STATE OF CALIFORNIA -- CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
DIVISION OF FLOOD MANAGEMENT
P.O. BOX 219000
SACRAMENTO, CA 95821-9000

April 4, 2014

Draft Plan to Minimize Impacts to Adjacent Landowners –
Salt River Ecosystem Restoration Project

Dear Property Owner:

The State of California, Department of Water Resources (DWR), Flood Corridor Program (FCP), has awarded $3,000,000 to the Humboldt County Resource Conservation District to implement a comprehensive channel and floodplain restoration project along approximately 2.11 miles of historic Salt River channel. Development of the Salt River Ecosystem Restoration Project (Project) will reduce chronic annual flood damage to private residences, agricultural, city, and county infrastructure; and enhance and preserve agricultural productivity on more than 800 acres of agricultural land in the Project vicinity.

Proposition 13 and FCP Guidelines require the grantee, in coordination with DWR, to develop a plan to minimize impacts to adjacent landowners (PTM). Water Code Section 79041 requires that the plan include an evaluation of the Project's potential impact on floodwaters, the structural integrity of affected levees, diversion facilities, customary agricultural husbandry practices, and timber extraction operations, and an evaluation and description of the maintenance required for any facilities that are proposed to be constructed or altered.

This Notice is to inform you that a Draft PTM for the Project is enclosed for your review and can also be found online at: http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/salt_river.cfm

If you would like to submit comments, please submit them by email to Preston Shopbell, project manager, at (916) 574-1437 or preston.shopbell@water.ca.gov. Comments may also be submitted by mail to Preston Shopbell, Department of Water Resources, 3464 El Camino Avenue, Suite 200, Sacramento, CA 95821. Comments are due no later than May 6, 2014.

For additional questions on this notice or the Plan, please contact me at (916) 574-1191 or david.wright@water.ca.gov.

Sincerely,

David Wright

David A. Wright, P.E., Chief
Statewide Flood Grant Programs
Local Assistance Programs Branch
Flood Projects Office

DRAFT Plan to Minimize Impacts on Adjacent Landowners
Salt River Ecosystem Restoration Project – Humboldt County, California

Program Background

The mission of the Flood Corridor Program is to fund nonstructural flood management solutions. As a non-structural flood control alternative, the Flood Corridor Program provides grants to local public agencies and nonprofit organizations for the development of projects to protect or enhance flood protection corridors and floodplains while preserving sustainable agriculture and conserving and enhancing wildlife habitat in and near flood corridors throughout the State. Funding under the Flood Corridor Program is intended to be used for acquisition, restoration, enhancement, and protection of real property while preserving sustainable agriculture and conserving and enhancing wildlife habitat in and near flood corridors throughout the State.

The Flood Corridor Program is funded by Proposition 84 and Proposition 1E and requires the applicant, in conjunction with the Department of Water Resources, to develop a plan to minimize impacts on adjacent landowners.

The purpose of the Plan to Minimize Impacts on Adjacent Landowners (PTM) is to inform local stakeholders and the public of the potential impacts the project will have on floodwaters, levees, diversion facilities, customary agricultural pracitces, timber extraction operations, and maintenenace of facilities that are proposed or altered as a result of the project. While the project described here is subject to and follows the requirements of the California Environmental Quality Act (CEQA), the PTM is a specific requirement of the Flood Corridor Program per California Water CodeSection 79041, and is separate from CEQA.

Project Overview

The *Salt River Ecosystem Restoration Project* is located in Humboldt County, California and is a collaborative, watershed-scale effort to restore hydrologic processes across a working landscape of family farms and ranches. Approximately 95% of the watershed is privately owned with 86% in timber, beef and dairy production. The alluvial delta (17,650 acres) is home to 70% of the family-owned, pasture-based dairies in Humboldt County. The project will reduce flood damage and enhance agricultural productivity on more than 800 acres in the project vicinity and restore and enhance approximately 600 acres of fish and wildlife habitat, including tidal marsh, aquatic areas, mudflats, riparian forest, freshwater wetlands and grassland.

For the purposes of this plan, the project is differentiated between the "*overall project*" which covers all activities related to the full ecosystem restoration project and the "*funded project*" which relates directly to project activities funded by Department of Water Resources.

- The *funded project* will restore approximately 2.11 miles of Salt River channel and associated floodplain. The *funded project* will restore hydraulic capacity and sediment transport, improve drainage, and reduce flooding.
- The *overall project* area extends along the Salt River for approximately seven miles, from Cutoff Slough at Riverside Ranch (approximately 4000 ft upstream of the Salt River-Eel Riverconfluence) to approximately 1800 ft upstream of the Williams Creek-Salt River confluence. It also includes the portion of Francis Creek from its confluence with Salt River up to about 1000 ft. below the Van Ness Avenue crossing in Ferndale.
- The *overall project* is differentiated by two primary phases:
    - Phase 1 restored approximately 300 acres of land that had been converted to pasture back in the late 1800's back to tidal marsh and a variety of estuarine habitats. This phase also included the restoration of approximately two miles of tidally-influenced Salt River channel that adjoins the tidal marsh area. The restoration in Phase 1 maintained approximately 75 acres of pasture for agricultural management. Major construction of this phase was completed in 2013.
    - Phase 2 continues the restoration, working upstream from Phase 1. It is comprised of restoring approximately five miles of fluvial Salt River channel and associated riparian floodplain as well as restoring lower Francis Creek. Phase 2 also includes restoring connectivity to the Salt River's three primary tributaries (Williams, Francis and Reas creeks) and reducing sediment inputs from the upper watershed. Work with landowners to reduce sediment inputs from the upper watershed began several years ago and will continue into the foreseeable future. Construction on the Phase 2 channel and restoring tributary connectivity will commence in 2014.
    - While construction of Phase 1 is expected to provide long-term habitat and water quality benefits, as well as improvements to regional drainage and flood reduction, construction of Phase 2 is expected to provide the most immediate improvement to drainage and flooding impacts currently experienced by producers and residents.

Project Setting and History

The Salt River watershed is located in Humboldt County, California about 200 miles north of San Francisco. The watershed encompasses approximately 47 square miles (30,425 acres) and is bounded on the west by the Pacific Ocean, to the north and east by the Eel River, and to the south by the Wildcat Hills. The watershed takes its name from the Salt River, which has historically flowed in a general north-westerly direction across the Eel River Delta where it discharges into the Eel River Estuary; the fourth largest estuary in California.

When European settlers arrived in the mid 1800's, the Salt River was some 200 feet wide and fifteen feet deep. Small steamers made regular voyages between the Salt River and San Francisco. Over time, the hydraulic capacity of the watershed and its ecosystem has been severely impacted. This is primarily due to cumulative effects from European settlement activities that converted tidal marsh and woodlands to agricultural uses. These anthropogenic impacts were further exacerbated by natural background conditions, including highly erodible soils, high annual rainfall in the area, and frequent earthquakes.

As a result the historic channels of the Salt River and its tributaries are filled with sediment and vegetation; leading to widespread flooding and standing water across the valley from normal rain events. The naturally functioning systems that once provided important spawning and rearing habitat for salmonids and that historically maintained the Salt River as a navigable waterway no longer exist. Due to the lack of a functioning channel, normal rain events cause flooding and leave standing water across the landscape. This has resulted in loss of habitat for a number of state and federally listed species; causes annual impacts to residences, roads and infrastructure; and results in lost production on valuable agricultural lands that support Humboldt County's unique pasture-based organic dairies.

The *overall Salt River Ecosystem Restoration Project*(shown on Figure 1) includes:

1. Reducing and managing sediment inputs from the upper watershed;
2. Re-establishing 7 miles of Salt River channel and associated floodplain and riparian corridor;
3. Restoring tidal marsh and tidal connectivity;
4. Restoring connectivity to over 15 miles of tributaries; and

5. Working with the community to monitor changes in the watershed and to implement adaptive management and maintenance efforts to assure continued hydrologic function.

The approximate extent of the *funded project* is also shown on Figure 1.

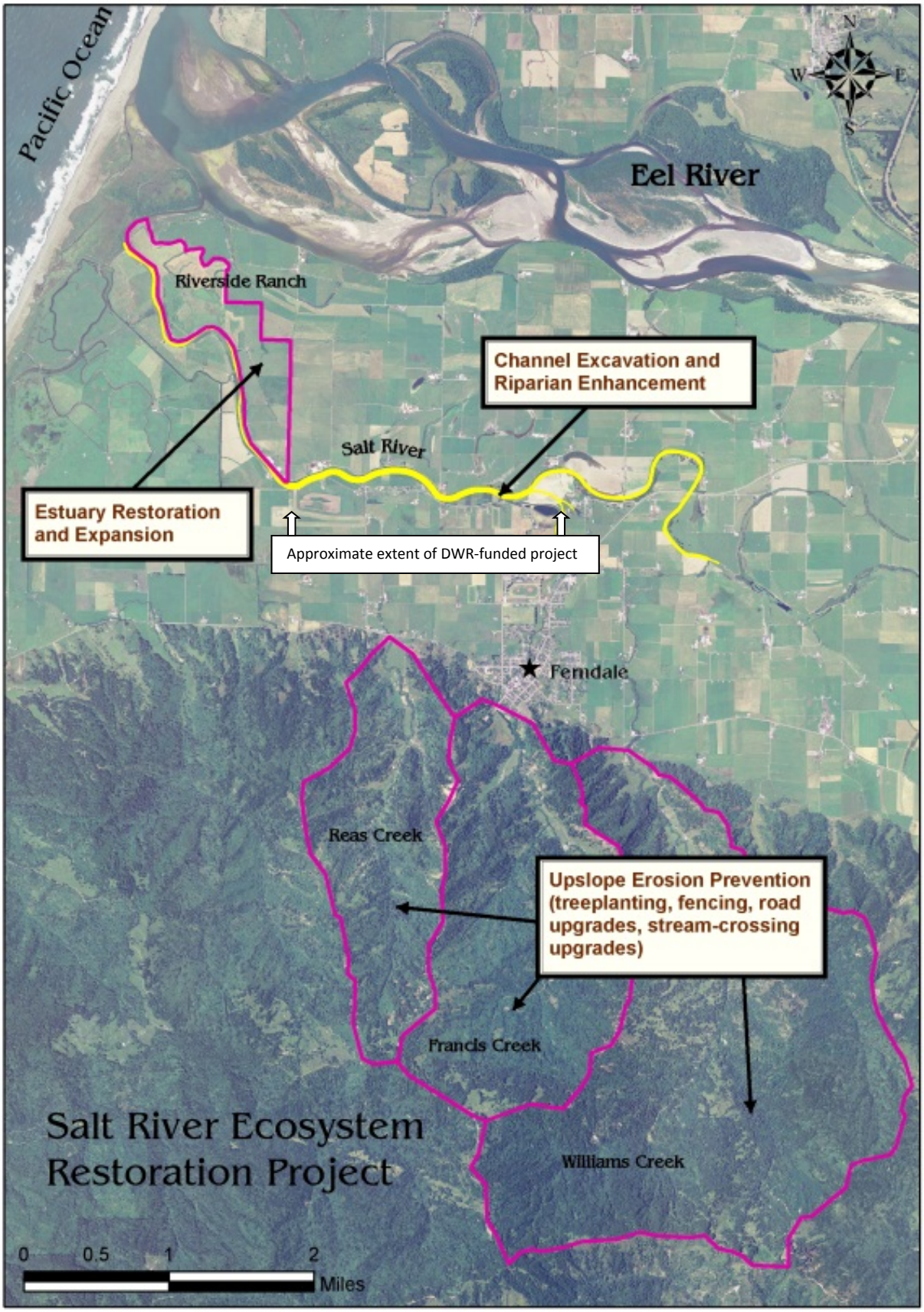
Pacific Ocean
Eel River
N
W
E
S
Riverside Ranch
Channel Excavation and Riparian Enhancement
Salt River
Estuary Restoration and Expansion
Approximate extent of DWR-funded project
Ferndale
Reas Creek
Upslope Erosion Prevention (treeplanting, fencing, road upgrades, stream-crossing upgrades)
Francis Creek
Williams Creek
Salt River Ecosystem Restoration Project
0
0.5
1
2
Miles

FIGURE 1

Project Information

Location: Near the City of Ferndale in Humboldt County extending generally along Port Kenyon Road from the Reas Creek confluence upstream to the area past the confluence with Francis Creek near Arlynda Corners.

Physical Setting: Sediment has filled the historic channel and a monoculture of invasive vegetation (primarily willow and reed canary grass - Phalarisarundinacea) dominates the existing channel and riparian area.

Goals: Restored hydraulic capacity and sediment transport, improved drainage, reduced flooding, enhanced riparian and wetland habitat, improved fish passage and related habitat.

Objectives:

- Restore approximately 2.11 miles of Salt River channel and adjacent floodplain
- Provide transitory storage of floodwaters
- increase sediment conveyance and allow for sediment trapping for periodic removal
- Replace existing under-sized culvert to achieve adequate 100-year flows and restore fish passage to the Francis Creek tributary
- Re-vegetate the floodplain areas and protect from livestock browse with fencing
- Provide benefits to adjacent lands and infrastructure by improving drainage

Surrounding Land Uses:

- The DWR *funded project* area is bounded on both sides by privately-owned pasture lands.

Regulatory Compliance:

- Humboldt County Resource Conservation District is the project lead for environmental compliance and permits and is facilitating project implementation. The Resource Conservation District works on a voluntary, cooperative basis to help landowners conserve and protect water, soil and other natural resources.
- Public Meetings: 2006-2013 multiple community meetings
- NOP Scoping Meeting: June 21, 2007
- NEPA compliance: EA/FONSI
- CEQA compliance: Final EIR February 2011
- June 28, 2012 DWR Public Hearing
- Permits: State Lands Lease, CDFW 1600, Humboldt County Building/Grading/ Conditional Use, SCCCoastal Development, ACOE 404, SWRCB 401

Project Collaboration

The *overall project* is a highly collaborative public-private partnership involving over 40 private

landowners and multiple public agencies. The project has been designed in collaboration with landowners who have entered into written project agreements with the Humboldt County Resource Conservation District (HCRCD). The Landowner Agreements document the landowner's support of project goals and objectives, authorize HCRCD to act as the landowner's agent to secure project permits, and allow HCRCD and its designees access to their land for construction, monitoring and maintenance of project improvements.

Over the 30 years of project development, many landowners have participated and contributed to the project's development and design, both individually and through community groups such as the Salt River Advisory Group and the Salt River Watershed Council. Members of the Salt River Watershed Council (SRWC) represent the geographic diversity of the watershed. The mission of the SRWC is to foster education and encourage public cooperation to restore, improve, protect, and maintain ecosystem functions, and agricultural, economic and community sustainability in the Salt River watershed. HCRCD and the SRWC have pledged to work together over the next several years to develop a long-term community-based monitoring and maintenance program to track the evolution of the restoration project and assure that project improvements are maintained.

Agencies that have contributed to technical studies, design, and environmental compliance or that are providing direct technical assistance include: the County of Humboldt, the City of Ferndale, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, State Coastal Conservancy, U.S. Fish and Wildlife Service, NOAA's National Marine Fisheries Service, USDA Natural Resources Conservation Service, Ducks Unlimited, University of California Cooperative Extension, and Humboldt State University.

Funding partners for the *overall project*include: State Water Resources Control Board; US Fish and Wildlife Service - National Coastal Wetlands Conservation and North American Wetlands Conservation Act; Wildlife Conservation Board; California Department of Fish and Wildlife; California Department of Conservation, California Department of Water Resources, National Oceanic and Atmospheric Administration/National Marine Fisheries; USDA Natural Resources Conservation Service – Wetland Reserve Program; State Coastal Conservancy, Western Rivers Conservancy, City of Ferndale, CalTrans, Ducks Unlimited and others.

Department of Water Resources' Interest in Providing Funds to Develop the Salt River Ecosystem Restoration Project

The Flood Corridor Program awarded Humboldt County Resource Conservation District $3,000,000 to implement a comprehensive channel and floodplain restoration project along approximately 2.11 miles of historic Salt River channel. Development of the Salt River Ecosystem Restoration Project will reduce chronic annual flood damage to private residences,

agricultural, city, and county infrastructure; and enhance and preserve agricultural productivity on more than 800 acres of agricultural land in the project vicinity. It will also restore and enhance approximately 600 acres of fish and wildlife habitat; including tidal marsh, aquatic/mudflat, riparian forest, freshwater wetlands and grassland.

Evaluation of Impact of Development of Project on Floodwaters

The delta will continue to be subject to episodic flooding from the Eel River. During times of Eel River flooding, floodwaters are expected to cover the project area. The local FEMA Flood Information Study (1999) indicates the Eel River delta plain begins flooding with Eel River floods having a 12-year recurrence level or greater. This remains unchanged with the project.

While flooding is a natural component of the Salt River system, the loss of natural drainage features and loss of tidal exchange, in combination with high sediment loads and channel aggradation have dramatically increased flooding frequency and the duration of inundation, during even moderate precipitation events. This trend has compromised the viability of agricultural operations and put public and private infrastructure and livelihoods at risk.

The entire project area lies within FEMA's 100-year flood zone. The Salt River channel and the project area upstream of Reas Creek are almost entirely in the Eel River floodway. The overall project was developed in such a way as to have no adverse impacts on the Eel River floodplain or floodway capacity. The project will have a positive impact to adjacent landowners by restoring natural drainage, thereby;

- increasing agricultural productivity throughout the area,
- reducing ongoing threats to public safety and property, and
- amplifying the investments made to the Ferndale Wastewater Treatment Plant (WTP).

There has been extensive modeling and hydraulic/hydrologic assessments that document expected post-project improvement on drainage in the watershed. A summary of the analyses conducted by the multitude of contributors between 2005 and present is provided in the Project's Basis of Design Report, which consists of three volumes and is available by appointment for review in the Eureka offices of the Humboldt County Resource Conservation District. Many of the supporting studies completed prior to 2005 are discussed and referenced within the report as well. The Basis of Design Report documents the hydrologic, hydraulic, geomorphic, engineering, survey, and GIS analyses conducted to support the feasibility assessments, planning, and design of the Salt River Ecosystem Restoration Project. Analyses performed indicate no rise in the Eel River base flood water surface elevation associated with the proposed project.

The Salt River Ecosystem Restoration Project has been designed to greatly improve drainage and minimize negative flooding impacts currently occurring on an annual basis across the

floodplain and impacting agricultural producers and property owners. Two principal engineering firms have been involved in the development of the project design; Kamman Hydrology and Engineering, Inc. and GHD, Inc. (formerly Winzler and Kelly). Additional modeling has been performed by NOAA/NMFS (Tauzer and Chow, 2009) and USFWS (Shea, 2013). An effective discharge analysis was conducted by Shea to evaluate the hydraulic and sediment transport capacity of the proposed channel design. The analysis confirmed the channel design functions as intended.

Kamman Hydrology and Engineering has provided hydrologic and hydraulic engineering services including monitoring, hydrologic/hydraulic assessment, geomorphic assessments, planning and design for the Salt River project since 2005. As a result, the firm is extremely familiar with the existing flood-prone conditions within the project area. The firm is also well-versed in the proposed project design. In a February 25, 2011 letter to Mr. Joel Gerwein, Project Manager for the State Coastal Conservancy, Rachel Z. Kamman, PE, Principal Hydraulic Engineer with Kamman Hydrology and Engineering provided an opinion of flood reduction benefits from implementation of the Salt River Ecosystem Restoration Project. In that letter, Ms. Kamman states; "….there will be significant reduction in flood impacts realized with implementation of the Salt River Ecosystem Restoration Project." In the letter, Kamman goes on to say "One of the primary goals of the Salt River project is to reduce flood hazards and damages to the surrounding community by restoring water and sediment flow conveyance through the Salt River corridor. The long-term sustainability of the ecosystem restoration project components (which restore fish passage, aquatic habitat and riparian floodplain function) rely heavily on meeting and sustaining this same flood reduction/channel conveyance design goal. The primary flood reduction benefits that will result from the Salt River project include the following:

- Containment of high frequency (one-year) floods within the restored active channel and floodplain.

Currently, winter high flows are not contained within the Salt River channel/floodplain corridor and as a result there is frequent flooding in surrounding pasturelands, homes and roads; and the Ferndale Wastewater Treatment Plant is frequently threatened;

- Establishment of positive drainage in surrounding lands flooded during events in excess of a one-year recurrence interval.

As a result of the project, we estimate that flooded lands will drain in a matter of days significantly reducing flood impacts when compared to the current conditions which result in chronic seasonal ponding; and,

- Implementation and maintenance of sediment management areas and upslope sediment reduction strategies to sustain long-term conveyance through the restored channel corridor."

Evaluation of Impacts on the Structural Integrity of Affected Levees

There are no levees within the Department of Water Resources-funded project area. Within the watershed, but distant from the project area, is the Leonardo Levee; constructed in 1967 to reduce negative impacts from Eel River flooding. The project will not have an impact on this levee.

Evaluation of Impacts on Diversion Facilities

No water diversion facilities are present in the Department of Water Resources-funded project area.

Evaluation of Impacts on Customary Agricultural Husbandry Practices

The Salt River Ecosystem Restoration Project is expected to have a net positive impact on customary agricultural husbandry practices on adjacent agricultural land by improving drainage across the landscape and reducing annual flooding. Due to the current lack of a receiving channel, storm waters pond across the landscape impacting dairy production on over 800 acres of valuable agricultural land for 3 to 8 months of every year. The restored channel will convey storm waters and allow for the more rapid draining of flooded parcels bordering the rehabilitated river channel.The project will not hinder agricultural practices on neighboring properties.

Much of the land adjacent to the DWR-funded project footprint is used for pasture-based organic dairy operations. The project's channel restoration footprint will re-convert portions of the aggraded channel that have, over time, been converted to agricultural use; primarily livestock grazing. Project proponents have made every effort to work collaboratively with each landowner to minimize impacts to current agricultural management practices. Landowners and dairy producers with property adjacent to the project footprint support the goals and objectives of the project and anticipate improved drainage and increased production as a result of project improvements.

Seasonal agricultural practices are expected to change slightly on a 22-acre parcel adjacent to the Salt River within the DWR-funded project area. The parcel was acquired by the Salt River Watershed Council, primarily with funds provided through a grant from the State Coastal Conservancy. The purpose for the acquisition was to provide additional opportunities to the *overall project* for habitat enhancement, public access, and agricultural preservation. Long-term management will include a combination of two features:

1) Approximately one-third of the parcel will be dedicated to development of an extensive riparian zone that will also serve as an off-channel sediment deposition area.

2) Livestock grazing will continue on the area of the property outside of the riparian zone.

The portion of the parcel to be dedicated to riparian is close to the channel and prone to flooding. Once it dried out from winter and spring inundation, it had been utilized for seasonal grazing during the late summer. The restored riparian area will serve as a natural deposition area for sediment and host a variety of important habitat features including off-site rearing ponds for juvenile salmonids and extensive native vegetation to host migratory songbirds and other species. The remaining two-thirds of the property is more upland and has been used as pasture for a number of years. This use is anticpated to continue.

Project design also includes construction of a large off-channel sediment management area (SMA) on Francis Creek, near the confluence with Salt River. The SMA will be constructed on land that was historically in agricultural production but that now is in a Floodplain Easement. Much of this property has experienced extensive annual flooding for several years and 100 acres of the property was placed in a Natural Resources Conservation Service (NRCS) Floodplain Easement by the landowner. Authorization for continued agricultural use of the portion of the property in the Floodplain Easement is subject to NRCS approval and beyond the authority of the project. The portion of the property dedicated to the SMA will be actively managed and is expected to be cleaned out annually in conformance with the project Adaptive Management Plan, discussed below under “maintenance”.

Evaluation of Impacts on Timber Extraction Operations

While there are timber extraction operations in the upper watershed, there are no such operations in the vicinity of the DWR-funded project area. As stated in the project overview section of this plan, one component of the larger Salt River Ecosystem Restoration Project is to work with interested producers in the upper watershed to decrease sediment inputs by upgrading roads and culverts, and stabilizing stream-banks. These efforts would have a positive impact on timber extraction operations and land use practices.

Evaluation of Impacts on Maintenance of Any Facilities Proposed to be Altered or Constructed

The *funded project* will offset a portion of the cost to replace an existing undersized culvert on Francis Creek under Port Kenyon Road with a large arch culvert. The County of Humboldt is responsible for completing this work. The County also holds responsibility for monitoring the condition of and maintaining County infrastructure and the new culvert will, therefore, fall under the County’s purview.

As part of the project design and permit process, project proponents developed an Adaptive Management Plan (AMP)to guide required monitoring and maintenance actions. The AMP describes the organizational structure and outlines the adaptive management process to provide for on-going, long-term input from local property owners and ensure that project goals and objectives are attained through annual monitoring and maintenance. HCRCD and SRWC

have forged a cooperative partnership to conduct required annual monitoring and maintenance activities over the next several years, in accordance with the AMP. The AMP document:

1. Specifies monitoring and maintenance activities required to be performed to ensure the project is functioning as designed;
2. Establishes the triggers or thresholds that would initiate a response; and
3. Describes a range of potential adaptive management actions allowed in the project permits.

HCRCD has also developed working relationships with Humboldt State University, California Department of Fish and Wildlife, National Marine Fisheries Service, California Conservation Corps, and AmeriCorps Watershed Stewards to conduct annual monitoring.

Maintenance activities for the DWR-funded project are anticipated to include annual or periodic removal of vegetation and sediment.The actual need and resultant costs for maintenance are dependent upon a variety of factors, such as annual rainfall, earthquakes, extent of re-growth of invasive vegetation, and landslides in the upper watershed that produce additional sediment loads beyond background levels. A plan to re-use the removed sediment as an agronomic amendment on adjacent pastures has been integrated in to the *overall project* design to reduce costs for off-hauling and disposal.

To perform expected maintenance in Phase 2, HCRCD and SWRC are developing a citizen-based approach that will actively engage landowners and community volunteers. The two entities are also collaborating with the City of Ferndale, the County of Humboldt, High Rock Conservation Camp, California Conservation Corps, and others as needed to carry out maintenance actions. While this approach is expected to be a cost-effective way to complete required monitoring and maintenance, HCRCD and SWRC are exploring a variety of opportunities to cover maintenance costs. Some of the avenues under investigation include:

- fundraising
- endowment bequests
- grants
- membership dues
- formation of a special district

<u>Evaluation of Project Benefits</u>

Rehabilitation of the Salt River channel and restoration of the riparian floodplain will provide numerous benefits, including:

- Improved drainage of adjacent agricultural fields,
- Increased fresh-water contributions to the Eel River Estuary,
- Restored fish passage to upper tributaries and improved fish habitat,

- Diversified riparian habitat for birds and other wildlife,
- Improved sediment conveyance with integrated opportunities for sediment capture and removal,
- Improved water quality across the delta.

Conclusion

In summary, the project will not have significant adverse impacts to adjoining property owners, land use practices, or facilities. By using a collaborative landowner-led approach, maintenance of project improvements will be assured. The project will provide habitat for a variety of wildlife species, including threatened and endangered species. The project will reduce impacts to agricultural land caused by chronic flooding and standing water.

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