SAN JOAQUIN RIVER CONSERVANCY

Agenda Item

Item G-1b

March 18, 2015

TO: San Joaquin River Conservancy Governing Board

FROM: Melinda S. Marks, Executive Officer

SUBJECT: Authorize Conservancy Bond Funds and a Grant to the California Department of Water Resources to Construct the Sycamore Island Pond Isolation Project

RECOMMENDATION:
Subject to the prior approval of all actions recommended for agenda item G-1a (Resolution 15-03 consisting of approving the Initial Study, Final Mitigated Negative Declaration, and Mitigation Monitoring and Reporting Program, and approving the proposed Project), it is recommended the Board approve $4,500,000 in bond funds and a grant agreement with the Department of Water Resources (DWR) to construct the Sycamore Island Pond Isolation Project, including the equalization saddle, access road, berm improvement, gravel pit isolation, and riparian and floodplain habitat enhancement at Gravel Pit 46e. Wildlife Conservation Board (WCB) authorization would be requested at their May 2015 meeting.

SUMMARY:
Through a bond-funded contract totaling $305,000 authorized by the Conservancy Board and WCB, DWR has performed design and environmental compliance for proposed berm and access road improvements on the river's edge at a breached reclaimed gravel mine pond between the Conservancy's Van Buren Unit and Sycamore Island. The proposed Project is designed to serve multiple objectives:

- Provide a management road and future trail between the Parkway units;
- Provide emergency access and egress for Sycamore Island, and for future planned public recreational uses at the Van Buren unit;
- Protect the berm and road from damage by river currents and floods, and improve water quality by reducing bank erosion;
- Isolate the warm-water gravel pond from the river channel to separate warm-water nonnative fisheries and cold-water native fisheries;
- Provide for off-stream recreational fishing; and
- Restore as feasible floodplain, riparian, and fisheries habitat.

A description of proposed Project features and scheduling is provided in the Discussion section, with further detail in DWR's proposal, Attachment 1.

The proposed Project is consistent with the Conservancy's mission, the San Joaquin River Parkway Master Plan, and the River West Madera Master Plan, and is an eligible use of

Conservancy bond funds. The proposed Project ranked among the Conservancy's highest priorities during the May 2014 Interagency Project Development Committee meeting.

At its meeting May 21, 2014, the Board approved: proceeding with California Environmental Quality Act (CEQA) review of an equalization saddle, berm improvements, including riparian planting, and modest floodplain improvements, with the intent that this project alternative will best meet the needs and funding capabilities as a collaborative project of the Conservancy and San Joaquin River Restoration Program (SJRRP); and incorporating into the proposed Project a borrow and floodplain restoration site located on the Fresno side of the river, to provide the greatest benefits at the least cost.

The requested $4,500,000 is the total budget for construction (the line item budget is shown in the Discussion section). DWR is working on a funding agreement with the U.S. Bureau of Reclamation (USBR) to provide $2,000,000 for the proposed Project. Upon formal approval by USBR by September 2015, the Conservancy-funded portion of the project would be reduced by the approved amount of federal funding. The Conservancy's funding will come from the approximately $30 million of the voter-authorized Proposition 84 and Proposition 40 bond funds that remain unobligated.

Time is of the essence in scheduling this project; full Conservancy funding is requested in advance of the later USBR contribution. DWR must demonstrate it has available all required funding at the time final construction plans and specifications are submitted for review early this summer. It is expected USBR funding will be committed by September 30, 2015, and the Conservancy's contribution will be reduced accordingly. If USBR funding falls through, staff and DWR can return with recommendations to eliminate discretionary habitat restoration components.

DISCUSSION:

Location

The proposed Project is located at a ponded area formed from an excavated gravel mine pit (Pit 46e) adjacent to the San Joaquin River. The proposed Project is within the Conservancy's 347± acre Sycamore Island fishing access site, the 262± acre Van Buren unit, and the 341± acre River West Fresno property. The proposed Project would be constructed near River Mile 254± on the right bank of the San Joaquin River in Madera County about 1¼ miles downstream of the State Route 41 bridge and on the left bank in Fresno County. Portions of the proposed Project site are within State Sovereign Lands under the jurisdiction of the State Lands Commission (the Conservancy will secure a lease from the State Lands Commission for the project). The proposed Project will effectively connect vehicle access, trail access, and habitat between Sycamore Island and the Van Buren unit.

Project Description

The proposed Project will improve property management, facilitate emergency response and improve public safety, provide for a future trail between the Sycamore Island and Van Buren Units, and advance the Conservancy's mandate to provide for habitat enhancement, public access, and recreation. Restoring the berm will isolate the pond from the river channel to keep native fish species out of the gravel pit, protecting them from warm water predators, facilitating their migration, and otherwise helping meet SJRRP goals for salmon habitat restoration. The proposed Project will create a warm-water recreational fishery off-channel, a mitigation measure recommended in the SJRRP Environmental Impact Report.

The need for the proposed Project is the result of the failure during high spring flows of a berm on Conservancy property that separated an excavated, reclaimed gravel pit from the San Joaquin River. The breach destroyed a gravel access road and allowed the river to "capture" the pond. Without the access road, the Conservancy's Sycamore Island public recreation area lacks secondary emergency egress, and enforcement and emergency response agencies lack efficient access to the site. Plans for the Parkway trail between Sycamore Island and the Van Buren site cannot be accomplished without replacing the berm. (The nearby bluff drops steeply to the water's edge, providing no space for an inland access road and multi-use trail.) Further, the breached pond harbors warm water fish that will prey on reintroduced salmon, elevates river water temperature, and creates backwaters where reintroduced fish may be entrapped.

Replacing the breach with a stable berm and gravel access road, and restoring floodplains, native vegetation, and habitat along the berm will meet multiple resource management objectives for the Conservancy, its member agencies, and the SJRRP.

The proposed Project is comprised of several major elements including: constructing an equalization saddle to isolate the pond and protect the berm as river flows increase and decrease; excavating project soil, sand, and gravel from on-site borrow areas and using them for the berm and created floodplains; strengthening and re-vegetating the berm; constructing the gravel access road on top of the berm; creating floodplains with appropriate fill adjacent to the berm on the Madera County side, and by excavating the borrow site on the Fresno County side; and improving access to a pond on the Fresno County side with more gradual grades. The proposed Project will ultimately create approximately 4.25 acres of floodplain above the low water mark. The restored floodplains along the river and at the borrow site will enhance riparian and salmon-rearing habitat.

The equalization saddle will be a porous structure comprised of boulders and large cobbles, that allows the pond to equalize its water surface elevation with the river channel's during flow fluctuations. Additionally, the saddle is designed with a stabilized low crown to allow water to move over the top during high river flows. This design prevents the berm from being damaged by erosion that could otherwise occur during high river flows.

In order to reduce costs and adverse environmental impacts, the proposed Project will use on-site fill materials to the extent possible. Approximately 27,000 cubic yards of soil, sand, and gravel will be excavated from the borrow site on the Conservancy's River West Fresno property and transported to the Madera County portion of the project site for use in the berm and created floodplain. Soils will be excavated and graded near the original borrow site, resulting in a smoothly contoured terrace lower in elevation than pre-project conditions, to create additional floodplain on the river and more gradual slopes at the River West Fresno pond/borrow site. The San Joaquin River Parkway and Conservation Trust holds a deed to sand and gravel rights in the area. The Conservancy does not anticipate an arrangement with the Trust regarding the borrow material will generate any costs that would exceed the recommended budget.

The pre-project site is disturbed with little to no remaining natural topography, fragmented riparian vegetation bordering the river, and wetlands associated with the water ponded by the gravel pits. Due to the subject breach, gravel mining within the channel, other ponds captured by the river, and reduced river flows after the construction of Friant Dam, the pond and river harbor a warm water fishery which is detrimental to the future reintroduction of cold water species, such as salmon. Item G-1a provides a detailed description of the environmental setting of the proposed Project.

Budget and Funding

DWR's scope of work will consist of finalizing its 95% construction plans and specifications, developing construction bid documents, advertising and selecting a bid, construction contracting and contract management, oversight, and construction close-out. DWR has developed a construction and environmental compliance budget as follows:

Item	Item Description	Total Cost
1	Develop Plans and Specifications, develop contract documents, advertise project, award construction contract	$240,000
2	Project Management and State Operations during Construction	$480,000
3	Site Preparation	$125,000
4	Equalization Saddle Construction	$1,170,000
5	Berm Improvement	$570,000
6	Access Road Improvement	$170,000
7	Floodplain Construction - Madera	$790,000
8	Floodplain Construction - Fresno, Borrow Area and Breach Back Fill	$830,000
9	Temporary River Crossing	$125,000
TOTAL-- Initial Conservancy Funding		**$4,500,000**
Anticipated USBR Funding (by 9/30/15)		**($2,000,000)**
Net Conservancy Funding		**$2,500,000**

The project schedule consists of:

- WCB authorizing this funding request in May 2015;
- DWR developing and finalizing plans and specifications to submit to the DWR Division of Engineering for the bid package, July 2015 through January 2016;
- DWR securing State regulatory permits and approvals, in-progress;
- Conservancy securing a State Lands Commission lease by spring 2016;
- USBR completing National Environmental Policy Act review, a 404 permit from the U.S. Army Corps of Engineers, and endangered species consultation with the U.S. Fish and Wildlife Service, in progress;
- DWR securing federal cost-sharing agreement by September 30, 2015;
- DWR releasing request for bids, spring 2016;
- DWR manages construction contract, phased June through December 2016; and

- Under separate funding and agreement with a stewardship services provider, restoration maintenance as necessary for plant establishment over the next three years.

Time is of the essence. A full funding commitment is necessary to keep this project on schedule, even though a matching fund agreement with USBR is anticipated by the end of the federal fiscal year. DWR has scheduled spending authority for this project in 2016.

The proposed Project is an eligible use of Conservancy bond funds. Bond funds are appropriated in WCB's budget to be directed to projects at the Conservancy Board's discretion for land acquisition, habitat enhancement, public access, and recreation capital improvements. Balances totaling approximately $30 million remain in the Conservancy's voter-approved bond funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act (Proposition 12, 2000), the Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Bond Act (Proposition 40, 2002), and the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act (Proposition 84, 2006). The WCB will determine which of the appropriations will be used.

After securing the USBR's contribution, the Conservancy's share of the costs of the proposed Project shall not to exceed $2.5 million.

Although the proposed Project would be a good candidate for the Conservancy's $10 million for the new Proposition 1-funded multi-benefit watershed protection and improvement program, funds have not yet been appropriated, and they must be awarded on a competitive basis. It is recommended the Board authorize available funds at this time to keep the proposed Project on schedule. The proposed Project will become a pilot project and example of best available technology for future multi-benefit pond isolation and floodplain enhancement projects.

Goals, Objectives, Policies and Priorities

The proposed Project is consistent with the Conservancy's statutory mission. The San Joaquin River Conservancy Act at Public Resources Code §32533 states, "The conservancy may undertake site improvement projects; regulate public access; revegetate and otherwise rehabilitate degraded areas, in consultation with other public agencies with appropriate jurisdiction and expertise; upgrade deteriorating facilities; and construct new facilities as needed for outdoor recreation, nature appreciation and interpretation, and natural resource protection."

The proposed Project is consistent with the goals, objectives, and policies of the San Joaquin River Parkway Master Plan (1997), for example:

- Fundamental Goals
    - Preserve and restore a riparian corridor of regional significance on the San Joaquin River from Friant Dam to the Highway 99 crossing;
    - Protect wildlife species that depend on or prefer the river environment…;
    - Provide for conservation, education, and recreation, particularly a continuous trail…;
    - Protect irreplaceable natural resources…in a way that will also meet recreational and educational needs.
- Natural Resources Goals
    - NRG1 Promote the long-term preservation, enhancement, and public enjoyment of the aquatic, plant, and wildlife resources of the San Joaquin River and the riverbottom.
- Natural Resources Objectives

- NRO1 Protect the San Joaquin River as aquatic habitat and a water resource. Enhance and protect fisheries in the river and lakes in the Parkway.
- NP8.2 Preserve and incorporate natural features (e.g., wetlands, grasslands, woodlands and other native vegetation) and supporting artificial features (e.g., lakes on reclaimed mined lands) into the development's site design such that those features can…enhance the ecological values of the river, the wildlife corridor, a natural reserve, or the multiple purpose trail.

- Natural Resources Programs
  - NRPE1 Wildlife habitat creation, restoration, and enhancement is a major goal of the Parkway plan. Hydrological studies will be necessary to determine water table depths to assess where riparian vegetation can be sustained. In areas of past sand and gravel mining activities, recontouring of the riverbottom could enhance the value to wildlife by creating upland areas adjacent to riparian zones as well as increasing the total area available for replanting riparian vegetation. …
  - NRPV1 This plan proposes to restore and enhance areas of riparian and wetland habitats along the San Joaquin River. Many of these areas have undergone biological, physical, and hydrological changes which are primarily the result of human interference. Restoration and enhancement of this portion of the river is intended to increase habitat value and recreate a continuous wildlife corridor by creation of riparian habitat…, enhancement of degraded riparian habitat, enhancement of pond edges with freshwater marsh species…
- Mitigation Measures
  - 5.6-1(b) c) Areas suitable for habitat restoration shall be restored by replanting or habitat management to encourage the establishment and growth of natural vegetation. …

The proposed Project's access road and trail are included in the River West Madera Master Plan to connect the two Parkway units.

The SJRRP has the stated goal of maintaining fish populations in good condition in the main stem of the San Joaquin River below Friant Dam. Isolating the highest priority gravel pits to improve conditions to sustain reintroduced salmon within the Parkway reach of the river is among the improvements contemplated by the settlement, the USBR's SJRRP Environmental Impact Statement/Environmental Impact Report, and the California Department of Fish and Wildlife's San Joaquin River Restoration Program: Salmon Conservation and Research Facility and Related Management Actions Project EIR.

The proposed Project ranked among the Conservancy's highest priorities during the May 2014 Interagency Project Development Committee meeting. The prioritization criteria most relevant to the proposed Project include: connectivity for trails, public uses, and habitat; environmental benefits; project readiness; independent function; potential outside source of funding; achieves long-term benefits; meets partner agency, as well as Conservancy, needs.

for
Heidi West, Wildlife Conservation Board

Attachment 1 DWR proposal

State of California

California Natural Resources Agency

Memorandum

Attachment 1

Date: February 26, 2015

RECEIVED
MAR 0 2 2015

To: Melinda Marks
San Joaquin River Conservancy
5469 East Olive Avenue
Fresno, California 93727

From: **Department of Water Resources**

Subject: San Joaquin River Parkway, Sycamore Island Pond Isolation Project Proposal

On approval by the San Joaquin River Conservancy Board, the South Central Region Office (SCRO) of the California Department of Water Resources (DWR) entered into an agreement with the Wildlife Conservation Board (WCB) to perform planning and design work with the goal of providing alternate emergency and management access to Sycamore Island Recreation Area and isolating a gravel pond from the San Joaquin River (SJR) channel. DWR has completed design work, has begun the CEQA process, and is working on permitting for the project under the current agreement. The next phase of the project, implementation, is the subject of this memorandum. DWR proposes to develop construction plans and specifications, estimate the final construction cost, produce construction contract documents, advertise and award the construction contract, direct and oversee construction, and fulfil all environmental compliance and permitting requirements.

The following document details the proposed scope of work that is required in order to construct the Sycamore Island Pond Isolation project. DWR requests that the SJR Conservancy review the construction proposal and consider approval of funds for the implementation of the scope of work.

Dave Encinas
Senior Engineer, Water Resources
South Central Region Office

Attachment

cc: Alicia Forsythe, USBR
Program Manager, SJRRP
Mid-Pacific Regional Office
2800 Cottage Way, MP-170
Sacramento, California 95825-1898

Heidi West, WCB
Program Manager, San Joaquin River Conservancy Projects
1416 Ninth Street, Suite 1266
Sacramento, California 95814

March 18, 2015
Agenda Item G-1b
Attachment 1

DWR 9045 (Rev. 1/09)

San Joaquin River Parkway, Sycamore Island Pond Isolation - Construction Proposal

Prepared by:
California Department of Water Resources
Division of Integrated Regional Water Management
South Central Region Office
River Restoration Section

For:
San Joaquin River Conservancy

February 26, 2015

Introduction

The reclaimed gravel pit, designated Pit 46e by the Department of Water Resources (DWR), is located just downstream of the San Joaquin River Conservancy's (Conservancy) Proctor Broadwell Cobb property (also known as the Van Buren Unit) and upstream of the Conservancy-owned Sycamore Island Recreation Area on the Madera County side of the San Joaquin River (Figure 1). The earthen berm that previously separated the gravel pit pond and river channel and also provided a vehicle access road between the properties was breached in a 2005 high-flow event, thereby eliminating the vehicle access route.

The Proposed Project (Project) is to restore alternate vehicle access to the Sycamore Island Recreation Area by repairing the berm breach and isolating Pit 46e from the river channel. The Project would also construct an equalization saddle (saddle), strengthen the existing berm, create a gravel road on top of the saddle and berm, and create floodplain habitat.

The Department of Water Resources (DWR) entered into an agreement (WC-1085SM, DWR 324900) with the Wildlife Conservation Board (WCB) to perform planning, design, and environmental compliance work associated with the project. In early 2014, DWR completed the preliminary design work for re-establishing the access route as well as aiding habitat restoration. The Conservancy considered a few design alternatives and selected the preferred alternative for the final design process. DWR recently completed final design work and is working on completion of the final design report. DWR is also currently performing environmental compliance activities, and will complete all permitting and regulatory approvals under the current funding agreement.

Project Objectives and Benefits

The objectives of the project include several general Conservancy objectives. As specified in the design and permitting proposal, they include re-establishing access through the site, enhancing habitat, and integrating planning with the San Joaquin River Restoration Program (SJRRP). The project as designed will not only achieve those objectives, but it will also benefit the SJRRP in several ways. First, it isolates a gravel pit pond from the river channel, which will help keep juvenile salmon away from predator habitat in the pond. Second, it will increase salmon rearing habitat and riparian habitat by creating new floodplain areas along the channel. The floodplains will also benefit both programs by helping protect the berm from erosion during high flow events. Finally, there is reason to believe isolating the gravel pit will help with flow attenuation and water temperatures downstream, which benefits fish habitat outside the project area.

Purpose

The purpose of this document is to provide the information necessary for the Conservancy Board of Directors to decide whether to approve the funding for DWR to implement the project.

This proposal presents the work plan, including estimated costs and schedule, to implement the Sycamore Island Pond Isolation Construction Project. The project includes the following major elements:

- Equalization saddle construction,
- Berm improvement and revegetation,
- Access road improvements,
- Floodplain construction and revegetation on the Madera County side,
- Floodplain construction and revegetation on the Fresno County side, and
- Borrow area excavation and backfill and additional pond breach fill.

Each of these project elements are described in detail in the Initial Study/Mitigated Negative Declaration document that was produced by DWR in January of 2015. Excerpts of the project description from that document are located in Appendix A.

Location

The Project would be constructed near River Mile (RM) 253.5 on the right bank of the river about 1.6 miles downstream of the State Route (SR) 41 Bridge in Madera County and on the left bank of the river in Fresno County (Figure 1).



Figure 1. Project Location

Scope of Work

DWR proposes to provide the services that are outlined in this scope of work in order to implement the Project as described in Appendix A. The scope includes all tasks that are necessary to complete the final construction plans and specifications, hire a contractor to construct the Project, manage the construction contract and oversee construction, and provide all necessary State environmental compliance services. A description of each of these tasks follows.

Construction Plans and Specifications

DWR completed final (95-percent level) design under the Sycamore Island Pond Isolation Project planning and design agreement. We propose to take these designs to 100 percent, which includes finalizing construction plans and specifications. The construction specifications are documents that instruct contractors in how to construct a project, including specific materials and methods to use. After DWR completes the plans and specifications, they will be available for final review by the Conservancy before the Project is advertised.

Contract Procurement

DWR will create contract bidding documents and advertise the bid package in various trade journals, newspapers, and on the internet. Once the bids have been received and the bid submittal window has closed, DWR will then evaluate the bids and award the contract.

Contract Management and Construction Oversight

DWR will perform various aspects of managing the contract after it is awarded. The list below describes the administrative and field tasks:

- Review and approve contractor submittals,
- Ensure proper construction methods of the project elements,
- Develop and administer any necessary contract change orders,
- Ensure that the contractor implements appropriate measures for public safety,
- Ensure all environmental compliance measures are followed during construction,
- Provide quality control analyses as necessary and professional inspection of all work,
- Maintain all project and inspection records, and
- Manage project budget and expenses.

Revegetation Plan and Maintenance

In addition to constructing the project, the contractor will be responsible for implementing revegetation and erosion control. Revegetation duties will include obtaining seed, cuttings, and root stock, planting and seeding, and irrigation during the first season. The contractor will apply hydroseeding and other measures to control potential erosion on disturbed slopes. DWR will oversee revegetation and erosion control measures as part of the construction contract oversight process.

DWR intends to set up the construction contract so that the contractor will be responsible for maintaining planted vegetation and erosion of disturbed surfaces through the following spring (see Figure 2). After that season, the contractor's duties will be complete and DWR's responsibilities with regard to revegetation and erosion will end. The Conservancy will be responsible for vegetation maintenance for the following three years. That may include replanting, watering, weeding, and spraying.

Other long-term maintenance to the project site will also become the Conservancy's responsibility after the construction contract is closed out. Examples include maintenance of the gravel road as well as maintenance and repair to the saddle and berm due to overtopping high-flow events. Saddle overtopping is expected every 5 to 10 years on average, while berm overtopping events are expected to be much less frequent.

Project Close Out

After construction is complete, the following tasks will be performed by DWR to close out the contract:

- Verify all contractor responsibilities have been met, conduct a final inspection with Conservancy and WCB representatives, and close the construction contract.
- Provide a final construction report to the Conservancy and WCB, including copies of as-built plans, specifications, permits, and approvals.

Cost

Table 1 summarizes the costs to complete all tasks that are outlined in this proposal. The total estimated cost including contingencies to complete construction of the Project is $4.5 million. DWR requests Conservancy approval of that amount. However, the U.S. Department of the Interior's Bureau of Reclamation intends to fund $2.0 million of the total cost of construction. DWR has applied for those federal funds and expects to receive approval by late 2015. If those funds are approved, the State-funded portion would be reduced by the approved amount of federal funding.

Table 1. Estimated Cost

Item	Description	Cost
1	Develop Plans and Specifications, develop contract documents, advertise project, award construction contract	$240,000
2	Project Management and State Operations during Construction	$480,000
3	Site Preparation	$125,000
4	Equalization Saddle Construction	$1,170,000
5	Berm Improvement	$570,000
6	Access Road Improvement	$170,000
7	Floodplain Construction - Madera	$790,000
8	Floodplain Construction - Fresno, Borrow Area and Breach Back Fill	$830,000
9	Temporary River Crossing	$125,000
	TOTAL	**$4,500,000**

Timeline

In order to complete the scope of work that is outlined, we estimate it will take about 18 months, barring unforeseen delays, from the time DWR receives the Notice to Proceed to the end of construction. See Figure 2 for the estimated project timeline detail.

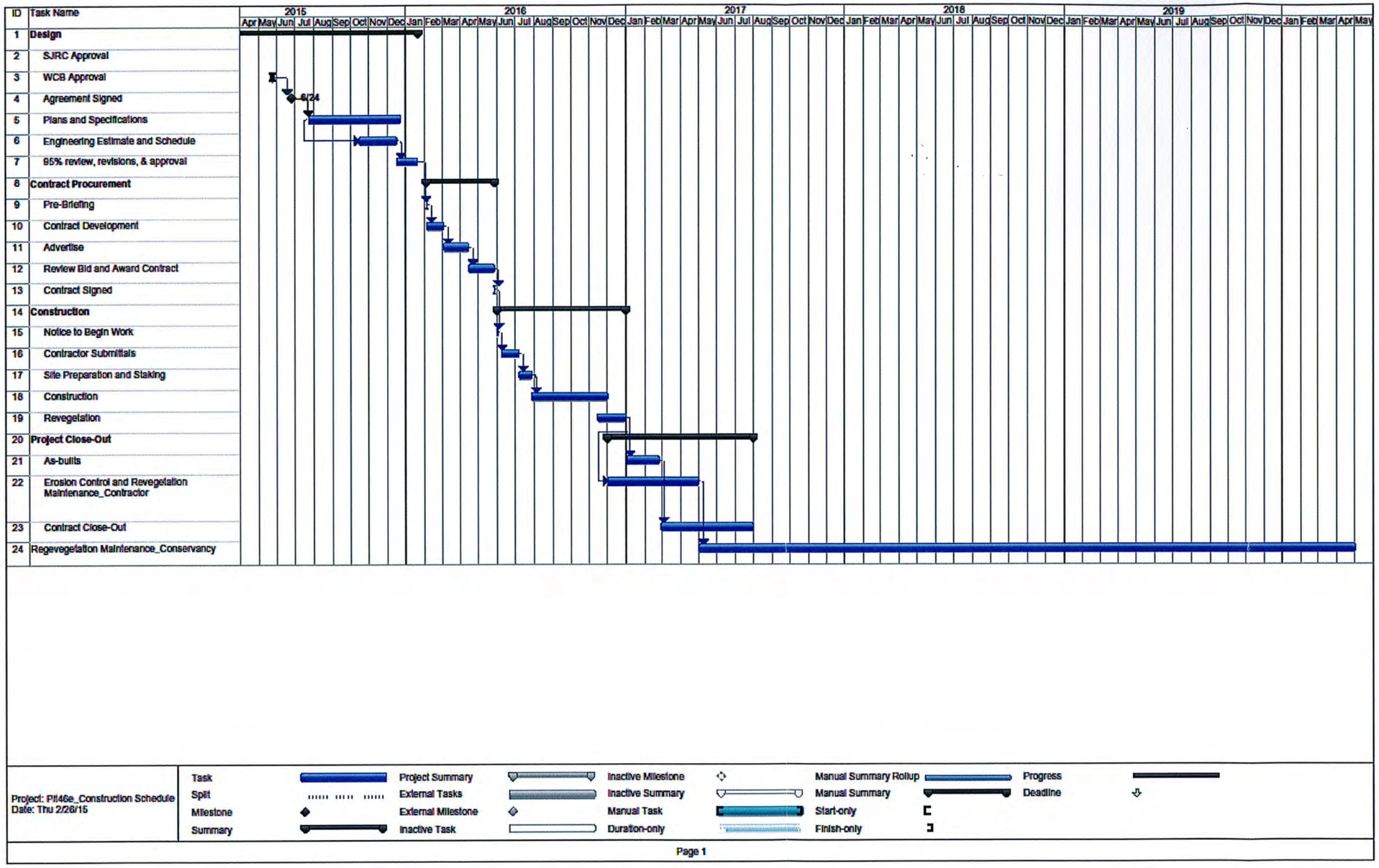


Figure 2. Project Timeline

Appendix A

Project Description

Repair of the breached berm is necessary to provide access between Sycamore Island and the Van Buren Unit and to achieve consistency with the goals of the adopted Parkway Plan and the River West Madera Plan. The Project would repair the existing berm breach, including construction of an equalization saddle (saddle), strengthening the existing berm, and creating a gravel road on top of the saddle and berm. The Project will also isolate the Pit 46e gravel pond from the river channel, create floodplain habitat, and will restore habitat. Two onsite borrow sites may be excavated for fill. The borrow sites would be restored; a portion of the one closest to the river would be restored as floodplain habitat. The Project will serve multiple objectives:

- Provide a management road and future trail access between the Parkway units,
- Provide emergency access and egress for Sycamore Island,
- Protect the berm and road from damage from river currents and floods,
- Isolate the warm-water gravel pond from the river channel and provide for off-stream recreational fishing, and
- Restore floodplain, riparian, and fisheries habitat as feasible.

Project Features Overview

The following features would be included in the Project (Figure A-1):

- Transport equipment to the project area as required for each construction phase;
- Add gravel to improve existing dirt haul roads;
- Install a temporary crossing between Borrow Site 1 and Staging Area 1;
- Construct an equalization saddle in the berm breach;
- Strengthen the existing berm;
- Create a floodplain along the river side of the strengthened berm;
- Create a gravel road on top of the berm and saddle to facilitate access between the Conservancy's Sycamore Island recreation area and the Van Buren Unit;
- Create about two acres of lower and upper floodplain along the river side of the strengthened berm and about two and one-half acres of lower and upper floodplain along the river in Borrow Site 1;
- Restore borrow sites, including filling a road breach on Borrow Site 1; revegetate floodplains and borrow sites.

Project features are described in detail below, and are shown in Figure A-1.

Project Access and Staging

Various state, county, and local roads could be used for project access. State Route (SR) 41, SR 99 and Madera County roads Avenue 9, Avenue 7 ½, Road 40, and Children's Boulevard could be used to transport equipment and crews to and from the Project Area. The following City of Fresno roads could also be used to transport equipment and crews: Herndon Avenue, Blackstone Avenue, Friant Road, Audubon Drive, North Del Mar Avenue, West Riverview Drive, Nees Avenue, and with the City of Fresno's permission, the intersection of Palm and

Nees Avenues. Equipment would be brought into the project on flatbed trucks as needed for each construction phase, but would not exceed 20 trips throughout Project construction. Approximately 850 truck trips will be needed to import Project materials.

Two existing dirt roads in the Project Area can be used for equipment and crew access. One of the roads is on the Madera County side of the project; the other is on the Fresno County side (see Figure A-1). Each is approximately two miles long. A portion of the access road near Borrow Site 1 on the Fresno County side is currently under private ownership, but ownership is expected to be transferred to the San Joaquin River Parkway and Conservation Trust prior to construction of this Project. It is expected that the River Parkway Trust, a nonprofit organization to benefit the Parkway, will allow access for construction purposes. The road on the Madera County side will include three staging and spoils areas. Staging Area 1 will be approximately 4.5 acres, Staging Area 2 will be approximately 2 acres, and Staging Area 3 will be approximately 3 acres. The staging areas will be located along the dirt haul road on the Madera County side (see Figure A-1). These areas would be used to store equipment, supplies, and borrow and fill material.

In order to transport equipment on the haul roads, gravel may be added to the surface of the Conservancy-owned road on the Fresno County side of the Project. Approximately 850 cubic yards (cy) of gravel may be placed on the haul roads.

The existing dirt roads would be used to haul material from the borrow sites to the construction area. The overall haul route would include the two dirt roads as well as installation of a temporary crossing to connect Borrow Site 1 with Staging Area 1. The temporary crossing would consist of either a rail car bridge or multiple pipe culverts, and would require narrowing the low-flow river channel for the duration of Project construction. The location selected for the temporary crossing is the site of a bridge crossing previously used by the gravel mining operation; the damaged bridge was removed in 2005.

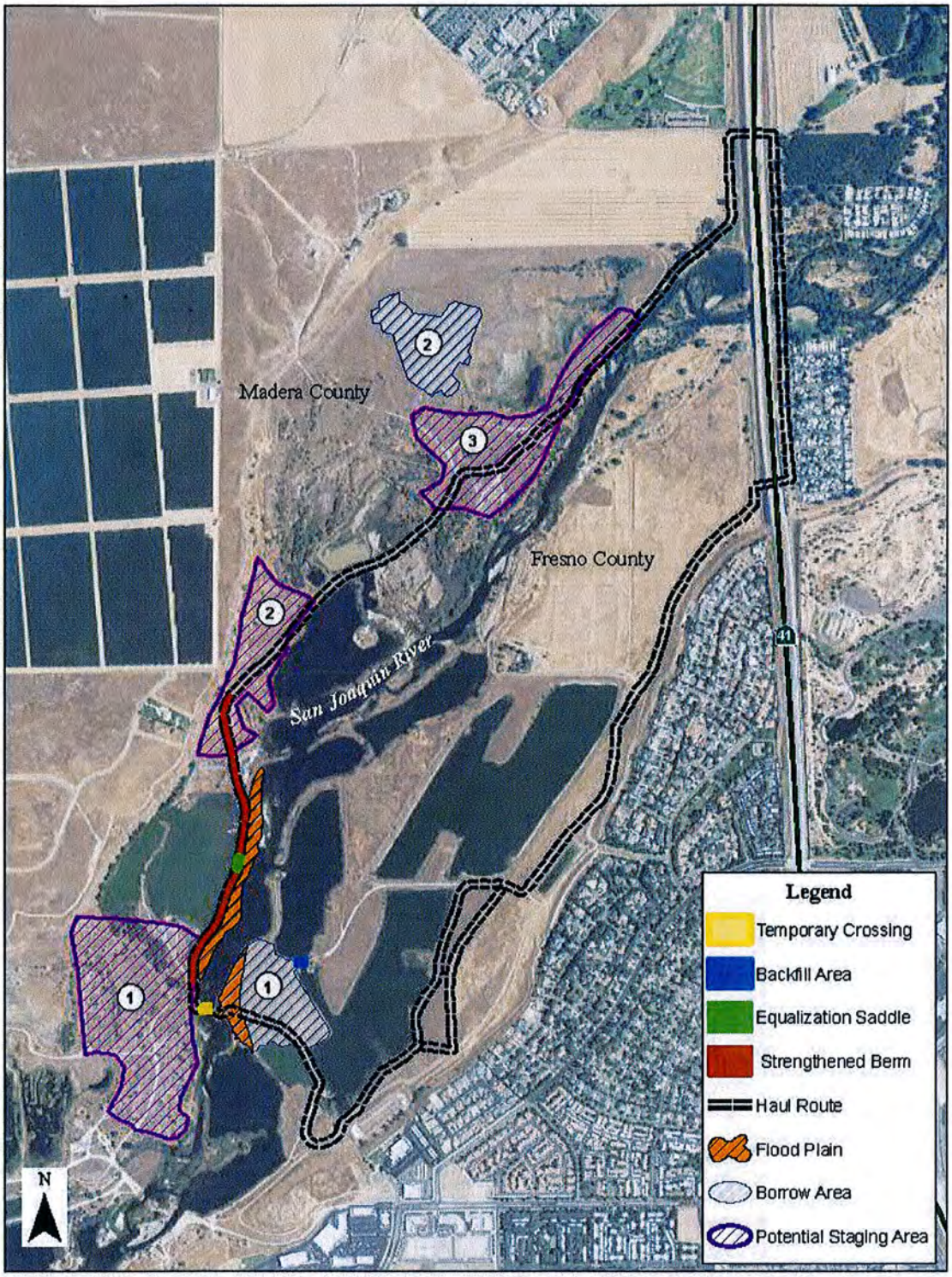


Figure A-1: Project Features

To install the crossing, the low-flow river channel would be narrowed to accommodate an approximately 12 foot wide, 89 foot long railroad flat car or several corrugated metal pipe culverts (see Figure A-2). If the railroad flat car is used, fill would be deposited in the channel, but only in areas to provide abutment support for the flat car. If the culvert option is used, the size and number of culverts would be calculated based on the expected flow during

construction; fill would be needed throughout the length of the crossing. If the culverts are used there will approximately 3.5 feet of clearance between the 350 cfs water surface and the top of the culverts; if the railroad flat car is used there will be approximately 3.5 feet of clearance between the 350 cfs water surface and the bottom of the flat car bridge. Fill material would be obtained from the borrow sites, but material may be imported if a sufficient amount is not available onsite.

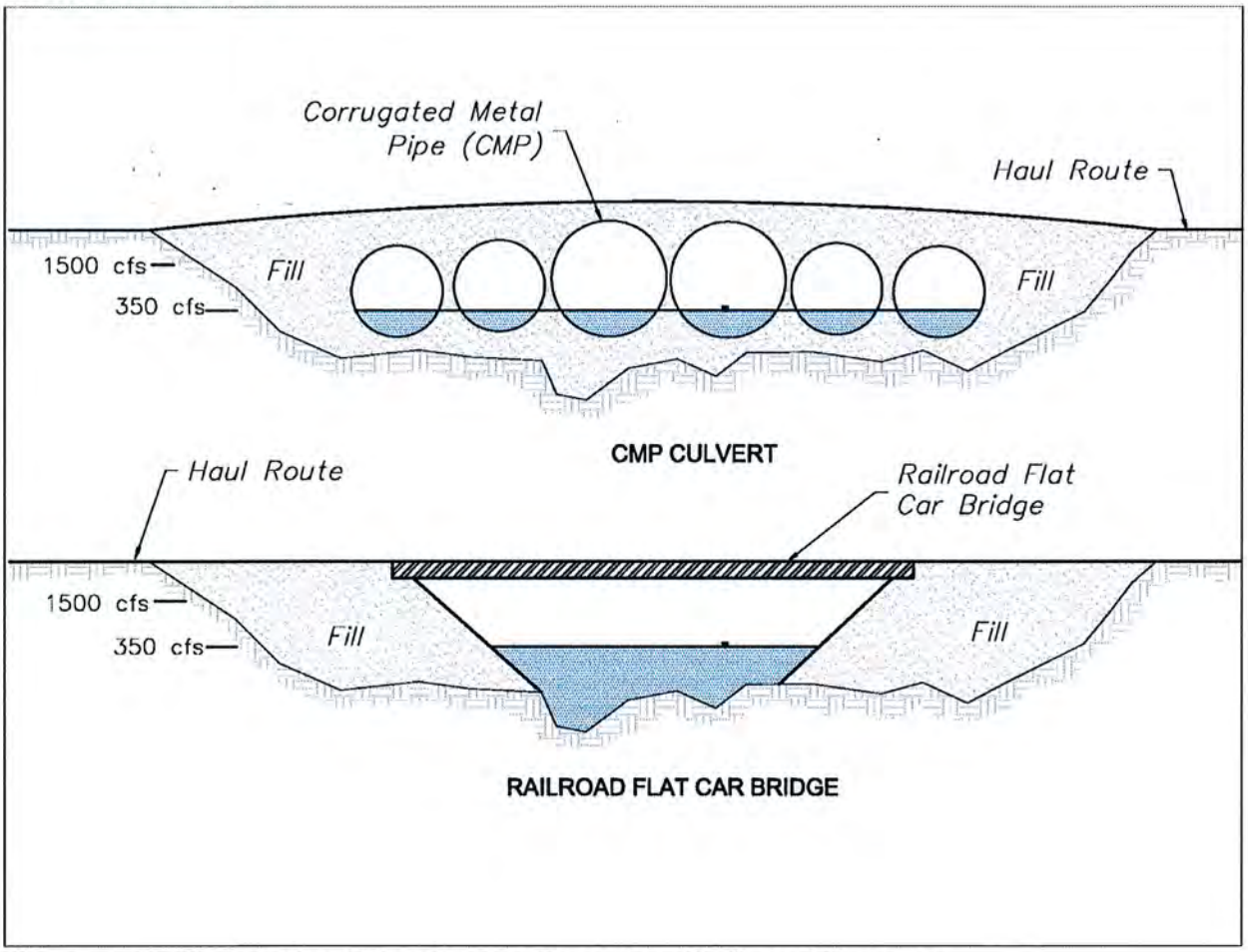


Figure A-2: Conceptual Temporary Crossing Options Diagram

The channel would not be dewatered for construction of the crossing; materials for the railcar option would be placed by excavator or bulldozer from the bank on each side of the channel, and the railcar bridge would be placed by crane. Materials for the culvert option would also be placed by excavator and bulldozer, and the culverts would be placed using an excavator or crane.

After project construction is complete, an excavator and crane would be used to remove the temporary crossing and fill materials from the low-flow channel; the area would be restored as described in the Revegetation Plan (Appendix A of Study/Mitigated Negative Declaration document) and consistent with any permit conditions.

If a temporary crossing is not installed between Borrow Site 1 and Staging Area 1, then materials from borrow sites would be transported only on the existing dirt roads. However, this option will be avoided if possible because hauling material without the use of the crossing would significantly lengthen the haul trips and would cause a less efficient use of construction time and resources.

During each phase of construction, equipment would be brought in on flatbed trucks using existing roads. Equipment would be stored in the staging areas or removed from the construction site when no longer needed.

Equalization Saddle

The saddle is the portion of the berm that would be constructed in the breach area and would be composed of large boulders and river cobbles. Typical sections of a saddle are shown in Figure A-3. The saddle will allow the gravel pit pond to efficiently equalize its water level with the river channel during flow fluctuations by allowing water to pass through the pores between the boulders and cobbles more quickly than it would pass through standard compacted berm material. When flow in the channel increases, water would flow through the saddle to avoid creating high pressure differences in the berm between the river and pond sides, thus preventing berm failure. The saddle will be designed to overtop when flow exceeds 8,000 cfs. The approximate length of the saddle would be no more than 300 feet, the approximate top width of the saddle would be 32 feet, and the height would be about 9 feet.

A portion of the existing berm on the both sides of the berm breach would be excavated using bulldozers and excavators to accommodate the proposed saddle and would be constructed with imported materials. The excavated material could be used either for berm improvement, mixed with other materials suitable for floodplain fill, or deposited in the designated spoils areas. Materials containing invasive plant species would only be used in ways consistent with California Department of Fish and Wildlife invasive species protocols. The saddle would be constructed using an excavator. A layer of geotextile material would be provided at the boulder-soil interface.

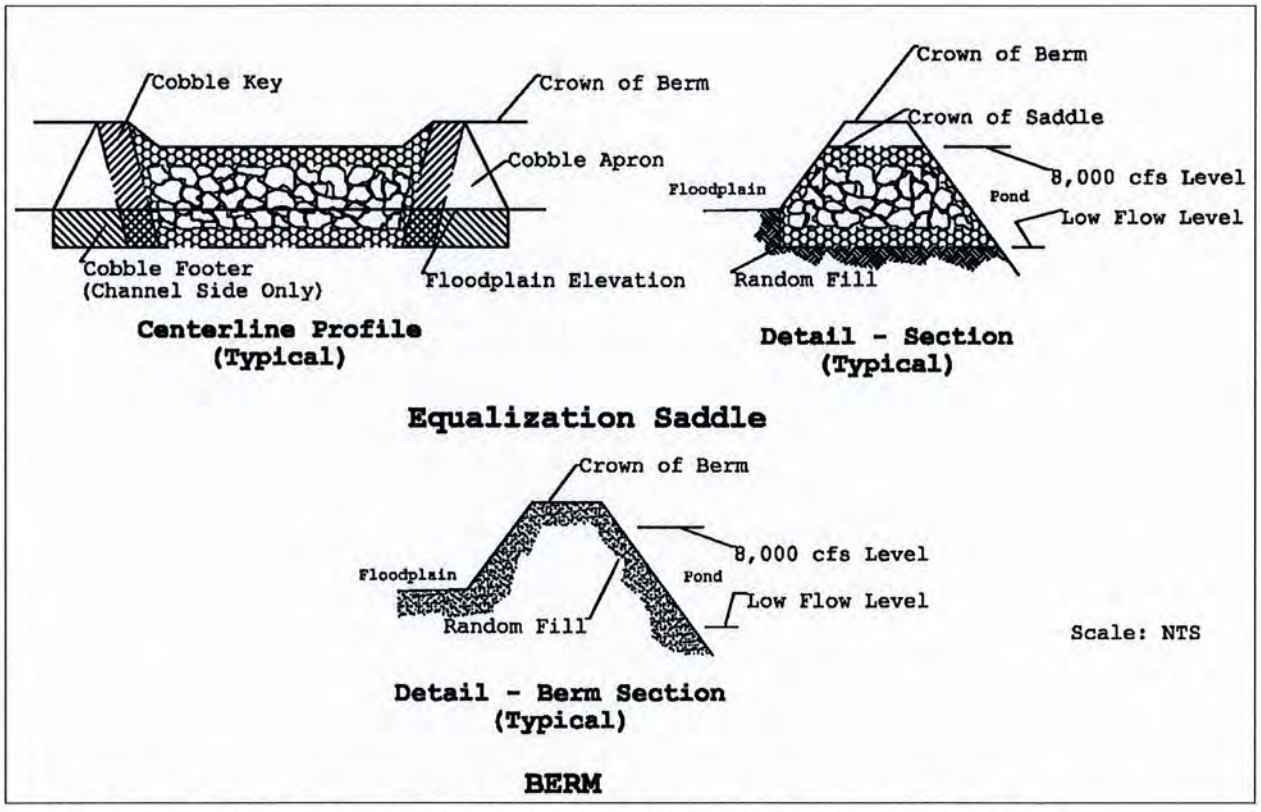


Figure A-3: Typical Sections of Equalization Saddle and Berm Design

Berm Improvements

In addition to repairing the berm breach that occurred in 2005, improvements to the berm must be made to reduce the risk of future failure. Improvements will increase the berm crown elevation to at least three feet above the predicted 8,000 cfs water surface elevation, and will increase the top width of the berm to about 20 feet. The height of the improved berm and road would be designed to overtop when flow exceeds approximately 13,000 cfs.

The berm on both sides of the saddle would be raised to the design elevation using compacted fill material from the borrow sites or from imported sources. Narrow sections of the existing berm would be widened to meet design parameters. A typical section of the improved berm is shown in the bottom portion of Figure A-3.
Approximately 7,000 cy of material would be needed to complete the berm improvements. Berm improvements would be constructed using excavators, dump trucks, road graders, bulldozers, and rollers.

Access Road Improvement
A road will be constructed on top of the berm and saddle to facilitate access between the Sycamore Island recreation area and the Van Buren Unit. Approximately 700 cy of gravel will be used to construct a 12-foot-wide road surface on the crest of the berm and saddle. Decomposed granite may also be used for the road surface. The gravel or decomposed granite would be placed using dump trucks, loaders, and bulldozers or similar equipment and would be compacted.
Road stability over the saddle would be achieved either by using a polyethylene cellular confinement system or a precast concrete mat system. A layer of geotextile fabric would first be placed on the saddle before either of the road reinforcement systems is installed. If the cellular confinement system is used, then additional gravel would be added to the top of the polyethylene material. If the concrete mat system is used, then sheets of interlocked concrete mats would be laid out by a crane or excavator and tied together to ensure resistance to scour during high flow events. Spaces between the concrete blocks would be filled with the same type of gravel used on the road surface.

Borrow Sites
The locations of the borrow sites are shown in Figure A-1. Approximately 50,000 cy of material would be needed to construct the equalization saddle, create floodplain along the berm, install the temporary crossing, and backfill the road breach between Borrow Site 1 and the land on the Fresno County side.
Borrow Site 1 would be a new borrow site located across from Staging Area 1 on the Fresno County side of the river; Borrow Site 2 is a previously used site located on the Madera County side of the project, approximately one mile upstream of the Pit 46e breach (Figure A-1). Each borrow site is approximately 15 acres in size. To reduce the amount of construction-related travel and emissions and to increase habitat benefits achieved by the Project, use of Borrow Site 1 is preferred for this project, although material from Borrow Site 2 would be extracted if needed.
Material from the borrow sites would be excavated and used when fill is needed for the Project. Borrowed material would be used during installation of the temporary crossing, construction of the saddle, and to strengthen the berm and create floodplain habitat along the berm. Borrowed material would also be used to fill the area where a road washed out on the northeast side of the Borrow Site 1.
Material excavated from the borrow pit in Borrow Site 1 would be suitable for the in-water construction of the temporary crossing, construction of the saddle, and to strengthen the berm and create floodplain along the strengthened berm. Material excavated during creation of floodplain habitat on the river side of Borrow Site 1 is not suitable for construction of the in-water Project features, but would be suitable to fill and reclaim the borrow pit in Borrow Site 1 at the end of construction. If sufficient material is not available in the borrow sites to complete in-water construction, then fill material would be imported.

Floodplain

Approximately 4.5 acres of upper and lower floodplain would be created as part of the Project. Up to two acres would be created along the strengthened berm on the Madera County side of the river, and approximately 2.5 acres would be created on the river edge of Borrow Site 1 on the Fresno County side. See Figure A-4 for a conceptual diagram of floodplain design.

To create a floodplain on the Madera County side, a portion of the river channel adjacent to the existing berm would be filled using material from the borrow sites and imported materials consisting of river silts, sands, and gravels. The floodplains would be designed to provide a gently sloping bank down to the low flow water line and a relatively flat upper surface extending from the toe of the berm to the new low flow water surface. The maximum width of the floodplain along the berm would be approximately 100 feet. To allow the saddle to operate at flows between the design low flow and bankfull flow, the floodplain directly between the saddle and the channel would be constructed so that the floodplain elevation would not be higher than the low-flow water elevation.

On the Fresno County side, a portion of the bank next to the river in Borrow Site 1 would be excavated to construct a floodplain. This excavated material would be used to reclaim the borrow pit and to fill the washed out road between ponds.

Upon Project completion, the river side of Borrow Site 1 would be re-graded as floodplain. Approximately 19,000 cy of borrow material would be used to fill the area where a road washed out on the northeast side of Borrow Site 1. The material excavated for creation of floodplain on Borrow Site 1 would be used to fill the portion of Borrow Site 1 that was excavated for project fill.

The floodplains would be constructed using dump trucks, bulldozers, excavators, scrapers, and loaders.

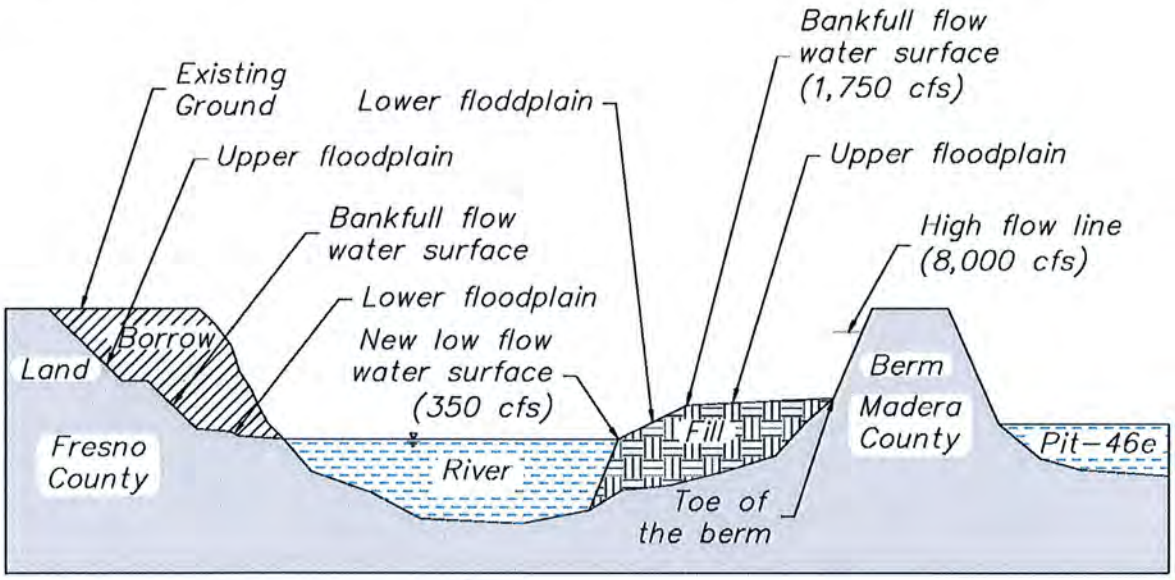


Figure A-4: Conceptual Floodplain Diagram (looking downstream)

Revegetation

The floodplains will be planted with riparian vegetation. Riparian species may include valley oak, cottonwood, willow, sycamore, and other riparian species native to the area including shrubs, forbs, and grasses.

After construction is complete, and before the rainy season begins, topsoil would be replaced on the floodplains and the borrow sites. Hydroseeding and planting of pole cuttings would occur on the disturbed waterside slope areas of the strengthened berm. Pole cuttings would be installed at the low flow water level using a D-8 tractor equipped with a ripper shank with

trailing flanges to penetrate the soil to a minimum depth of 48 inches, forming a "planting pocket." As the shank moves along the predetermined planting lines, cuttings would be placed in the planting pocket so that the rooting end of the cutting is at a minimum soil depth of 42 inches. Cuttings would be placed about 12 feet apart along the planting lines, and the rows would be about 20 feet apart. Spacing of the cuttings would comply with Central Valley Flood Protection Board requirements to ensure that the vegetation will not obstruct high water flows. Planting would be conducted in late fall or early winter while the pole cuttings are dormant. The cuttings may initially be watered by a water truck or other mobile source to assist in establishment of the plants during the first growing season.

Construction Details

Work Window

Project construction would require a total of six months of work. However, in the event of permit restrictions, increases in river flows, or other unforeseen circumstances, the six months of construction work may take place over two construction seasons. Depending on funding and permit requirements, construction could begin in mid-June of 2016.
All work would take place beginning at 6:00 am and ending by 6:00 pm each day; no work would be done after dark.

Site Preparation

Signage regarding the Project will be posted at least two weeks before the start of construction. The Project Area is adjacent to Sycamore Island, which is seasonally open for public recreation. Signs will be posted to prohibit the public from entering the construction area and to redirect the public to recreation areas outside of the construction area. If permit conditions require resource protection, areas with sensitive resources such as wildlife habitat and waterways would be segregated from construction activities and protected by the contractor. Segregation measures may include erosion control devices, high visibility temporary fencing, and temporary chain-link fencing. Appropriate fencing would also be installed during this phase to restrict public access from the construction area. If a silt curtain is required, it would be installed in the water before construction begins. Staging and borrow areas would be mechanically cleared of vegetation and topsoil, and potentially fenced. A site office would be established in one of the staging areas.

Sequencing of Work

Multiple crews would likely work simultaneously on different components of the Project. Table A-1 lists the expected duration of each construction phase; some phases may occur simultaneously.

Table A-1. Approximate Duration of Construction Phases

Construction Phase	Length of time to complete
Mobilization	1 week
Site Preparation	2 weeks
Saddle Construction	6 weeks
Berm Improvements	4 weeks
Floodplain Construction/ Fill material hauling	12 weeks
Miscellaneous	5 weeks

Prior to construction the following would occur:

1) At least two weeks prior to construction, biological and other environmental surveys would be conducted by DWR Environmental Scientists;
2) Utility companies would be informed of the proposed construction;
3) Signage would be posted two weeks prior to construction;
4) Mowing would occur prior to construction as needed;
5) Fencing, flags or other methods to protect private structures or facilities from construction would be installed.

Operation and Maintenance

Once construction is complete, the Conservancy would contract with service providers to water the revegetated area. A water truck or other mobile source would likely be used during the first season to establish the plantings. Irrigation and weed control may continue during additional growing seasons to optimize plant survival. The Conservancy would be responsible for berm, road, and saddle maintenance, and any additional vegetation plantings.