Mendota Pool Bypass and Reach 2B Improvements Project

Final
Environmental Impact Statement/Report

State Clearinghouse No. 2009072044

Final
July 2016

The San Joaquin River Restoration Program is a comprehensive long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of Merced River and restore a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from Interim and Restoration flows.

Mission Statements

The mission of the Bureau of Reclamation is to manage, develop and protect water and related resources in an environmentally and economically sound manner in the interest of the American Public.

CALIFORNIA STATE LANDS COMMISSION

The California State Lands Commission provides the people of California with effective stewardship of the lands, waterways, and resources entrusted to its care through preservation, restoration, enhancement, responsible economic development, and the promotion of public access.

Table of Contents

Part VI – Appendices to the Responses to Comments

Tables

Figures

List of Abbreviations and Acronyms

Act	San Joaquin River Restoration Settlement Act
BA	biological assessment
CCID	Central California Irrigation District
CEQ	Council on Environmental Quality
CEQ Regulations	CEQ Regulations for Implementing NEPA
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
Corps	U.S. Army Corps of Engineers
CPT	cone penetrometer test
CSLC	California State Lands Commission
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CVHM	Central Valley Hydrologic Model
CVPIA	Central Valley Project Improvement Act
CWA	Federal Clean Water Act
Delta	Sacramento-San Joaquin Delta
DFW	California Department of Fish and Wildlife
DWR	California Department of Water Resources
ESA	Federal Endangered Species Act
EIR	Environmental Impact Report
EIS/R	Environmental Impact Statement/Environmental Impact Report
EPA	U.S. Environmental Protection Agency
Exchange Contract	Second Amended Contract for the Exchange of Waters
Exchange Contractors	San Joaquin River Exchange Contractors
Flood Control Manual	Operation and Maintenance Manual for Levee, Irrigation and Drainage Structures, Channels and Miscellaneous Facilities
Flood Control Project	Lower San Joaquin River Flood Control Project
FY	Fiscal Year
GFWD	Gravelly Ford Water District
GPS	global positioning system
Implementing Agencies	Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Water Resources, and California Department of Fish and Wildlife
IMPLAN	Impact Analysis for Planning
KRCD	Kings River Conservation District

KRWA	Kings River Water Association
LEDPA	least environmentally damaging practicable alternative
LiDAR	Light Detection and Ranging
LSJLD	Lower San Joaquin Levee District
MCR	master comment response
MMRP	Mitigation Monitoring and Reporting Program
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOD	Notice of Determination
NRDC	Natural Resources Defense Council
NULE	Non-Urban Levee Evaluation
O&M	operation and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
PEIS/R	Program Environmental Impact Statement/ Environmental Impact Report
Project	Mendota Pool Bypass and Reach 2B Improvements Project
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RM	River Mile
ROD	Record of Decision
RWA	Recovered Water Account
SCADA	supervisory control and data acquisition
Settlement	Stipulation of Settlement in NRDC, et al., v. Kirk Rodgers, et al.
Settling Parties	Natural Resources Defense Council, Friant Water Authority, and the U.S. Departments of the Interior and Commerce
SJRRP	San Joaquin River Restoration Program
SJRRPGW	San Joaquin River Restoration Program Groundwater Model
SJVAPCD	San Joaquin Valley Air Pollution Control District
State	State of California
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VERA	Voluntary Emission Reduction Agreement

I.Preface

The San Joaquin River Restoration Program (SJRRP) was established in late 2006 to implement the Stipulation of Settlement (Settlement) in *Natural Resources Defense Council (NRDC), et al., v. Kirk Rodgers, et al*. The Mendota Pool Bypass and Reach 2B Improvements Project (Project) is a component of Phase 1 of the overall SJRRP. The U.S. Department of the Interior, Bureau of Reclamation (Reclamation), as the Federal lead agency under the National Environmental Policy Act (NEPA), and the California State Lands Commission (CSLC), as the State of California (State) lead agency under the California Environmental Quality Act (CEQA), prepared this Environmental Impact Statement/Environmental Impact Report (EIS/R) for the Project. Federal authorization for implementing the Settlement is provided in the San Joaquin River Restoration Settlement Act (Act) (Public Law 111-11).

This Final EIS/R, which includes the entirety of the Draft EIS/R made available for public comment on June 9, 2015, has been prepared in accordance with the requirements of NEPA and CEQA to respond to comments received during the agency and public review period for the Draft EIS/R, and to present corrections, revisions, and other clarifications to the Draft EIS/R. Authority for combined Federal and State documents is provided in Title 40, Code of Federal Regulations (CFR), sections 1502.25, 1506.2, and 1506.4 (Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA (CEQ Regulations)), and in California Code of Regulations Title 14, Division 6, Chapter 3 (State CEQA Guidelines), section 15222 (Preparation of Joint Documents). This document also was prepared consistent with U.S. Department of the Interior regulations specified in 43 CFR, Part 46 (U.S. Department of the Interior Implementation of NEPA).

The Draft EIS/R evaluates potential direct, indirect, and cumulative impacts on the environment that could result from implementing the Project. In addition, the Draft EIS/R includes feasible mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant adverse impacts.

Where this document refers to the "Draft EIS/R," this reference pertains to the document released for public review in June 2015, described above. Where this document refers to the "Final EIS/R," this reference pertains to the chapters and appendices of this document, released in July 2016. References to the "EIS/R," without denoting Draft or Final, encompass the text presented in this document, as well as the text of the Draft EIS/R.

I.1 Organization of the Final EIS/R

The Final EIS/R, reproduced for convenience into one document, replaces the June 2015 Draft EIS/R. The Final EIS/R consists of the following elements:

- **Part I, Preface –** This section provides an overview of the Final EIS/R, describes the public review process for the Draft EIS/R, discusses NEPA and CEQA considerations for the Final EIS/R, and describes changes to the Preferred Alternative since release of the Draft EIS/R.
- **Part II, Response to Comments** – This section lists the persons, organizations, and public agencies commenting on the Draft EIS/R, presents six Master Comment Responses (MCR) that were prepared to address similar comments on specific issue areas in the Draft EIS/R, presents the comments and recommendations received by the lead agencies on the Draft EIS/R, including those provided at the three public hearings; and provides the individual responses from the lead agencies to the significant environmental points raised during the public review of the Draft EIS/R.
- **Part III, Final EIS/R (as amended)** – This section includes the entire text of the Draft EIS/R, as revised in response to the comments received or for reasons that include: to update information; to refine discussions and resolve minor inconsistencies; and to make formatting changes.
- **Part IV, Revisions to the Draft EIS/R** – This section is provided electronically, and includes the entire text of the Draft EIS/R, as revised, with deletions indicated by strikethrough text (~~deleted text~~), and new text indicated by underlined text (<u>new text</u>).
- **Part V, Appendices to the EIS/R** – This section includes the appendices to the Draft EIS/R, as revised by updated analysis, where applicable.
- **Part VI, Appendices to the Response to Comments** – This section includes the appendices to Response to Comments section of the EIS/R. These appendices include the analysis performed by the SJRRP to assess the need for the Mendota Pool Fish Screen; the letter correspondence between Reclamation and the San Joaquin River Exchange Contractors Water Authority (Exchange Contractors) on this subject; and information that will facilitate the U.S. Army Corps of Engineers' (Corps') decision on the least environmentally damaging practicable alternative (LEDPA).

I.2 Public Review Process

The Draft EIS/R was provided for public review to solicit comments and suggestions on how best to implement the Project from agencies, organizations, and members of the public. The public comment period for the Draft EIS/R began on June 9, 2015, and ended on August 10, 2015.

On June 9, 2015, a Notice of Availability was published in the Federal Register, and the Draft EIS/R and a Notice of Completion were provided to the State Clearinghouse for distribution to interested State agencies. A Notice of Availability was also filed in Fresno and Madera counties.

The Draft EIS/R was made available online at the SJRRP website (www.restoresjr.net), Reclamation's website (http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=4032), and at the CSLC's website (www.slc.ca.gov). Hard copies of the Draft EIS/R were distributed to libraries in Fresno, Merced, and Sacramento counties, and in Washington, DC. Approximately 250 copies on compact disc and 20 hard copies of the Draft EIS/R were distributed to interested parties.

Three public hearings were held to receive verbal and written comments on the Draft EIS/R. The hearings were held as follows:

- Wednesday, July 8, 2015, in Fresno, California
- Thursday, July 9, 2015, in Los Banos, California
- Friday, July 10, 2015, in Sacramento, California

Newspaper advertisements providing information on the availability of the Draft EIS/R, as well as the dates and locations of the public hearings, were published in the following newspapers on the dates listed:

- Fresno Bee (June 9, 2015)
- Los Banos Enterprise (June 12, 2015)
- Merced Sun-Star (June 9, 2015)
- Vida en el Valle (Spanish language newspaper) (June 10, 2015)
- Visalia Times-Delta (June 9, 2015)
- Firebaugh-Mendota Journal (June 10, 2015)

Reclamation issued a press release on June 9, 2015, notifying the public and news media of the availability of the Draft EIS/R and the intent to hold public hearings. Public hearing information was also posted on the SJRRP and CSLC websites.

An e-mail was sent to the SJRRP e-mail distribution list and the document was sent to all of those that participated in the public meeting process.

The lead agencies received comments on the Draft EIS/R by mail and e-mail, and through written and verbal comments provided at the public hearings. Fourteen comment letters, containing 288 individual comments, were received on the Draft EIS/R. Comments were received from Federal, State, and local governments, private organizations, and members of the public. These comments were considered in preparation of this Final EIS/R.

I.3 NEPA and CEQA Considerations

CEQA section 21091, subdivision (d) and State CEQA Guidelines section 15088 require that the lead agency under CEQA evaluate comments received during the noticed

comment period and prepare a written response for each comment relating to any significant environmental issues raised regarding the Draft EIS/R. Written responses are to describe the disposition of any significant environmental issues raised (*e.g.*, revisions to the proposed project to mitigate anticipated impacts or objections) and provide a good faith, reasoned analysis in response. The range of responses includes clarifying the analysis in the Draft EIS/R, making factual corrections, explaining why certain comments do not warrant further response, or acknowledging the comment for consideration by the decision-making bodies. Comments that present opinions or raise issues about the Program unrelated either to environmental issues or to the substance of the Draft EIS/R are also addressed although it is noted that these issues are outside of the scope of the EIS/R.

No comments were received on the Draft EIS/R that resulted in an adverse change in significance level of impacts disclosed in the Draft EIS/R. No comments were received on the Draft EIS/R that resulted in any new impacts, required new mitigation, required consideration of new alternatives, or resulted in any other substantial changes to the Draft EIS/R. Changes made to the Draft EIS/R in response to comments are limited to minor corrections of errors and omissions, and clarifying edits based on the most current Project design. Recirculation of the EIS/R is not required when new information added to the Draft EIS/R merely clarifies or amplifies, or makes insignificant modifications to an adequate Environmental Impact Report (EIR) (State CEQA Guidelines, § 15088.5). This Final EIS/R meets both CEQA and NEPA requirements for responding to comments.

NEPA and CEQA require lead agencies to evaluate comments on environmental issues received from persons who reviewed the Draft EIS/R and to prepare written responses to comments received within the public comment period. When there has been significant public comment, NEPA and CEQA allow the lead agency to summarize or consolidate responses to similar comments, as long as all substantive issues are represented. Chapter 2.0, "Comments and Responses," contains MCRs that address numerous similar comments received on specific topics in the Draft EIS/R and individual responses to comments. MCRs supplement the related individual responses to comments.

I.3.1 Future NEPA/CEQA Actions

Not less than 30 days after release of the Notice of Availability for this Final EIS/R (40 CFR 1506.10), Reclamation will consider the proposed action and issue its Record of Decision (ROD). Not less than 15 days after providing copies of this Final EIS/R to all commenting public agencies (Cal. Code Regs., tit. 2, § 2906), the CSLC will consider certification of the EIR. If the CSLC certifies the EIR, it will consider issuance of a lease to Reclamation for the proposed project at the same meeting or within 90 days of certification. In order to approve the lease, the CSLC must make written findings for each significant environmental effect of the Project, accompanied by a brief explanation of the rationale for each finding (State CEQA Guidelines, § 15091); make a Statement of Overriding Considerations (State CEQA Guidelines, § 15093) for any significant effects that cannot be avoided or substantially lessened; adopt a Mitigation Monitoring and Reporting Program (MMRP) (State CEQA Guidelines, § 15097); file a Notice of Determination (NOD) (State CEQA Guidelines, § 150940); and comply with other CEQA requirements for certifying an EIR and approving the Project.

I.4 Changes between the Draft and Final EIS/R

There have been several changes between the Draft and Final EIS/R including updates to the description of the preferred alternative based on the 30 percent design of the Compact Bypass, updates to Project conservation measures, updates to the air quality analysis, and updates to various resource chapters to reflect more recent agricultural activities in the Project area. The changes in the Final EIS/R do not result in changes to the Project that cause new significant environmental impacts, substantial increase in the severity of environmental impacts, or a new alternative different from others previously analyzed.

I.4.1 Preferred Alternative

The description of the Project alternatives is updated in Chapter 2 of the Final EIS/R based on the 30 percent design for the Compact Bypass. The location and shape of the Compact Bypass channel and structures (*e.g.*, Compact Bypass Control Structure, the Mendota Pool Control Structure, the grade control structures, and the Columbia Canal Siphon) were modified to reflect changes based on the 30 percent design. The alignment and slope of the bypass channel and the elevation of the control structures are further described. The Final EIS/R includes a more detailed description of these features than was presented in the Draft EIS/R because additional design information is now available.

As described in Section 2.2.6 of the Draft EIS/R, released for public comment on June 9, 2015, construction and operation of the Mendota Pool Fish Screen is described as being included in Alternative B, the preferred alternative, "if needed" or "if necessary." Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal as planning and design efforts continued. As part of these efforts, Reclamation completed an analysis in 2016 of the potential for entrainment of special-status fish species at Mendota Pool over the life of the Project (Part VI – Appendices to the Responses). Based on this detailed technical analysis, the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. Therefore, occurrences of "if needed" or "as necessary" in reference to the Mendota Pool Fish Screen have been deleted in the Final EIS/R. A final decision on the selected alternative for the Project will be made in the ROD/NOD, following public review of the Final EIS/R. The purpose of deleting the references to "if needed" and "as necessary" in relation to the Mendota Pool Fish Screen in the Final EIS/R is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project, which will be fully described in the ROD/NOD. This clarification of text does not constitute a substantive change to the Project description or result in any new information or change to the impact analysis in the EIS/R.

Similar to the description of the Compact Bypass channel and structures, more details regarding restoration plantings were included in the 30 percent design. These details, including tables and descriptions of plant species, planting density, and planting methods, are included in the Final EIS/R.

In addition, utility relocation information is also updated to provide specific plans for relocations, where known. Descriptions in the Final EIS/R are expanded to reflect these plans.

These expansions and clarifications of text do not constitute substantive changes to the project description or result in any new information or change to the impact analysis in the EIS/R.

I.4.2 Conservation Measures

Some conservation measures are removed or modified in the Final EIS/R, including measures for valley elderberry longhorn beetle, eagles, green sturgeon, and Chinook salmon.

U.S. Fish and Wildlife Service (USFWS) recently published range information for the valley elderberry longhorn beetle that excludes the Project location (USFWS 2015). The species' range currently mapped by USFWS includes portions of the Sacramento and San Joaquin valleys but terminates northwest of Firebaugh, approximately 9 miles northwest of the Project area, and valley elderberry longhorn beetle is no longer expected to occur in the Project area. Therefore, Conservation Measure VELB-1 is modified in the Final EIS/R, and Conservation Measure VELB-2, which provided compensation for impacts to valley elderberry longhorn beetle, is removed since no significant impacts to the valley elderberry longhorn beetle are anticipated that would require implementation of the measure.

The conservation measure for eagles, EAGLE-1, is removed in the Final EIS/R because it is intended to protect nesting eagles, and eagles are not expected to nest in the Project area. Bald eagles are generally not expected to occur in the Project area at any time of year. They were not identified as a species with potential to occur in the Project area in the Draft EIS/R, in part based on a lack of nearby occurrence records in the California Natural Diversity Database (CNDDB) and a lack of observations from the nearby Mendota Wildlife Area. Literary sources generally agree that this species does not breed on the valley floor in the southern San Joaquin Valley, and the nearest reported occurrence located was as an uncommon winter visitor at San Luis National Wildlife Refuge Complex (U.S. Geological Survey [USGS] 2016). Potential for occurrence of golden eagles in the Project area was evaluated by the SJRRP as low, with potential for occasional use for foraging or wintering, but not for nesting (SJRRP 2011b); golden eagles are not known to nest in the low elevation portions of the San Joaquin Valley. Because eagles are not expected to nest in the Project area, and since the Project includes other conservation measures to protect nesting raptors (RAPTOR-1 and RAPTOR-2), Conservation Measure EAGLE-1 was removed since no significant impacts to nesting eagles are anticipated that would require implementation of the measure.

Conservation measures for green sturgeon (GS-1) and Central Valley Spring-run Chinook salmon (SRCS-1) are also removed in the Final EIS/R. These measures addressed the potential for impacts from recapture and recirculation in the lower San Joaquin River and Delta as analyzed and disclosed in the SJRRP Program Environmental Impact Statement/ Environmental Impact Report (PEIS/R). The lower San Joaquin River and Delta areas do

not overlap with the Project area. Because these measures were not directly relevant to this Project area, they are removed from the Final EIS/R.

Conservation measures for tricolored blackbird (TRI-1) and cliff swallows (SWA-1) are added to the Final EIS/R. Conservation of these species were previously addressed as part of Other Birds Protected by the Migratory Bird Treaty Act (MBTA-1), but these species are colonial nesters and are known to occur at the site, therefore, these species now have more specific conservation measures.

Conservation measure for least Bell's vireo (RNB-2) was removed in the Final EIS/R because two years of protocol level surveys have been conducted, and the species is not known to occur at the site, so no impacts are expected. As indicated in RNB-1, if the species is detected Reclamation will reinitiate consultation with USFWS and incorporate compensatory mitigation.

The text of other conservation measures was tailored to be more specific to the Project and to provide additional flexibility during implementation while continuing to avoid and minimize impacts.

These modifications, additions, and removals of conservation measures do not constitute substantive changes to the project description or result in any new information or change to the impact analysis in the EIS/R.

I.4.3 Air Quality

Air quality impacts for the Project were reanalyzed based on revised guidance from the San Joaquin Valley Air Pollution Control District (SJVAPCD) in comments received on the Draft EIS/R, and the results of this analysis are updated in the Final EIS/R. Project construction emissions were estimated for off-road construction equipment and material hauling vehicles which are diesel fueled. The assumptions made for off-site hauling distances were revised based on comments received on the Draft EIS/R. The exposure assessment and health risk assessment was conducted for sensitive receptors in the Project area. Similar to the Draft EIS/R, sensitive receptors were found to have a significant increase in cancer risk for both a resident child and school child exposure scenarios. The same mitigation measures described in the Draft EIS/R will still be implemented to reduce diesel particulate matter emissions from construction equipment and material hauling vehicles. These mitigation measures reduce this potential significant impact to less than significant levels. The significant criterion was based on revised guidance from the SJVAPCD. These changes are reflected in Chapter 4 and Appendix 4 of the Final EIS/R.

These modifications and clarifications of text do not constitute substantive changes to the project description or result in any new information or change to the impact analysis in the EIS/R.

I.4.4 Agricultural Activities

More recent agricultural activities in the Project area are reflected in the Final EIS/R. Additional lands previously planted in row crops or alfalfa have been planted in almonds.

Also, some land that was previously open space has been planted in almonds. This change is reflected in Chapter 16 of the Final EIS/R. Because this land use has changed, there is a corresponding change in wildlife habitat. This change is reflected in Chapters 6, 7, and 15 of the Final EIS/R. In addition, because of this land use change, there is a corresponding change in agricultural production values and economic output. This change is reflected in Chapter 21 of the Final EIS/R.

These modifications and clarifications of text do not constitute substantive changes to the project description or result in any new information or change to the impact analysis in the EIS/R.

I.4.5 Other Changes

Various minor modifications have been made to the text, tables, and figures of the Draft EIS/R, as set forth in Chapters 1 through 27 of the Final EIS/R. These minor changes include corrections to typographical errors, minor adjustments to the data, and additions of or minor changes to certain phrases to improve readability.

These modifications and clarifications of text do not constitute substantive changes to the project description or result in any new information or change to the impact analysis in the EIS/R.

II.Response to Comments

The San Joaquin River Restoration Program (SJRRP) was established in late 2006 to implement the Stipulation of Settlement (Settlement) in *Natural Resources Defense Council (NRDC), et al., v. Kirk Rodgers, et al*. The Mendota Pool Bypass and Reach 2B Improvements Project (Project) is a component of Phase 1 of the overall SJRRP. The U.S. Department of the Interior, Bureau of Reclamation (Reclamation), as the Federal lead agency under the National Environmental Policy Act (NEPA), and the California State Lands Commission (CSLC), as the State of California (State) lead agency under the California Environmental Quality Act (CEQA), prepared this Environmental Impact Statement/Environmental Impact Report (EIS/R) for the Project. Federal authorization for implementing the Settlement is provided in the San Joaquin River Restoration Settlement Act (Act) (Public Law 111-11). This Final EIS/R has been prepared in accordance with the requirements of NEPA and CEQA to respond to comments received during the agency and public review period for the Draft EIS/R, and to present corrections, revisions, and other clarifications to the Draft EIS/R.

Part II of this Final EIS/R contains copies of the comment letters and oral comments (excerpts of the transcripts of the public meetings) and the responses to those comments.

II.1 Comments Received on the Draft EIS/R

A total of 14 letters with 288 comments were received on the Project EIS/R, including written comments from the public hearing process. Verbal comments were also provided during the public hearing process.

Each comment in the comment letters, and each of the verbal comments from the hearings, is assigned a number, in sequential order (note that some letters may have more than one comment). The numbers are then combined with an abbreviation for affiliation type as well as an abbreviation for each commenting entity. Responses to the comments follow the comment letter, and are also coded to correspond to the comment codes assigned in the letter. Table II-1 lists all agencies, organizations, and individuals who submitted comments on the Draft EIS/R and who commented on the document during the three public hearings. Names of commenters are alphabetized within respective categories. Table II-1 also includes the abbreviated codes assigned to each letter for ease of reference.

The comments and responses have not changed the analysis or conclusions of the Draft EIS/R. In all cases, the comments and responses have not resulted in changes to the Project that would generate new significant adverse environmental impacts, nor a substantial increase in the severity of an environmental impact.

Table II-1
List of Commenters on the Draft Environmental Impact Statement/Report

Name	Code
Federal Agencies	**F**
U.S. Environmental Protection Agency (EPA)	F-EPA
State Agencies	**S**
California Department of Conservation (DOC), Division of Land Resource Protection	S-DOC
California Department of Fish and Wildlife (DFW)	S-DFW
Local Agencies	**L**
City of Mendota	L-Mendota
Gravelly Ford Water District (GFWD)	L-GFWD
Kings River Conservation District (KRCD) and Kings River Water Association (KRWA)	L-KRCD KRWA
Lower San Joaquin Levee District (LSJLD)	L-LSJLD
Linneman Law (on behalf of LSJLD)	L-LSJLD(2)
San Joaquin Valley Air Pollution Control District (SJVAPCD)	L-SJVAPCD
Organization/Business	**O**
Duane Morris LLP (on behalf of the Exchange Contractors)	O-EC
Mitigation Lands Trust	O-MLT
Wonderful Orchards	O-WO
Individuals	**I**
Fox, Dennis	I-Fox
Iger, Rick	I-Iger
Fresno, California Public Hearing – July 8, 2015	**P**
Haugen, Steven	P-Haugen
Houk, Randy	P-Houk
Los Banos, California Public Hearing – July 9, 2015	**P**
Cardella, Chris	P-Cardella
Hernandez, Francisca	P-Hernandez
Houk, Randy	P-Houk(2)

II.2 Master Comment Responses

Master Comment Responses (MCRs) address the most frequently raised comments and provide a comprehensive response to multiple aspects of the issue. Issues are addressed in an organized manner in one location in order to reduce repetition of responses. When an individual comment raises an issue discussed in a MCR, the response to the individual comment includes a cross-reference to the appropriate MCR. The following subsections provide the MCRs developed based on the comments received on the Draft EIS/R.

There are six MCRs, as follows:

- MCR-1: Mendota Pool Fish Screen
- MCR-2: Seepage Management
- MCR-3: Subsidence
- MCR-4: Project Design and Operations
- MCR-5: Project Funding
- MCR-6: Flood Management Considerations and Operations & Maintenance (O&M) Costs

II.2.1 MCR-1: Mendota Pool Fish Screen

Several commenters expressed concern about the lack of the Mendota Pool Fish Screen in Alternative B (the preferred alternative). This issue is addressed below.

As described in Section 2.2.6 of the Draft EIS/R, construction and operation of the Mendota Pool Fish Screen is described as being included in Alternative B, the preferred alternative, "if needed" or "if necessary." Reclamation and the CSLC analyzed and disclosed the potential impacts of constructing and operating the Mendota Pool Fish Screen in the Draft EIS/R to allow the flexibility to construct and operate the feature, should the agencies determine it is needed as part of the overall Project in support of the Restoration Goal, as planning and design efforts continued. As part of these efforts, Reclamation completed an analysis in 2016 of the potential for entrainment of special-status fish species at Mendota Pool over the life of the Project (provided in Part VI – Appendices to the Responses). Based on this detailed technical analysis performed by Reclamation, the SJRRP has determined that it is appropriate to include construction and operation of the Mendota Pool Fish Screen in the preferred alternative. Therefore, occurrences of "if needed" or "as necessary" in reference to the Mendota Pool Fish Screen have been deleted in the Final EIS/R. The purpose of this change is to disclose the increased likelihood that the SJRRP could include this feature in the selected alternative for the Project. A final decision on the selected alternative for the Project will be made in the Record of Decision (ROD)/Notice of Determination (NOD), following public review of the Final EIS/R. This clarification of text does not constitute a substantive change to the Project description or result in any new information or substantive changes to the impact analysis in the EIS/R.

Entrainment Analysis

Reclamation has completed an extensive analysis, based on the best available information, of the potential loss of fish to the Mendota Pool at the Mendota Pool Bypass (Part VI – Appendices to the Responses). This information is critical, as the whole purpose of the Mendota Pool Bypass is to reduce fish entrainment in the Mendota Pool to better meet the Restoration Goal. The SJRRP does not want to lose so many fish in the Mendota Pool such that it compromises the Program's ability to meet the Restoration Goal to "restore and maintain fish populations in "good condition" in the main stem San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish."

There are two primary scenarios where water from the San Joaquin River would flow into Mendota Pool after construction of the Mendota Pool Bypass and associated bifurcation structure. One is when flood flows are released from Friant Dam, either to improve the storage potential of Millerton Lake to retain floods or when the reservoir is spilling water. Under this condition, flood flows are diverted into Mendota Pool to be used by the San Joaquin River Exchange Contractors (Exchange Contractors). The second scenario occurs when water is released from Friant Dam with the express purpose of supplying water to the Exchange Contractors in fulfillment of the Second Amended Contract for the Exchange of Waters (Exchange Contract). The entrainment analysis summarized in Part VI – Appendices to the Responses considered both flood deliveries and calls on Friant to

satisfy the Exchange Contract, and includes a higher frequency of calls on Friant than has historically occurred through 2015.

The entrainment analysis considers historical San Joaquin River flows, Mendota Pool demand, the timing of fish emigration, and the need for water deliveries to the Mendota Pool. The analysis assumes that juvenile fish swim along with flows, and therefore split in proportion to flows at junctions. The analysis also assumes improvements to channel capacity facilitated by seepage mitigation, setback levees, the Mendota Pool Bypass, and associated structures. Friant Dam, Chowchilla Bypass, and Mendota Pool operations follow similar logic as they do at present or as required in the Lower San Joaquin River Flood Control Project (Flood Control Project) manuals (Reclamation Board 1969a, 1969b).

Reclamation has determined that the number of juvenile fall-run and spring-run Chinook salmon that would be lost to Mendota Pool without a fish screen is not within the range that is acceptable to the SJRRP. The number of juveniles expected to be entrained in Mendota Pool is small (on average approximately 6 to 7 percent of the annual population) when considered over a variety of water year types, but could include multiple years in a row with more than 20 percent of the annual population of juveniles entrained in Mendota Pool. The greatest entrainment is expected to occur during flood releases in February and March. Calls on Friant to satisfy the Exchange Contract in late spring and early summer months would have minimal impact to juvenile fall-run and spring-run Chinook salmon because the fish are expected to emigrate out of the area prior to mid-May. The effect on annual fish population entrainment due to May and June calls on Friant is very small. In one out of every 20 years, less than 2 percent of the annual fish population would be entrained by these deliveries to Mendota Pool (SJRRP 2016b).

Spring-run Chinook Salmon in the Restoration Area

Several commenters are concerned about the potential liability associated with harming reintroduced spring-run Chinook salmon in the Restoration Area, and the legal protections from incidental and accidental take of spring-run Chinook salmon during otherwise lawful activities, if one were to enter Mendota Pool or the Kings River watershed.

Section 10011(b) of the Settlement Act requires that spring-run Chinook salmon be reintroduced under the SJRRP as an experimental population under Section 10(j) of the Federal Endangered Species Act of 1973 (ESA). Section 10011(c)(2) of the Settlement Act requires the Secretary of Commerce to issue a rule pursuant to Section 4(d) of the ESA that governs the incidental take of reintroduced spring-run Chinook salmon.

Under Section 10(j) of the ESA, the Secretary of Commerce can authorize the release of an experimental population (e.g., spring-run Chinook salmon) outside a species' current range, but within its historical range, when (1) the experimental population is geographically separate from the nonexperimental population, and (2) the designation will further conservation of the listed species. A population designated as experimental is treated as threatened regardless of the species' designation elsewhere in its range. Section 4(d) of the ESA allows the National Marine Fisheries Service (NMFS) to adopt

regulations necessary to provide for conservation of a threatened species. This provides flexibility for NMFS to customize prohibitions and regulate activities to conserve threatened species, potentially without involving many or all restrictions that apply to endangered species. Exact requirements depend on the species' biology and conservation needs, and threats being managed. Under the 4(d) rule, NMFS can create a set of protective regulations specific to the experimental population and can elect to allow take for the experimental population if the take is incidental to a lawful activity, such as agricultural activities, and is unintentional or not due to negligent conduct. The term "take" is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, trap, capture, or collect, or attempt to engage in any such conduct."

Under Fish and Game Code section 2080.4, if a population of spring-run Chinook salmon in the San Joaquin River is designated as an experimental population under Section 10(j) of the ESA, no further authorization or approval is necessary under the California Endangered Species Act (CESA) for any person to incidentally take members of that experimental population if specific requirements published in the Federal Register are met. Additionally, California Department of Fish and Wildlife (DFW) may permit take of endangered, threatened, or candidate species, including spring-run Chinook salmon, if specific requirements are met, including that the take is incidental to otherwise lawful activities, and the impacts of the take comply with Fish and Game Code section 2081.

NMFS has issued its final rule package, in compliance with Section 10011 of the Settlement Act, in 50 Code of Federal Regulations (CFR) Part 223 on December 31, 2013. DFW concurred with NMFS' rule on March 17, 2014. This rule package provides an exemption for the Exchange Contractors and others from incidental and accidental take of spring-run Chinook salmon under the ESA and CESA for otherwise lawful activities.

Other Special-Status Species in Mendota Pool

Water districts and landowners in the Restoration Area have expressed concerns regarding potential enforcement actions under the ESA as a result of unscreened diversions causing federally-listed fish (other than spring-run Chinook salmon) to be present in the Mendota Pool. This issue was analyzed in detail in Appendix D of the Revised Framework (SJRRP 2015).

In summary, while the SJRRP will provide fish passage for many native species, only a few species are listed under the Federal ESA or are candidates for listing under the Federal or State ESA, including Central Valley spring-run Chinook salmon, Central Valley steelhead, green sturgeon, pacific lamprey, and Kern Brook lamprey. There is nothing in the Settlement or the Settlement Act that requires the SJRRP to protect the Exchange Contractors and others from take of an ESA-listed fish species other than reintroduced spring-run Chinook salmon.

As discussed above, Section 10011(b) of the Settlement Act requires that spring-run Chinook salmon be reintroduced under the SJRRP as an experimental population under ESA section 10(j). Section 10011(c)(2) requires the Secretary of Commerce to issue a rule pursuant to ESA section 4(d) that governs the incidental take of reintroduced spring-

run Chinook salmon. NMFS issued its final rule package, in compliance with Section 10011, in 50 CFR Part 223 on December 31, 2013. DFW concurred with NMFS' rule on March 17, 2014. This rule package provides an exemption for the Exchange Contractors and others from incidental and accidental take of spring-run Chinook salmon under the ESA and CESA for otherwise lawful activities.

If the Settlement had been implemented on the schedule originally envisioned, there would have been the potential for take of an ESA-listed fish species (other than spring-run Chinook salmon) by the Exchange Contractors during the Interim Flow period or for the approximately 4 years from October 2009 to December 2013, when all of the Paragraph 11(a) projects were scheduled to be completed. Although the schedule has changed from what was originally envisioned in the Settlement, with the revised schedule for the Paragraph 11(a) projects, as described in the Revised Framework, the amount of time that the Exchange Contractors may be at risk of take of an ESA-listed fish species is reduced.

The SJRRP is implementing the Steelhead Monitoring Plan as one of the commitments in the Program's ROD and in Reclamation's water right order related to the SJRRP. This effort is currently funded through Fiscal Year (FY) 2020 in the Revised Framework. After FY 2020, the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project is expected to be in construction. Reclamation has committed to continuing to implement the Steelhead Monitoring Plan during the construction period which is expected to be through FY 2022 based on the project construction period identified in the Revised Framework. (Note, during the construction of the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project, the Steelhead Monitoring Plan will be funded under the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project line in the Revised Framework as it is required mitigation for the project.) As any steelhead trapped as part of this effort would be moved to below the Merced River confluence, no steelhead are expected in the area of Reaches 2B and 3 until after October 2022. After October 2022, it is expected that the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project would be constructed and operational and the Mendota Pool Bypass would be constructed and operational. With implementation of the Steelhead Monitoring Plan, the Exchange Contractors potential for take of a steelhead would be reduced from four years if the Settlement had been implemented on the schedule originally envisioned to zero years under the revised schedule of the Paragraph 11(a) projects in the Revised Framework.

The Mendota Pool Fish Screen is not currently included in the Revised Framework, but the Framework will be updated in the future, and it is anticipated that the Mendota Pool Fish Screen would be completed after 2020. Therefore, the Exchange Contractors would continue to have the potential to take steelhead in the Mendota Pool during flood flow conditions, similar to what occurred without the SJRRP, until the screen is built. Take of steelhead would also occur in the infrequent situation of Reclamation supplying water to satisfy the Exchange Contract via the San Joaquin River at Friant Dam; however, it is likely that releases from the San Joaquin River at Friant Dam to satisfy the Exchange Contract would be made during the summer, when Restoration Flows are low. The adult migration period for steelhead ends in March, far before potential releases to satisfy the

Exchange Contract. Juvenile steelhead could be in Reaches 2B and 3 during the summer if temperatures are suitable.

Green sturgeon are a non-jumping fish species. Currently the Eastside Bypass Control Structure, Dan McNamara Road, and the Merced National Wildlife Refuge weirs prevent sturgeon access upstream. The Revised Framework anticipates the SJRRP Implementing Agencies (Reclamation, U.S. Fish and Wildlife Service (USFWS), NMFS, DWR, and DFW) providing fish passage at these structures by the end of FY 2020, with construction underway in FY 2019 for the last structure. Fish passage solutions would be designed and constructed to provide passage for sturgeon in the Wet and Normal Wet water year types. If nothing is done by FY 2020 to prevent sturgeon passage upstream, sturgeon could make it to Reaches 2B and 3 in wetter water year types. This would result in two years of potential take of sturgeon by the Exchange Contractors in Reach 3 until the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project is scheduled to be completed in FY 2022. This is two years less than what would have occurred had the Settlement been implemented on the original schedule.

The Mendota Pool Bypass is scheduled to be completed in FY 2020, at the same time as sturgeon would start to have passage into Reaches 2B and 3 in wetter water year types. As noted above, the Mendota Pool Fish Screen is not currently included in the Revised Framework, but would likely be completed after 2020. Therefore, the Exchange Contractors would continue to have the potential to take sturgeon in the Mendota Pool during flood flow conditions, similar to what occurred without the SJRRP, until the screen is built. Take of sturgeon would also occur in the infrequent situation of Reclamation supplying water to satisfy the Exchange Contract via the San Joaquin River at Friant Dam; however, it is likely that releases from the San Joaquin River at Friant Dam to satisfy the Exchange Contract would be made during the summer, when minimal Restoration Flows are in the San Joaquin River and temperatures downstream of Reach 2 would likely be a barrier to upstream or downstream sturgeon migration. The upstream (adult) sturgeon migration window ends in July.

In FY 2019 or 2020, San Luis Canal Company can install slots in the two remaining Sack Dam gate bays that do not have slots and put stop logs in the end of all four gate bays on Sack Dam. This would prevent sturgeon passage until the new Arroyo Canal Fish Screen and Sack Dam Fish Passage Project is complete in FY 2022. Section 7 consultation, if there is a federal nexus, or a 4(d) water diversion screening rule could be initiated with NMFS on the permanent Arroyo Canal Fish Screen and Sack Dam Fish Passage Project to provide ESA compliance for the installation and operations of the stop logs.

At the Arroyo Canal and Mendota Pool, the SJRRP's Paragraph 11(a) projects, when complete, would provide a benefit to the Exchange Contractors by screening their facilities at the Arroyo Canal and Mendota Pool, reducing or eliminating the potential for take of an ESA-listed fish species from the Restoration Flows, Exchange Contract deliveries, and from flood flows.

II.2.2 MCR-2: Seepage Management

Several commenters were concerned about how seepage management would be addressed in the Project area and in downstream reaches, and some commenters indicated that the seepage control measures were not adequately addressed in the Draft EIS/R. These issues are addressed below.

SJRRP Actions

Reclamation's seepage management program has two approaches (SJRRP 2014a). The first is to hold flows at levels that avoid groundwater seepage impacts. Reclamation does this through an extensive groundwater monitoring network, groundwater level thresholds set in each well, and flow operations which keep river flows at levels such that groundwater levels do not rise above thresholds. The second approach is to implement physical or non-physical seepage projects, so that Reclamation can increase flows in the San Joaquin River as required in the Settlement and Public Law 111-11 without causing material adverse groundwater seepage impacts.

Reclamation has held 19 Seepage and Conveyance Technical Feedback Group meetings since 2010 to write the Seepage Management Plan and Seepage Project Handbook in conjunction with landowners, water users, and growers. All of the information from these meetings is available on the Seepage and Conveyance Technical Feedback Group page of the SJRRP website, http://www.restoresjr.net/get-involved/technical-feedback-meetings/seepage-and-conveyance/. Much valuable input has been received from water users and growers that have substantially improved the Seepage Management Plan. Reclamation performed a peer review of the Seepage Management Plan in 2012 (Gurdak et al. 2012), with peer reviewers selected from those recommended by water districts, landowners, growers, environmental groups, and agencies.

Reclamation uses more than 220 monitoring wells to document seepage-related effects from Interim and Restoration flows, to improve simulation models used to help anticipate and respond to these effects, and to establish and monitor thresholds for avoiding seepage-related impacts. The SJRRP monitoring program includes:

- Well transects spaced at roughly every 8 to 10 miles, with four to six shallow monitoring wells (representative of the shallow aquifer), a staff gage measuring river stage, and one or two deeper monitoring wells (potentially representative of the underlying semi-confined or confined aquifer) at each transect.
- Additional shallow wells located in areas with shallow groundwater potentially affected by seepage. Many of these wells are monitored in collaboration with local landowners and the Central California Irrigation District (CCID).
- Soil sampling and soil salinity surveys using electromagnetic methodology, conducted in collaboration with local landowners; and
- Reporting from local landowners on visual crop health, levee seeps, and other observations.

Reclamation is currently monitoring more than 220 groundwater monitoring wells and piezometers, with over 200 installed by the SJRRP. Off-river monitoring wells are

installed in areas adjacent to the river where the water table is typically within 10 feet of the land surface and where approved by landowner/stakeholder agreements. Water levels at these wells are recorded manually, on approximately a monthly or weekly schedule. Approximately half of the wells record hourly measurements. The SJRRP makes manual groundwater level measurements in a subset of CCID wells and some also have hourly recording pressure transducers. Weekly measurements from "priority" wells are reported in a Weekly Groundwater Report posted to the SJRRP website. Seven wells are telemetered and available on a real-time hourly basis on the SJRRP website (http://www.restoresjr.net/monitoring-data/groundwater-monitoring/). The SJRRP has identified groundwater thresholds for each well, based on crop type and soil texture, or based on historical groundwater level prior to the SJRRP. These thresholds identify the transition where seepage effects cross into a soil depth that may cause damages.

In addition to groundwater monitoring, the U.S. Geological Survey (USGS) has developed a groundwater model based on the Central Valley Hydrologic Model specifically for the SJRRP (Traum et al. 2014). This model, whose results are summarized in the Seepage Management Plan (SJRRP 2014a), is used to identify areas of groundwater seepage concern, evaluate physical seepage projects, and confirm regional groundwater trends.

Reclamation holds flows in the San Joaquin River at levels that avoid groundwater levels rising over thresholds as a result of Restoration Flows. Reclamation performs flow bench evaluations based on the latest weekly groundwater measurements before any increase in flows, to verify that the increase will not cause groundwater levels to rise above thresholds. If groundwater levels are projected to rise above thresholds, Reclamation limits or reduces the flow release (SJRRP 2014a, Appendix J).

Reclamation also performs daily seepage evaluations when flows are above 475 cubic feet per second (cfs) in the lower reaches. If groundwater levels rise near thresholds, Reclamation performs a site visit as soon as possible (average response time is 2 days) to verify that the groundwater increase is caused by Restoration Flows. Then Reclamation reduces Restoration Flows or takes other action to avoid the groundwater seepage impact.

To further avoid seepage impacts, Reclamation also has a seepage hotline in place (916-978-4398, shown on the home page of the SJRRP website, http://www.restoresjr.net/), which landowners can call to report groundwater seepage concerns. This hotline provides additional backup on top of Reclamation's projected flows allowed past each property, flow bench evaluations done prior to flow increases, daily seepage evaluations during flow releases, and site visits when a groundwater level is near a threshold.

As described in the SJRRP ROD (Reclamation 2012), Reclamation is committed to actions that reduce Restoration Flows to the extent necessary to address any material adverse impacts caused by Restoration Flows in the San Joaquin River, as identified by the SJRRP monitoring program. Therefore, seepage projects have been identified in the Restoration Area where potential seepage impacts would otherwise cause a constraint in Restoration Flows. Seepage projects include a variety of real estate or physical actions, including license agreements, easements, acquisition, interceptor drains, relief drains,

drainage ditches, seepage berms, slurry walls, shallow groundwater pumping, buildup of low lying lands, or channel conveyance improvements. These seepage control measures are described in more detail in the *Seepage Management Plan* (SJRRP 2014a). The type of seepage control measure implemented for each seepage project is identified based on local conditions, in coordination with landowners and stakeholders.

The highest priority seepage projects in the Restoration Area are those located in areas that would be impacted at the lowest San Joaquin River flows. Key areas of concern include the downstream end of Reach 2A, portions of Reach 3, and the downstream end of Reach 4A. Reclamation has completed two seepage projects to date, and is actively working on four more. Seepage projects are expected to be complete by 2020 in areas that would otherwise cause flow to be constrained below 1,300 cfs (SJRRP 2015). Subsequent seepage projects are expected to be complete by 2025 in areas that would otherwise be affected by flows up to 2,500 cfs. All seepage projects are expected to be complete by 2030 to allow up to 4,500 cfs of Restoration Flows in the San Joaquin River (SJRRP 2015).

Reclamation will continue to coordinate through the Seepage and Conveyance Technical Feedback Group meetings to obtain feedback and to implement long-term solutions for the SJRRP with respect to seepage management measures. Technical feedback meetings were most recently held on February 12, 2016, and March 31, 2016.

Seepage Management in the Project Area

As discussed in Section 2.2.4 of the Draft EIS/R, seepage control measures in the Project area are included in the Project design. Seepage control measures would be implemented, as necessary, in the Project area where seepage is likely to affect adjacent land uses (*i.e.*, where native soils do not provide sufficient control for under-seepage). This EIS/R identifies potential impacts adjacent to the levees where a variety of the seepage management measures could be implemented in the Project area. These impacts are described in Chapters 4 through 24 of this EIS/R.

The current design for the Compact Bypass includes bentonite slurry cut-off walls in the levees surrounding the Compact Bypass and in the north levee from about river mile (RM) 206 and 208. The cutoff walls would be about 3 feet wide and would extend 15 to 20 feet below grade and about 8 feet above grade. Inspection trenches would also be included periodically, where needed. A bentonite slurry cut-off wall may be constructed to control groundwater seepage elsewhere on the floodplain, although other seepage control measures may also be used, such as drainage ditches, interceptor lines, or seepage easements. The seepage control measures used in the Reach 2B improvements area would be finalized based on site evaluations, suitability of site conditions, feasibility, and landowners and stakeholder input, in accordance with the Seepage Management Plan. Reclamation will continue to work with landowners and stakeholders in the Reach 2B area during the design process. Reclamation held a design briefing for updates in the design of the Compact Bypass on November 18, 2015, inviting landowners and stakeholders in the Reach 2B area to provide feedback. Similar design briefings are anticipated for the Reach 2B improvements area as the design progresses.

II.2.3 MCR-3: Subsidence

Several commenters expressed concern regarding regional subsidence issues in the San Joaquin Valley and its potential effects on the SJRRP and the Project. The California Supreme Court, in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, Case No. S213478, recently held:

> "In light of CEQA's text, statutory structure, and purpose, we conclude that agencies generally subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment – and not the *environment's* impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

In this specific instance, the *Project* would not cause or exacerbate subsidence; thus the impact on subsidence by the Project does not compel an evaluation under CEQA. The lead agencies recognize, however, that the success of the Project is critical to the Settlement Agreement. Therefore, issues related to subsidence are addressed below.

Restoration Area Subsidence

In 2011, Reclamation established the SJRRP Geodetic Control Network, using static global positioning system (GPS) methods, to investigate subsidence within the Restoration Area (Reclamation 2011a). Reclamation conducts bi-annual surveys, in July and December, of the established network to monitor the rate of subsidence over time. The network is made up of National Geodetic Survey, Reclamation, USGS, California Department of Transportation, and Department of Water Resources (DWR) benchmarks. Each of the 85 control point elevations are updated after each survey and are used by the SJRRP to study subsidence, as well as to provide accurate horizontal and vertical controls for other studies. After each survey, Reclamation prepares exhibit maps that compare the most recent data with the data from the previous survey and with data from prior years. The exhibit maps provide an overall picture of the subsidence within the Restoration Area, and are published on the SJRRP website, http://www.restoresjr.net/monitoring-data/subsidence-monitoring/. Annual subsidence rates have varied with time, but in general, subsidence trends appear to have either remained constant, or in some areas increase in the Restoration Area, since the start of the surveys. Subsidence rates range from about 0.15 foot per year to 0.75 foot per year in the Restoration Area, as calculated from survey data collected between December 2011 and December 2015 (SJRRP 2016a, Reclamation 2016).

Reclamation and DWR have also performed subsidence monitoring along the Flood Control Project levees to help further refine the estimated annual subsidence rates along the levees of the flood bypasses. Beginning in May 2012, Reclamation began monitoring the Arroyo and Temple-Santa Rita Canals to clarify localized subsidence near Sack Dam. To accomplish this, two precise leveling networks were established – Arroyo Canal starting at Sack Dam running approximately 6 miles westerly and the Temple-Santa Rita

Canal starting at Check Structure 1 on the Arroyo Canal running approximately 11 miles northerly. These level networks were surveyed monthly for just over a year. In 2012 and later in 2013, DWR collected topographic ground elevations to help further refine the estimated annual rates in the lower 3 miles of Reach 2A, the Chowchilla Bypass (from the Chowchilla Bifurcation Structure to its confluence with the Fresno River), the Upper Eastside Bypass (from its confluence with the Fresno River to the Sand Slough Connector), the Middle Eastside Bypass (from the Sand Slough Connector to the Eastside Bypass Control Structure), and the Mariposa Bypass. In addition to the above surveys, DWR also completed surveys in 2013 and 2014 of the levee and channel in the lower portion of Reach 3, Reach 4A, and the Middle Eastside Bypass (SJRRP 2014b).

The SJRRP is using the semiannual monitoring data and levee survey data to support and update a design criteria technical memorandum which will document subsidence within the SJRRP Restoration Area. The technical memorandum establishes recommended subsidence criteria applied to the design for future site-specific projects in Reach 2B, Reach 4B, and at the Arroyo Canal diversion in Reach 3, as well as for the levee, seepage projects and other site-specific project designs in Reaches 2A through 4B. The technical memorandum states SJRRP projects will design for subsidence from now through 2040, when the Sustainable Groundwater Management Act (Stats. 2015, chs. 346-348) requires groundwater basins to be sustainable. SJRRP projects will assume the current rates for at least 5 years, and then decreasing rates to 0 at 2040.

DWR, in coordination with Reclamation, will conduct a study to better understand the effects of long-term subsidence on channel capacity. In performing this study, one-dimensional hydraulic models will be developed using the latest LiDAR (Light Detection and Ranging) data collected in early 2015, and used to evaluate existing and future design conditions considering subsidence for the entire Restoration Area. Subsidence rates will be based on the average rate of subsidence currently being measured by Reclamation since 2011. This study will be completed in 2016 (SJRRP 2016a).

In addition to updating the models and assessing the channel capacity to consider future subsidence, DWR has started to move forward with a study within the flood bypasses to understand how subsidence is changing sediment transport. The study is designed to better understand and quantify how subsidence-induced sedimentation will affect channel capacity and to provide information on the amount of sediment removal that may be required to maintain necessary design flow capacities. Results from the sediment transport study would provide information to further evaluate bypass flow capacities, as well as refine certain aspects of the design for the Reach 4B, Eastside Bypass and Mariposa Bypass Channel and Structural Improvements Project (SJRRP 2016a).

In addition to the actions described above that Reclamation and DWR are undertaking, the SJRRP office is assisting local agencies with environmental compliance for subsidence-mitigation projects, including preparing an Environmental Assessment for the Red Top subsidence-related water transfer infrastructure project. Reclamation also participates in monthly subsidence calls to share data and ongoing projects with other State, Federal, and local agencies and consultants.

Subsidence Considerations in the Project Design

Subsidence rates in the Project area range from about 0 to 0.3 foot per year, as calculated from survey data collected between December 2011 and December 2015 (Reclamation 2016). Subsidence rates vary annually, with higher rates occurring during critical dry conditions when the river is dry and when groundwater pumping is likely to increase. For example, average subsidence rates in the Project area were 0.15 to 0.3 foot per year in 2015 during critical dry conditions.

As described during the November 18, 2015, design briefing for landowners and stakeholders in the Reach 2B area, Reclamation is designing new Reach 2B levees and water control structures, such as the Mendota Pool Control Structure and the Compact Bypass Control Structure, to account for 5 feet of subsidence. This is equivalent to the current rate of subsidence for 25 years, and is more conservative than the rates required in the SJRRP's Subsidence Design Criteria Technical Memorandum discussed above. This design criterion is considered conservative, because in 2040 (25 years from now) the Sustainable Groundwater Management Act will have required Groundwater Sustainability Agencies to reach sustainable levels of groundwater withdrawal in critically-overdrafted State groundwater basins. This presumably means that subsidence will have stopped in the Project area by 2040. The Project area is in a critically-overdrafted basin.

As discussed in Section 2.2.4 of this EIS/R, during the design process, causes of the observed subsidence, data from previously conducted studies, subsidence locations expected to require special design considerations, anticipated subsidence rates, and methods to mitigate the anticipated ground subsidence are being identified and incorporated into the design. To account for subsidence, Reclamation is designing additional freeboard on levees, additional height of control structures and intake facilities, and additional stoplogs or concrete walls to maintain the same low flow elevation after years of subsidence on control structures. These factors will allow the Mendota Pool Bypass and Reach 2B project structures to remain operable and effective for many decades to come.

II.2.4 MCR-4: Project Design and Operations

Several commenters expressed concerns regarding the adequacy of the current level of design and the level of detail in the EIS/R for evaluating Project operation and maintenance (O&M) activities. These issues are addressed below.

Level of Project Design

The level of detail provided in the Draft EIS/R and this Final EIS/R is sufficient to analyze the environmental impacts of the entire Project at a project-level of detail under NEPA and CEQA. This EIS/R is based on a 15 to 30 percent level of design for the Project. This is consistent with both CEQA and NEPA, in which the environmental analysis process occurs before completion of final design. Section 1501.2 of the Council on Environmental Quality's (CEQ's) Regulations for Implementing NEPA (CEQ Regulations) states that "[a]agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts" (40 CFR 1501.2). Similarly, the State CEQA Guidelines indicate that environmental analysis "should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment" (State CEQA Guidelines, § 15004). As provided in State CEQA Guidelines section 15146, the level of detail in the environmental analysis is to "correspond to the degree of specificity involved in the underlying activity which is described in the EIR" (Environmental Impact Report). The Project EIS/R is based on the level of engineering and planning currently available and is adequate to identify potential environmental impacts of the alternatives and identify appropriate mitigation measures. It is not intended to convey the same type of details as an operations plan.

Project O&M Activities Described in the EIS/R

Section 2.2.4 of the Draft EIS/R describes the O&M activities for the Project, including the following levee and floodplain maintenance activities and the O&M activities associated with water control structures, fish passage facilities and fish screens, where applicable, and seepage control measures.

- Levees would require maintenance for vegetation management, access roads, levee inspections, levee restoration, minor structures, encroachment removal, levee patrolling during flood events, and equipment. Levee vegetation management includes equipment to drag or mow the levee banks or aquatic-safe herbicide applications. Maintenance of access roads includes replacing gravel or scraping and filling of ruts to keep the roads in good condition. Levee restoration includes restoring areas with erosion or settlement problems or adding armor. Minor structures maintenance includes replacing gate locks, painting gates, replacing lost or damaged signage, and lubricating gates. Encroachment removal involves removing illegally dumped materials. Levee and structure protection maintenance includes repair restoration of protection measures due to erosion or degradation and vegetation management.

- Floodplain maintenance includes vegetation management for invasive species, periodic floodplain and channel shaping to retain capacity and prevent fish stranding, debris removal, and repair of channel banks and bank protection measures.
- Operations of the water control structures include operating the motors for the control gates, inspecting and assessing the gates, adjusting the gates for various stages of flows, adding short walls to the stop-log guides after years of subsidence, and running the automatic trash sweep. Maintenance of the water control structures includes annual operating maintenance for control gates, lubricating the fittings, greasing and inspecting the motors, replacing parts and equipment, in-channel sediment removal in the structure vicinity, and cleaning the trash rack. Work needed for the radial gates includes inspection of gates and seals and periodic replacement of seals. Work needed for the trash rack includes periodic repair or replacement of components, inspecting for operation, and greasing and inspecting the motors.
- Fish passage facility operations include visually inspecting the facility, verifying flow, clearing obstructions and debris, adjusting the weirs, estimating performance (*i.e.*, velocity measurements), fish monitoring, and powering mechanically controlled weirs. Fish passage facility maintenance could include removing sediment and debris from the facility, in-channel sediment removal in the structure vicinity, inspection of gates and seals, periodic replacement of seals, periodic repair or replacement of weir gates, periodic repair or replacement of other system components, inspection for operation, greasing and inspecting motors, and replacement of riprap, grouting, boulders, large woody debris, or other "natural" features of the fish passage facility.
- If constructed, fish screen operations would include visually inspecting screens, verifying flow, clearing obstructions and debris, adjusting the baffles, permitting and regulatory compliance measures, estimating performance (*i.e.*, velocity measurements), powering the screen, running the pumps for the sediment removal system, running automatic brush cleaning and trash rake motors, and running pumps for the fish diversion pipe. Operations could include methods to reduce predation of juvenile fish (*e.g.*, noise systems to scatter predators, netting, and periodic draining of the screen return pipes) and may include the addition of juvenile and/or adult fish traps. Fish screen maintenance would include removing the screens for cleaning, replacing screens when needed, periodic repair or replacement of brush cleaning system components, periodic repair or replacement of trash rack components, inspection for operation, greasing and inspecting motors, and in-channel sediment removal in the structure vicinity.
- Seepage control measure operations are primarily passive, particularly in the case of the slurry cut-off walls that would be constructed in the Compact Bypass area and potentially constructed in the Reach 2B setback levees. Alternatively, other seepage control measures could be used in the Reach 2B Improvements area, such as seepage wells or interceptor drains. Seepage well operations would include running the pumps to lower the water table, and interceptor drain and ditch operations could involve running lift pumps. Maintenance of the seepage control

measures could include activities such as periodic sediment removal and channel re-shaping for interceptor ditches, cleaning or flushing of interceptor drains, repair and replacement of pump parts for seepage wells and lift pumps, and vegetation management and berm restoration for seepage berms. If slurry cut-off walls are constructed at all setback levees, maintenance efforts are expected to be minimal.

The Draft EIS/R also describes how water would be delivered to Mendota Pool through the coordinated operation of specific water control structures. For example, Section 2.2.6 describes how gate operations at the Mendota Pool Control Structure and the Compact Bypass Control Structure would be used to control flows into the Compact Bypass and allow flows into Mendota Pool and how the Compact Bypass fish passage facility would be used during water deliveries.

While the level of design and operational details required for a detailed Project operations plan are not available at this time, Reclamation will continue to coordinate with and seek input from stakeholders, such as the Exchange Contractors and the Lower San Joaquin Levee District (LSJLD), as it has done in the past, throughout the final design process to ensure continued operations of all water supply and flood control facilities during and after construction.

II.2.5 MCR-5: Project Funding

Several commenters raised concerns regarding the availability of funding for the entire SJRRP, for the Project construction actions, and for Project O&M activities. The availability of funding for a project does not compel an evaluation under CEQA. The lead agencies recognize, however, that the success of the Project is critical to the Settlement Agreement. Therefore, each one of these topics is discussed below.

SJRRP Funding

The SJRRP's funding sources and funding outlook are described in detail in the *Revised Framework for Implementation* (Revised Framework; SJRRP 2015). As described in the Revised Framework, Reclamation has a variety of funding sources available to it for implementation of the SJRRP. These include the San Joaquin River Restoration Fund, the Central Valley Project Restoration Fund, new Federal appropriations, and State Funds. These sources are described briefly below. See Chapter 3 of the Revised Framework for more detailed information.

- San Joaquin River Restoration Fund – Section 10009 of the Settlement Act created the San Joaquin River Restoration Fund. Sources of monies deposited into the fund are described below. Of the sources into this Fund identified below, except for the Non-Federal Funds, $88 million was appropriated in the Settlement Act for expenditure. The remainder must either be appropriated by Congress or becomes available for expenditure, not subject to appropriation after October 1, 2019 (in essence, FY 2020). Of the sources identified below, both the Friant Surcharge and the Sales of Water and Property continue indefinitely into the future. These monies will accumulate in the San Joaquin River Restoration Fund until expended.
  - Friant Surcharge – Continuation of and the dedication of the "Friant Surcharge," an environmental fee charged pursuant to the Central Valley Project Improvement Act (CVPIA) for every acre-foot of water delivered to Friant contractors, except for Recovered Water Account water.
  - Friant Capital Repayment – Redirection of the capital (construction) component of water rates paid by Friant Division, Hidden Unit, and Buchanan Unit water users to Settlement implementation.
  - Sales of Water and Property – There are three types of revenues in this category as follows: (1) sale of Recovered Water Account water; (2) sale of Unreleased Restoration Flows; and (3) sale of property and interests in property.
  - Non-Federal Funds – Non-Federal funds, including State funds, may be deposited into the San Joaquin River Restoration Fund.
- Central Valley Project Restoration Fund – Section 10009(b)(2) of the Settlement Act authorizes up to $2 million annually, in 2006 price levels, from the Central Valley Project Restoration Fund to implement the Settlement.
- New Federal Appropriations – Two new sources of Federal appropriations are provided in Public Law 111-11 as follows: (1) Part I, Section 10009(b)(1) of the Settlement Act authorizes new Federal appropriations up to $250 million, in 2006

price levels, for implementing the Settlement; and (2) Part III, Section 10203 of Public Law 111-11authorizes an additional $50 million, in 2008 price levels, to carry out certain improvements within the Friant Division, and financial assistance to local agencies for groundwater banking projects.

- State Funds – The State has committed to seek multi-benefit projects and funds equaling at least $200 million to support implementation of the Settlement. State funds are anticipated to come from four different bond sources, the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E), Proposition 13 (2000 Water Bond), Proposition 84, and the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1).

The SJRRP is also looking for other opportunistic funding sources, such as grants and cost-shares. (see Appendix E of the Revised Framework). However, as identified in the Revised Framework, even with these funding sources, a $390 million shortfall for the Federal government and an approximately equal shortfall for the State government have been identified for implementation of the SJRRP. It is important to note that the SJRRP is comprised of a series of smaller projects, such as the Mendota Pool Bypass, Reach 2B channel and levee improvements, the Arroyo Canal Fish Screen and Sack Dam Fish Passage actions, seepage projects, levee stability projects, the Reach 4B actions, and Water Management Goal actions. While there is a funding challenge to implement the entire SJRRP, there is sufficient funding available to implement a series of actions.

Recognizing the funding challenges of the SJRRP, the Revised Framework seeks to prioritize individual SJRRP projects in a way that adds value and meets Reclamation's obligations in implementing the Settlement and Settlement Act over time. The projects that have the greatest value and work to achieve the greatest benefit to implementing the Settlement and Settlement Act are given a higher priority for funding and are scheduled to be implemented early in the Program, when funding is more secure. The Revised Framework also seeks to prioritize projects that would add value to the San Joaquin River and the San Joaquin Valley regardless of the overall implementation of the SJRRP. Said another way, the Revised Framework prioritizes projects so that there are no stranded assets. If no more funding becomes available to complete the entire SJRRP, the Revised Framework prioritizes projects that add value and work to meet Reclamation's obligations in the Settlement and Settlement Act as best as possible.

Fundamental to Reclamation's obligations in the Settlement and Settlement Act are the release of Restoration Flows from Friant Dam and the conveyance of those flows to the Merced River along with the reintroduction of spring-run and fall-run Chinook salmon. With regard to the Restoration Goal, the Revised Framework prioritizes those projects that are key to conveying as close to Full Restoration flows as soon as possible to the Merced River and reintroducing salmon. To this effect, the Revised Framework prioritizes the following projects to achieve the following goals:

- Mendota Pool Bypass, Sack Dam improvements, and fish passage improvements in the Eastside Bypass as these actions allow for unimpeded fish passage;

- Reach 2B levee setbacks along with seepage and levee stability projects to achieve 2,500 cfs capacity from Friant Dam to the Merced River confluence to provide flows for salmon at a rate that the SJRRP generally believes it can obtain suitable water temperatures for salmon in most years; and
- Arroyo Canal fish screen to reduce fish entrainment in the Arroyo Canal.

As described in the Construction Funding Appendix (Appendix C) of the Revised Framework, the SJRRP expects to have funds to build all of the projects identified above with funds from the San Joaquin River Restoration Fund, appropriated funds allocated to the SJRRP, and State funds. In this way, Reclamation is working to be thoughtful and careful in incrementally implementing its obligations in the Settlement and Settlement Act while not resulting in stranded assets due to limited funding.

Project Construction Funding

Reclamation would be funding Project construction. As described in the Revised Framework (Tables 4-10 and 5-11), all of the costs for the Mendota Pool Bypass and the Reach 2B levee improvements are Federal costs. The SJRRP would have funds to build the Project with funds from the San Joaquin River Restoration Fund and appropriated funds allocated to the SJRRP. This is described in the Construction Funding Appendix (Appendix C) of the Revised Framework.

Project O&M Funding

Reclamation would be funding Project O&M. Table 5-2b of the Revised Framework identifies an O&M budget of $200,000 a year for the Mendota Pool Bypass starting in FY 2020, after construction has completed in FY 2019. Table 5-2b of the Revised Framework also assigns this cost to the Federal government (Reclamation). In addition, Table 6-2b of the Revised Framework identifies an O&M budget of $200,000 a year for the Reach 2B Improvements starting in FY 2026, after construction has completed in FY 2025. Table 6-2b of the Revised Framework also assigns this cost to the Federal government (Reclamation). These O&M costs are included until FY 2029, which is the end of the planning horizon for the Revised Framework. Although the budget has not been developed beyond FY 2029, funding for Project O&M activities is intended to continue for the life of the Project.

In addition, the SJRRP has committed to long-term O&M activities to be implemented in the SJRRP Restoration Area that could contribute to actions in the Mendota Pool Bypass and Reach 2B area. These activities include invasive species management ($300,000 per year) and vegetation management ($200,000 per year), both funded through FY 2029 in the Revised Framework (again, the end of the planning horizon in the Revised Framework).

Reclamation also remains considerate of long-term O&M costs and the long-term funding source for these costs. Reclamation anticipates that the San Joaquin River Restoration Fund would serve as the long-term funding source for all SJRRP O&M activities, including O&M activities that are part of this Project. The long-term collections (post FY 2029) in the San Joaquin River Restoration Fund would be comprised of the Friant Surcharge collections and Sales of Water and Property.

Reclamation estimates these sources to result in an average of $6.2 million per year. These funds would be available for use as they are collected (the current restrictions on the expenditure of these funds are lifted in FY 2020). Reclamation recognizes that the roughly $400,000 O&M estimate for both the Mendota Pool Bypass and Reach 2B levees would be subject to inflation over time, however, the collections in the San Joaquin River Restoration Fund are more than sufficient to cover these costs. Reclamation remains cognizant of all of the SJRRP long-term O&M funding needs and is working to ensure that all long-term O&M funding needs remain within the estimated $6.2 million per year in collections. In addition, Federal appropriations would likely also be available for any extraordinary O&M activities.

II.2.6 MCR-6: Flood Management Considerations and O&M Costs

Several commenters raised flood management concerns specifically related to then-existing channel capacity and flood impacts in river reaches upstream and downstream of the Project area, along with concerns regarding the availability and source of O&M funds for flood management actions. These concerns are addressed below.

Then-Existing Channel Capacity and Flood Impacts in Other River Reaches

Then-existing channel capacities are assessed, updated, and documented annually in the SJRRP Channel Capacity Report (SJRRP 2014c, 2015, and 2016a). The approach to determining then-existing channel capacity in the existing reaches of the river is extensive and is described in detail in the SJRRP ROD from Page 9 to 15 (Reclamation 2012). In summary, throughout Settlement implementation, the maximum downstream extent and rate of Restoration Flows to be released would be maintained at or below then-existing channel capacities. As channel or structure modifications are completed with additional environmental compliance, maximum Restoration Flow releases would be correspondingly increased in accordance with then-existing channel capacities and with the release schedule. Consistent with the Settlement Act, Restoration Flows would be reduced, as needed, to address material seepage impacts, as identified through the monitoring program (see Appendix D of the Draft Program Environmental Impact Statement/Environmental Impact Report [PEIS/R], "Physical Monitoring and Management Plan"). If release of water from Friant Dam is required for flood control purposes, concurrent Restoration Flows would be reduced by an amount equivalent to the required flood control release. If flood control releases from Friant Dam exceed the concurrent scheduled Restoration Flows, no additional releases above those required for flood control would be made for SJRRP purposes.

Then-existing channel capacities within the Restoration Area correspond to flows that would not significantly increase flood risk from Restoration Flows in the Restoration Area. The action to release Restoration Flows includes measures that would achieve the following objectives: (1) commit Reclamation to implementing actions that would meet performance standards that minimize increases in flood risk as a result of Restoration Flows, (2) limit the release and conveyance of Restoration Flows to those flows that would remain in-channel until adequate data are available to apply the performance standards and until the performance standards are satisfied, and (3) enable the Settlement to be implemented in coordination with other ongoing and future actions outside of the Settlement that could address channel capacity issues identified in the Settlement or through the SJRRP or other programs. Implementation of measures that achieve these objectives would allow for the safe release and conveyance of Restoration Flows throughout the duration of Settlement implementation. Reclamation has implemented and will continue to implement the following three integrated measures that collectively minimize increases in flood risk as a result of Restoration Flows during Settlement implementation:

- **Establish a Channel Capacity Advisory Group and Determine and Update Estimates of Then-Existing Channel Capacities as Needed –** The establishment and administration of a Channel Capacity Advisory Group to provide independent review of estimated then-existing channel capacities, monitoring results, and

management actions to address vegetation and sediment transport within the system as identified by Reclamation.

- **Maintain Restoration Flows at or Below Estimates of Then-Existing Channel Capacities –** The process for limiting Restoration Flows to reduce the risk of levee failure due to underseepage, through-seepage, and associated levee stability issues to less-than-significant levels.
- **Closely Monitor Erosion and Perform Maintenance and/or Reduce Restoration Flows as Necessary to Avoid Erosion-Related Impacts –** The commitment by Reclamation to implement erosion monitoring and management, including monitoring potential erosion sites, reducing Restoration Flows as necessary, and reporting ongoing results of monitoring and management actions to the Channel Capacity Advisory Group.

Only limited data are currently available on San Joaquin River channel capacities and levee conditions. The levee design criteria developed by the U.S. Army Corps of Engineers (Corps) and presented in *Design and Construction of Levees Engineering and Design Manual* (Manual No. 1110-2-1913) (Corps 2000a), *Engineering Manual: Slope Stability* (Manual No. 1110-2-1902) (Corps 2003), and *Design Guidance for Levee Underseepage* (Engineering Technical Letter No. 1110-2-569) (Corps 2005) would be applied throughout the Restoration Area to identify the Restoration Flows that would not cause the levee slope stability Factor of Safety to be reduced below 1.4, or the underseepage Factor of Safety to be reduced below the value corresponding to an exit gradient at the toe of the levee of 0.5. The levee slope stability Factor of Safety is defined as the ratio of available shear strength of the top stratum of the levee slope to the necessary shear strength to keep the slope stable (Corps 2003). The application of the levee slope stability Factor of Safety of 1.4 is required for federally authorized flood control projects. Through-seepage is calculated as part of the slope stability analysis and does not have a separate Factor of Safety. The underseepage Factor of Safety is defined as a ratio of the critical hydraulic gradient to the actual exit gradient of seepage on the levee. Corps design guidance recommends that the allowable underseepage factor of safety for use in evaluations and/or design of seepage control measures should correspond to an exit gradient at the toe of the levee of 0.5 (in general, this would provide a Factor of Safety of 1.6), but states that deviation from recommended design guidance is acceptable when based and documented on sound engineering judgment and experience (Corps 2005).

Until adequate data are available to determine the Factors of Safety, Reclamation would limit the release of Restoration Flows to those which would remain in-channel. In-channel flows are flows that maintain a water surface elevation at or below the elevation of the landside levee toe (*i.e.*, the base of the levee). When sufficient data are available to determine the Factors of Safety, Reclamation would limit Restoration Flows to levels that would correspond to a levee slope stability Factor of Safety of 1.4 or higher and an underseepage Factor of Safety corresponding to an exit gradient at the toe of the levee of 0.5 or lower at all times.

Levee Stability Evaluations and Repairs

As described in MCR-2: Seepage Management, Reclamation has an extensive seepage management effort that is on-going throughout the Restoration Area. Likewise, DWR has begun an extensive effort to determine levee stability throughout the Restoration Area.

San Joaquin Levee Evaluation Project. Levee evaluations along the San Joaquin River and flood bypasses are being conducted by DWR to assist the SJRRP in assessing flood risks due to levee seepage and stability associated with the release of Restoration Flows. This exploration and evaluation of existing levees within the Restoration Area is being performed under DWR's San Joaquin Levee Evaluation Project. The evaluation identifies the maximum flow that can be conveyed through the levees without exceeding Corps criteria for levee underseepage and slope stability.

DWR classified levee segments in the Restoration Area into one of three categories representing an increasing priority for the need to complete geotechnical evaluations and levee stability analyses. Priority 1 levees are located in Reach 2A (14.9 miles), the Middle Eastside Bypass (from Sand Slough to the Eastside Bypass Control Structure) (20.6 miles), and the lowest portion of Reach 4A (4.1 miles).

The initial phase of the San Joaquin Levee Evaluation Project included levee evaluations within two Priority 1 study areas – 15 miles of levees in Reach 2A (the Gravelly Ford study area) and 25 miles of levees along the lower portion of Reach 4A and the Middle Eastside Bypass (Middle Eastside Bypass study area). The evaluations required reconnaissance-level geotechnical explorations, soils testing, and seepage and stability analyses at multiple water surface elevations along multiple levee segments. A geomorphic study was used to generate maps and develop a preliminary characterization of the levee foundation conditions. Initial field investigations were then conducted including geophysical surveys, soil borings, and cone penetrometer tests (CPTs). Review of the geophysical and drilling data informed a second phase of drilling that included hand auger borings along the levee toe. Geotechnical laboratory tests were performed on selected soil samples obtained from these borings to characterize the geotechnical and engineering properties of the subsurface materials. This information was then input into levee seepage and stability models to identify the maximum allowable water surface elevation that can occur on the levees without exceeding Corps criteria for seepage and stability. The seepage and stability modeling evaluated through-levee seepage, underseepage, and landside stability. The results of the seepage and stability modeling were used to identify the controlling failure mechanism in the levee segments and to estimate the highest elevation that water could be placed on the waterside slope of the levee while still meeting seepage and stability criteria.

Results of the Priority 1 levee evaluations for the maximum flows showed that allowable flows in Reach 2A, when considering levee seepage and stability, are over 6,000 cfs throughout the entire reach, and in Reach 4A, the conveyance capacity of the evaluated portion of the reach was over 4,500 cfs. In contrast to Reach 2A and 4A, a few portions of the Middle Eastside Bypass could not convey 4,500 cfs without exceeding Corps criteria for levee seepage and slope stability, including a single 3-mile levee segment which had a capacity less than 1,300 cfs (SJRRP 2016a).

Currently, DWR is performing the next steps of the San Joaquin Levee Evaluation Project. DWR is initiating a feasibility-level study on the critical levee segment that initial levee evaluations have shown will exceed Corps criteria for underseepage and DWR is continuing the exploration and evaluations of Priority 2 and 3 levees to inform the SJRRP of future remediation needs. DWR will also coordinate any levee remediation projects with Reclamation to ensure that levee stability improvements are consistent with improvements needed to address agricultural seepage issues. Priority 2 evaluations are currently being performed on about 30 miles of levees in Reach 4B2 and the Mariposa Bypass and 3 miles on the right bank of Reach 3. The initial explorations, including bore holes, CPTs, geophysical surveys, and testing of the soils data, have been completed. The next steps will be to evaluate the results of the data, and plan and implement the next phase of explorations. The initial evaluations for Priority 3 levees are scheduled to start in 2016.

Funds have been identified in the Revised Framework for levee stability actions in the Restoration Area during the 2015 to 2029 planning period. There estimated costs are identified in Appendix H of the Revised Framework (SJRRP 2015).

Non-Urban Levee Evaluation Program. In addition to the levee stability evaluations discussed above, DWR has performed geotechnical evaluations in the Restoration Area as part of the Non-Urban Levee Evaluation (NULE) program (DWR 2011). The NULE program evaluates Federal Flood Control Project levees (Project levees) and those appurtenant Non-Project levees which protect a basin partially protected by Project levees, or those that may impact the performance of Project levees, in areas where protected populations are less than 10,000.

Subsurface explorations in the Restoration Area were completed in 2012. These explorations consisted of approximately five CPTs and one exploratory boring on the levee crest per mile with occasional explorations on the levee toe. A total of 164 CPTs and 40 borings were drilled on or along levees in Reaches 2A, 3, and 4A and a total of 125 CPTs and 46 borings were drilled along the Eastside Bypass and Chowchilla Bypass canals. Seepage and stability evaluations were also performed on these levees. The NULE assessments are used by the San Joaquin Levee Evaluation Project in areas with priority levees.

Flood System Repair Project. DWR is working with the LSJLD to re-rock 25.5 miles of levee roadways in the Restoration Area to provide all-weather access to these levees. This work is being conducted under the Flood System Repair Project, in support of the Central Valley Flood Protection Plan (CVFPP). Improvements to levee roadways will help reduce flood risks by improving the reliability of the levees for levee monitoring during flood events. In addition, DWR is working with the LSJLD to modernize the electronic gate controls for the Chowchilla Bypass, San Joaquin River, Eastside Bypass, and Mariposa Bypass control structures. These modifications will improve the system operations by increasing system reliability and allowing the ability to quickly adjust gate settings for more efficient operations.

Redirected Flood Impacts from Reach 2B Levees

The Project would increase the channel capacity and improve levees in Reach 2B. This has the potential to translate flood hydrographs, and possibly, flood damages downstream to lower reaches of the river. The PEIS/R concluded that the change in damages due to this translation was minor and therefore the impacts would be less than significant. However, due to the lack of information on levee conditions, the PEIS/R required project-level analysis of the potential to impede or transfer flood risk downstream.

The SJRRP conducted a flood risk assessment on the translation of flood risk from Reach 2B to reaches downstream, *i.e.,* to Reach 3 and Reach 4A. The objective of the analysis was to determine if damages would change based on changes in the flood hydrographs and if the likely failure points for levees used in the PEIS/R evaluation were reasonable.

The analysis included a comparison of flood hydrographs at four index points in Reaches 3 and 4A – Areas SJ06 (Lone Willow Slough), SJ07 (Mendota North), SJ08 (Firebaugh), and SJ09 (Salt Slough) (see Figure II-1 and Figure II-2) – and an evaluation of flood damages at these locations. Area SJ06 is located north of the San Joaquin River between the Chowchilla Bypass and the river, Area SJ07 is located on the south side of the river between Reach 2B and Firebaugh, Area SJ08 is located near Firebaugh, and Area SJ09 is located on the south side of the river downstream of Firebaugh. Analyses of the flood hydrographs show that the with- and without- Project flood hydrographs are essentially the same with only very small differences. There is less than a 1/10 of a foot of difference in the hydrographs at the peak of the stage curve along the entire length of Reach 3 and 4A. This result is likely due to how flood flows are managed, and that flood flows in Reach 3 and 4A are primarily controlled by flood releases from Fresno Slough. The main difference in the hydrographs is that they are translated by a couple of hours, but this would have little impact to damages. The differences in damages between the with- and without- project scenarios are extremely slight, with only SJ09 showing a slight increase in damages (0.17 percent) under Project conditions. Furthermore, with SJ06, SJ07, and SJ08 showing no increases in damages, the slight increase in SJ09 is likely, as explained in the PEIS/R, due to “perturbation effects of the Monte Carlo simulation.” The result of these slight to no damages, would confirm that the redirected flood impacts of the Action Alternatives would be less than significant.

In addition to the analysis of flood hydrographs and flood damages, the updated levee data in Reach 3 and Reach 4A were evaluated. These data included DWR’s drilling and seepage and stability evaluations in portions of Reach 2A, 3 and 4A conducted under the NULE program and the SJRRP’s drilling and seepage and stability evaluations in portions of Reach 2A and 4A and the Middle Eastside Bypass. The data and evaluations were reviewed specifically to determine if the likely failure points of the levees used in the PEIS/R evaluation were reasonable. A comparison of the likely failure points from the PEIS/R analysis with the allowable water surface elevations from the NULE and SJRRP showed that the likely failure points were between 0.8 to 5.3 feet lower than the actual elevations that recent drilling and analyses have determined. This means that the likely failure points used in the PEIS/R’s redirected flood analysis were reasonable and actually more conservative (lower) than what the recent levee evaluations are showing.

Source: Central Valley Flood Protection Plan, Attachment 8F: Flood Damage Analysis (DWR 2012a)

Figure II-1.
Flood Damage Analysis Areas in the San Joaquin River Basin

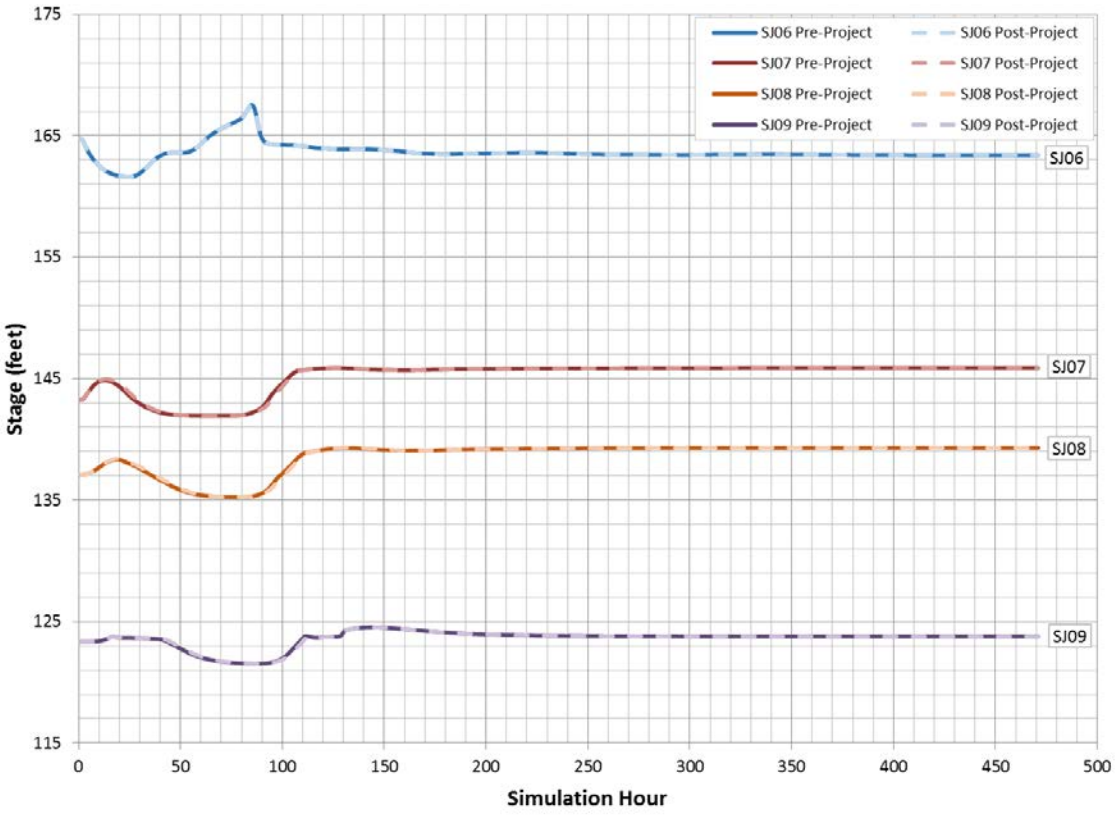

Figure II-2.
Pre- and Post-Project Flood Stage Hydrographs

Based on a comparison of changes to flood hydrographs, there would be little to no increase in damages – the one area that showed a slight increase in damages was likely due to perturbation effects in the model – and therefore redirected flood impacts would be minor. This is further supported by the assessment of the recently completed levee evaluations in Reaches 2A, 3, and 4A, which found that the likely failure points for these levees that were used in the PEIS/R were reasonable and conservative.

As described above and in the SJRRP ROD (Reclamation 2012), Reclamation is committed to actions that reduce Restoration Flows to the extent necessary to address material adverse impacts caused by Restoration Flows. Therefore, seepage projects and levee stability projects have been identified in the Restoration Area where potential seepage impacts or levee stability would otherwise cause a constraint in Restoration Flows. Said another way, flows would not increase in the river reaches until Reclamation, through the seepage management efforts and through the channel capacity report process, determines that such flows would not damage adjacent landowners or impact levee stability.

O&M Costs for Flood Management Actions

Some commenters expressed concerns that the Restoration Flows and Project actions would result in additional O&M costs for the Flood Control Project. In general, these comments focus on increased O&M costs for the Flood Control Project that are a result of the SJRRP's Restoration Flows. As described previously, the Draft EIS/R and this Final EIS/R address Project actions. The environmental impacts, environmental commitments, and mitigation measures related to the release of SJRRP Restoration Flows were addressed in the PEIS/R and subsequent Program ROD and are outside of the scope of this document. However, for the ease of the reader, information on changes to the O&M costs for the Flood Control Project that result from the SJRRP Restoration Flows is provided below. Please refer to MCR-5: Project Funding for information on O&M costs for the Project.

The LSJLD, Central Valley Flood Protection Board (CVFPB), and ultimately, the State, in that order, are responsible for implementing routine O&M or capital improvements to the Flood Control Project. The Flood Control Project was designed and constructed by DWR between 1959 and 1966. LSJLD was created in 1955 by a special act of the State Legislature to operate, maintain, and repair levees, bypasses, and other facilities built in connection with the Flood Control Project. LSJLD operates and maintains these facilities in accordance with the *Operation and Maintenance Manual for Levee, Irrigation and Drainage Structures, Channels and Miscellaneous Facilities* (Flood Control Manual) (Reclamation Board 1967). The Flood Control Manual states that "the purpose of channel maintenance is to insure that the channel is kept in as good a condition as when the channel was constructed" (Reclamation Board 1967). LSJLD encompasses approximately 468 square miles (300,000 acres) in Fresno, Madera, and Merced counties, of which 94 square miles are in Fresno County. LSJLD is financially supported through landowner assessments.

The question of changes to the O&M costs for the Flood Control Project is complicated and multi-faceted. Restoration Flows will result in changes in the O&M of the Flood Control Project, possibly resulting in changes in the costs of such O&M by the LSJLD. However, some SJRRP activities will increase costs while others will reduce the LSJLD's costs or increase the ability of the Flood Control Project to protect adjacent landowners. Examples of these changes are provided below:

- Prior to the SJRRP, the LSJLD completed a number of its O&M activities in dry conditions as the river was generally dry. However, with the SJRRP, the San Joaquin River will be wet year-round, necessitating that the LSJLD complete these same activities in wet conditions. While this changes the nature of these activities, the type of maintenance activity that could occur and the types of chemicals that can be used for vegetation removal, no estimates have been made as to the changes in the costs. Presumably, some activities, like re-training workers to use different herbicides and buying different equipment, such as air boats for herbicide spraying, would cost more. However, some activities, like the use of air boats, may be more efficient and faster way to accomplish the O&M activities, reducing costs.

- The SJRRP is implementing a Physical Monitoring and Management Plan (see Appendix D of the Draft PEIS/R; SJRRP 2011a) that includes a number of activities that would typically be undertaken as O&M activities by the LSJLD. These include such things as invasive vegetation removal, erosion monitoring, and sediment removal. These actions contribute to reducing the LSJLD's overall O&M costs.
- The SJRRP is also implementing an estimated $300 million in levee improvements throughout the Restoration Area to strengthen and improve existing levees. These actions would result in improvements to the levees, reducing their chance of failure, and further protecting adjacent landowners.
- The SJRRP is implementing a series of physical projects, like this Project and the Reach 4B project, that will restore the operational flexibility that was part of the Flood Control Project when constructed (such as restoring 2,500 cfs capacity in Reach 2B versus the estimated 1,200 to 1,300 cfs capacity of the reach currently) and improve the operational flexibility. While these projects do not necessarily reduce the O&M costs of the Flood Control Project, they provide flexibility for the Flood Control Project to better manage flows in times of flood and reduce the chance of levee failure, protecting the adjacent landowners.

Additionally, the LSJLD has provided a series of assurances in the 1950s and 1960s to the CVFPB (then the Reclamation Board) that it would operate and maintain the Flood Control Project. The CVFPB (then the Reclamation Board) also provided assurances on behalf of the State that it would "hold and save the United States free from damages due to the construction works and their subsequent maintenance and operations" and "maintain all levee and channel improvements after completion in accordance with regulations prescribed by the Secretary of the Army" (CVFPB 1955).

While the issues of whether the SJRRP Restoration Flows is increasing O&M costs of the LSJLD and whether Reclamation should pay for this increased O&M, if any exists, are complicated and unresolved at this time, it is important to note that the O&M of the Flood Control Project will continue into the future regardless. This is because the LSJLD is required by law to undertake the O&M actions and the State has assured the United States that it will undertake the O&M actions. Reclamation is open to considering one-time payments to allow the LSJLD to purchase additional equipment to allow them to perform O&M in the wetted channel.

II.3 Comments from Federal Agencies and Responses

II.3.1 Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

AUG 13 2015

Ms. Becky Victorine
Bureau of Reclamation
2800 Cottage Way, MP-170
Sacramento, California 95825

Subject: Draft Mendota Pool Bypass and Reach 2B Improvements Project Environmental Impact Statement, Fresno and Madera Counties, California (CEQ #20150168)

Dear Ms. Victorine:

F-EPA-1 The U.S. Environmental Protection Agency has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act, the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

F-EPA-2 EPA strongly supports the San Joaquin River Restoration Program. While a number of programs exist to improve San Joaquin River water quality, the Restoration Program is the most important effort underway to revive the River fisheries and ecosystem. The Mendota Pool Bypass and Reach 2B Improvements Project represents an essential step in that process.

F-EPA-3 While EPA supports the goals of the proposed project, we find that additional project-level information is needed regarding a number of key components, in order to fully assess environmental impacts that should be avoided. We recommend that the Final EIS provide further details regarding project design, air quality impacts and mitigation, Clean Water Act section 404 permitting, the impacts of climate change on the proposed project, and potential mitigation measures for addressing environmental justice effects. In addition, we have a number of general recommendations related to the San Joaquin River Restoration Program and methods whereby the Bureau of Reclamation could maximize the potential benefit of this and future Program actions. Based on our review of the DEIS, we have rated the proposed action "*Environmental Concerns – Insufficient Information*" (EC-2) (See the enclosed "Summary of Rating Definitions").

F-EPA-4 EPA commends the effort and dedication of Reclamation and partner agencies. We appreciate the opportunity to provide input on this critical restoration project, and are available to discuss our recommendations. We look forward to continuing work with you in the future.

F-EPA-5 When the FEIS is released for public review, please send one hard copy and one CD to the address above (Mail code: ENF4-2). If you have any questions, please contact me at (415) 972-3521 or contact Carter Jessop, the lead reviewer for the project. Carter can be reached at (415) 972-3815 or jessop.carter@epa.gov.

Sincerely,

Connell Dunning

FOR Kathleen Martyn Goforth, Manager
Environmental Review Section

Enclosures: Summary of EPA Rating Definitions
EPA's Detailed Comments

F-EPA-6

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE DRAFT MENDOTA POOL BYPASS AND REACH 2B IMPROVEMENTS PROJECT ENVIRONMENTAL IMPACT STATEMENT, FRESNO AND MADERA COUNTIES, CALIFORNIA, AUGUST 13, 2015

Air Quality

As noted in the DEIS, the project is within the San Joaquin Valley Air Basin, which is classified as extreme nonattainment for ozone, nonattainment for $PM_{2.5}$, and maintenance for PM_{10}, and is subject to the EPA General Conformity Rule. The air quality analysis provided in the DEIS takes a "worst case scenario" approach wherein it is assumed that no borrow materials would be sourced locally and all

F-EPA-7

materials necessary for project construction would be hauled from more than 100 miles away (p. 4-32). Based upon the construction scenario modeled, the DEIS indicates that the project would greatly exceed the *de minimus* thresholds during each year of project construction. The DEIS provides environmental commitments and mitigation measures intended to reduce construction related emissions, and indicates that implementation of these measures would reduce particulate matter, ozone, ozone precursor and NOx emissions to below *de minimus* levels. It states that USBR will require the use of the highest tier equipment available and the purchase of emission offsets through a San Joaquin Valley Air Pollution Control District Verified Emission Reduction Agreement for any remaining emissions above applicable federal, state and local thresholds (page 4-37).

By relying on the worst case scenario to "bookend" potential project impacts, rather than air quality projections based upon the most likely real-world construction scenario, this analysis lacks the specificity typical of project-level NEPA analysis. Accordingly, the DEIS does not include modeling demonstrating the practical effectiveness of the proposed mitigation, nor does it indicate the quantity of emissions offsets that would be required after the application of all other mitigation. Please note that the General Conformity Rule requires that, if modeling indicates that a project will exceed the *de minimus* threshold after all applicable mitigation is implemented, the emissions for that project must be reduced or offset not only to below the *de minimus* threshold, but all the way to zero.

> ***Recommendation***: Include in the FEIS more project-level detail regarding the anticipated real-world project construction emissions. Conduct modeling to demonstrate that the proposed mitigation measures would be fully successful in reducing emissions to below the *de minimus* threshold and other applicable federal, state and local thresholds. We recommend that these data be provided in a tabular format. If applicable, identify the quantity of emissions offset the project would require. If available, include a copy of the draft or final adopted and signed Verified Emissions Reduction Agreement in the FEIS and commit to its implementation in the Record of Decision.
>
> In addition to the measures required to meet applicable local, state, and federal requirements, EPA recommends consideration of the following measures to further reduce ozone precursors, NOx, and particulate matter emissions during construction:
>
> Mobile and Stationary Source Controls:
>
> - Minimize use, trips, and unnecessary idling of heavy equipment.
> - Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable; or, to perform at verified standards applicable to retrofit technologies.
> - Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications. The California Air Resources Board has a number of mobile

F-EPA-7 cont.

source anti-idling requirements, which should be employed: (http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm).

- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations.
- In general, commit to the best available emissions control technologies for project equipment:
  - *On-Highway Vehicles* - On-highway vehicles used for project related activities should meet or exceed the US EPA exhaust emissions standards for model year 2010 and newer heavy-duty on-highway compression-ignition engines (e.g., long-haul trucks, refuse haulers, etc.).[1]
  - *Nonroad Vehicles & Equipment* – To the extent practicable, nonroad vehicles & equipment used for project related activities should meet or exceed the US EPA Tier 4 exhaust emissions standards for heavy-duty nonroad compression-ignition engines (e.g., construction equipment, nonroad trucks, etc.).[2]
  - *Low Emission Equipment Exemptions* – The equipment specifications outlined above should be met unless: 1) a piece of specialized equipment is not available for purchase or lease within the United States; or 2) the relevant project contractor has been awarded funds to retrofit existing equipment, or purchase/lease new equipment, but the funds are not yet available.
  - *Advanced Technology Demonstration & Deployment* – demonstrate and deploy heavy-duty technologies that exceed the latest US EPA emission performance standards for the equipment categories that are relevant for the covered activities (e.g., plug-in hybrid-electric vehicles, battery-electric vehicles, fuel cell electric vehicles, etc.).

Administrative controls:

- Prepare an inventory of all equipment prior to construction.
- Develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.
- Identify where implementation of mitigation measures is rejected based on economic infeasibility.

F-EPA-8

Climate Change

On December 18, 2014, the Council on Environmental Quality released revised draft guidance for Federal departments and agencies' consideration of the effects of greenhouse gas emissions and climate change in their NEPA reviews. The revised draft guidance supersedes the draft greenhouse gas and climate change guidance released by CEQ in February 2010 that is referenced in the DEIS under Regulatory Framework for the Climate Change chapter (p. 8-11). In accordance with the revised draft guidance, we recommend that agencies consider both the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action. EPA commends the Bureau of Reclamation and the California State Lands Commission for the thoughtful approach to analyzing both of these aspects of the climate change problem for this project. We also note the significant potential GHG emissions reductions that may result from the implementation of proposed air quality mitigation measures.

Although the DEIS provides a discussion of the potential effects of climate change upon conditions important to the project, such as temperature, precipitation and runoff, the document does not indicate

[1] http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm
[2] http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

2

F-EPA-8 cont.

how these changes may affect specific restoration and water management goals nor overall project success. Such information is important to a complete understanding of the project and its ability to meet the requirements of the Stipulation of Settlement in the long term.

Recommendation: Update the Regulatory Framework section of the Climate Change chapter to reflect the new CEQ draft guidance released on December 14, 2014 or any more recently published version.

Provide a more robust discussion of the anticipated effects of climate change upon overall project goals and objectives. Compare the action alternatives with regard to their vulnerability to such effects and indicate what actions, if any, could be taken to minimize these effects where they are found to represent a risk to any legally mandated goal or stipulation.

F-EPA-9

San Joaquin River Restoration Program

Numerous potential opportunities exist for USBR to leverage its investment in the San Joaquin River Restoration Program and advance the Program's goals and objectives through interface with watershed, wildlife and conservation programs and initiatives that are underway in the Fresno/Madera County region in the vicinity of Reach 2B. These include USBR's administration of the Central Valley Project Improvement Act, the California Department of Water Resources' Central Valley Flood System Conservation Strategy,[3] the Natural Resources Conservation Service's Flood Easement Program and the Bay Delta Critical Conservation Area (CCA) program,[4] the California Department of Conservation's California Farmland Conservancy Program, and the California Department of Fish and Wildlife's Wildlife Conservation Board acquisition programs. Through partnerships with these agencies and programs, it may be possible to purchase agricultural conservation easements and flood easements from willing sellers, thereby clearing the way for the establishment of a large floodwater detention basin and riparian corridor in the heart of the San Joaquin Valley (modeled after the Yolo Bypass) that would both advance the implementation of the Restoration Program and increase security for flood-prone communities further downstream (northward). Such efforts, combined with a payment for ecosystem services (PES) approach to compensate willing landowners for floodwater retention, groundwater recharge, reforestation, and recovery of salmon populations, might provide options for USBR to address seepage issues by setting-back levees to the greatest extent possible.

Recommendation: In the FEIS, explain how the proposed project might be integrated or leveraged with other ongoing efforts in the project area to better achieve Program goals. EPA welcomes the opportunity to partner with USBR in developing strategies and methodologies for achieving such integration.

Consider establishing a large floodwater detention basin and riparian corridor within the Program area. Seek technical advice from historical ecologists, hydrogeomorphologists, and restoration ecologists about the ideal placement of levees within the study area to minimize seepage and maximize ecosystem processes. Consider whether existing project alternatives that maximize the floodplain dimensions (such as Alternative D) might serve as a component of such an effort.

[3] DWR's Central Valley Flood System Conservation Strategy http://www.water.ca.gov/conservationstrategy/cs_new.cfm
[4] NRCS Floodplain Easement Program http://www.nrcs.usda.gov/wps/portal/nrcs/detail/in/programs/?cid=nrcs144p2_031025
NRCS Bay Delta Critical Conservation Area (CCA) program
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/?cid=stelprdb1254127

F-EPA-9 cont.

Explore, in the FEIS, the feasibility of employing *payment for ecosystems services* (PES)[5] methods for compensating willing landowners within the project area whose properties might be occasionally affected by seepage or flooding, and who, therefore, would be contributing to flood protection benefits for downstream communities (e.g., Mendota, Firebaugh) and ecosystem restoration benefits for the San Joaquin River. If such integration of economic valuation with ecological restoration is deemed infeasible or outside the scope of this project, explain, in the FEIS, why this is the case and the criteria used to reach this conclusion.

F-EPA-10

Existing Infrastructure

Reach 2B has been subjected to substantial hydrological and landscape modification. As displayed on Figure 2-4 and discussed in Section 23, numerous wells, pump stations, irrigation reservoirs and utility lines of various types are scattered throughout the project area. The DEIS explains that, during project design, existing wells would be surveyed and determinations would be made about their fate under the proposed project (e.g., abandonment) in accordance with applicable regulations. Similarly, the DEIS indicates that utility structures, such as water pipelines, would be relocated or abandoned, depending on their future use requirements; oil and gas wells, if not possible to avoid, would be destroyed or closed (p. 2-25). The proposed project presents an excellent opportunity for the USBR to remove or upgrade outdated or harmful infrastructure within Reach 2B, and to more appropriately balance the development of natural resources and the protection of ecosystem processes.

***Recommendation*:** Fully utilize this opportunity to decommission as much outdated or harmful infrastructure as possible. In determining whether to maintain, abandon or remove each piece of infrastructure, consider whether the structure was designed with ecosystem protection and fisheries management in mind. List, in the FEIS, each major piece of infrastructure in the project area and indicate whether it would be abandoned, removed, upgraded, or allowed to remain. Consider whether the decommissioning or upgrading of infrastructure on the Sacramento River that was done during the CALFED era (e.g., Red Bluff Diversion Dam, Battle Creek, Hammer Diversion Dam) [6] offers any lessons learned that could be applied to Reach 2B and beyond on the San Joaquin River.

F-EPA-11

Clean Water Act Section 404

The proposed project would include the fill, fragmentation, isolation, diversion or substantial alteration of jurisdictional waters and wetlands during both the construction and operations/maintenance of the proposed project. EPA recognizes that the proposed project is expected to result in a net increase in the overall extent and function of jurisdictional waters and wetlands within the project area; however, the

---

[5] *Floodplain Ecosystem Services Valuation for Carson Valley* (2010)
http://www.cwsd.org/wp-content/uploads/2014/11/Final-Floodplain-Ecosystem-Services-Valuation.pdf
Multi-benefit floodplain conservation through prioritization of agricultural conservation easements (2013)
http://www.esm.ucsb.edu/research/2013Group_Projects/documents/Santa_Clara_Poster.pdf
Sustainable Floodplains through Large-Scale Reconnection to Rivers (2009)
http://www.sciencemag.org/content/326/5959/1487.full
From Storage to Retention: Expanding California's Options for Meeting Its Water Needs (2012)
http://agwaterstewards.org/images/uploads/docs/CRWFS_Storage_to_Retention.pdf

[6] Red Bluff Fish Passage Improvement Project
http://www.usbr.gov/mp/rbfish/index.html
Battle Creek Salmon and Steelhead Restoration Project
https://www.dfg.ca.gov/ERP/erp_proj_battle_ck.asp
Hammer Diversion Dam
http://www.westcoast.fisheries.noaa.gov/stories/2015/03_03032015_hammer_dam.html

F-EPA-11 cont.

DEIS does not include sufficient detail to support a comparison of the impacts across the alternatives. The identification of potential direct and secondary effects is not clear. For each alternative, the DEIS provides an inventory of the maximum total acres of waters of the United States potentially impacted, assuming that all jurisdictional waters within the project area are "potentially impacted" (p. 15-16). In order to assess the relative impacts to waters and wetlands across the project alternatives, a higher-resolution approach is needed to document, for each alternative, the pre- and post-project acreages, types, and functions of jurisdictional features, the quantity and magnitude of temporary or permanent impacts, and the mitigation strategies that would be employed.

In addition, EPA understands that BOR intends to seek an Individual Permit from the Sacramento Corps District under Clean Water Act §404. Under §404, the Corps can only permit the Least Environmentally Damaging Practicable Alternative (LEDPA). The DEIS does not discuss the steps necessary to initiate or complete this permitting process; however, it does explain that the implementation of Conservation Measures WUS-1 and WUS-2 would reduce potentially significant impacts to wetlands to below the threshold of significance. These conservation measures closely resemble the basic requirements of CWA §404 (e.g., commitments to delineate, avoid, and minimize potential impacts to jurisdictional waters).

Recommendation:
Work with the Sacramento Corps District to characterize jurisdictional features that would be directly or indirectly impacted by the proposed project under each alternative. Provide, in the FEIS, updated and high-resolution information about the acreages, types, and functions of jurisdictional features that the project would impact. Using this more rigorous information, identify the LEDPA and design a mitigation strategy for compensating for project impacts within the vicinity of Reach 2B. The FEIS should also include a brief overview of the permitting process for the proposed project under CWA and ESA. Given that this is a unique project attempting to undo many decades worth of environmental damage, consider any factors that may necessitate a unique pathway through the regulatory process. Include, in the FEIS, a draft alternatives analysis that meets the requirements of the CWA Section 404(b)(1) Guidelines as a basis for selecting the LEDPA.

F-EPA-12

Subsidence of the San Joaquin Valley Floor

The USBR addresses the matter of land subsidence in Sections 11, 13 and 14 of the DEIS. Although the history of land subsidence is acknowledged in these Sections, the cited data all date from 2008 or earlier. The ongoing historic drought in California has resulted in a rapid acceleration in the rates of land subsidence in the San Joaquin Valley; therefore, more current data are needed to accurately document baseline conditions and better describe how land subsidence may affect the project and its restoration goals.

Recommendation:
Include, in the FEIS, more recent data documenting land subsidence in the project vicinity, and discuss what the current trends mean for conditions in the project area. Explain whether or not groundwater depletion and the acceleration of ground subsidence of the San Joaquin Valley floor will create new obstacles for the success of the Restoration Program, and what, if anything, USBR can or will do to stabilize or reverse the damage from this subsidence.

F-EPA-13

Environmental Justice

The two-county region in which the proposed project would be constructed contains an overall minority population of 66.5%, as well as 37% more people living in poverty, compared to the State average. The DEIS states that the project could result in disproportionately high and adverse effects on minority and low income populations as a result of the removal of land from agricultural production and the exposure

F-EPA-13 cont.

of sensitive receptors to construction-related air pollutant emissions. While these potential impacts are described, no mitigation measures to work with the minority and low-income communities to offset these effects are disclosed.

Recommendation:
Identify, in the FEIS, mitigation measures that could reduce and offset potential adverse effects on surrounding minority and low-income populations. For example, consider implementing a local job training and hiring program to further offset job loss associated with the removal of agricultural lands from production. Other measures could include notification of the local community regarding the scheduling of construction activities, and actions they might take to avoid exposure to construction related air emissions.

II.3.2 Responses to the U.S. Environmental Protection Agency

Response to Comment F-EPA-1
The U.S. Environmental Protection Agency (EPA) comments and the attachments to the comments have been reviewed and considered in preparation of the Final EIS/R.

Response to Comment F-EPA-2
The Project proponents and the Implementing Agencies appreciate your support of the Project.

Response to Comment F-EPA-3
Additional Project information is included in the Final EIS/R regarding these topics and provided below in response to comments F-EPA-7 through F-EPA-13.

Response to Comment F-EPA-4
The Project proponents and the Implementing Agencies appreciate your support of the Project. Agency involvement has been a priority for the SJRRP and for development of the Project as exhibited by the stakeholder involvement process such as the Environmental Compliance Workgroup meetings for the SJRRP.

Response to Comment F-EPA-5
Copies of the Final EIS/R will be provided as requested.

Response to Comment F-EPA-6
There are no specific statements about the Project or the EIS/R in this comment.

Response to Comment F-EPA-7
Until the recent geotechnical investigations were conducted at the site (summer 2015), it had been unclear if the soils in the Project area were suitable for construction of the setback levees or if additional borrow materials would need to be transported from offsite areas. Based on recent geologic investigations, Reclamation anticipates that borrow would be taken primarily from within the setback levees for the new floodplain, and minimal if any borrow material would be needed from outside of the setback levees. Therefore, it has been assumed that all levee fill would come from local borrow sites. The air quality impacts for the Project were reanalyzed using this assumption and the air quality analysis presented in Section 4.3 of the Final EIS/R was updated accordingly. Potential effects from implementing the proposed mitigation measures were also analyzed. Although the revised air quality modeling is considered to be more accurate, the level of detail is still limited by the fact that the Project is not fully designed. Therefore, assumptions were required regarding the location of the various Project features such as the construction office and concrete batch plant. Quantification of final emission offsets required during construction would occur at later stages of design when the construction schedule has been revised. However, estimates of potential emissions reductions from implementation of mitigation measures have been provided in Section 4.3.3 of the Final EIS/R.

The suggested mitigation measures have been reviewed and incorporated into the Project mitigation measures, where appropriate. This EIS/R's air quality mitigation measures

require similar emission reduction strategies to those recommended in the comment letter. For example, Mitigation Measure AQ-1 in Section 4.3.3 of this EIS/R requires all off-road construction diesel equipment to use the cleanest reasonably available equipment or consider alternative fueled equipment or addition of after-market control devices. Furthermore, it requires the contractor to document the efforts it undertook to locate the newer equipment, alternative fueled equipment, and addition of after-market control devices. This is similar to the recommendation to use the best available emissions control technologies for Project equipment. The construction traffic management plan is another example of how recommendations in the comment letter are similar to those measures required in this EIS/R. Section 2.2.12 of this EIS/R describes the commitment made by the SJRRP ROD (Reclamation 2012) to prepare and implement a traffic management plan that identifies the number of truck trips, time of day for arrival and departure of trucks, limits on number of truck trips, and traffic circulation control measures. These control measures typically include advertising planned lane closures, warning signage, a flag person to direct traffic flows when needed, and methods for maintaining continued access by emergency vehicles.

Additional clarifying details regarding the recommended administrative controls are included in Section 4.3.3 of the Final EIS/R. Specifically, Mitigation Measures AQ-1A and AQ-1B require the contractor to prepare an inventory of all equipment and of the material hauling vehicle fleet prior to construction. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R (since the information clarifies and amplifies the information provided in the Draft EIS/R, recirculation is not required; see State CEQA Guidelines, § 15088.5).

A Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) is currently being coordinated, is included in the Environmental Commitments in Section 2.2.12 of the EIS/R, and will be discussed in the Project's ROD and CSLC's CEQA Findings.

Response to Comment F-EPA-8

Section 8.2.1 of the Final EIS/R, the regulatory setting for climate change and greenhouse gas emissions, has been updated to reflect the new CEQ draft guidance.

Although a general analysis of climate change impacts on the SJRRP, as a whole, is not within the scope of the EIS/R (see State CEQA Guidelines, §15152, subd. (d)(1), and Section 7.3 of Reclamation's NEPA Handbook), additional information has been provided here and in Section 8.1 of the Final EIS/R, the environmental setting, to describe the findings of Reclamation's white paper on climate impact assessments for the Restoration Area (Reclamation 2015b). In addition, the PEIS/R provides a discussion of climate change impacts on water temperatures in the fisheries chapter.

Climate change poses a threat to Reclamation's basic mission objectives, including both delivering quantities of water and sustaining environmental flows (Reclamation 2014a), and adapting to, and incorporating strategies to address, climate change are part of the CSLC's Guiding Principles and Values and a critical component of its Strategic Plan (CSLC 2015). In response, and as directed by both Section 9503 of the 2009 Secure

Water Act and Secretarial Order No. 3289, Reclamation developed a Climate Impact Assessment for the Sacramento and San Joaquin River Basin and the Central Valley Project Integrated Resource Plan (Reclamation 2014b and 2014c). These reports and other studies provide climate change prediction for the Restoration Area and are integrated into the SJRRP's plans and actions.

The Final EIS/R includes a new section in the environmental setting, Section 8.1.3, that discusses the climate impact assessments performed by Reclamation, provides climate change projections for air temperature, runoff, and water temperature, and discusses a range of climate change adaptations that can be used by the SJRRP to support the Restoration Goal and to address rising water temperatures. Key climate change predictions include the following:

- Air temperatures in the basin are predicted to rise, on average, by 3.6° F (2.0° C); predictions range from 1.8° to 4.7° F (1.0° to 2.6° C) (Reclamation 2014b).
- Runoff in the basin is predicted to decline, on average, by 6 percent; predictions range from +25 percent to -31 percent (Reclamation 2014b).
- San Joaquin River water temperatures at Gravelly Ford are predicted to increase in all climate change scenarios (Reclamation 2014a) due to the combined effects of changes in runoff and air temperature. Predictions range from 0.3° to 1.5° F (0.2° to 0.8° C) warmer during summer months by mid-century (Reclamation 2014b, Das 2015).

Section 8.1.3 of the Final EIS/R also discusses a range of climate change adaptations that could be implemented by the SJRRP. Key findings and adaptive strategies include, but are not limited to, the following.

- Enhanced riparian vegetation can substantially lower water temperatures by several degrees, particularly if shading is increased over several miles of riverway. The SJRRP has evaluated shading scenarios in a calibrated and verified water temperature model for the San Joaquin River, finding that dense riparian vegetation shading can reduce summer temperatures by approximately 3° F.
- Altering the river geomorphology, principally by narrowing the low-water channel, can also have a beneficial impact upon water temperature. SJRRP modeling demonstrates that reducing channel width and increasing channel depth may reduce summer temperatures by 3° to 9° F.
- Water temperature models as available on the San Joaquin River do not adequately characterize the thermal structure of deep pools in the river, which provide a refuge for fish during periods of warmer water temperatures. These thermal refugia already exist in the San Joaquin River and bypasses and will improve fish survival during warmer periods.
- Fish temperature thresholds are generally protective of the full range of fish temperature tolerances, and thus a self-sustaining naturally reproducing population may be possible without meeting temperature thresholds during all migration windows. Fish temperature thresholds represent key aspects of their

tolerances, and operate over a gradient – not an absolute number; critical temperatures do not mean all fish die, but that on average their survival decreases.

The basic purpose of the Project is to create a bypass channel around Mendota Pool that can convey at least 4,500 cfs from Reach 2B to Reach 3, to modify channel capacity in Reach 2B to ensure conveyance of at least 4,500 cfs between the Chowchilla Bifurcation Structure and the new bypass channel, and to provide the ability to divert 2,500 cfs to Mendota Pool when water deliveries are required. The bypass channel, floodplain levees, and water control structures are designed to accommodate a range of flows up to the design capacity. A reduction in future runoff due to climate change would not reduce the conveyance effectiveness of these structures.

The Project also supports the Restoration Goal, providing rearing habitat for fish. The frequency of floodplain inundation, which supports invertebrate growth, could be affected by climate change. Although runoff is expected to decrease (Reclamation 2014b), increasing the frequency of Normal-Dry water year types while decreasing the frequency of Normal-Wet water year types, it would be speculative to correlate this with changes in invertebrate abundance on the floodplain.

The adaptive strategies discussed above have been considered in the Project design. Floodplain and channel designs in the Action Alternatives are incorporating a range of climate change adaptations, including a narrow low flow channel and heavy riparian vegetation near the low flow channel. As discussed above, the SJRRP has done HEC-5Q water temperature modeling to determine the temperature benefit of these actions (SJRRP 2008). These two adaptations alone, when done over several reaches of the San Joaquin River, are anticipated to reduce summer temperatures by more than 3° F, greater than the anticipated summer warming by mid-century due to climate change.

The new material included in Section 8.1.3 of the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. It is providing additional information about the recent white paper on climate change prepared by Reclamation.

Response to Comment F-EPA-9

Although SJRRP management actions are outside the scope of the EIS/R, Reclamation agrees that there are many opportunities to leverage SJRRP-related investments in the San Joaquin River with other ongoing programs to greatly improve the riparian vegetation, wildlife, and ecosystem characteristics of this portion of the San Joaquin River. Reclamation is pursuing these opportunities in several ways, described below.

- San Joaquin River Partnership – Reclamation's SJRRP office has a close relationship with the San Joaquin River Partnership. The Partnership comprises a group of non-profits that are dedicated to maximizing the benefits of the SJRRP and restoration of the San Joaquin River. Reclamation has held several meetings over the past 2 years to identify opportunities for non-profits to assist in fisheries restoration, fish passage, and habitat restoration projects, and regularly briefs members of the partnership on the actions of the SJRRP. Reclamation has funded the San Joaquin River Parkway Trust and River Partners to implement invasive

species removal along the San Joaquin River, and these non-profits are currently pursuing other funding sources from the Wildlife Conservation Board and DFW to further increase their positive impact on the watershed.

- Seepage Management Plan – Reclamation's Seepage Management Plan discusses implementing seepage projects to allow increased Restoration Flows while avoiding material adverse groundwater supply impacts to adjacent crops through waterlogging or root-zone salinity. Seepage projects, which Reclamation has identified nearly $200 million in the Revised Framework to implement through 2030, include interceptor lines and slurry walls, but also seepage easements. Reclamation to date has purchased 400 acres of seepage-impacted property in fee from a willing landowner, and Reclamation plans to convert the property to compensatory mitigation land, restored habitat for multi-species benefits, and/or more wildlife-friendly farming in the future. In places with willing landowners, Reclamation is open to acquiring seepage-impacted lands in fee or acquiring more extensive flood and seepage easements to allow a large floodwater detention basin and riparian corridor that would greatly improve riparian habitat as well as flood protection for the disadvantaged communities of Firebaugh and Mendota. Reclamation has pursued this related to the Firebaugh Multi-Benefit Project described below, but has run into challenges with willing landowners due to the high prices available for nut crops, which are encouraging conversion of farmland to orchards next to the river and decreasing landowner willingness to sell property or sell extensive easements.
- Firebaugh Multi-Benefit Project – Reclamation's SJRRP office has spearheaded an effort along with DWR's former Central Valley Flood Protection Plan San Joaquin Basin-wide Feasibility Study branch chief to develop a multi-benefit project providing flood protection for the City of Firebaugh, habitat restoration, recreation, and groundwater recharge on floodplains. The first stage of the project would provide approximately 250 acres towards meeting the Central Valley Flood System Conservation Strategy goals. Reclamation has worked closely with the Department of Water Resource's Central Valley Flood Protection Plan, Basin-Wide Feasibility Study, and Regional Flood Management Planning staff, as well as American Rivers, River Partners, Audubon California, the City of Firebaugh, LSJLD, and the Corps. Project planning occurred due to conversations started at the Upper San Joaquin River Regional Flood Management Planning meetings. Reclamation is a member of the Firebaugh Working Group, whose first official meeting was held on August 31, 2015, and Reclamation contributed to grant applications for Wildlife Conservation Board and DFW grants related to land acquisition to start implementing the project. Reclamation's SJRRP office has identified funding for 50 percent of the initial land acquisition cost through the seepage management program.
- Refuge Water Supply - Reclamation's SJRRP office has obtained flowage easements across 8 private landowners in the Eastside Bypass to allow for passage of Restoration Flows. In coordination with the Central Valley Project Improvement Act branches of Reclamation and the USFWS, the SJRRP included refuge water supply in these flowage easements. This has provided an alternate

path for delivery of water to the East Bear Creek unit of the San Luis National Wildlife Refuge, a CVPIA refuge that has challenges getting water supply. Restoration Flows will wet the San Joaquin River and Eastside Bypass, which will greatly reduce conveyance losses for a variety of water transfers and exchanges that share channel capacity, including refuge water supply. Reclamation's SJRRP office is also working on identifying other opportunities to assist refuge water supply efforts.

- Funding – Appendix E of the Revised Framework describes alternate funding sources for projects that might be able to be combined with SJRRP funding to maximize benefits. Reclamation has unsuccessfully applied to several of these grant programs in the past, and will continue to do so with the help of partners that may have better luck in obtaining funding.
- Outreach – Reclamation is in the planning stages of an outreach campaign to increase the visibility of the San Joaquin River to local youth. Reclamation hopes, with the help of multiple non-profits and the San Joaquin River Partnership, to provide opportunities for local residents to see and participate in Chinook salmon recovery efforts and riparian revegetation efforts. Reclamation recognizes that the long-term viability of a restored San Joaquin River will depend on having an engaged local community that values the river and its ecosystem as a resource.

These overall SJRRP efforts are not directly related to this Project. On this Project, Reclamation has reviewed historical photos and maps, and consulted fluvial geomorphologists and restoration ecologists to set levee alignments to minimize seepage and maximize ecosystem processes. As an example, Reclamation has identified levee alignments that are at least 300 feet from the river to allow for geomorphologic processes, even though the San Joaquin River has not moved by more than a few dozen feet in the past 100 years in this reach. Alternative D, with the widest levee alignment, was not identified as the preferred alternative, as Alternative B's consensus-based levee alignment provides nearly the same number of floodplain acres and ecosystem function, but would be much less impactful on the local farming community.

Reclamation is also open to working with the City of Mendota to develop a multi-benefit project and incorporate local community interests into this project to the extent feasible. Reclamation has pursued this by holding a Spanish-speaking community meeting on this project, as well as several meetings with the City of Mendota. As described in the Revised Framework, Reclamation has limited funding, and so appreciates any partners that can improve the value of the SJRRP while avoiding cost increases.

While this Final EIS/R does not incorporate payment for ecosystem services, Reclamation anticipates pursuing a similar approach in Reach 2B. Reclamation would be purchasing the lands between the new setback levees in Reach 2B in fee title, or may acquire extensive easements that allow Reclamation to control the land use between the levees. Farming would be allowed within the floodplain, as several areas would only inundate for a few weeks every other year. However, Reclamation would allow only wildlife friendly farming within this floodplain, and would allow farming with the understanding that properties may flood.

In other reaches of the San Joaquin River where no major setback levees are identified, Reclamation is pursuing seepage management projects as described above. The Seepage Management Plan identifies groundwater seepage easements as a mechanism for compensating landowners. Reclamation is open to acquiring seepage and flowage easements where there are willing landowners, in coordination with partners and other funding sources. Acquiring seepage and flowage easements would permanently compensate landowners for flooding and contribute towards flood protection for downstream communities as well as ecosystem benefits.

Response to Comment F-EPA-10

Section 2.2.4 of the Final EIS/R has been revised to include a summary list of the major utility relocations that would be needed for Project construction. The specific quantities for each type of utility relocation, previously discussed in Section 2.2.9 of the Draft EIS/R, have also been summarized in Section 2.2.4 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. Natural gas pipelines would be buried lower in the soil column and water pipelines would be buried lower in the soil column or relocated outside of the levees. Two of the three City of Mendota groundwater wells would be avoided, while the third would be floodproofed and protected. Several diversions off of the San Joaquin River and discharge locations into the San Joaquin River would be relocated to the Fresno Slough, removing fisheries concerns for San Joaquin River Chinook salmon. In addition, one of the major goals of the Project at hand is to create a bypass channel around Mendota Dam, which would eliminate a key fish passage barrier that is similar to, although much smaller than, the Red Bluff Diversion Dam.

A comprehensive list of the floodplain infrastructure, and the fate of the infrastructure, is being developed for the design and construction efforts in the Reach 2B Improvements area. Final decisions regarding the fate of the other infrastructure on the floodplain will consider the recommendations and examples provided.

Response to Comment F-EPA-11

Additional detail and text clarifications have been included in Chapter 15, "Hydrology – Wetlands and Aquatic Resources" of the Final EIS/R as discussed below. Inclusion of this clarifying and amplifying detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Section 15.3.3 of the Draft EIS/R provides impact acreages for each of the Action Alternatives. The Final EIS/R includes a new summary table that compares the alternatives to each other and provides text that indicates that Alternative B has the smallest impact on wetlands and other waters of the United States when compared to the other Action Alternatives. The impact acreage in the EIS/R was calculated based on the maximum impacted area, which includes the future floodplain. Floodplain design details have recently become available for the preferred alternative (Alternative B) and these design details have been used to refine impact calculations in the Section 404 permit application. Because this level of design detail is not available for Alternatives A, C, or D to allow for a consistent methodology for estimating impacts from the Action

Alternatives, the same assumptions and methodology used to estimate impacts in the Draft EIS/R was maintained in the Final EIS/R.

Section 15.3.3 of the Draft EIS/R, Impact WET-1, discusses the direct, construction-related effects of the Action Alternatives. Additional clarifying detail was included in the Final EIS/R to indicate how specific construction features would impact wetlands and other waters of the United States. The conditional language used in this discussion in the Draft EIS/R (*i.e.,* "could result") was also changed in the Final EIS/R to indicate that Project actions "would" result in discharge of dredged or fill material into waters of the United States.

Section 15.3.3 of the Draft EIS/R, Impact WET-2, discusses the long-term, indirect effects (both adverse and beneficial) that are expected to occur over the O&M phase of the Project. The Final EIS/R includes clarifying text indicating that, although some wetlands and other waters would be lost as a result of Project implementation, there would be an increase in the total acreage of wetland and other waters, and there would be an overall improvement to the wetland and riverine system's functions and values due, in part, to restoring the function and flow of Reach 2B, reestablishing fish passage between Reach 2B and Reach 3, and creating additional habitat for listed and other fish species.

Section 15.2.1 of the Draft EIS/R includes a discussion of the Clean Water Act (CWA) and briefly describes the Section 404 permitting process. Additional clarifying detail was included in Section 15.2.1 of the Final EIS/R to describe the Section 404 permitting process, as well as the Section 401 permitting process, the Section 404(b)(1) process, and the Corps' determination of the Least Environmentally Damaging Practicable Alternative (LEDPA) which considers ESA. This information, and other related permits and regulations have been discussed in Chapter 26, "Other NEPA and CEQA Considerations," and/or Chapter 27, "Consultation, Coordination, and Compliance" of the Draft EIS/R, but these clarifications were also included in Section 15.2.1 of the Final EIS/R for consistency. The Section 404(b)(1) information, provided in Part VI – Appendices to the Responses of the Final EIS/R, is also referenced in Section 15.2.1 of the Final EIS/R.

The Project is expected to be self-mitigating. Conservation Measures WUS-1 and WUS-2 (discussed in Sections 2.2.10 and 15.3.3 of this EIS/R) describe the conservation strategy that will be implemented by the Project for wetlands and other waters of the United States, including commitments to delineate, avoid, and minimize potential impacts to jurisdictional waters. In addition, habitat restoration estimates provided in Section 15.3.3 are updated in the Final EIS/R. Each of the Action Alternatives is expected to increase the amount of jurisdictional wetlands and other waters of the United States in the Project area; however, the preferred alternative is expected to have the largest percent increase in jurisdictional wetlands and other waters, as compared to the other Action Alternatives. The acreage is expected to double, as compared to existing conditions.

Reclamation has been working closely with the Corps to characterize jurisdictional features and has submitted a preliminary jurisdictional wetland delineation report, draft 404(b)(1) alternatives analysis, and Section 404 permit application to the Corps. The

jurisdictional delineation and 404 permit application provide detailed information for each wetland and water feature in the Project area, characterizes the feature's vegetation, soils, and hydrology, and categorizes the feature using Cowardin's system for classifying wetlands and deep water habitats (Cowardin et al. 1992). The 404 permit application also discusses the types and function of the jurisdictional features, provides refined Project impact acreages, and discusses the mitigation strategy. Although the LEDPA has not been identified by the Corps in the EIS/R, the 404(b)(1) information is provided in Part VI – Appendices to the Responses of the Final EIS/R, and can be used by the Corps for a LEDPA determination in the ROD.

Response to Comment F-EPA-12

Reclamation agrees that subsidence is a major issue and is taking a variety of actions to account for subsidence in implementation of the SJRRP. As described in MCR-3: Subsidence, Reclamation has established the SJRRP Geodetic Control Network to monitor subsidence within the SJRRP Restoration Area and has conducted biannual monitoring since 2011. DWR has conducted levee surveys along the flood bypass in 2012 and 2013. These efforts have allowed Reclamation to characterize recent ground subsidence in the Restoration Area.

Data compiled by Reclamation for recent (December 2011 to December 2015) subsidence rates in the Restoration Area and Project area are included in Sections 11.1.7 and 13.1 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. Subsidence rates range from about 0.15 foot per year to 0.75 foot per year in the Restoration Area, as calculated from survey data collected between December 2011 and December 2015 (SJRRP 2016a, Reclamation 2016). Annual subsidence rates have varied with time, but in general, subsidence trends appear to have either remained constant, or in some areas increased in the Restoration Area, since the start of the surveys. Subsidence rates in the Project area range from about 0 to 0.3 foot per year, as calculated from survey data collected between December 2011 and December 2015 (Reclamation 2016). Subsidence rates vary annually, with higher rates occurring during critical dry conditions when the river is dry and when groundwater pumping is likely to increase. For example, average subsidence rates in the Project area were 0.15 to 0.3 foot per year in 2015 during critical dry conditions.

Solving subsidence issues in the Restoration Area is outside of the scope of the Project and Reclamation's authority in the Settlement Act. However, because subsidence is anticipated in the Project area, Reclamation is designing new Reach 2B levees and water control structures (such as the Mendota Pool Control Structure and the Compact Bypass Control Structure) to account for 5 feet of subsidence. This is equivalent to the current rate of subsidence for 25 years. This design criterion is considered conservative, because in 2040 (25 years from now) the Sustainable Groundwater Management Act will have required Groundwater Sustainability Agencies to reach sustainable levels of groundwater withdrawal in critically-overdrafted State groundwater basins. This presumably means that subsidence will have stopped in the Project area by 2040. The Project area is in a critically-overdrafted basin. To account for subsidence, Reclamation is designing additional freeboard on levees, additional height of control structures and intake facilities,

and additional stoplogs or concrete walls to maintain the same low flow elevation after years of subsidence on control structures. These factors will allow the Mendota Pool Bypass and Reach 2B project structures to remain operable and effective for many decades to come.

Response to Comment F-EPA-13

Section 10.3.3 of this EIS/R evaluates effects on environmental justice communities, including those effects due to removing land from agricultural production. Mitigation measures implemented for agricultural resources can also reduce adverse effects on environmental justice communities through coordination with landowners and agricultural operators during construction. This EIS/R includes a measure that will be implemented for agricultural resources that requires Reclamation to coordinate with local growers to minimize traffic-related disruption from construction activities (Mitigation Measure LU-1). This EIS/R also includes a measure that requires local emergency dispatchers to be notified of temporary road closures (Mitigation Measures TRA-4A and TRA-4B.) Also note that under the preferred alternative, agricultural activities would be allowed on the floodplain after construction, which would reduce job impacts to the community. Reclamation has held a meeting discussing this Project with the Spanish-speaking community in the City of Mendota, and anticipates holding several more meetings throughout Project implementation.

Reclamation is already implementing a local job hiring program through our invasive species removal program with the San Joaquin River Parkway Trust and River Partners. These organizations are overseeing invasive species removal with paid labor hired from the agricultural worker community. Reclamation's Revised Framework anticipates funding this program at $300,000 per year throughout SJRRP implementation.

While Reclamation cannot require construction contractors to hire local labor, Reclamation will encourage that construction contractors hire local labor when bidding our major construction activities for this Project.

II.4 Comments from State Agencies and Responses

II.4.1 California Department of Conservation, Division of Land Resource Protection

State of California • Natural Resources Agency
Department of Conservation
Division of Land Resource Protection
801 K Street • MS 18-01
Sacramento, CA 95814
(916) 324-0850 • FAX (916) 327-3430

Edmund G. Brown Jr., *Governor*
John M. Lowrie, *Assistant Director*

July 13, 2015

VIA EMAIL: REACH2B_EISEIR_COMMENTS@RESTORESJR.NET
Ms. Becky Victorine
Bureau of Reclamation
San Joaquin River Restoration Program, MP-170
2800 Cottage Way
Sacramento, CA 95825-1898

Dear Ms. Becky Victorine:

S-DOC-1 MENDOTA POOL BYPASS AND REACH 2B IMPROVEMENTS PROJECT; DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENIVRONMENTAL IMPACT REPORT; SCH# 2009072044

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) submitted by Bureau of Reclamation and the California State Lands Commission. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Department offers the following comments and recommendations with respect to the proposed project.

S-DOC-2 Project Description

The project includes the construction, operation, and maintenance of the Mendota Pool 2 Bypass and improvements in the San Joaquin River channel in Reach 2B. The project consists of a floodplain width which conveys at least 4,500 cubic feet per second (cfs), a method to bypass Restoration Flows around Mendota Pool, and a method to deliver water to Mendota Pool.

The project area is located in Fresno and Madera counties, near the town of Mendota, California. The project footprint extends from approximately 0.3 mile above the Chowchilla Bifurcation Structure to approximately 1.7 miles below the Mendota Dam. Agriculture is the primary land use in the project area and represents a key industry in the local and regional economy. Approximately 76 percent of lands (4,508 acres) within the project area are located in an agricultural preserve and are under Land Conservation Act (LCA) contract[1].

S-DOC-3 Public Acquisition Notification Process

The California Land Conservation (Williamson) Act of 1965 statute states that public agencies shall notify the Director of the Department, *before* making a decision to acquire property located in an agricultural preserve (Government Code(GC) §51291(b)). To date, the Department has not received the required notice. The intent of GC §51291(b) is to facilitate the Department's review and enable the acquiring public agency to consider the Department's comments before land located in an agricultural preserve is acquired. The manner in which property acquisition is

[1] Mendota Pool Bypass and Reach 2B Improvements Project; Draft Environmental Impact Statement/Report, June 2015, page 16-8.

S-DOC-3 cont. followed is key to ensuring that any Williamson Act contract can be removed, facilitating the improvement.

It is important that the notice come to the Department before public agencies intending to acquire property begin negotiating with landowners. Agencies are advised to await the Department's comment letter in response to its notification, so that they can be ensured they have begun the process in accordance with statute.

S-DOC-4 Enclosed for your benefit is a copy of the Public Acquisition Notification Provisions of the Williamson Act, which we offer as a guide for the public process. Notice is required in the following instances:

1. Notice before making a decision to acquire property located in an agricultural preserve;
2. Notice within 10 days when the property is actually acquired;
3. Notice if the public entity proposes any significant changes to the acquisition; and
4. Notice after acquisition if the acquiring public agency decides not to acquire the property for the intended purpose.

S-DOC-5 In order for the Lead Agency to meet the notice requirements and facilitate the project, it should directly notify the Director of the Department of Conservation of its intent to acquire land located within an agricultural preserve.

S-DOC-6 Thank you for giving us the opportunity to comment on the Mendota Pool Bypass and Reach 2B Improvement Project, Draft Environmental Impact Statement/Report. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Molly A. Penberth, Manager
Division of Land Resource Protection
Conservation Support Unit

Enclosure

cc: State Clearinghouse

cc: Fresno County Planning and Land Use Department

cc: Madera County Planning Department

II.4.2 Responses to California Department of Conservation, Division of Land Resource Protection

Response to Comment S-DOC-1
Your comments have been reviewed and considered in preparation of the Final EIS/R.

Response to Comment S-DOC-2
This comment describes the Project information from Chapters 2 and 16 of this EIS/R. There are no additional comments about the Project or the EIS/R.

Response to Comment S-DOC-3
As described Section 16.3.3 of this EIS/R, Mitigation Measure LU-1, Reclamation will notify the Department of Conservation and the appropriate city or county when land within a preserve or under Williamson Act contract is required for the Project. Reclamation is currently completing the notice requirements to the Department of Conservation.

Response to Comment S-DOC-4
Noticing requirements are included in the enclosure in which Reclamation will use as a guide for land acquisitions subject to the Williamson Act.

Response to Comment S-DOC-5
This comment refers to the notice requirements for public acquisition of lands under a Williamson Act contract and raises issues that are similar to comment S-DOC-3. See response to comment S-DOC-3.

Response to Comment S-DOC-6
The Department of Conservation will be notified of future hearings and Project reports. The Department has been added to the Project mailing list, and as such, will be notified of all future meetings regarding the Project. Technical reports for the Project can be found on the Project website (http://www.restoresjr.net/restoration-goal/2b-and-mendota-reach-bypass/.)

II.4.3 California Department of Fish and Wildlife

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN, JR., Governor
CHARLTON H. BONHAM, Director

August 10, 2015

Ms. Becky Victorine
Bureau of Reclamation
San Joaquin River Restoration Program Office MP-170
2800 Cottage Way
Sacramento, California 95825

Mr. Christopher Huitt
Senior Environmental Scientist
State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, California 95825

Subject: Mendota Pool Bypass and Reach 2B Improvements Project Draft Environmental Impact Statement/Report

Dear Ms. Victorine and Mr. Huitt:

S-CDFW-1

The California Department of Fish and Wildlife (Department) has reviewed the Mendota Pool Bypass and Reach 2B Improvements Project Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R). The DEIS/R was prepared by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), as the Federal lead agency under the National Environmental Policy Act (NEPA), and the California State Lands Commission (CSLC), as the State of California (State) lead agency under the California Environmental Quality Act (CEQA). Approval of the Project would allow for the construction, operation, and maintenance of a Mendota Pool bypass, channel and floodplain improvements to convey at least 4,500 cubic feet per second (cfs) in the San Joaquin River Reach 2B and improve fish passage

Under the preferred alternative (Alternative B) a bypass channel would be constructed from Reach 2B to Reach 3 to convey at least 4,500 cfs around Mendota Pool. The bypass channel would be approximately 5,300 feet long with an average total corridor width of approximately 1,150 feet. Once constructed the bypass channel would become the new river channel capable of fish passage. A series of two to six grade control structures may be constructed within the bypass to achieve the necessary elevation change between Reach 2B and Reach 3. A new Compact Bypass Bifurcation Structure would be built at the head of the compact bypass to control diversions into Mendota Pool. The Compact Bypass Bifurcation Structure will have a fish passage facility on the

Conserving California's Wildlife Since 1870

S-CDFW-1 cont.

bypass side and a fish screen on the San Joaquin River side. The San Joaquin River control structure at the existing Chowchilla Bifurcation Structure would be modified with a new fish passage facility. An access road to the Mendota Pool, Drive 10 ½, would be rerouted and realigned. The existing crossing at the San Mateo Avenue would be removed. A siphon under the bypass channel would be constructed to connect the Columbia Canal to the Mendota Pool. After construction is complete, agricultural practices could occur on the floodplain in previous agricultural areas outside of State-owned and public trust lands. Time to complete total construction is estimated to range between nine to thirteen years.

The Project would be undertaken as part of the San Joaquin River Restoration Program (SJRRP), which arises from the Settlement Agreement reached as a result of federal court action in *Natural Resources Defense Council (NRDC) et al. 14 v. Kirk Rodgers et al.* By signing a Memorandum of Understanding between with settling parties and certain other state agencies, the Department has agreed to assist the settling parties in the Settlement Agreement's implementation, consistent with its authorities, resources, and broader regional resource strategies. The Department is an Implementing Agency for the SJRRP.

The Department's comments on the DEIS/R are consistent with the Department's role as an SJRRP Implementing Agency, and as a trustee and responsible agency under CEQA, and its commitment to providing technical assistance toward implementation of the SJRRP. This letter and the attached comment table are provided to assist in the completeness and accuracy of the DEIS/R. The Department as a responsible agency may utilize the DEIS/R to issue related discretionary authorizations if appropriate.

Department Jurisdiction

S-CDFW-2

Trustee Agency Authority: The Department is a Trustee Agency under CEQA with regard to the fish and wildlife of the state (Cal. Code of Regs., tit. 14, § 15386.) Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing biological expertise with respect to potentially significant impacts arising from project activities and means to mitigate or avoid such impacts.

In general, CEQA requires that for each significant impact identified in an Environmental Impact Report (EIR), the EIR shall describe feasible measures to avoid or substantially reduce the Project's significant adverse impacts. Mitigation includes measures that

S-CDFW-2 cont.

avoid, minimize, rectify, reduce or eliminate, or compensate for an impact. (Cal. Code Regs., tit. 14, § 15370.) Mitigation measures should be specific, feasible and fully enforceable actions that will improve adverse environmental conditions and should be measurable to allow monitoring and enforcement of their implementation.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species. (Cal Code Regs., tit. 14, § 15065). Significant impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a finding that changes or alterations are not within its jurisdiction but can and should be adopted by another public agency, or the Lead Agency determines that specific economic, legal, social, technological or other considerations make identified mitigation measures or alternatives infeasible. (Cal Code Regs., tit. 14, § 15091.) If impacts are not avoided or substantially lessened, the lead agency also must make a statement of overriding considerations (SOC). (Cal Code Regs., tit. 14, § 15091.)

S-CDFW-3

Responsible Agency Authority: The Department acts as a Responsible Agency for a project where another agency is the lead agency and the Department has discretionary approval over the project. (Cal. Code Regs., tit. 14, § 15381.) This may include an Incidental Take Permit (ITP), pursuant to the California Endangered Species Act (CESA), or a Lake and Streambed Alteration (LSA) Agreement issued under Fish and Game Code sections 1600 et seq.

Fish and Game Code section 2080 prohibits the "take" of species that is listed as endangered or threatened under CESA. If the Project could result in the take of any species listed as threatened or endangered under CESA, the Department may authorize take by issuing an ITP, pursuant to Fish and Game Code section 2081, subdivision (b).

A lead agency's compliance with CEQA, either by avoiding or minimizing an impact or adopting a SOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080. Consultation with the Department is warranted to ensure that Project implementation does not result in unauthorized take of a State-listed species. CEQA grants responsible agencies authority to require changes in a project to lessen or avoid effects of that part of the Project which the Responsible Agency will be called on to approve. (Cal. Code of Regs., tit. 14, § 15041).

The Department also has regulatory authority with regard to activities occurring in streams and/or lakes along with riparian habitat associated with and supported by watercourses, that could adversely affect any fish or wildlife resource, pursuant to Fish

S-CDFW-3 cont. and Game Code sections 1600 et seq. The DEIS/R identifies in-channel construction, including excavation of the bypass channel, construction of levees and in-channel structures, removal of existing levees, and relocation or modification of existing infrastructure within the bed, channel, and bank of the San Joaquin River. For additional information on notification requirements, please contact our staff in the Lake and Streambed Alteration Program at (559) 243-4593.

S-CDFW-4 **Permit Streamlining:** Issuance of an LSA Agreement and/or an ITP by the Department is a discretionary approval over a project. Therefore the Department must comply with CEQA in issuing such permits. Pursuant to the CEQA Guidelines, the Department considers the Lead Agency's final EIR and adopts its own findings. (Cal. Code of Regs., tit. 14, § 15096.) The attached comments are focused on impact analyses and mitigation measures that are germane to the Department's statutory authority, and are intended to ensure the certified DEIR/S is adequate for the Department's use. An adequate EIR would significantly ease permit issuance and, consequently, Project implementation. For that reason, it is very important that the DEIS/R reflect suitable and feasible avoidance, minimization, and compensatory mitigation.

S-CDFW-5 **Unlisted Species:** Species of plants and animals need not be officially listed as Endangered, Rare, or Threatened (E, R, or T) on any State or Federal list to be considered E, R, or T under CEQA. If a species can be shown to meet the criteria for E, R, or T, as specified in the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15380), it should be fully considered in the environmental analysis for the Project.

S-CDFW-6 **Fully Protected Species:** The Department has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited under these statutes and the Department cannot authorize their take.

The blunt-nosed leopard lizard is a fully protected species that has the potential to occur within or near the Project area. The CEQA document prepared for this Project should include all appropriate species-specific avoidance and minimization measures.

S-CDFW-7 **Bird Protection:** The Department has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any

S-CDFW-7 cont.

bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

Thank you for the opportunity to comment on the DEIS/R. If you have any questions regarding the attached documents, please contact Gerald Hatler, Environmental Program Manager, at the address provided on this letterhead or by telephone at (559) 243-4005, extension 127.

Sincerely,

Dean Marston

Dean Marston
Acting Regional Manager

cc: See Page Six

cc: Department of Water Resources
South Central Region Office
3374 East Shields Avenue
Fresno, California 93726

National Marine Fisheries Service Southwest Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814

United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Literature Cited

CDFG, 2004. Approved Survey Methodology for the Blunt-nosed Leopard Lizard. Department of Fish and Game, May 2004.

CDFG, 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. California Deptartment of Fish and Game, November 2009.

CDFG, 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. March 2012

The comments below are S-CDFW-Item-1 through S-CDFW-Item-38

San Joaquin River Restoration Program Document Comment Form Reach 2B Public Draft Draft EIS/R					
Item	Document	Chapter/Section	Page #	Line Number(s)	Comment
1		Ex. Summary	33	Table S-3	Under multiple Biological Resources-Fisheries impacts the No-Action Alternative is listed as Beneficial. This implies that there is no current fisheries issue within this Reach; its benefiting the fishery as is. The Department recommends "No-Impact" instead of Beneficial; as written it is inconsistent with the language mentioned in the Description of Alternatives section (i.e., No Action Alternative, Fisheries) which describes high rates of salmon loss if this work is not completed.
2		Ex. Summary and Ch. 2	36; 2-94	Table S-3 WILD-4; Table 2-8	Add in Conservation Measure SJKF-2 from Table 2-7 from the San Joaquin River Restoration Draft Program Environmental Impact Statement/Report (SJRRP Draft PEIS/R) to compensation for loss of habitat to the tables. In the event that this species is detected during surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid "take," or if avoidance is not feasible, to acquire a State ITP prior to any ground disturbing activities. The Department also recommends consulting with the United States Fish and Wildlife Service (USFWS) on potential impacts to this species. "Take" under the Federal Endangered Species Act (FESA) is more stringently defined than CESA; "take" under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of Project implementation.
3	Public Draft EIS-R	Ch. 1	1-11	Table 1-2	Include California Endangered Species Act and Lake and Streambed Alteration coordination in Table 1-2 .
4	Public Draft EIS-R	Ch. 2	2-27	36-37	Rodent control should target nuisance rodents and traps should be checked for non-target species frequently to avoid mortality to non-target species.
5	Public Draft EIS-R	Ch. 2	2-34, 35	Fig. 2-10; 2-11	Grade control structures missing from Alternative A figures although described in text.
6	Public Draft EIS-R	Ch. 2	2-49, 50	Fig. 2-10; 2-11	Grade control structures missing from Alternative B figures although described in text.
7	Public Draft EIS-R	Ch. 2	2-56	24-26	Alternative B (preferred alternative) does not include a Reach 3 Fish Barrier similar to Alternative A (Fig 2-7, Section 2.2.5 - Page 2-40/2-41 - Lines 39-42/1-25). The description in Alternative A states that without a constructed fish barrier, "[t]his would lead to delays in adult salmon migration or potentially death." Absent some type of barrier directing salmon up the bypass, a large number of salmon could be lost due to straying into the Kings River system or delays from holding indefinitely below Mendota Dam.
8	Public Draft EIS-R	Ch. 2	2-87	6-8	Include State Fully Protected Species in the list of protected species.

Item	Document	Chapter/Section	Page #	Line Number(s)	Comment
9	Public Draft EIS-R	Ch. 2	2-88	Table 2-8; BNLL-1	Per Fish and Game Code Section 5050 BNLL is a fully protected species. Because BNLL is fully protected and, therefore, no "take" incidental or otherwise can be authorized by the Department, protocol level surveys should be conducted prior to any ground-disturbing activities in all areas of suitable habitat following the Department's protocol level survey methods described in the Approved Survey Methodology for the Blunt-nosed Leopard Lizard (CDFG, 2004). Suitable habitat includes all areas of grassland and shrub scrub habitat that contains required habitat elements, such as small mammal burrows. These surveys, the parameters of which were designed to optimize detectability, must be conducted to reasonably assure the Department that "take" of this fully protected species will not occur as a result of Project implementation. It is important to note that protocol level surveys must be conducted on multiple dates during late spring, summer, and fall and that within these time periods there are specific date, temperature, and time parameters which must be adhered to. In the event that this species is detected during protocol level surveys consultation with the Department is warranted, as stated in BNLL-1, to discuss how to implement the Project and avoid "take." The Department may recommend additional "take" avoidance measures including identifying and flagging all potential BNLL burrows within the proposed area of disturbance; 100-foot no disturbance buffers at a minimum around all potential burrows; use of exclusionary fencing; biological monitors; and submission of a BNLL avoidance plan to the Department.
10	Public Draft EIS-R	Ch. 2	2-88	Table 2-8 ;PLANTS-1	There is potential for multiple special-status plant species to occur on or adjacent to the Project site. Special-status plant surveys were conducted from August 2010 through July 2011 where access had been granted and vegetation alliance surveys were conducted on December 15, 2009 and on May 19, 2010. It is unclear specifically when or how many surveys were conducted and which areas of the Project were accessible during the surveys. The Department cannot concur that special status plants are absent from the Project site based on the information provided. The Department recommends following Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (November 24, 2009). This protocol, which is intended to maximize detectability, includes the identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. In the absence of protocol-level surveys being performed, additional surveys may be necessary. As stated in Conservation Measure PLANTS-1, special-status plant species should be avoided whenever possible by delineation and observing a no-disturbance buffer of at least 50 feet from the outer edge of the plant population(s) or specific habitat type(s) required by special-status plant species. If buffers cannot be maintained, then consultation with the Department should occur to determine appropriate minimization and mitigation measures for impacts to special-status plant species. Should a State listed plant species be identified during botanical surveys then consultation with the Department should be conducted to determine the need for an ITP. Mitigation measures for listed plant species should be fully addressed in the CEQA document prepared for the Project.
11	Public Draft EIS-R	Ch. 2	2-91	Table 2-8; SWH-2	If only foraging habitat will be impacted through Project-related activities, then these impacts should be mitigated through the CEQA process. The Department generally recommends replacement habitat on a 1:1 (acre impacted to acre conserved) basis. The Department recommends that lands protected as foraging habitat for Swainson's hawks be no more than 10 miles from a Swainson's hawk nest in order to be beneficial to the species. If the removal of habitat (nesting) could lead to indirect "take" of an individual, then the Project applicant would consult with the Department. If SWH nest trees are to be removed during Project implementation, then compensatory mitigation would be decided in consultation with the Department and during the ITP process.

Item	Document	Chapter/Section	Page #	Line Number(s)	Comment
12	Public Draft EIS-R	Ch. 2	2-91	Table 2-8; RAPTOR-1	If project related activities must occur during the breeding season (February through mid-September) for non-listed raptors, surveys for active nests should be conducted by a qualified biologist no more than 30 days prior to commencing Project-related activities. A non-disturbance buffer of 500-feet for non-listed raptors is recommended until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.
13	Public Draft EIS-R	Ch. 2	2-91	Table 2-8; RAPTOR-2	The Department does not have any authority to require mitigation for the removal of native trees, unless it falls under our Fish and Game Code Section 1600 et seq regulations or in association with removal of nest trees of a State listed species. While the Department encourages the replacement of native trees, if it is done outside of Section 1600 or Section 2081, it would be the responsibility of the Lead Agency to determine the appropriate mitigation requirements for impacts to native tree species. The Department does have jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Fish and Game Code sections that protect birds, their eggs, and nests include sections 3503 (regarding unlawful "take," possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the "take," possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful "take" of any migratory nongame bird). If potential nesting tress are to be removed, it is recommended that removal take place outside of the raptor nesting season and replacement should occur at a ratio of 3:1 with appropriate monitoring of plantings and 65% survival after 5 years.
14	Public Draft EIS-R	Ch. 2	2-92	Table 2-8; RNB-2	For least bell's vireo active nests, the Department recommends a buffer of 500-feet unless a qualified biologist determines that a smaller buffer would be sufficient to avoid impacts. Compensation requirements to fully mitigate for impacts to least bell's vireo will occur during the ITP process.
15	Public Draft EIS-R	Ch. 2	2-92	Table 2-8; MTBA-1	If Project-related activities must occur during the breeding season (February 1 through September 1) for birds protected by the Migratory Bird Treaty Act, surveys for active nests should be conducted by a qualified biologist no more than 30 days prior to commencing Project-related activities. A minimum no-disturbance buffer of 250 feet should be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.
16	Public Draft EIS-R	Ch. 2	2-92	Table 2-8; BRO-1	The most current guidance for Burrowing Owl can be found in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). For buffer size refer to the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Buffer size will vary based on the time of year and level of disturbance. Between April 1 and October 15 buffers should be between 200 to 500 meters depending on level of disturbance. Between October 16 and March 31 buffers should be between 50 and 500 meters depending on the level of disturbance.
17	Public Draft EIS-R	Ch. 2	2-92	Table 2-8; BRO-2	Occupied burrows cannot be destroyed during implementation of Project-related activities. Fish and Game Code Section 3513 and the MBTA prohibit the needless destruction of burrowing owls, their nests or eggs. If the Project proposes to evict burrowing owls that may be present, the Department recommends submitting a Burrowing Owl Exclusion Plan to the Department and Lead Agency describing how exclusion will occur and take will be avoided. If relocation is necessary, passive relocation is recommended and only during the non-breeding season. Active relocation that includes capture of burrowing owls is take and may result in a violation of Fish and Game Code. The Department also recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting a burrowing owl. Burrows should be created one week prior to implementation of passive relocation techniques. The Department's Staff Report on Burrowing Owl Mitigation (CDFG 2012) recommends that foraging habitat be acquired and permanently protected to offset the loss of foraging and burrow habitat.

Page 3 of 5

Item	Document	Chapter/Section	Page #	Line Number(s)	Comment
18	Public Draft EIS-R	Ch. 2	2-93	Table 2-8; BAT-2	The Department recommends surveys for bat species be conducted no more than 14 days prior to ground disturbance and/or construction activities and during the appropriate time of day to maximize detectability. Exclusion plans should be developed in consultation with the Department. The Department recommends that exclusion plans include methods to safely exclude roosting bats from the roosting structure to be removed, monitoring of the roost during eviction and a discussion of type, amount, and distance of suitable habitat near the habitat to be removed.
19	Public Draft EIS-R	Ch. 2	2-93-2-94	Table 2-8; FKR-1	The Department is recommending preconstruction trapping surveys for Fresno kangaroo rat (FKR) be conducted by a qualified wildlife biologist that is permitted to do so by both the Department and the USFWS. Survey methodology should be Department and FWS approved prior to initiating surveys. Surveys are recommended to be conducted well in advance of ground disturbing activities to determine presence. In order to implement full avoidance of FKR, the Department recommends a minimum 50 foot no disturbance buffer be employed around all burrows that could be used by these species. If full avoidance is not feasible and take could potentially occur as a result of Project implementation, acquisition of a State ITP for FKR would be warranted prior to initiating ground disturbing activities.
20	Public Draft EIS-R	Ch. 2	2-94	Table 2-8; FKR-3	Compensation requirements to fully mitigate for impacts to FKR will occur during the ITP process through the Department and through "take" consultation with the USFWS.
21	Public Draft EIS-R	Ch. 2	2-95	Table 2-8; RHSNC-1	Add in Conservation Measure RHSNC (c) from Table 2-7 as described in the SJRRP draft PEIS/R which describes compliance with Section 1602 of the California Fish and Game Code.
22	Public Draft EIS-R	Ch. 2	2-98	Table 2-8; SRCS-1	The 4(d) rules for the experimental population have been developed by NMFS and can be referenced within the conservation measure.
23	Public Draft EIS-R	Ch. 2	2-107	Table 2-10	Table 2-10 should include both CESA and Lake and Streambed Alteration Agreement permits.
24	Public Draft EIS-R	Ch. 5	5-5	12-19	Subsequent DNA analysis has indicated that the loach captured in this reach are not weather loach, as described in the text, but may be large scale loach (*Paramisgurnus dabryanus*) instead.
25	Public Draft EIS-R	Ch. 5	5-6	Table 5-2	Central Valley Steelhead are not a listed species under CESA. Central Valley Spring-run Chinook salmon are threatened under CESA.
26	Public Draft EIS-R	Ch. 5	5-9	37-41	This paragraph should be updated to include more recent trap and haul numbers and state that salmon evade Hills Ferry Barrier annually even in non-storm years.
27	Public Draft EIS-R	Ch. 5	5-11	1-10	The original quote may be from Yoshiyama et al. 1996 and/or Fry 1961 not McBain and Trush 2002, check references to ensure proper citation.
28	Public Draft EIS-R	Ch. 5, and 7			Impacts to fisheries and wildlife from maintenance activities should be discussed and evaluated within the impact analysis.
29	Public Draft EIS-R	Ch. 5	5-26	39-43	Alternative B has guidelines for agricultural practices including restricting areas where agricultural activities can occur, leaving cover on the ground and implementing an approved water quality plan. These measures should be integrated into all alternatives with agricultural activities occurring within the floodplain.
30	Public Draft EIS-R	Ch. 5	5-26	25-43	Impact AQUA-6 concludes that the impact on fish species due to agricultural practices on the floodplain would be less than significant, in part due to an analysis which assumes that agricultural activities would not occur within 300 feet of the active channel, on constructed floodplain benches, or on secondary channels. However, grazing is one of the listed potential agricultural activities and there is no description of actions to keep livestock from accessing the river and stream banks. Further information is needed to describe how livestock would be excluded from these areas to ensure that the impacts to fish species, water quality, and stream morphology would remain less than significant.

Item	Document	Chapter/Section	Page #	Line Number(s)	Comment
31	Public Draft EIS-R	Ch. 6	6-10	Table 6-3	Palmate bracted bird's beak may potentially occur in the southeast side of the project area. The Department recommends surveys for this plant should be conducted within impacted suitable habitat during the appropriate time period as indicated in Conservation Measure PALM-1 in Table 2-7 in the SJRRP Draft PEIS/R. If palmate bracted bird's beak is found within the Project area Conservation Measures PALM-1 and PALM-2, as described in the SJRRP PEIS/R Table 2-7, should be implemented as appropriate.
32	Public Draft EIS-R	Ch. 6	6-22	20-23	The Invasive Vegetation Monitoring and Management Plan in the draft PEIS\R is a draft form, is this document finalized?
33	Public Draft EIS-R	Ch. 6	6-33	7-13	Revegetation monitoring and maintenance should include survival standards, performance criteria, remedial actions to be taken if the performance is not met, and reporting are expected.
34	Public Draft EIS-R	Ch. 7	7-9 and 7-12	Table 7-2 and Table 7-3	Greater Sandhill Crane are also threatened under CESA.
35	Public Draft EIS-R	Ch. 7	7-9 and 7-12	Table 7-2 and Table 7-3	Tricolored blackbird is a Species of Special Concern.
36	Public Draft EIS-R	Ch. 7		General	Agricultural practices may occur within the floodplain in Alternative A and Alternative D, however it is unclear how much floodplain will be used for agricultural practices. If floodplain is utilized for agricultural purposes then it may not return to suitable habitat for special status species and may negatively impact long-term habitat
37	Public Draft EIS-R	Ch. 7	7-33	12-17	Although mitigation measures for giant garter snake will also benefit Western Pond Turtle, the Department recommends adding Conservation Measure WPT-1 into the analysis for all alternatives. WPT-1 includes relocation of Western Pond Turtles found within the project area out of harm's way to suitable nearby locations.
38	Public Draft EIS-R	Ch. 7	7-39	Table 7-6	For Alternative B, the potential impact to blunt-nosed leopard lizard habitat from borrow material collection is <0.5 acres and <0.3 acres for other. Blunt-nosed leopard lizard are a fully protected species and impacts to potential habitat should be avoided when feasible to avoid the potential for take of the species.

Page 5 of 5

II.4.4 Responses to California Department of Fish and Wildlife

Response to Comment S-DFW-1
Your comments and the attachments to your comment letter have been reviewed and considered in preparation of the Final EIS/R.

The commenter has included a brief description of the Project. Please note that additional clarifying details are included in the Project description based on the 30 percent design. For example, revisions to the document for the preferred alternative (Alternative B) indicate that two grade control structures (not two to six) would be constructed in the Compact Bypass channel: also note that the Final EIS/R indicates that the Mendota Pool Fish Screen is included in the preferred alternative, as described in MCR-1 Mendota Pool Fish Screen.

Response to Comment S-DFW-2
The comment refers to DFW's role as a trustee agency under CEQA. There are no specific statements about the Project or the EIS/R.

The CSLC is the CEQA lead agency for the Project as Reclamation would be applying for a State lands lease from the CSLC for a large portion of the Project. The CSLC is the State agency that will take the first State action on the Project and certify the EIR for its decision on the lease. The CSLC is a landowning agency and not a construction partner for the Project. Reclamation will be the sole constructing entity and has the authority and funding to implement the Project.

As a Federal agency and constructing entity, Reclamation would obtain all required Federal permits and approvals including those Federal permits and approvals delegated to State agencies by Congress (*i.e.,* Section 401 of the Clean Water Act and the Clean Air Act). Reclamation would not obtain a permit from DFW under section 1600 of the California Fish and Game Code, as the definition of an "entity" under this Section of the Code does not include Federal agencies. Similarly, Reclamation has no legal obligation to consult with DFW under CESA.

DFW is an Implementing Agency, and as such, extensive coordination occurs on a regular basis during SJRRP project development and implementation actions. Reclamation has included DFW in the development process of this Project, as their role as an Implementing Agency dictates.

The Project includes conservation measures, based on the SJRRP's Conservation Strategy, developed with the USFWS, NMFS, and DFW, which would be implemented for the Project. These measures address all potentially affected federally-listed and/or State-listed species, and all other species identified by USFWS, NMFS, or DFW as candidates, sensitive, or special-status in local or regional plans, policies, or regulations. The Project's conservation measures are described in Section 2.2.10 of this EIS/R.

The SJRRP's Conservation Strategy is described in the PEIS/R and in Attachment A of the SJRRP ROD (Reclamation 2012). The Conservation Strategy provides for State and federally-listed species and other biological resources. Reclamation will implement the

conservation measures, as applicable, for this Project. As such, conservation measures regarding State species are included in this EIS/R. This includes some measures specific to State-listed species only, such as measures for Swainson's hawk.

Reclamation is coordinating with DFW on the treatment of State-listed species, consistent with Reclamation commitments made as part of the Conservation Strategy. Effects to State-listed species are analyzed and disclosed in this EIS/R and, if federally protected, effects are also disclosed as part of the compliance with the ESA, Migratory Bird Treaty Act, Bald and Golden Eagle Act, Fish and Wildlife Coordination Act, and Magnuson-Stevens Act, as applicable. Reclamation is coordinating with DFW on State-listed species, such as giant garter snake, Swainson's hawk, bats, and Fresno kangaroo rat. This coordination includes transmittal of a memorandum that reiterates how effects to State-listed species would be addressed including any information pertinent to the conservation measures; transmittal of the administrative draft biological assessment (BA) or other ESA documentation for review by DFW; incorporating DFWs comments, as appropriate, into the environmental documentation including the ESA documentation transmitted to the USFWS; and providing DFW with a copy of the BA or any other ESA documentation when transmitted to the Services.

Response to Comment S-DFW-3

This comment refers to DFW's role as a responsible agency when it has discretionary approval over a project, typically in the form of an incidental take permit or a lake and streambed alternation agreement, and raises issues that are similar to comment S-DFW-2. Refer to response to comment S-DFW-2.

In addition, there is one project-specific statement, indicating that consultation with DFW is warranted to ensure that the Project does not result in unauthorized take of State-listed species. As a Federal agency, Reclamation is not legally obligated to consult with DFW under CESA; however, Reclamation is coordinating with DFW on the conservation measures, as applicable. See response to comment S-DFW-2 regarding coordination between Reclamation and DFW.

Response to Comment S-DFW-4

This comment refers to DFW's CEQA requirements for issuing an incidental take permit or a lake and streambed alternation agreement and raises issues that are similar to comment S-DFW-2. Refer to response to comment S-DFW-2 for a discussion of these permits.

Response to Comment S-DFW-5

Sections 5.3.3, 6.3.3, and 7.3.3 of this EIS/R consider impacts to species identified as candidate, sensitive, or special-status species (including listed species and State-protected species). For example, potential impacts to sensitive natural plant communities (*i.e.*, vegetation alliances) are described in Section 6.3.3 of this EIS/R.

Response to Comment S-DFW-6

This comment refers to DFW's jurisdiction over fully protected species and raises issues that are similar to comment S-DFW-2. Refer to response to comment S-DFW-2. With

respect to species-specific avoidance and minimization measures for blunt-nosed leopard lizard, see Section 2.2.10 of this EIS/R which describes the conservation measures that would be implemented by Reclamation.

Response to Comment S-DFW-7

This comment refers to DFW's jurisdiction over actions that may result in disturbance of active nests. See Section 2.2.10 of this EIS/R, which describes the conservation measures that would be implemented by Reclamation for Swainson's hawk, nesting raptors, riparian nesting birds, and other birds protected by the Migratory Bird Treaty Act.

Response to Comment S-DFW-Item-1

The No-Action/No Project Alternative is referred to in this EIS/R as this No-Action Alternative. See Section 5.3.3, No-Action Alternative, of this EIS/R for a discussion of these effects. Restoration Flows are included under No-Action conditions and the Restoration Flows, in-and-of themselves, provide some degree of benefit to fisheries. Although these effects are improvements over existing conditions, it is agreed that the benefits are minor compared to what is expected to be achieved with Project implementation. Because of this, the impact statements were qualified, stating in-text that effects "would not fully meet the Project purpose and need or achieve the Settlement goals."

Response to Comment S-DFW-Item-2

As described in Sections 7.1.3 and 7.3.3 of this EIS/R, although there is a low potential for San Joaquin kit fox to occur in the Project area, Conservation Measure SJKF-1 will be implemented to identify potential dens, avoid occupied dens near construction areas, and if dens are located within the proposed work area, time construction activities to avoid the normal breeding season. If dens are found, no further activity will occur until consultation with USFWS and coordination with DFW has occurred. SJKF-2 is not included as a conservation measure because the Project is not likely to adversely affect this species. Reclamation has initiated formal Section 7 consultation under the ESA with the USFWS for San Joaquin kit fox and other species. If San Joaquin kit fox were found in the Project area additional consultation and coordination would be required with USFWS. For additional information regarding Reclamation's coordination with DFW on State-listed species, see Response to Comment S-DFW-2.

Response to Comment S-DFW-Item-3

This comment raises issues that are similar to comment S-DFW-2. Refer to response to comment S-DFW-2 for a discussion of Fish and Game Code section 1600 and CESA compliance.

Response to Comment S-DFW-Item-4

As described in Section 2.2.4 of the Final EIS/R, rodenticide would not be used during Project implementation, including O&M. The Project description has been updated to specify that traps would be checked frequently for non-target species. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-5
Figures have been revised in Section 2.2.5 of the Final EIS/R. The conceptual location of the grade control structures is included in the plan and inset map figures for Alternative A. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-6
Figures have been revised in Section 2.2.6 of the Final EIS/R. The location of the grade control structures is included in the plan and inset map figures for Alternative B. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-7
Section 5.3.3 of this EIS/R acknowledges that a false migration pathway would exist in Alternative B and that some fish would stray. Impact AQUA-3 (Alternative B), describes how this would affect the upstream migration of adult salmonids. The loss of some fish to straying is expected to occur under this alternative while still supporting the Restoration Goal for a naturally reproducing and self-sustaining fish population.

Response to Comment S-DFW-Item-8
State fully protected species are discussed in Chapter 7 of this EIS/R, including impacts to white-tailed kite, greater sandhill crane, golden eagle, and blunt-nosed leopard lizard.

Response to Comment S-DFW-Item-9
Protocol surveys will be implemented within 1 year of ground disturbing activities in areas identified as potentially suitable habitat in accordance with the USFWS's survey protocols for the SJRRP (USFWS 2009). Section 2.2.10 of the Final EIS/R has been updated to reflect this commitment. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. Additionally, protocol surveys are planned for 2016. If all surveys are negative no additional avoidance or minimization measures are proposed. For additional information regarding Reclamation's coordination with DFW on State-listed species, see Response to Comment S-DFW-2.

Response to Comment S-DFW-Item-10
As discussed in Section 6.1.2 of this EIS/R, special-status plant surveys took place from August 2010 through July 2011 where access had been granted in the Project area. Plant surveys were performed in four phases at four different times of the year. Protocol surveys for the California jewel-flower (*Caulanthus californicus*), recurved larkspur (*Delphinium recurvatum*), Munz's tidy tips (*Layia munzii*), caper-fruited tropidocarpum (*Tropidocarpum capparideum*), California satintail (*Imperata brevifolia*), and San Joaquin woollythreads (*Monolopia congdonii*) were performed in the first phase, on March 4, 11, 17, 18, and 19, 2011. Heartscale (*Atriplex cordulata*), brittlescale (*Atriplex depressa*), Lost Hills crownscale (*Atriplex vallicola*), succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*), and San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*) surveys were performed in the second phase, on April 7, 2011. Surveys for the late flowering species lesser saltscale (*Atriplex miniscula*), vernal pool smallscale (*Atriplex*

persistens), subtle orache (*Atriplex subtilis*), palmate-bracted bird's-beak (*Cordylanthus palmatus*), hairy Orcutt's grass (*Orcuttia pilosa*), and Sanford's arrowhead (*Sagittaria sanfordii*) were performed in the third phase, on May 28, June 24, and June 25, 2011, and in the fourth phase, which was conducted in the previous year on August 23 through 27, 2010 (SJRRP 2011b). Surveys were also conducted April 28 to 30, 2015, in the eastern-most portion of the Project area, on the south side of the San Joaquin River, south of the Chowchilla Bifurcation Structure, in an area where access was not previously available.

Conservation Measure PLANTS-1 in Section 2.2.10 of the Final EIS/R has been revised to indicate that protocol surveys will be conducted within 1 year of ground disturbance, according to *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (DFW 2009). The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. See response to comment S-DFW-2 for a discussion of Project coordination actions between Reclamation and DFW.

Response to Comment S-DFW-Item-11

The Project would improve conditions for Swainson's hawk by increasing riparian habitat and nest trees and converting less-suitable orchards to highly suitable Swainson's hawk nesting or foraging habitat. Therefore, the Project may be self-mitigating. Conservation Measure SWH-1 includes avoidance and minimization measures intended to minimize impacts during construction. As described in Conservation Measure SWH-2, if the Project impacted foraging habitat is not replaced with an equal or greater amount of suitable foraging habitat in the completed Project area, then additional mitigation or offsite compensation will be pursued in coordination with DFW. Updates have been made in Section 2.2.10 of the Final EIS/R to the Swainson's hawk conservation measures and impact evaluation section to clarify this approach. The inclusion of these clarifying details in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. See also response to comment S-DFW-2 for a discussion of Project coordination actions between Reclamation and DFW.

Response to Comment S-DFW-Item-12

The non-nesting season has been revised in Section 2.2.10 of the Final EIS/R to extend through January 31, as implied by the comment. Other additions and clarifications to Conservation Measure RAPTOR-1 have also been made per recommendations in this comment. The inclusion of these clarifying details in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-13

Conservation Measure RAPTOR-2 has been revised in Section 2.2.10 of the Final EIS/R to remove reference to DFW. This revision in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. See response to comment S-DFW-2 for a discussion of Fish and Game Code section 1600 and CESA compliance.

Response to Comment S-DFW-Item-14

As described in Section 7.1.3 of this EIS/R, the potential for occurrence of least Bell's vireo is considered to be low, based on low-quality of the habitat, location of the Project

outside the species' current range, and 2 years of negative protocol surveys in some of the best potential habitat in the Project area. Therefore, Conservation Measure RNB-2, which discusses compensation, has been removed from Section 2.2.10 of the Final EIS/R. Conservation Measure RNB-1 has been updated in the Final EIS/R to clarify the commitment to preconstruction surveys and additional agency coordination (which for USFWS means reinitiating Section 7 consultation) if the species is found. The removal of Conservation Measure RNB-2 and the inclusion of these clarifying details in Conservation Measure RNB-1 in the Final EIS/R do not change the analysis or conclusions of the Draft EIS/R. Since the species is not expected, no specific additional avoidance or mitigation is proposed at this time. See response to comment S-DFW-2 for a discussion of CESA compliance.

Response to Comment S-DFW-Item-15

Conservation Measure MTBA-1 has been revised in the Final EIS/R to clarify commitment to preconstruction surveys, biological monitoring if nests are present, and use of buffers and limited activity to protect nests. The inclusion of these clarifying details in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-16

Conservation Measure BRO-1 has been updated in the Final EIS/R to reference the latest guidance from DFW. The inclusion of this clarifying detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-17

Conservation Measure BRO-1 of the Draft EIS/R stated that that occupied burrows will not be destroyed. The approach recommended in this comment is fairly consistent with that described in the Draft EIS/R under Conservation Measure BRO-2. Minor updates have been made to Conservation Measure BRO-2 in the Final EIS/R based on the latest guidance from DFW. The inclusion of this clarifying detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-18

The recommended timing of surveys has been added to Conservation Measure BAT-1 in the Final EIS/R. The Draft EIS/R already states that exclusion plans will be developed in coordination with DFW. Additional details describing what should be included in an exclusion plan have been added to Conservation Measure BAT-1 in the Final EIS/R. The inclusion of this clarifying detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-19

The timing of preconstruction surveys required in Conservation Measure FKR-1 has been updated in Section 2.2.10 of the Final EIS/R based on guidance provided in this comment. If all surveys are negative, the species will be considered not likely to occur in the Project area and no further avoidance or mitigation measures will be implemented. If presence is determined through surveys, then additional measures will be developed in consultation with USFWS. The inclusion of this clarifying detail in the Final EIS/R does

not change the analysis or conclusions of the Draft EIS/R. See response to comment S-DFW-2 for a discussion of CESA compliance.

Response to Comment S-DFW-Item-20

As described in Section 7.1.3 of the Final EIS/R, two areas with potential habitat for Fresno kangaroo rat were recently converted to agriculture. Based on the low-quality of habitat remaining within the Project footprint, and the fact that this species has not been detected for over two decades in more suitable habitat to the south, this species is no longer expected to occur in the Project area. Conservation Measure FKR-1 requires preconstruction surveys for Fresno kangaroo rat. This measure was revised to indicate that if Fresno kangaroo rats are detected within or adjacent to the Project area, FKR-3 (Compensate for Loss of Habitat or Species) from the PEIS/R will be implemented. Conservation Measure FKR-3, which discusses compensation, was removed from the Final EIS/R to reduce redundancy. The inclusion of this clarifying detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R. See response to comment S-DFW-2 for a discussion of CESA compliance.

Response to Comment S-DFW-Item-21

The commenter is referencing a conservation measure that refers to section 1602 of the California Fish and Game Code. See response to comment S-DFW-2 for a discussion of Fish and Game Code section 1600.

Response to Comment S-DFW-Item-22

Conservation Measure SRCS-1 was deleted in the Final EIS/R because this mitigation measure was considered to be applicable to the SJRRP, but not to this specific Project.

Response to Comment S-DFW-Item-23

See response to comment S-DFW-2 for a discussion of Fish and Game Code section 1600 and CESA compliance.

Response to Comment S-DFW-Item-24

The type of loach was corrected in Section 5.1.3 of the Final EIS/R. The inclusion of this information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-25

Table 5-2 was corrected in Section 5.1.4 of the Final EIS/R. The inclusion of this information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-26

Recent trap and haul information for adult fall-run Chinook salmon is included in Section 5.1.4 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-27
The original author is cited, as well as McBain and Trush, in Section 5.1.4 of the Final EIS/R. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-28
Sections 5.3.3 and 7.3.3 of this EIS/R discuss long-term effects to fisheries and wildlife resources that would occur during the O&M phase of the Project. Direct effects from Project O&M activities could also occur (*e.g.*, during removal of instream sediments). This is clarified in Sections 5.3.3 and 7.3.3 of the Final EIS/R.

Response to Comment S-DFW-Item-29
The Project alternatives provide a range of conditions that are analyzed by the impact analysis. Alternative B, the preferred alternative, provides greater specificity on where and how agricultural practices on the floodplain would be restricted. This is compared to Alternatives A and D, which does not include these measures.

Response to Comment S-DFW-Item-30
Additional text is included in Section 2.2.6 of the Final EIS/R to indicate that if grazing occurs the lessee would be required to develop and implement a Grazing Plan, approved by Reclamation and CSLC, if on CSLC-owned lands, in addition to the Water Quality Plan. The inclusion of these clarifying details in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-31
Since originally proposed, the Project footprint has been revised to avoid alkali sink/scrub and alkali flat habitat, and access has been provided to the southeast extent of the Project area. Habitat located at the southwest extent of the Project area has been surveyed. It lies along the margin of the river, consists primarily of relatively dense annual grassland and elderberry savannah that is heavily grazed, and is not expected to support this palmate-bracted bird's beak. Potentially suitable habitat does exist south of the Project area. Preconstruction, protocol botanical surveys described in PLANTS-1 will provide another opportunity to confirm palmate-bracted bird's beak is absent from the Project area. If found, Reclamation will reinitiate Section 7 consultation with USFWS and implement PLANTS-2 from the PEIS/R. This is clarified in Section 2.2.10 of the Final EIS/R in Conservation Measure PLANTS-1.

Response to Comment S-DFW-Item-32
Section 2.2.6 of the Final EIS/R was updated to indicate that the SJRRP has an existing invasive species management plan and completed the *Invasive Vegetation Monitoring and Management Environmental Assessment* in 2012 that describes the methods that would be followed for Reach 2B invasive species removal. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-33

Additional detail is included in Section 2.2.6 of the Final EIS/R for floodplain and riparian habitat restoration based on the 30 percent design for the Compact Bypass, including the list of potential species used for revegetation. The design report describes how development of specific monitoring protocols would be based on the goals of the Project and would be related to habitat metrics. These would potentially include a field-survey of successful plant establishment (live vs. dead), vigor (growth rate, photosynthetic measurements, *etc.*), and coverage (stem density or canopy cover) for desired species, and invasive species occurrences, as well as aerial or satellite imagery analysis, GIS integration, vegetation transects, vegetation quantification plots, and other potential tasks. Monitoring reports would include recommendations for adaptive management strategies to be applied as data become available. The inclusion of this additional detail in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-34

Text has been revised. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-35

Text has been revised. The inclusion of this additional information in the Final EIS/R does not change the analysis or conclusions of the Draft EIS/R.

Response to Comment S-DFW-Item-36

Agricultural practices (*e.g.*, annual crops, pasture, or floodplain-compatible permanent crops) could occur on the floodplain in previous agricultural areas outside of State-owned and public trust lands. Similar to Alternative B, the amount of agricultural activities on the floodplain would be dependent on the number of farmers that would want to lease the land from Reclamation. The type of species that would use the restored floodplain may be different from those species that currently use the existing agricultural areas. For example, a more developed riparian corridor may become more suitable habitat for certain special-status species. Having adjacent agricultural areas could be similar to current conditions.

Response to Comment S-DFW-Item-37

Section 2.2.10 of the Draft EIS/R includes Conservation Measure WPT-1. Section 7.3.3 of the Final EIS/R has been updated to reference this measure.

Response to Comment S-DFW-Item-38

Borrow areas and “other” temporary impact areas would avoid potential blunt-nosed leopard lizard habitat. The impact table has been updated.