these sites were constructed by Intake Screens, Inc. Figure 2 shows a general system overview of the cone fish screen and the various physical components.

Figure 1 Standard ISI Cone Fish Screen System Diagram



NSJWCD would issue a contract for installation of the fish screen and construction of the pump station and conveyance pipeline to Tracy Lake. The new pump station would be located on the right bank of the Mokelumne River and be designed to withdraw up to 40 cfs of water through the fish screen into the wet well placed in the river bank area via a 48-inch inlet pipe. Construction within the streambed would involve the installation of the fish screen and a 48-inch inlet pipe. The wet well would be located outside the streambed in the river bank. Construction timing and techniques would be in accordance with the various permit requirements as delineated by the responsible local, state and federal agencies and is discussed in more detail below.

Figure 3 represents the general configuration of the pump station components as it is based on the 65% design drawings for the project. This site plan shows the estimated coordinates for the center of the wet well and the access platform. In addition, it shows the sizing and arrangement of the intake and discharge piping, together with calling out the type and location of the erosion protection material to be installed on the riverbank. The general location of the vehicular access area at the site is also shown. It should be noted, as called for on the drawings, that erosion protection at the edge of the Mokelumne River to protect the pipe and restore the bank after excavation would not be conventional rock rip rap. A geotextile based system would be used that would allow the native vegetation to re-establish itself and provide for better and more comprehensive erosion control system.

Figure 4 provides further details of the final alignment and elevations of the components of the diversion structure, discharge piping and access road and outlet structure in Tracy Lake. This drawing shows the discharge piping size, approximate depth of cover, location of access structures, and other pipeline appurtenances. As can be seen by

comparing Figure 3 and Figure 4, the pump station wet well is well-outside the normal river channel.

Figure 2 – Pump Station Site Plan

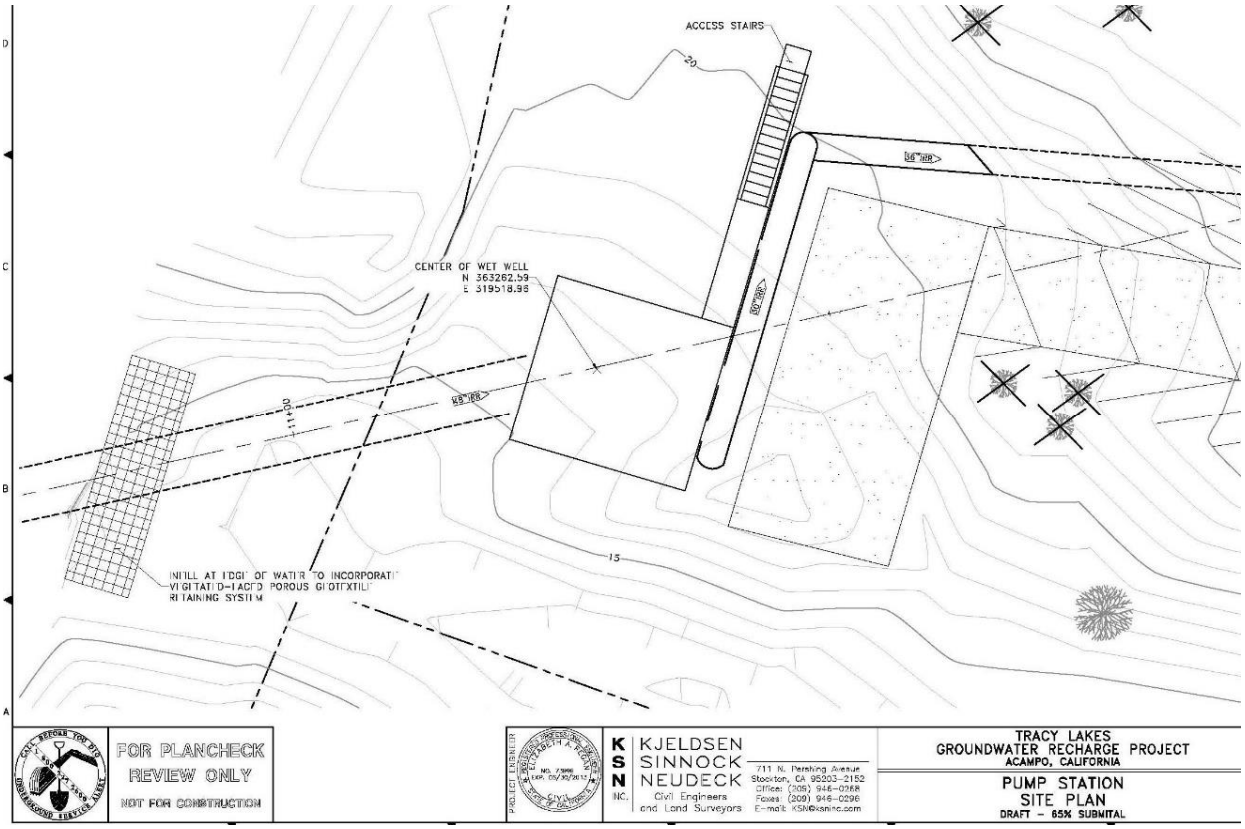


Figure 3 **Cross Section of Pump Station and Pipeline**

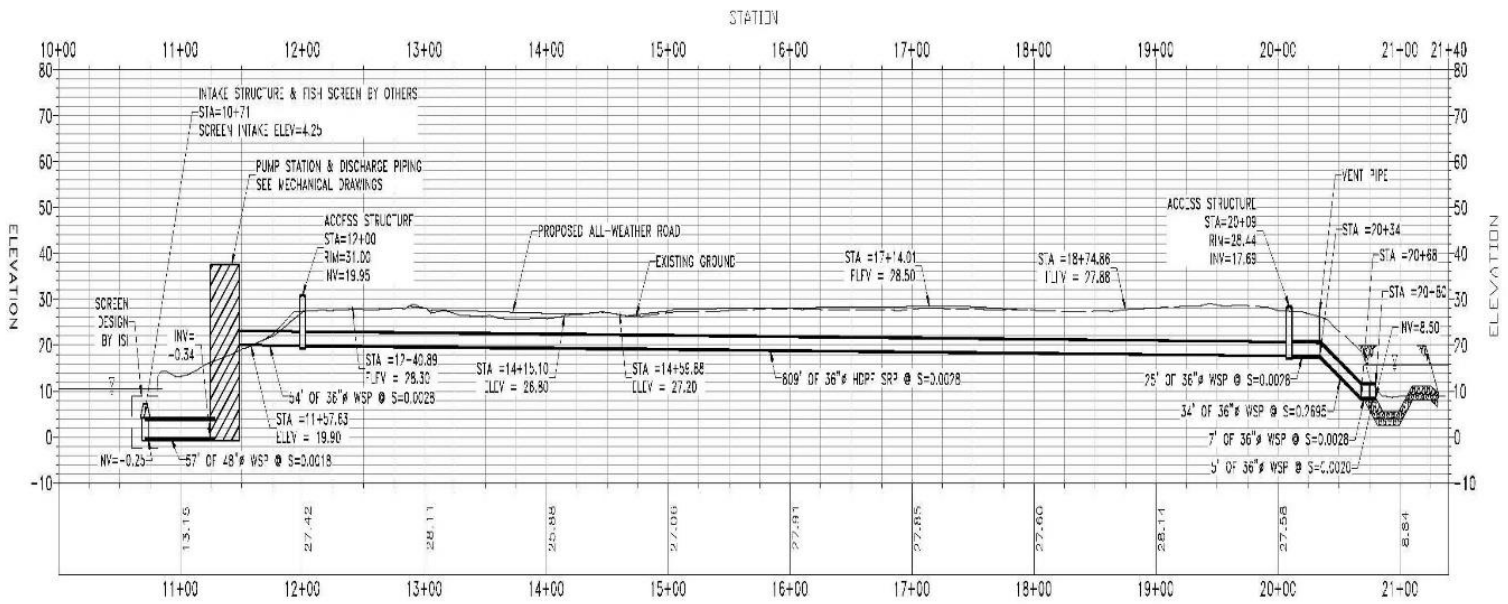


Figure 5, as discussed below, provides all the relevant information on the hydraulic profile of the pump station and river stages that were considered in the design. This figure provides the invert elevation of the wet well, - 0.34 feet which would dictate the extent of excavation in the river channel during construction and the technique used for construction as outlined in the Construction Activities and Schedule below. This elevation in turn is determined by the need to keep the fish screen fully submerged during low flow summer flow conditions when the diversion pumping would be occurring. For design it is assumed that during the normal irrigation season the water surface elevation in the river would be well above the fish screen as shown in Figure 5.

Diversion System would consist of the following elements:

Diversion Structure

a. A 12-foot diameter cone shaped fish screen with integral base, and four protection piles.
b. A 48-inch outlet pipe connecting the fish screen assembly with the Pump Station Wet Well.
c. Vegetated-faced porous geotextile retaining system at the River bank for erosion protection.

Wet Well

a. A 120-inch diameter galvanized corrugated steel pipe would form the caisson of the wet well.
b. The height of the wet well would be sufficient to clear the 100-year flood elevation of 28 feet by at least 1 foot ï making the total wet well height of approximately 30 feet.
c. Openings to the wet well through the main floor of the station would be 1 foot above the 100-year flood elevation.
d. The wet well would be circular and constructed on a concrete base slab extending approximately 12 to 18 inches beyond the outside dimension of the caisson. Excavation for the pump station and appurtenances is estimated at approximately 3,500 cubic yards (CY) of material. Most of this material would be used as backfill around the existing structure or be spoiled on the access road for fill.

Pumps

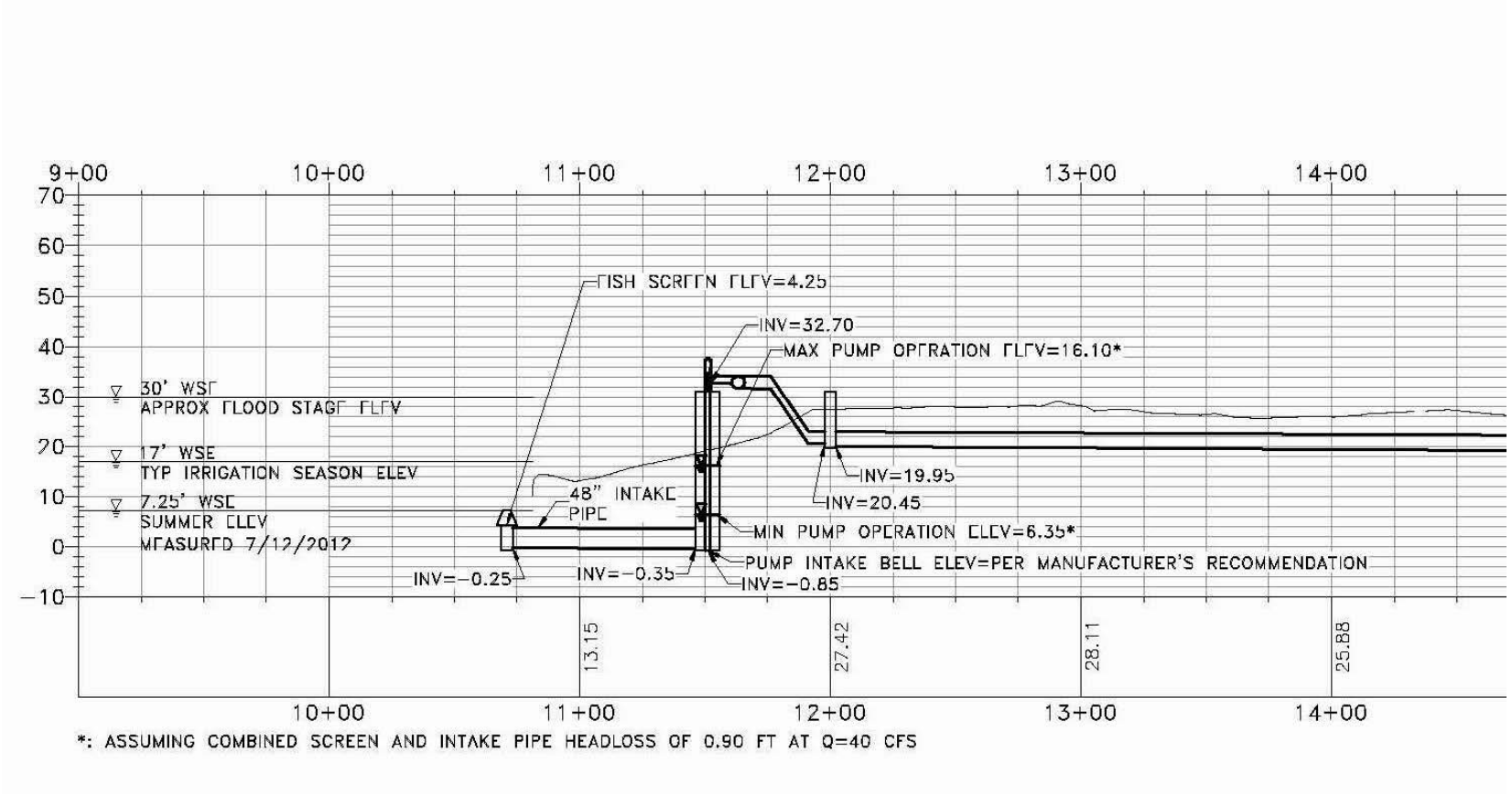
a. The pumping system plan is for the eventual installation of two pumping units respectively producing 25 and 15 cfs at minimum head for a maximum capacity of 40 cfs. The initial pumping unit would have a design capacity of 25 cfs to provide operational flexibility for the project due to unknowns regarding seepage, etc.

b. The pumps would be driven by electric motors approximately 100 and 60 horsepower in size, for an approximate load of 120 KW. The initial pump with a capacity of 25 cfs would have a variable speed drive to provide for operational flexibility. The second pump would have a soft start constant speed drive.
c. The pump and motor controls would be located on the platform above the wet well.
d. The pump and motor would accommodate the full range of delivery heads expected to be encountered (including wet well levels varying between minimum operating and ñfloodò levels). The larger pump would use the variable speed drive to maintain an operational level in Tracy Lake in response to changes in evaporation, percolation and diversions from the lake, and to facilitate a constant diversion rate from the Mokelumne River.

Platform

a. An expanded galvanized steel platform with rails would provide safe access to the Motor Control Center (MCC), HPU for the fish screen, and pump motors, all of which would be located above the 100-year flood elevation on the top of the wet well.
b. The manifold off the initial and planned future pump would initially consist of a valve and blind flange for interconnecting the second unit. The manifold design would accommodate future valving to prevent back flow when the second pump is added and operational.
c. A flow meter on the discharge piping to register flow from the pump station would have a manual read and would also transmit a signal to the MCC cabinet for storage in a data logger for storage and retrieval as required. This data logger would provide the record of flow diverted from the river on an hourly or more frequent time series if desired.

Figure 2 Hydraulic Profile of Pump Station



Discharge Pipeline

1. From the steel pipe manifold connected to the pump(s), a short segment of 30-inch diameter steel pipe would discharge to a 48-inch concrete standpipe about five feet in height before transitioning underground to a 36-inch diameter low-head pipe having approximately 30 inches of cover as shown on Figure 4. This alignment would continue approximately 1,000 feet underground northerly toward the lake and roughly parallel to the outlet channel, across the easterly portion of the homeowner's lawn and then turn east at about a 45 degree angle and dive down to the bottom of an arm of Tracy Lake as shown on Figure 6. The estimated amount of excavation for the pipeline is 1,300 CY with the majority of the material used as backfill for the pipeline and the excess being used for fill on the access road.
2. The 36-inch diameter pipe would transition from a low-head plastic pipe to welded steel pipe, at the junction structure which would empty into Tracy Lake over riprap slope protection to dissipate water energy and avoid erosion of the lake bottom. The amount of riprap is estimated to be 200 CY.

Access Road

a. Along the same alignment of the discharge pipeline, to the east and adjacent to the pipeline, the District would construct all-weather, class 2 aggregate base about 6 inches thick gravel access road with a top width of approximately 12 feet. The total width of the access road and pipeline trench/spoil would be approximately 20 feet. Excess spoil material from the construction activities would be used for road construction fill as appropriate.

Power Supply

a. Pacific Gas and Electricity would supply power to the pump station via a 12 KV 3-phase supply, presently available via overhead lines along Brovelli Woods Lane that terminate near the proposed location of the pipeline junction structure at Tracy Lake as shown on Figure 6. The power supply would generally follow the pipeline alignment to the pumping station and would terminate at a transformer with the low voltage feed from the transformer connecting to the pump station service panel for metering and switching.

B. Construction Activities and Schedule

1. Site Preparation and Restoration

During the construction period, the work area would be accessed from the adjoining Brovelli Woods Lane. Construction personnel, equipment and material transport would access the project area via existing roads and rights-of-way. Staging of equipment and construction materials during the construction of the proposed project would occur on the vacant area south of Brovelli Woods Lane and adjacent to the access road to the pumping plant as shown below on Figure 6. This staging site is presently annual grass and weeds requiring rough grading for fire control and would temporarily occupy an area of about 1/2 acre.

2. Construction Methods

Initial construction activities would involve site preparation including vegetation removal, grubbing, grading, excavation, placement of fill (as necessary), and compaction at the pump station and along the pipeline alignment. Approximately nine trees have been tentatively identified for removal, mitigation for tree removal and land disturbance would be in accordance with San Joaquin County Multi-Species Habitat Conservation Plan and Open Space Plan (SJMSCP).

Excavated surplus soil would remain on-site; select fill materials and aggregates would be brought to the site for foundations of structures, pipes, roadbeds, etc. Following completion of construction activities, the site contours of temporary disturbance areas would be restored and vegetated with appropriate non-invasive species native to the general area.

The construction access would require a 20-foot right-of way to accommodate spoil, trench equipment and material staging from Brovelli Woods Lane to the river for the pipeline and approximately 200 square foot area for the outfall structure and rip rap.

Access for Construction - Access for construction would require two areas for equipment access: 1) pipeline construction to the site; and 2) access to construction for the outfall and riprap placement. The second access from Brovelli Woods Lane would be between the oaks in a 15-foot right-of-way from a staging area near the easterly bank of Tracy Lake to the outfall site.

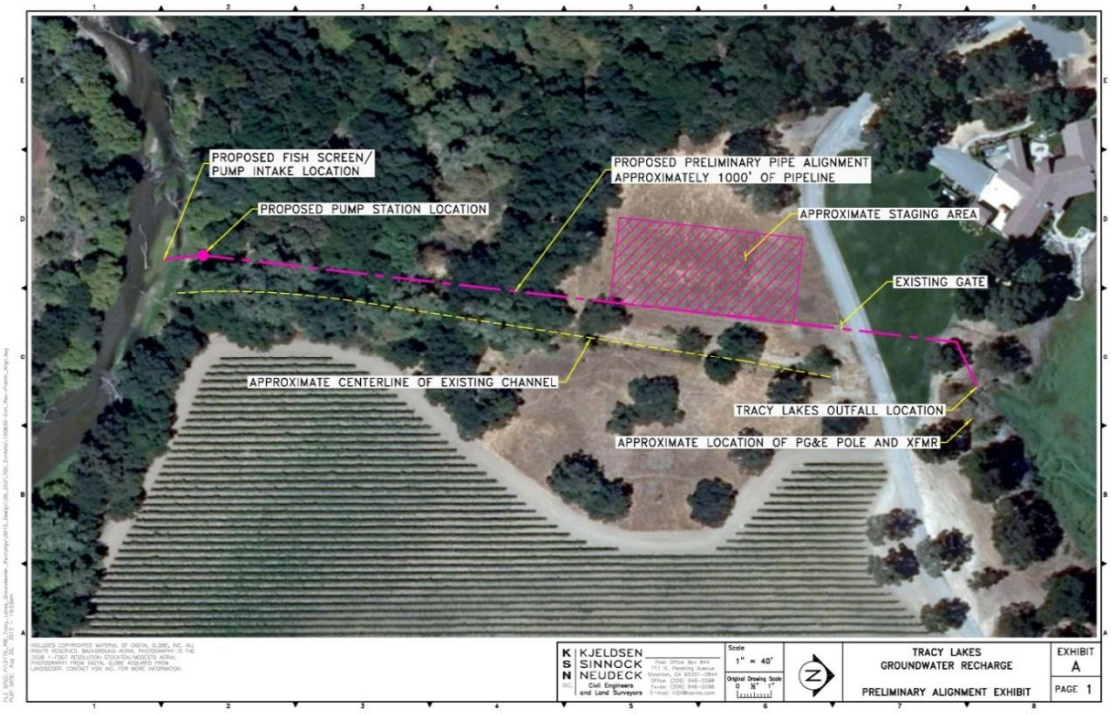


Figure 3 Conveyance Pipeline Alignment and Staging Area

In-river construction activities to prepare the site for the fish screen, intake pipe placement and wet well placement would involve open trench excavation and either sheet pile-driving or super sack (sand filter) placement for sediment control. The in-river work is anticipated to be completed using land-based equipment consisting of an excavator, small crane or backhoe, and possibly a pile driver.

For access and construction of the pump station and intake pipe, it is estimated that approximately four mature riparian trees would be removed to clear the site.

The trench for the intake pipe would be excavated first, followed by the placement of the fish screen base and initial segment of the intake pipe coupled to the fish screen base plate. Piles would then be driven through alignment holes in each corner of the fish screen base plate into the river bottom using a vibratory hammer, impact hammer or simply pushing them in with the backhoe or excavator bucket. The base and intake elevations are then set with attachment clamps to permanently affix the screen base to the piles. Additional intake pipe is then placed in the trench leading from the intake screen to the pump station wet well. This in-river portion of the pipeline would then be backfilled with clean rock fill and the pump station wet well would be constructed. Once the pump station wet well is constructed below grade, the pipeline would be backfilled as would the area around the wet well.

The area of the river bank excavated for the intake pipe trench would be stabilized with native material and a porous geotextile retaining system such as Tensar® Erosion Control Systems designed for this application, which would then be vegetated to provide long term bank

stabilization. This reinforcement would be placed over an area approximately 30 feet in width and from below the water surface to an elevation approximately equal to the surrounding grade.

Before construction is initiated, in-river measures to control sediment discharge into the river and to keep fish out of the construction zone would be undertaken. Measures taken would depend on river water depth at the time of construction and may consist of several alternatives:

- If the depth is greater than three feet, it is anticipated that a coffer dam using interlocking sheet piles would be installed prior to beginning construction
- If the depth is less other methods of controlling sediment discharges such as silt fencing or sand filled super sacks would be used

Sheet piles are interlocking steel plates that are driven into the river bottom either by using a vibrator or impact hammer. If a vibrator or impact hammer is used, underwater noise thresholds for fish that may be present are not expected to exceed lethal levels based on site soil and water conditions. In fact, the contractor may be able to merely push the sheet piles into the soil. The construction contractor may elect to dewater or partially dewater the site during construction; however, in all likelihood the construction would be accomplished without dewatering due to past practices and site soil conditions and seepage rates. If any dewatering occurs or the sediments disturbed during construction do not settle after construction is completed, the discharge would be routed either through portable settling tanks or applied onsite up gradient from the project site at rates suitable to prevent runoff. Other methods of disposal of the silt laden water include moisture for soil compaction, dust control, etc.

A fish rescue operation would be conducted prior to closing any coffer dam or other silt barrier to avoid harmful effects to fish that could potentially become trapped in the construction area. NSJWCD would retain qualified biologists and/or technicians to perform the fish rescue to move the fish out of the construction area. When the installation of the cofferdam/barrier is completed, the rescue would be conducted by sweeping the area within the cofferdam with seine nets. If the site is dewatered, a sump pump would be used to dewater the site after the initial fish rescue operation; when the water depth within the cofferdam is low (i.e., approximately 2 feet), the site would be swept again to remove any remaining fish within the cofferdam.

Excavation and construction activities for the discharge pipeline, electrical and control conduits, access road, access structures and stilling basin within Tracy Lake would be conducted using conventional equipment and methods, and would not involve any additional construction within the Mokelumne River channel.

3. Construction Schedule

Scheduling of construction activities would be in accordance with the appropriate permit conditions for activities in the river and along the alignment and is anticipated to occur in the spring and summer of 2014 and would take approximately 4 to 6 months of field construction time, with the in-river construction based on seasonal limitations occurring between June 1 and September 30.

Construction activities would be limited to normal daylight construction hours, and weekdays. When necessary, and approved in advance by NSJWCD with the landowner's concurrence, construction activities may take place outside the normal working hours and on weekends. Additionally, construction activities for in-river work in the lower Mokelumne River channel would be coordinated with agencies (e.g., San Joaquin County, USFWS, and CDFW), and is anticipated to occur in late summer/fall when the weather conditions are dry and lower Mokelumne River is at seasonally low stream flow conditions. All disturbed aquatic areas of the project site would be restored to a stabilized condition prior to September 30th to minimize impacts to sensitive aquatic species.

Construction time to include bidding, shop drawing review and approval, fabrication and delivery, and then construction would take approximately seven to eight months due to the long lead time for fabrication and delivery of the fish screens and pumps. Thus the contractor would be required to submit a schedule that reflects when the various components to be installed in-river would be on-site to minimize the actual construction time in-river, and to provide for construction coordination.

4. Construction Sequencing

The anticipated construction sequence would be:

1. Clearing and grubbing (staging, pipe line and access road, pumping plant and fish screen)
2. Fish screen and diversion works installation
3. Pump station sump and structure construction
4. Pipeline and power supply excavation
5. Pipeline and outfall placement
6. Electrical distribution and rough-in
7. Backfill Trench
8. Access road grading and gravel placement
9. Pump installation
10. Electrical service connection and motor controls
11. All work areas would be restored to its original condition

5. Construction Personnel and Equipment

NSJWCD would contract with a general contractor to perform the overall project implementation including oversight of ISI's installation of the diversion and fish screen intake system, pump station and conveyance pipeline, and other appurtenances, including site restoration activities for all work areas. At a peak level of construction, it is estimated that 8 to 10 construction workers would be involved in activities within the project area.

Table 1 below provides a list of all anticipated construction equipment for construction activity. A peak day of construction would involve the concurrent use of up to four pieces of heavy equipment for approximately 8 hours.

Table 1 Anticipated Construction Equipment for Construction Activities.

S.No.	Equipment
1	Track excavator
2	Rubber tired backhoe/loader
3	Long-reach crane
4	Concrete truck
5	Delivery dump truck
6	Water truck
7	Delivery truck and trailer
8	Small dozer
9	Pickup trucks
10	Fuel/oil service truck
11	Air compressor
12	Generator

C. Operations and Maintenance

The operations would occur during years when water is available to divert under the Districtôs water right permit, historically during the wettest 60 percent of years. Tentative allocations would occur on or about March 1 and would be confirmed by April 1. Lake filling would commence on April 1 and would fill at the peak pumping capacity installed and within regulatory limits. Depending on weather and soil moisture, diversion from the lake would begin in April. The lake would fill to an approximate elevation of 16.0 feet mean sea-level (msl) generally by mid-April to the end of May depending on irrigation demand, percolation rates, evaporation and residual stored runoff. The district would pump water out of Mokelumne River to maintain the lake between minimum and maximum pool elevation of approximately 14 feet (250 AF) and 16.0 feet (450 AF) respectively during the permitted diversion season. This operating range for the lake would allow irrigation pumps to divert water from the lake for irrigation of adjacent agricultural lands.

NSJWCD, EBMUD and Woodbridge Irrigation District will have a coordinated operations agreement to control the release of NSJWCDôs water from Camanche Reservoir, down river,

through the WID dam and then to the Tracy Lake diversion point. The Tracy Lake Improvement District (TLID) would monitor release timing and water stage at the diversion location to maintain river stages either at or above normal flow levels that would occur absent the diversion. To accomplish this objective, flow from the diversion pumps in the Mokelumne River would be varied using a variable frequency drive to keep the pumping rate below the delivery rate and to maintain the water level in Tracy Lake within operational levels.

Initially, it is anticipated that diversion would occur at about 15 cfs of nominal constant rate to fill the lake to the minimum irrigation pumping level of about 14 feet msl. At this elevation, the water is deep enough to begin pumping out of the lake for irrigation. This re-diversion would serve 1,239 acres of irrigated land with an approximate water demand of 2,000 AF per year. Once Tracy Lake begins to fill and gets close to the maximum elevation of 16 feet, the diversion rate would be adjusted in an attempt to maintain a constant rate during the irrigation season. These activities would be coordinated with EBMUD and Woodbridge Irrigation District based on observations of lake losses due to evaporation, percolation and diversion. Recognizing that lake losses from evaporation and percolation are estimates, the first phase pump would have a maximum capacity of 25 cfs, but can be adjusted for a lower rate using the VFD in an effort to stabilize the lake level. Accounting for evaporation and percolation, total diversions for the initial phase of operations are estimated at 5,460 AFA, as depicted in Table 2.

Once fully built out, the diversions would alternate between 15, 25 and 40 cfs as needed to maintain lake level through the permissible diversion season. To reach the 40 cfs level, the 15 cfs and 25 cfs pumps would operate at the same time. A 40 cfs diversion would serve approximately 7,000 acres of irrigated land with a water demand of 10,700 AF per year. Accounting for evaporation and percolation, total diversions at full build-out are estimated at 13,600 AFA, as depicted in Table 3.

These Tables were developed to show the boundaries of the lake operation, minimum diversion and maximum diversion. Losses due to percolation and evaporation are estimates; therefore, some field adjustments would be necessary to balance the input to the lake to match the outputs. It should be noted that some reduction in diversion during May and October may be required to keep the lake level from exceeding 16 feet, which is associated with a storage volume of approximately 450 AF.

Table 2 Tracy Lake Reservoir Operation With 15 cfs Diversion

Month	Diversion from Mokelumne River to Tracy Lake (ac-ft)	Evaporation and Percolation (ac-ft)	Water Supplied for Irrigated Land (ac-ft)	End of Month Tracy Lake Storage (ac-ft)
Jan	0	19	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Apr	900	329	133	439
May	900	527	240	572
Jun	510	460	280	342
Jul	930	503	372	397
Aug	930	488	360	479
Sep	480	457	200	299
Oct	810	417	120	572
Nov	0	366	33	173
Dec	0	155	0	18
Total	**5,460**	**3,722**	**1,738**	

Table 3 Tracy Lake Reservoir Operation With 40 cfs Diversion

Month	Diversion from Mokelumne River to Tracy Lake (ac-ft)	Evaporation and Percolation (ac-ft)	Water Supplied for Irrigated Land (ac-ft)	End of Month Tracy Lake Storage (ac-ft)
Jan	0	4	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Apr	1,840	391	988	462
May	1,760	504	1,368	350
Jun	2,160	532	1,596	382
Jul	2,400	426	2,120	234
Aug	2,480	384	2,052	278
Sep	1,840	433	1,140	545
Oct	1,120	424	684	557
Nov	0	323	122	112
Dec	0	109	0	3
Total	**13,600**	**3,530**	**10,070**	

D. Best Management Practices

NSJWCD, or the general contractor, would implement the following best management practices (BMPs) as part of the proposed project to minimize and avoid potential impacts to environmental resources. Where applicable, the BMPs would be clearly identified on the construction drawings and in the specifications. The proposed projectôs construction permit would address NPDES criteria as set by the State Water Resources Control Board (SWRCB). The contractor also would be required to implement the BMPs in a timely manner.

- Construction activities would be limited to a designated work area (including the work corridor and staging area). The work area would be clearly identified on the construction drawings and would be staked and flagged where necessary prior to initiation of construction activities.

- All open trenches that pose risks to pedestrians, vehicles, or wildlife (via entrapment) would be filled or covered each night.

- Erosion control measures would be installed and maintained in place during the precipitation season (October-April). Soil disturbance activities would cease if adverse weather conditions substantially increase the likelihood of transporting soil off site.

- Construction would avoid where possible, damage and removal of mature trees. Construction would minimize activities required in the drip line of trees.

- Construction would be limited to the daylight hours. Construction activities would be coordinated prior to their start with the adjacent property owners.

- All construction equipment must have sound-control devices no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust system.

- To reduce potential contamination by spills, all refueling, storage, servicing, and maintenance of equipment would be performed at designated sites. Any fluids drained from the machinery during servicing would be collected in leak-proof containers and taken to an appropriate disposal or recycling facility. If such activities result in spillage or accumulation of a product on the soil, the contaminated soil would be disposed of properly. Under no circumstances would contaminated soils be added to a spoils pile or trench backfill.

- All maintenance materials (e.g., oils, grease, lubricants, and antifreeze) would be stored at staging areas.

Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: San Joaquin County
Address: PO Box 1968
Stockton, CA 95201

From:
Public Agency: North San Joaquin WCD
Address: PO Box E
Victor, CA 95253
Contact: Walter Sadler
Phone: (916) 213-2300

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2014022009

Project Title: Water Right Change Petitions and Tracy Lake Groundwater Recharge Project.

Project Applicant: North San Joaquin Water Conservation District

Project Location (include county): Lodi, San Joaquin County. See attached map.

Project Description:
The Project involves NSJWCD's requests for approval from the State Water Resources Control Board (1) for an extension of time to 2040 to put water under NSJWCD's Permit 10477 to beneficial use, (2) to expand the permitted place of use to NSJWCD's current boundaries, (3) to add underground storage as a purpose of use, and (4) to add two new points of diversion, one of which would be for small water transfers to the City of Lodi for use in Lodi, and the other for the Tracy Lake Groundwater Recharge Project. These changes are part of NSJWCD's plan to maximize surface water use in NSJWCD.

This is to advise that the North San Joaquin Water Conservation District (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on March 10, 2014 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
318 East Kettlemen Lane, Lodi CA 95240

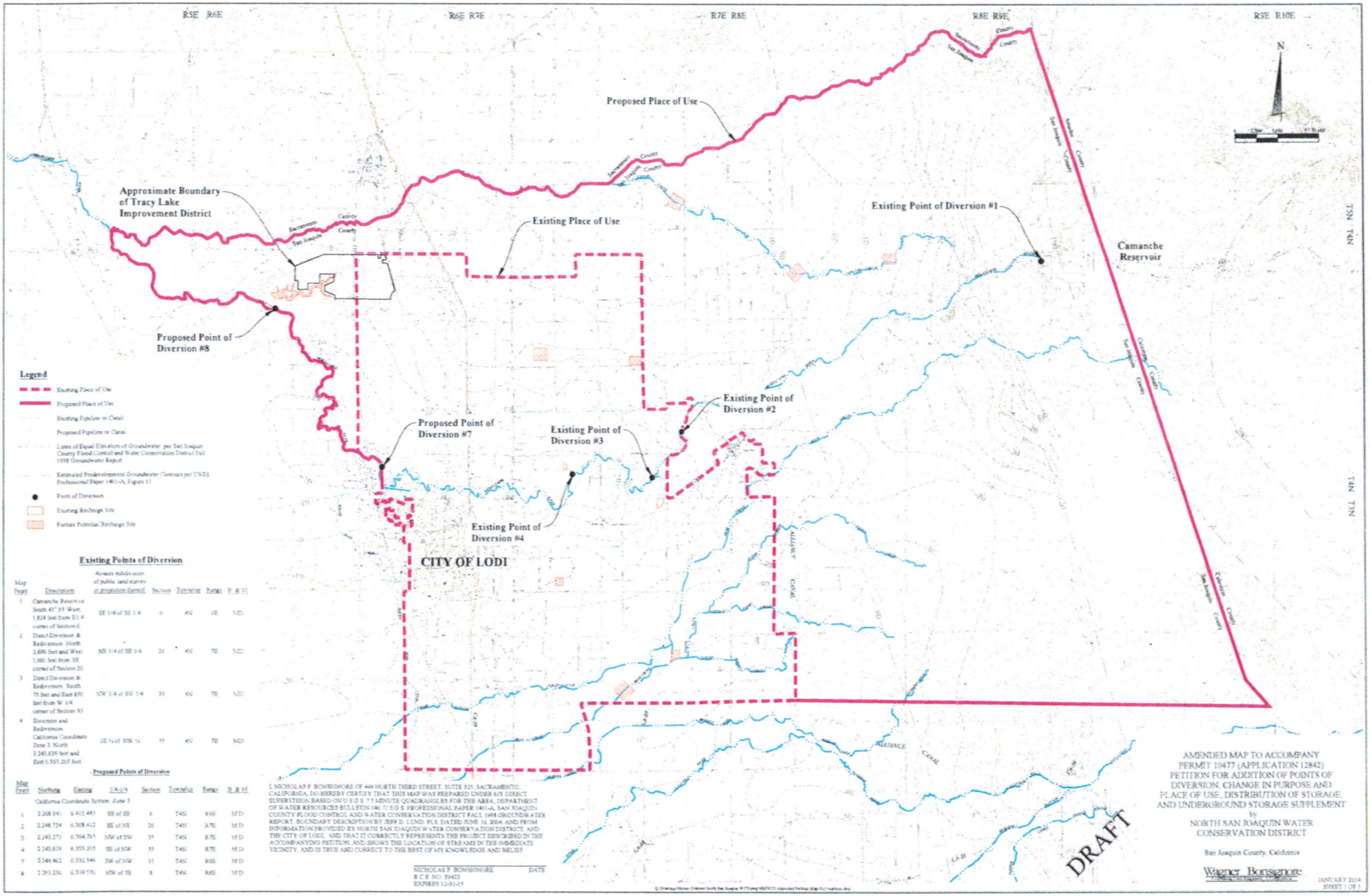
Signature (Public Agency): _____ Title: President, NSJWCD

Date: March 10, 2014 Date Received for filing at OPR:

RECEIVED
MAR 11 2014
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011



Existing Points of Diversion

Map Point	Description	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	B. & M.
1	Camanche Reservoir South 41° 35' West, 1,824 feet from E1/4 corner of Section 6	SE 1/4 of SE 1/4	6	4N	9E	MD
2	Direct Diversion & Rediversion: North 2,600 feet and West 1,000 feet from SE corner of Section 20	NE 1/4 of SE 1/4	20	4N	7E	MD
3	Direct Diversion & Rediversion: South 75 feet and East 850 feet from W 1/4 corner of Section 35	NW 1/4 of SW 1/4	35	4N	7E	MD
4	Diversion and Rediversion: California Coordinate Zone 3: North 2,243,659 feet and East 6,355,205 feet	SE 1/4 of NW 1/4	33	4N	7E	MD

Proposed Points of Diversion

Map Point	Northing	Easting	1/4-1/4	Section	Township	Range	B. & M.
	California Coordinate System, Zone 3						
1	2,268,941	6,411,485	SE of SE	6	T4N	R9E	MD
2	2,248,724	6,308,412	SE of NE	20	T4N	R7E	MD
3	2,243,273	6,364,793	NW of SW	35	T4N	R7E	MD
4	2,243,679	6,355,205	SE of NW	33	T4N	R7E	MD
7	2,244,462	6,332,346	SW of NW	35	T4N	R6E	MD
8	2,263,236	6,319,576	NW of SE	8	T4N	R6E	MD

I, NICHOLAS F. BONSIGNORE OF 444 NORTH THIRD STREET, SUITE 325, SACRAMENTO, CALIFORNIA, DO HEREBY CERTIFY THAT THIS MAP WAS PREPARED UNDER MY DIRECT SUPERVISION BASED ON U.S.G.S. 7.5 MINUTE QUADRANGLES FOR THE AREA, DEPARTMENT OF WATER RESOURCES BULLETIN 146, U.S.G.S. PROFESSIONAL PAPER 1401-A, SAN JOAQUIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT FALL 1998 GROUNDWATER REPORT, BOUNDARY DESCRIPTION BY JEFF D. LUND, PLS, DATED JUNE 16, 2014, AND FROM INFORMATION PROVIDED BY NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT, AND THE CITY OF LODI, AND THAT IT CORRECTLY REPRESENTS THE PROJECT DESCRIBED IN THE ACCOMPANYING PETITION, AND SHOWS THE LOCATION OF STREAMS IN THE IMMEDIATE VICINITY, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NICHOLAS F. BONSIGNORE — DATE
R.C.E. NO. 39422
EXPIRES 12-31-15

DRAFT

AMENDED MAP TO ACCOMPANY
PERMIT 10477 (APPLICATION 12842)
PETITION FOR ADDITION OF POINTS OF DIVERSION, CHANGE IN PURPOSE AND PLACE OF USE, DISTRIBUTION OF STORAGE AND UNDERGROUND STORAGE SUPPLEMENT
by
NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

San Joaquin County, California

Wagner Bonsignore

JANUARY 2014
SHEET 1 OF 1

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

RESOLUTION NO. 2014-07

APPROVING SAN JOAQUIN MULTI-SPECIES HABITAT CONSERVATION AND OPEN SPACE PLAN (SJMSCP) INCIDENTAL TAKE MITIGATION AND MEASURES AND FEE FOR TRACY LAKES PROJECT

WHEREAS, work by the North San Joaquin Water Conservation District (NSJWCD – "District") to install the pump system for the Tracy Lakes Project will involve disturbance of the natural environment; and

WHEREAS, District has completed project review under the California Environmental Quality Act (CEQA); and

WHEREAS, said one acre area of APN 003-060-24 is within an area of natural and habitat land as identified by the San Joaquin County Council of Governments (COG);

WHEREAS, said work does require approval from the U.S. Army Corps of Engineers; the California Regional Water Quality Control Board; and the California Department of Fish and Wildlife; and

WHEREAS, pursuant to the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) mitigation for potential disturbance can be made via an Incidental Take Minimization Measures (ITMM) agreement with the San Joaquin County Council of Governments; and

WHEREAS, in addition to specific activities identified in the ITMM agreement, the District must also pay the SJMSCP fees; and

WHEREAS, it is imperative that this project proceed immediately to assure every opportunity possible to conserve valuable ground water in the future; and

WHEREAS, ground disturbance cannot occur without compliance and satisfaction of the ITMM; and

WHEREAS, the District's Board of Directors has reviewed the SJMSCP ITMM for the Tracy Lakes Recharge Project at the Board's regular meeting held on September 29, 2014.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Board of Directors of the North San Joaquin Water Conservation District as follows:

1. The Board hereby approves the form of the SJMSCP ITMM agreement for the Tracy Lakes Recharge Project, attached hereto as Exhibit A.

2. The Board hereby authorizes and directs the payment of the fee of $13,295.00 to SJCOG, Inc. prior to January 1, 2015, with the funds to come from the appropriate account as determined by legal counsel, the Treasurer, the District accountant; and/or the Tracy Lake Improvement Coordinating Committee.

3. The Board has determined that entering into this agreement with COG is in the best interests of the District.

4. The President of the Board is hereby authorized to sign and deliver, after consultation with the District's General Counsel, the agreement in the form presented to this meeting, with such non-substantive changes, insertions and deletions as may be recommended by the General Counsel; the President's signing of the agreement being conclusive evidence of such approval.

5. The President and any other officers, employees and agents of the District shall be, and each of them hereby is, authorized to give or take all approvals, consents, directions, instructions, notices, orders, requests, indemnifications and other actions permitted or required by any of the documents authorized by this Resolution, and to take any such action that such authorized representative, with the advice of District's General Counsel, may deem necessary or desirable to further the purposes of this Resolution.

6. All actions heretofore taken by the officers, employees and agents of the District in connection with the matters authorized by this Resolution are hereby ratified, approved and confirmed.

7. This Resolution shall take effect from and after its adoption.

Moved by Director Flinn, seconded by Director Scanlon, that the foregoing resolution be adopted.

Upon roll call the following vote was had:

Ayes:	4	Directors:
Noes:	0	Directors:
Absent:	1	Directors:
Abstain:	0	Directors:

The President declared the resolution adopted.

I, Thomas Flinn, Secretary of the Board of Directors of the NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT, do hereby CERTIFY that the foregoing is a full, true and correct copy of a resolution duly adopted at an adjourned regular meeting of said Board of Directors held the 29th day of September 2014.

S J C O G, Inc.

555 East Weber Avenue • Stockton, CA 95202 • (209) 235-0600 • FAX (209) 235-0600

San Joaquin County Multi-Species Habitat Conservation & Open Space Plan (SJMSCP)

North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project
SJMSCP Incidental Take Minimization Measures
(APN: 003-060-24)

Date: September 19, 2014

Findings: Potential Swainson's hawk nesting/foraging habitat, western pond turtle habitat, colonial nesting birds habitat, birds nesting along riparian corridors, and riparian habitats and other non-vernal wetlands habitat

Total Disturbed Acres Anticipated: 1 acre

Habitat Types to be Disturbed: Natural (O/G - 0.77 acres; R – 0.23 acres) Habitat Land

Project Jurisdiction: San Joaquin County

Advisory Statements

After inspecting the project site, and project site conditions, the San Joaquin Council of Governments (SJCOG) provides the following *advisory statements* to the applicant. No further action is required with the SJCOG with respect to the following statements. SJCOG does not accept any liability for the accuracy of these statements since each regulatory agency discussed below must determine the extent of its own regulatory authority with respect to the proposed project.

It should be noted that two important federal and state agencies (U.S. Army Corps of Engineers and the California Regional Water Quality Control Board) and California Department of Fish and Wildlife Streambed Alteration requirements have not issued permits to the SJCOG and so payment of the fee to use the SJMSCP will not modify requirements (1600/1602) now imposed by these agencies. **If potential waters of the United States [pursuant to Section 404 Clean Water Act] may occur on the project site,** it therefore may be prudent to obtain a preliminary wetlands map from a qualified consultant. If waters of the United States are confirmed on the project site, the Corps and the Regional Water Quality Control Board (RWQCB) would have regulatory authority over those mapped areas [pursuant to Section 404 and 401 of the Clean Water Act respectively] and permits would likely be required from each of these resource agencies prior to impacting these features on the project site.

The ITMM is not deemed complete until finalized by SJOCG, Inc. staff and provided back to the project.

Conditions

Prior to ground disturbance:

1. Incidental Take Minimization Measures (ITMMs) will be issued to the project and must be signed by the project applicant prior to any ground disturbance but no later than six (6) months from receipt of the ITMMs. If ITMMs are not signed within six months, the applicant must reapply for SJMSCP Coverage. Upon receipt of signed ITMMs from project applicant, SJCOG, Inc. staff will sign the ITMMs. This is the effective date of the ITMMs.

2. Under no circumstance shall ground disturbance occur without compliance and satisfaction of the ITMMs.

3. Upon issuance of fully executed ITMMs and prior to any ground disturbance, the project applicant must:
   a. Post a bond for payment of the applicable SJMSCP fee covering the entirety of the project acreage being covered (the bond should be valid for no longer than a 6 month period); or
   b. Pay the appropriate SJMSCP fee for the entirety of the project acreage being covered; or
   c. Dedicate land in-lieu of fees, either as conservation easements or fee title; or
   d. Purchase approved mitigation bank credits.

4. Within 6 months from the effective date of the ITMMs or issuance of a building permit, whichever occurs first, the project applicant must:
   a. Pay the appropriate SJMSCP for the entirety of the project acreage being covered; or
   b. Dedicate land in-lieu of fees, either as conservation easements or fee title; or
   c. Purchase approved mitigation bank credits.

   Failure to satisfy the obligations of the mitigation fee shall subject the bond to be called.

Pay appropriate SJMSCP 2014 fees based on habitat categories and rates to **SJCOG, Inc.**:

- Natural Habitat – 1 acre x $13,295 per acre = **$13,295.00**

Total Fee due: $13,295.00

Note: If fees are not paid prior to January 1, 2015 this project will be subject to the subsequent fee change, and the fee above will no longer be applicable.

Project Proponent Must Initial Here As to Understanding the Note Above: _____

Prior to commencing ground disturbance:

5.2.4.11 Swainson's hawk

The Project Proponent has the option of retaining known or potential **Swainson's hawk** nest trees (i.e., trees that hawks are known to have nested in within the past three years or trees, such as large oaks, which the hawks prefer for nesting) or removing the nest trees.

If the Project Proponent elects to retain a nest tree, and in order to encourage tree retention, the following Incidental Take Minimization Measure shall be implemented during construction activities:

If a nest tree becomes occupied during construction activities, then all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest.

If the Project Proponent elects to remove a nest tree, then nest trees may be removed between September 1 and February 15, when the nests are unoccupied.

These Incidental Take Minimization Measures are consistent with the provisions of the **Migratory Bird Treaty Act as described in Section 5.2.3.1(G)**.

5.2.4.10 Pond Turtles

When nesting areas for pond turtles are identified on a project site, a buffer area of 300 feet shall be established between the nesting site (which may be immediately adjacent to wetlands or extend up to 400 feet away from wetland areas in uplands) and the wetland located near the nesting site. These buffers shall indicated by temporary fencing if construction has or will begin before nesting periods are ended (the period from egg laying to emergence of hatchlings is normally April to November).

5.2.4.16 Colonial Nesting Birds (Tricolored Blackbird, Black-Crowned Night Heron, Great Blue Heron)

Acquisition of colonial nesting sites for these species is a high priority of the SJMSCP. Project Proponents shall be informed of avoidance measures which eliminate compensation requirements for disturbance of colonial nesting areas in project design, as described in Section 5.5.9. If the Project Proponent rejects acquisition and avoidance, pursuant to Section 5.5.9, then the following Incidental Take Minimization Measure shall apply:

> A setback of 500 feet from colonial nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the **Migratory Bird Treaty Act as described in Section 5.2.3.1(G)**.

5.2.4.19 Birds Nesting Along Riparian Corridors (Cooper's Hawk, Yellow-Breasted Chat, Osprey, White-Tailed Kite)

> A. For white-tailed kites, preconstruction surveys shall investigate all potential nesting trees on the project site (e.g., especially tree tops 15-59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season (February 15 to September 15) whenever white-tailed kites are noted on site or within the vicinity of the project site during the nesting season.
>
> B. For the Cooper's hawk, yellow-breasted chat, osprey and white-tailed kite, a setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

These Incidental Take Minimization Measures are consistent with the provisions of the **Migratory Bird Treaty Act as described in Section 5.2.3.1(G)**.

5.2.4.31 Riparian Habitats and Other Non-Vernal Pool Wetlands

For the purposes of implementing Incidental Take Minimization Measures, riparian habitats and "other nonvernal pool wetlands" shall be considered to be those habitats mapped on the SJMSCP Vegetation Maps as D (drainage ditch), R (Great Valley riparian forest), R2 (Great Valley Valley oak riparian forest), R3 (Great Valley cottonwood riparian forest), R4 (Arroyo willow thicket), S (Great Valley riparian scrub), S2 (Elderberry savannah), W (River or deep water channel - greater than 200 feet wide), W2 (Tributary stream - 100 to 200 feet wide), W3 (Creek - 20 to 100 feet wide), W4 (dead-end slough), W9 (Canal - if not cement lined), I (channel island), I2 (tule island and mud flat), W5 (freshwater lake or pond), W7 (freshwater emergent wetland).

The compensation requirements of the SJMSCP shall be triggered when the project design disturbs portions of the project site located within 100 feet of the outer edge of the drip lines of riparian vegetation. For the purposes of accounting pursuant to the Annual Report (Section 5.9.1), Open Space Conversion acreage subject to the SJMSCP shall be calculated from the point at which a development extends into the 100 foot buffer to the centerline of the subject drainage (other than a river). For rivers, lakes, or ponds, Incidental Take shall be calculated from the edge of the 100 foot buffer zone to the edge of the riparian vegetation as it extends into the river, lake, or pond.

For projects affecting riparian habitats:

A. Require appropriate erosion control measures (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from project sites.

B. Retain emergent (rising out of water) and submergent (covered by water) vegetation.

C. Retain vegetation as practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC. Rapidly sprouting plants, such as willows, should be cut off at the ground line and root systems left intact, when removal is necessary.

D. Locate roadways and other facilities perpendicular, rather than adjacent, to waterways to reduce the total riparian area disturbed wherever practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

E. Locate bridge and road footings outside of high water zones and riparian habitats wherever practical within the constraints of the proposed development as determined by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

F. Provide construction buffers of at least 100 feet throughout the construction process. Construction buffers of 300 feet (on both sides of riparian corridors, for a total of 600 feet) are required when the red-legged frog or foothill yellow-legged frog occupy the project site. These 300' setbacks shall be measured horizontally from the top of the bank and shall extend the entire length of the stream (or other linear wetlands) within the boundaries of the project site. These setbacks may be reduced by the TAC with the concurrence of the Permitting Agencies' representative on the TAC if the reduction: 1) does not affect habitat (e.g., the stream becomes piped and travels underground) or 2) the reduction will not result in an adverse impact to the species or reduction in the biological values of the habitat. This buffer area should be marked with stakes, fencing or other materials which will be visible to construction workers, including heavy equipment operators.

These buffers may be reduced on a case-by-case basis by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

During project construction:

All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from the construction site.

In reliance on the Section 10(a)(l)(B) Permit issued by the United States Fish and Wildlife Service and the Section 208l(b) Incidental Take Permit issued by the California Department of Fish and Wildlife, San Joaquin County has consulted with and agreed to allow coverage pursuant to the SJMSCP for the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project*, its successors, agents and assigns pursuant to the "Implementation Agreement for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan" which will allow the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project*, its successors, agents and assigns to construct, operate and maintain the Project commonly known as the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project* and located on *Assessor Parcel Numbers 003-060-24* which could result in a legally permitted Incidental Take of the SJMSCP Covered Species in accordance with and subject to the terms and conditions of the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project* approved by San Joaquin County. This Certification applies only to activities on the subject parcel(s) which are carried out in full compliance with the approved plans for the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project*, Section 10(a)(l)(B) Permit, and Section 208l(b) Incidental Take Permit conditions.

I have read, acknowledge, and agree to the preceding conditions:

Joe Valente — 9/29/14

Project Proponent for the *North San Joaquin Water District (NSJWD) Tracy Lakes Recharge Project* — Date

Joe Valente, NSJWCD Board President

Please Print Name Here

FOR SJCOG, Inc. Use Only:

Laurel Boyd — 10/03/2014

SJCOG, Inc. Staff Signature — Official Date of Issuance

Laurel Boyd — 04/03/2014

SJCOG, Inc. Staff Print Name Here — Mitigation Due Date