DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVE.
SAN FRANCISCO, CA 94102

FINDING OF NO SIGNIFICANT IMPACT
Pajaro River at Watsonville, California
Reach 6 Flood Risk Management Project
Monterey and Santa Cruz Counties, California

The U.S. Army Corps of Engineers, San Francisco District (USACE) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended (NEPA). The Supplemental Environmental Assessment (EA) dated June 2024 for the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project addresses design refinements for the authorized flood risk management project in the City of Watsonville.

The Supplemental EA, incorporated herein by reference, evaluated changes to the design which incorporated site-specific considerations and cost saving measures that were not identified during the original NEPA analysis. This document elaborates on the existing environmental conditions in the project area as described in the original integrated Pajaro River Flood Risk Management Project General Reevaluation Report and Environmental Assessment (GRR/EA), dated February 2019 and revised December 2019. This Supplemental EA evaluates the anticipated environmental effects of the design refinements, and identifies measures to avoid or reduce any adverse environmental effects to a less-than-significant level where practicable. The authorized project for Reach 6 includes constructing new setback levees along Corralitos Creek. The design refinements evaluated in this Supplemental EA include:

- Incorporation of floodplain borrow features within the levee setbacks;
- Floodwalls at the upstream and downstream ends of Reach 6;
- Identification of staging areas and haul routes; and,
- Confirmation of vegetation impacts.

For the design refinements, the potential effects were evaluated, as appropriate. For some resources, the design refinements did not alter the environmental effects from the evaluation in the GRR/EA and therefore were not evaluated in detail in this Supplemental EA. A summary of resources evaluated in detail in the Supplemental EA and the potential effects of the design refinements are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Cultural resources	☐	☒	☐
Hydrology, Hydraulics, Groundwater, and Geomorphology	☐	☒	☐
Special Status Species	☐	☒	☐
Vegetation and wildlife	☐	☒	☐
Water quality	☐	☒	☐

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Mitigation for resources identified as having "Insignificant effects as a result of mitigation" areas is detailed for each resource as titled below in Chapter 3, and is summarized as follows:

- **Cultural Resources** – Implement the Section 106 Programmatic Agreement signed July 16, 2019, in consultation with the California SHPO and Native American tribes. The PA is included in Appendix J of the GRR/EA, and lays out steps in the Section 106 process, including surveys, inventory, evaluation of resource significance, finding of project effects and NRHP eligibility, tribal consultation, and any avoidance, minimization or mitigation that may be required to resolve adverse effects to historic properties that would result from the project. No historic properties were identified in the APE for Reach 6. However, due to the presence of large, multi-component archaeological resources (which contain numerous human burials) near the APE, a Worker Environmental Awareness Program (WEAP) training focused on cultural resources is recommended for the entire Project. This training will be conducted by a USACE Secretary of the Interior-qualified archaeologist prior to any ground disturbing Project activity.

- **Hydrology, Hydraulics, Groundwater, and Geomorphology** – Best Management Practices (BMPs) such as silt trapping and silt fencing will be implemented when excavation is occurring near the active channel to ensure no impacts to the creek would occur. Further detail on these BMPs is included in Section 3.2.2 of the Supplemental EA.

- **Special Status Species** – The USACE has included conservation measures as a part of this project that are intended to avoid or minimize adverse effects to special status species and their habitat. These include measures to limit the extent of the work area; implement erosion control best management practices (e.g., use straw wattles); prevent introduction of contaminants (including construction debris and materials) into the stream; and ensure the complete removal and proper disposal of all construction waste. Heavy equipment will not enter the waterway. Additionally, riprap amounts are considered maximum estimates, and USACE would employ environmentally- and fish-friendly levee construction techniques where possible. These may include hydroseeding the new or repaired levees to expedite the restoration of vegetation cover. Additional avoidance and minimization measures are included in Appendix A of the Supplemental EA, which contains Endangered Species Act compliance documentation.

- **Vegetation and Wildlife** – General construction and O&M BMPs would be implemented to manage food-related wastes, invasive species, dust impacts, confine travel/traffic, reseed disturbed areas, ensure fill is free of contaminants, and layout final plans that identify habitat areas to be protected and means of protection. Worker awareness training for all construction personnel would be conducted, and work would be scheduled outside the nesting season to the extent possible. Where work would occur in or adjacent to migratory bird habitat, pre-construction surveys for active nests would be conducted prior to initiating new construction activities in nesting season. Work around active nests would be avoided until the young have fledged; and if infeasible, a solution would be developed in coordination with USFWS. Minimize project impacts by reseeding all disturbed areas at the completion of construction in a timely manner with native forbs and grasses. All disturbed areas would be restored to pre-project conditions upon the

completion of work. To help prevent importation of invasive plants and animals, the construction contractor would be required to thoroughly clean vehicles and equipment before first entering the project site. All construction equipment will be inspected for leaks prior to being brought on site. All equipment shall be well maintained and inspected daily while on site to prevent leaks of fuels, lubricants, or other fluids into aquatic habitat. Additional avoidance and minimization measures are included in Appendix A of the Supplemental EA, which contains Endangered Species Act compliance documentation.

- **Water Quality** – BMPs for construction would be implemented under a spill control plan and a Storm Water Pollution Prevention Plan prepared with guidance from the Central Coast Regional Water Quality Control Board. Additional measures incorporated into the Supplemental EA in response to public comment include measures that would be implemented in the event of a precipitation event in order to contain runoff from the construction site. Further detail on these BMPs is included in Section 3.2.2 of the Supplemental EA.

COMPENSATORY MITIGATION NOT REQUIRED

No compensatory mitigation is required as part of the recommended plan, which is self-mitigating due to the use of setback levees with establishment of floodplain borrow features in the offset areas. This accomplishes what would be laid out and credited as ecosystem restoration if this project had a multi-purpose authorization and is the reason resource agencies have generally supported this project as planned.

PUBLIC REVIEW

Public review of the draft supplemental EA was completed on 17 May 2024. All comments submitted during the public review period were addressed and changes were incorporated, as appropriate, in the final Supplemental EA and FONSI. All public comments and responses are included in Appendix B of the Supplemental EA.

OTHER ENVIRONMENTAL AND CULTURAL COMPLIANCE REQUIREMENTS:

ENDANGERED SPECIES ACT

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (FWS) issued a biological opinion, dated 24 February 2023, that determined that the recommended plan will not jeopardize the continued existence of the following federally listed species or adversely modify designated critical habitat: California red-legged frog (*Rana aurora draytonii*). The recommended plan is not likely to adversely affect the Least Bell's vireo (*Vireo bellii pusillus*), and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). All terms and conditions, conservation measures, and reasonable and prudent alternatives and measures resulting from these consultations shall be implemented in order to minimize take of endangered species and avoid jeopardizing the species.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the recommended plan may affect but is not likely to adversely affect the following federally listed species or their designated critical habitat: South Central California Coast steelhead (*Oncorhynchus mykiss*). The National Marine Fisheries Service (NMFS) concurred with the USACE's determination on 17 February 2023

FISH AND WILDLIFE COORDINATION ACT

As required by the Fish and Wildlife Coordination Act, the recommendations of the Secretary of the Interior, through the USFWS, have been sought throughout the planning process. USFWS provided a letter report, dated 29 September 2017, in lieu of a Coordination Act Report, for inclusion with the Draft GRR/EA (see Appendix E-2). The letter in part reads: "In accordance with and as stated in the FWCA, the Service provides the following comments in order to ensure that 'wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs through the effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation and rehabilitation…'" USFWS letter report recommendations are enumerated, together with USACE responses, in Section 5.2.1 of the GRR/EA.

NATIONAL HISTORIC PRESERVATION ACT

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that historic properties may be adversely affected by the recommended plan. The USACE and the California State Historic Preservation Officer entered into a Programmatic Agreement (PA), dated 8 July 2019. All terms and conditions resulting from the agreement shall be implemented in order to minimize adverse impacts to historic properties.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE

A draft 404(b)(1) evaluation was included in Appendix E of the GRR/EA. The design refinements to Reach 6 of the project would not involve any impacts to waters of the U.S. All work would be above the ordinary high water mark, and BMPs would be implemented to ensure no impacts to Corralitos Creek would occur.

CLEAN WATER ACT SECTION 401 COMPLIANCE

The design refinements to Reach 6 of the project would not involve any impacts to waters of the U.S. All work would be above the ordinary high water mark, and BMPs would be implemented to ensure no impacts to Corralitos Creek would occur.

FINDING

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

6 June 2024

Date

SHEBESTA.TIMOTHY.WILLIAM.1260730980 Digitally signed by SHEBESTA.TIMOTHY.WILLIAM.1260730980 Date: 2024.06.06 13:13:55 -07'00'

Timothy W. Shebesta
Lieutenant Colonel, U.S. Army
District Commander and Engineer

PAJARO RIVER AT WATSONVILLE, CALIFORNIA

REACH 6 FLOOD RISK MANAGEMENT PROJECT

Final Supplemental Environmental Assessment

June 2024

US Army Corps of Engineers ®
San Francisco District

PAJARO REGIONAL FLOOD MANAGEMENT AGENCY

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Acronyms

ACE	Annual Chance of Exceedance
APE	Area of Potential Effect
BO	Biological Opinion
BA	Biological Assessment
BMP	Best Management Practices
CFR	Code of Federal Regulations
CGP	Construction Stormwater General Permit (California)
CRLF	California Red-legged Frog
DDD	Dichlorodiphenyldichloroethane
DDT	Dichlorodiphenyltrichloroethane
DWR	California Department of Water Resources
EA	Environmental Assessment
EcoFIP	Ecological Floodplain Inundation Potential
EFH	Essential Fish Habitat
ESA	Endangered Species Act (Federal)
FCA	Flood Control Act
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management
FY	Fiscal Year
GRR	General Reevaluation Report
GRR/EA	Integrated General Reevaluation Report and Environmental Assessment
HTRW	Hazardous, Toxic, and Radioactive Waste
H:V	Horizontal:Vertical
LERRD	Lands, Easements, Rights-of-Way and Disposal sites
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFS	Non-federal Sponsor
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O&M	Operation and Maintenance
OMRR&R	Operation, Maintenance Repair, Replacement and Rehabilitation
PA	Programmatic Agreement
PL	Public Law
PPA	Project Partnership Agreement
PRFMA	Pajaro Regional Flood Management Agency
REAP	Rain Event Action Plan
SHPO	State Historic Preservation Officer
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

WEAP	Worker Environmental Awareness Program
WPT	Western Pond Turtle
WRDA	Water Resources Development Act

1 Introduction

1.1 Proposed Action

The U.S. Army Corps of Engineers (USACE), San Francisco District's Pajaro River Flood Risk Management Project (Pajaro Project), is a single-purpose flood risk management project along the Pajaro River and its tributaries in Santa Cruz and Monterey Counties, California. The lead agency is the USACE. The Pajaro Regional Flood Management Agency (PRFMA) has assumed the role as the non-federal sponsor (NFS). In response to ongoing flood management needs, PRFMA was established in 2021 to manage projects to reduce flood risk to the Pajaro River Valley in Santa Cruz and Monterey counties.

USACE prepared an integrated General Reevaluation Report and Environmental Assessment (GRR/EA) dated February 2019 and revised December 2019 to develop and evaluate flood risk management alternatives (USACE, 2019)[1]. The study culminated in a Director's Report, a decision document from the USACE Director of Civil Works, which confirmed that the Recommended Plan presented in the GRR/EA was compliant with the authorization from the Flood Control Act of 1966 and approved the project for design and construction. The proposed project includes construction of levee improvements along the Pajaro River and Salsipuedes and Corralitos Creeks. These levee improvements include a series of measures including new levees, setback levees, floodwalls, pump stations, and other associated features, including nature-based features such as terraces and side channels within the levee setbacks to provide in-situ borrow material. This approach saves the project money, while also increased ancillary benefits such as groundwater recharge and habitat for critical species.

These features combined will provide critical 100-year flood protection to socioeconomically disadvantaged communities in Santa Cruz and Monterey Counties. This project will further underscore the fact that delivering a multi-benefit approach to flood risk management enhances the ability of USACE and its partners to deliver on the Justice 40 Initiative using Engineering with Nature principles. Therefore, this project is consistent with the White House's Roadmap for Climate Progress (White House, 2022) and Section 1184 of the Water Resources Development Act (WRDA) of 2016 (as modified by Section 1149 of WRDA 2018), which both direct Federal Agencies to consider natural and nature-based features, when feasible.

This document is a supplemental Environmental Assessment, and its purpose is to provide an update and clarifications on design refinements made to the project plan for Reach 6 since the publication of original GRR/EA in December 2019. These design refinements include:

- Incorporation of floodplain borrow features within the levee setbacks;
- Floodwalls at the upstream and downstream ends of Reach 6;
- Identification of staging areas and haul routes; and,
- Confirmation of vegetation impacts.

[1] https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Pajaro-River-Watsonville/

1.2 Project Location

The Pajaro River watershed is located on the central coast of California approximately 75 miles south of San Francisco and includes portions of Santa Clara, San Benito, Santa Cruz, and Monterey Counties (Figure 1). The watershed, which is approximately 88 miles long and 30 miles wide, drains an area of approximately 1,300 square miles of the Central California Coastal Ranges, emptying into the Pacific Ocean six river miles southwest of the city of Watsonville. The primary tributary to the Pajaro River is the San Benito River, which forms the majority of the upper watershed. The San Benito River joins the Pajaro River upstream of the project area.

The Pajaro River Flood Risk Management Project area is located within the lower Pajaro River watershed in an area known as the Pajaro River Valley. The watershed within the project area encompasses an area of approximately 10,000 acres, which includes the stream channels, active floodplains, and terraces along the Pajaro River and Salsipuedes and Corralitos Creeks. The Pajaro River serves as a border for the counties of Santa Cruz (north) and Monterey County (south). Two urban areas are within the project site, the economically disadvantaged and historically marginalized communities of the city of Watsonville (Santa Cruz County) and the unincorporated town of Pajaro (Monterey County). The project area includes widespread agricultural lands devoted to high-value crops (e.g., strawberries, raspberries, and lettuce) and extensive residential, commercial, and industrial structures within the valley.

The first phase of the Pajaro River Flood Risk Management Project, where the project design refinements proposed in this EA amendment are located, will be the Reach 6 Project. Reach 6 is located along Corralitos Creek, with the downstream limit at the intersection of Corralitos Creek and Highway 152 and the upstream limit at the intersection of Corralitos Creek and Green Valley Road. Reach 6 is located within Santa Cruz County, near the City of Watsonville. The Reach 6 project limits are shown on Figure 2. In its current condition, Reach 6 does not have any levee infrastructure.

1.3 Background and Need for Action

The Pajaro River levee system was constructed in 1949. Today, if improved, it stands to provide flood risk management benefits to over 10,000 acres of mixed-use land with a current population estimated at 12,600 residents located in the floodplain (approximately 3,000 residents in Pajaro and 9,600 in Watsonville) and an estimated $1.2 billion in damageable property. Since its construction, there have been numerous major flood events that have resulted in significant flooding caused by overtopping or breaching of the levees. Floods have occurred on the Pajaro River and its tributaries in 1955, 1958, 1986, 1995, 1998, 2017, and 2023 (R&F Engineering et al., 2022).

The levee system demonstrated its inadequacy after flood damage in 1955, but efforts to reconfigure the system did not occur. Although the 1949 flood project was designed to reduce flood risk in the Pajaro Basin from a two percent annual chance of exceedance (ACE) probability event (50-year event), subsequent analyses indicated that these levees provide an 8-year level of flood protection, which is one of the lowest levels of protection of any federal flood control system in California (PRFMA, 2022).

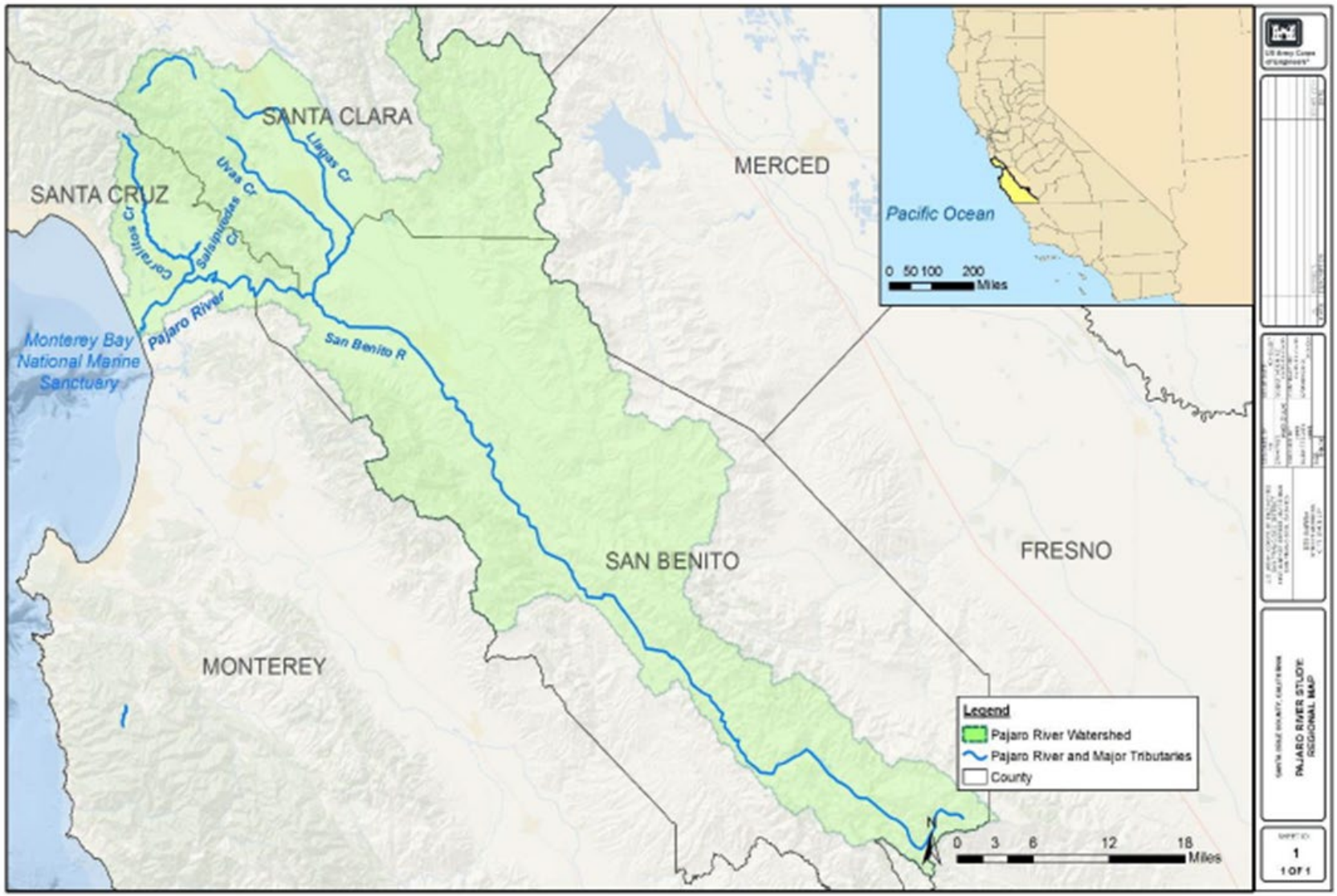

Figure 1. Map of the Pajaro River Watershed

The project area has continued to experience flooding from the Pajaro River and Corralitos and Salsipuedes Creeks, as the existing 1949 levee project does not provide the intended level of protection. A new project was originally recommended and authorized by Congress in the Flood Control Act of 1966. The 1966 project included modifications to the existing levee system to ensure that there was a standard level of flood protection on the Pajaro River, Salsipuedes Creek, and Corralitos Creek. However, the 1966 project was never constructed due to economic justification challenges and inconsistent support for the project, both from local and federal governments.

A flood in 1995 caused nearly $100 million in damages and life loss, and levees nearly broke again during the storms of early 2017 (PRFMA, 2021). Flooding events that occurred prior to 2019 are described in Section 2.1.1 in the original GRR/EA. Following the 1995 and 1998 floods and associated emergency levee repairs, there were multiple efforts by USACE and Santa Cruz and Monterey counties to complete a General Reevaluation Study to update and recommend future flood improvements on the Pajaro River with public outreach for a proposed study occurring in 2004, 2009, 2012, and 2015. The 2019 GRR/EA was ultimately completed for the project, with the associated Director's Report signed in December 2019 (Figure 2). USACE initiated the preconstruction design phase of the Pajaro Project in 2021.

In the winter of 2023, two separate storm events caused widespread damage, which flooded homes in the economically disadvantaged communities in Watsonville and Pajaro. During the event in early January 2023, water overtopped the banks of Corralitos and Salsipuedes Creeks (Figure 3). In March of 2023, high flows on the Pajaro River breached the levee in nearly the same location as the 1995 flood, flooding the town of Pajaro. At the peak of the levee breach, nearly 33,000 individuals in Monterey County were under evacuation orders or warning, and nearly every home in Pajaro was impacted by the flooding. The flooding events in January and March 2023 resulted in a combined impact of over $450.5 million dollars in agricultural damage to the Pajaro River Valley, and numerous critical pieces of levee infrastructure needing repair (Newsom, 2023).

The flood risk reduction structures proposed for Reach 6 are currently planned as the first constructed portions of the overall Pajaro Project, with construction scheduled to begin in fall 2024. PRFMA requested initiating the Pajaro Project with Reach 6, because if the project began with the design and construction of downstream reaches, it would delay the overall project given the complexity of lands, easements, rights-of-way, relocations, and disposal (LERRDs) actions. Given that there is currently no flood risk management infrastructure in place, constructing Reach 6 first would also bring immediate flood risk reduction to the town of Watsonville, which contains more than 90% of the project's population. Additionally, Reach 6 is an area more impacted in flash flood events, as evidenced by the reach's four overtopping events in 2023, all of which flooded residential neighborhoods in Watsonville. Considering the relatively low risk of adverse impacts and significant implementation benefits associated with this action, USACE concurred with the NFS's request and began design with Reach 6 and will proceed in a downstream direction.

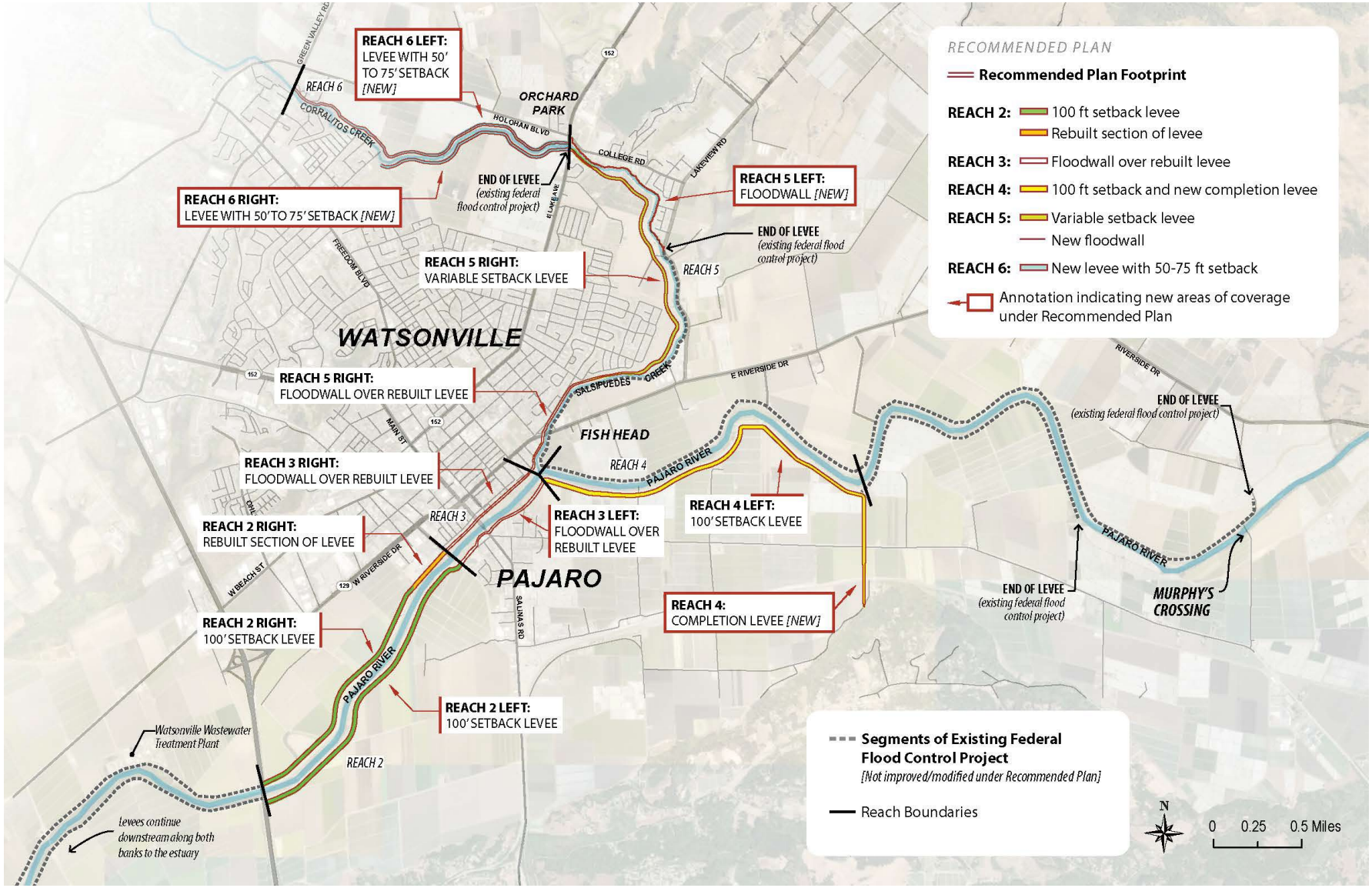

Figure 2. Map of Proposed Project Area Reaches

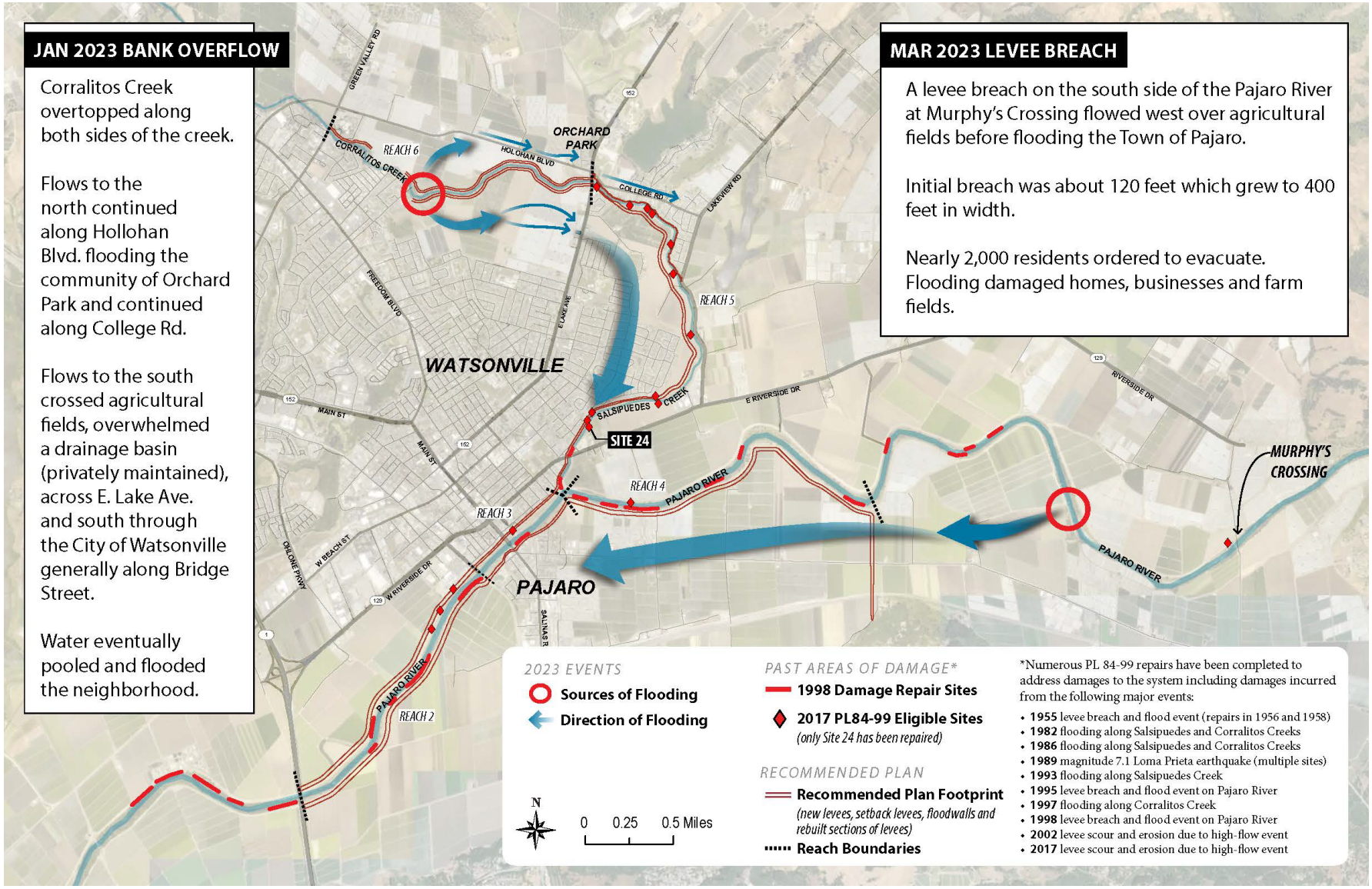

Figure 3. Map of 2023 Flood Events in Pajaro and Watsonville

1.4 Authority

The existing USACE Pajaro River project was completed in 1949 and authorized by the Flood Control Act (FCA) of 1944 (Public Law No. 534, 78th Congress, Ch. 665, 2nd Session). A new project authorization to modify the project was provided by the 1966 FCA (Public Law 89–789, 80 Stat. 1421). Section 1001 of the Water Resources Development Act (WRDA) of 1986 states that every two years, the Secretary of the Army shall submit a list of projects to Congress for deauthorization. The list would include authorized projects that have not been constructed and have received no funding for the previous 10 fiscal years. To avoid de-authorization, the Pajaro River flood risk management feasibility study was re-authorized by WRDA 1990, Continuation of Authorization of Certain Projects (Public Law 101–640). With the GRR's approval through the December 2019 Director's Report, the 1966 project remains authorized for construction. On 30 March 2022, the project was granted initial construction funding under the Infrastructure Investment and Jobs Act of 2021.

1.5 Purpose and Need

The purpose of the project is to reduce flood risk to the City of Watsonville, the Town of Pajaro, and surrounding agricultural lands. The project is needed to address the long history of flooding in the project area, as detailed in Section 1.3 above. This flooding has resulted in substantial damages in Pajaro and Watsonville and surrounding agricultural areas.

The purpose of this Supplemental EA is to update the analysis from the 2019 GRR/EA to analyze and disclose the anticipated environmental impacts of changes to the project design. Measures in Reach 6 were originally anticipated to include setback levees and erosion protection riprap along Corralitos Creek. The design refinements analyzed in this Supplemental EA were identified as part of the preconstruction engineering and design phase and account for site specific conditions that were deferred during the planning study including identification of limited real estate constraints, and identification of access roads, borrow sites, and staging areas specific to the Reach 6 project area. These refinements ensure the constructability of the proposed flood risk reduction measures and provide some project efficiencies including cost savings and incidental environmental benefits for the watershed and the community.

1.6 Previous Environmental Documentation

The Pajaro River Flood Risk Management Project GRR/EA was completed in 2019 and is the original NEPA documentation for this project. Previous reports and investigations of the project area are described in detail in Section 1.6 of the original GRR/EA.

This document elaborates on the existing environmental conditions in the project area as described in the original GRR/EA, evaluates the anticipated environmental effects of the alternatives on these conditions, and identifies measures to avoid or reduce any adverse environmental effects to a less-than-significant level where practicable. This Supplemental EA has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA). This Supplemental EA, in combination with the Pajaro River GRR/EA (USACE, 2019), fully discloses the potential environmental effects of the design of Reach 6 to the public and provides an opportunity for the public to comment on the proposed action.

2 Alternatives

2.1 Alternatives Not Evaluated in Detail

Alternatives eliminated from further consideration for this supplement includes the construction of the project without the proposed design refinements. This alternative was eliminated from further analysis because the alternative would require the import of over 40,000 additional cubic yards of fill, adding significant cost and environmental impacts to the project.

Other Alternatives that were eliminated from detailed consideration for the overall Pajaro River Flood Risk Management Project were described in the GRR/EA Section 3.

2.2 Alternative 1 - No Action

NEPA requires the analysis of a "No Action" alternative that illustrates project conditions if the proposed action is not taken. Under the No Action Alternative, the proposed set-back levee construction and inclusion of borrow sites, including the terrace and side channel features, would not be constructed. Reach 6 would remain without any structural flood risk management measures and the chances of catastrophic flooding would remain high, and inadequate infrastructure along this river system would lead to a continued high risk to human health and safety and property in the area.

2.3 Alternative 2 - Proposed Action

The proposed action includes the construction of the Pajaro Project, Reach 6. The major features proposed for Reach 6, including the setback levees and floodwalls, were generally analyzed in the 2019 GRR/EA under NEPA. However, for clarity, the full Reach 6 project is described below, followed by the description of the design refinements that are analyzed in this Supplemental EA.

Reach 6 includes the construction of new setback levees along Corralitos Creek. The design refinements incorporate several borrow sites in the project area, comprising of two terrace excavation sites and one combination terrace/side channel excavation within the setback levee footprint.

The proposed project features will provide multiple benefits including flood risk reduction, ecological enhancements, and groundwater recharge. The beneficial use of borrow material from the terrace and side channel excavations will significantly reduce the amount of import material required to construct the levees, and therefore reduce the overall project cost and environmental impacts. Excavation within the floodplain can also be used to enhance ecological and geomorphic processes. The inclusion of these features is aligned with USACE's Engineering with Nature® principles in applying nature-based and multi-benefit solutions.

2.3.1 Design Description of Reach 6

On both banks of Corralitos Creek, new flood protection infrastructure including setback levees and floodwalls would be constructed along the length of Reach 6. The proposed levee and floodwall features would span a total of approximately 6,200 feet on the right bank and 9,300 feet on the left bank (Figure 4).

The new levee would be constructed with a 50- to 75-foot variable setback from the existing creek bank and extend approximately 5,780 feet along the right bank and 8,100 feet along the left bank. Rip rap would be installed along the waterside length of the levee. Setback levees alone provide flood risk reduction by allowing a wider area to accommodate flooding, particularly in large storm events. Excavating borrow material from within the setback levees in the form of floodplain features (terraces and side channels from 50 to 150 feet wide) would increase the inundation, frequency, duration, and extent of functional floodplain, which would confer many ecological benefits on the system, in addition to the flood risk reduction provided by the levees. Setback levees would have 3H:1V (Horizontal:Vertical) side slopes on the landside and waterside, and a crest width of 20 feet. A 15-foot vegetation-free zone on the landside and waterside toe of the levee or stem of the floodwall would be maintained.

Since the publication of the original GRR/EA document, the engineering design process has resulted in some refinements to the original conceptual designs. These design refinements have been incorporated into the proposed plan for Reach 6. The design refinements, described below in detail, are the changes that are specifically assessed in this Supplemental EA.

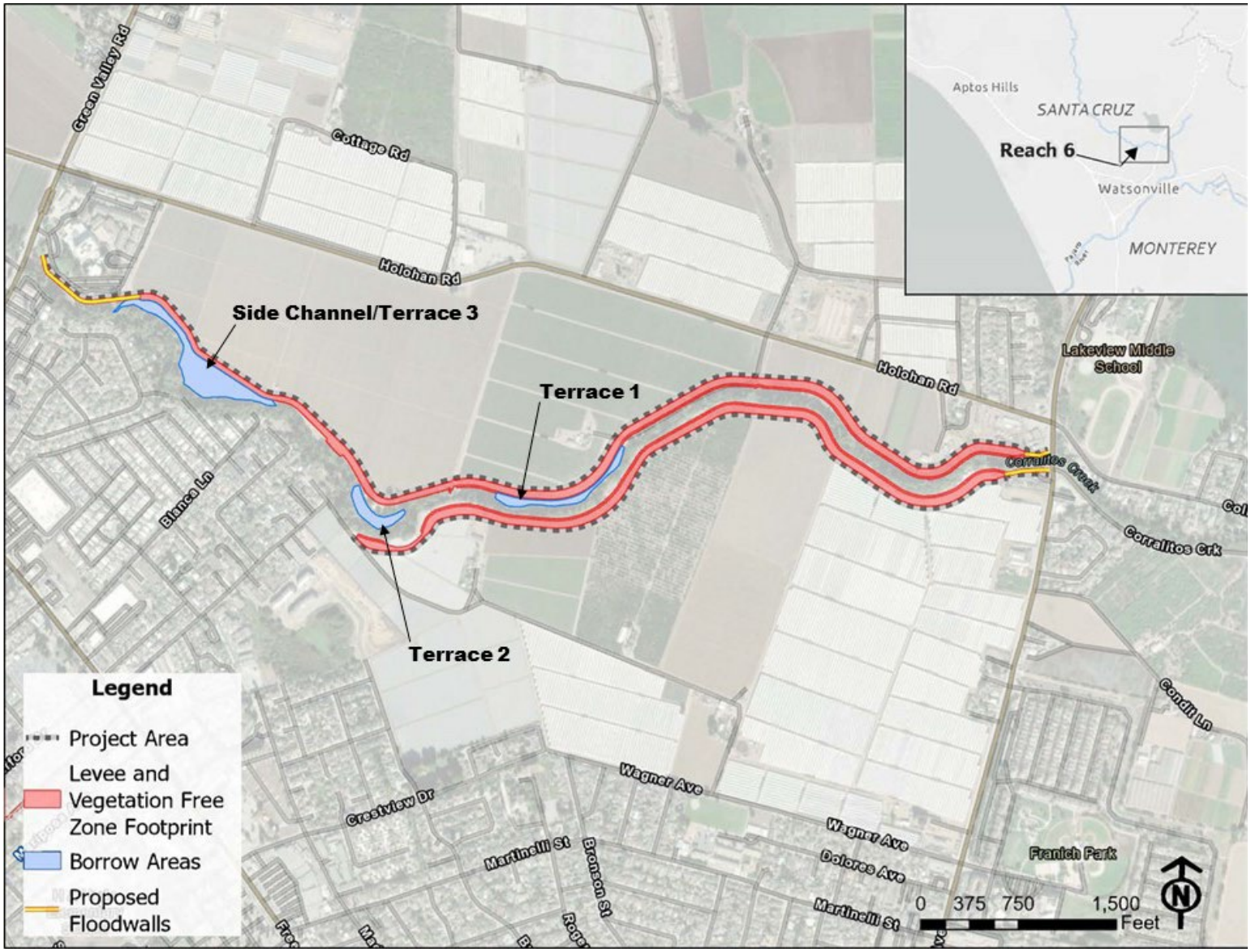

Figure 4. Reach 6 and Proposed Design Refinements

2.3.2 Features of Design Refinements

Floodwalls

Floodwalls would be installed in several portions of the alignment due to potential real estate conflicts. Floodwall installations would extend approximately 420 feet on the right bank extending upstream from the downstream most end of the Reach at the intersection of Corralitos Creek and Route 152. Floodwalls along the left bank would be constructed at both ends of Reach 6, extending approximately 270 ft. from the downstream end and 935 ft. at the upstream end. This would result in approximately 1,200 ft. total of constructed floodwall along the left bank.

Borrow Areas

During the design process, recommendations were made through the Value Engineering Study and through the Endangered Species Act (ESA) consultation process, respectively, that USACE seek opportunities to reduce the amount of import material required for levee construction, and that USACE seek opportunities to lower the floodplain benches to allow for ecological benefits within the new levee corridor. In response to these recommendations, USACE evaluated the sediment properties in the project area and determined that, while the soil in the project area didn't meet the requirements for levee fill material on its own, it could be mixed with import material to ensure that the geotechnical requirements for the levees would be met. Once the feasibility of reuse of onsite material was confirmed, USACE evaluated the project area for opportunities to excavate borrow material to construct the levees. Corralitos Creek is an incised or down-cut channel, meaning the channel depth (the difference between the top of the channel bank and channel bottom) can be up to approximately 30 feet high. As such, finding areas to lower a floodplain bench would allow the creek to reconnect with an inset floodplain more frequently. The standard profile of Corralitos Creek in its current condition is shown on Figure 5 below.

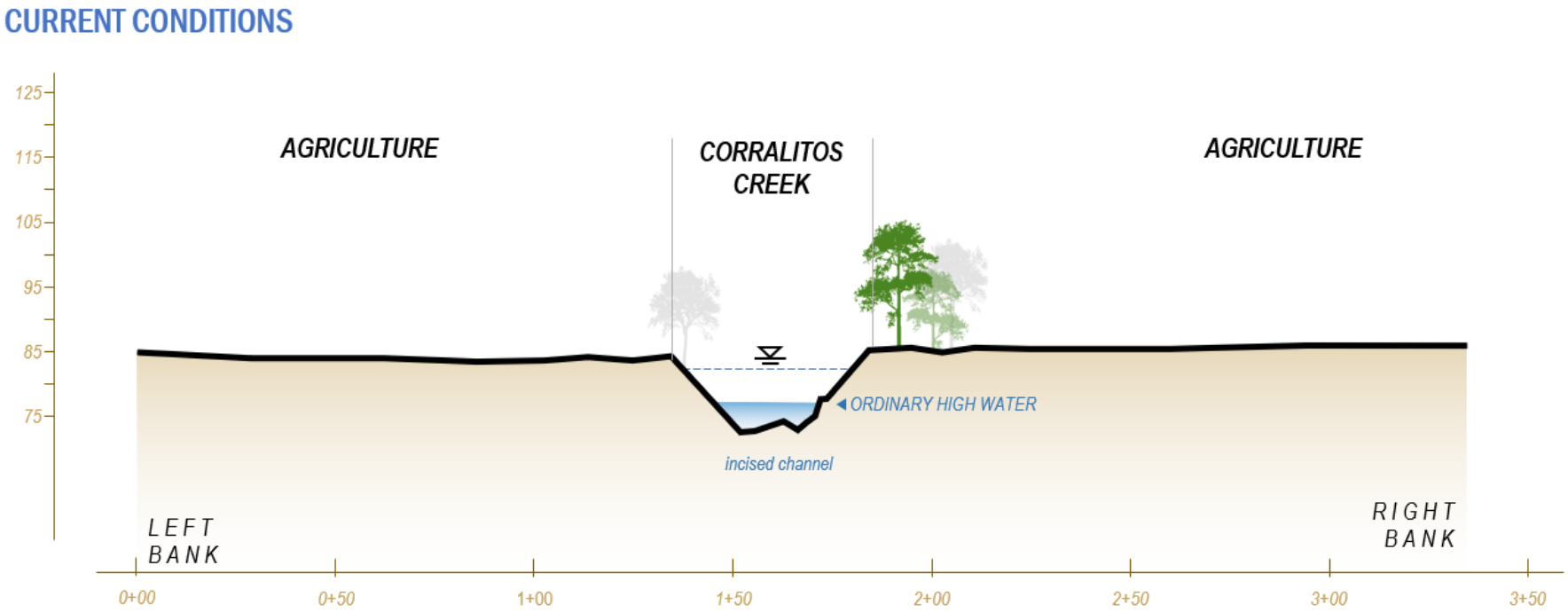

Figure 5. Current Condition of Corralitos Creek Channel

To support this opportunity, USACE was able to use the results of a non-Federal study that PRFMA conducted in partnership with the California Department of Water Resources (DWR) that sought to identify benefits associated with floodplain restoration. DWR partnered with cbec inc. to develop an ecohydraulic modeling framework called the Ecological Floodplain Inundation Potential (EcoFIP). EcoFIP assesses physical floodplain restoration opportunities and identifies an array of benefits including habitat creation and groundwater recharge potential.

Using the EcoFIP evaluation, USACE identified three locations within Reach 6 where ecological and geomorphic processes are projected to be enhanced by sourcing borrow material from within the levee setbacks. Incorporating these borrow areas into the project would provide a source of material for the construction of the levees and allow for a significant reduction in the import material cost for the project. Additionally, these features would provide ecological benefits from the reconnection of the main channel with an inset floodplain. The proposed features to be constructed in the identified borrow areas include constructed terraces and side channels within the setback levee footprint (Figure 4).

A *river terrace* is a bench or step extending along (and upland of) the side of the main channel. In rivers with natural or restored geomorphic processes, terraces form over time through bank erosion and deposition as periodic high flows move sediment though the system. Floodplain benching requires excavation of an existing bank adjacent to the channel to an elevation that achieves floodplain inundation at more regular frequencies compared to the existing condition. A *side channel* is a smaller channel adjacent to the main channel of a river, often within the active floodplain. A side channel usually has a well-defined flow path along its entire length, and surface water connection with the main channel at one or both ends (upstream and downstream).

Constructed side channels and terraces are designed to activate (i.e., flood or inundate) frequently at lower-intensity high flow events. When these features are activated, they would provide a suite of benefits to the entire river system including the regulation and mitigation of flood stage, additional groundwater exchange potential, and improved aquatic and terrestrial habitat. For example, providing a secondary channel increases the capacity of the system and slows the flow in flood events, while providing a refuge for resident aquatic species. The features additionally provide an area for sediment deposition that is both self-reinforcing (i.e., the features are continually sustained through natural flow events) and maintains water quality downstream.

Floodplain benches and off channel habitat such as side channels experience a range of hydraulic conditions that supply habitat and pulses of nutrients to provide species-specific fish and wildlife benefits, including temporary spawning and rearing habitat for aquatic biota. Vegetation that is adapted to periodic inundation can grow on floodplains, which can filter pollutants, stabilize streambanks, shade and cool the stream, and provide terrestrial habitat. Extended retention time of flows in the floodplain also allows for water quality improvement via biogeochemical processing of pollutants and settling of contaminants adsorbed to sediment (American Rivers, 2016).

The proposed design refinements to the project as described in the original GRR/EA include the following three borrow features:

- Terrace 1
- Terrace 2
- Side Channel/Terrace 3

2.3.3 Proposed Features Details

Terrace 1

Terrace 1 (Figure 6) would be constructed along the left bank of Corralitos Creek. The terrace would be approximately 1,180 feet long and encompass an area of 50,850 square feet, or roughly 1.2 acres. The total amount of excavation material from the area would be 3,100 cubic yards of material, with 2,100 cubic yards suitable for levee fill material (it was assumed that the upper 1 foot of material in the borrow areas would not be suitable for levee fill due to the presence of grasses and other organic debris). In its current condition, the site proposed for Terrace 1 would need extreme high-water events to inundate the area. After construction of the terrace, activating flows would occur on a much more frequent basis, on the order of 2-5-year events.

Note that the design modeling for Terrace 1 included the feature on the right bank of the channel rather than the left bank. Field surveys conducted by the USACE environmental team following initial design of Terrace 1 determined that the feature should be shifted to the left bank to preserve a stand of approximately 80 old growth cottonwood trees on the right bank. The terrace is expected to function consistently on the left bank as the modeling showed on the right bank.

Terrace 2

Terrace 2 (Figure 7) would be constructed along the left bank upstream of Terrace 1. The terrace would be approximately 575 feet long and encompass an area of 42,850 square ft., or approximately 1.0 acres. The total amount of excavation material from the area would be 9,650 cubic yards of material, with 8,150 cubic yards suitable for levee fill material. In its current condition, the site proposed for Terrace 1 would need extreme high-water events to inundate the area. After construction of the terrace, activating flows would occur on a much more frequent basis, on the order of 2-5-year events.

Terrace 2 was originally designed as a side channel feature. However, a site visit in January 2024 allowed for an opportunity to ground truth the features. The on-site analysis determined that a terrace was more consistent with the terrain and geomorphic conditions of the site and therefore the design was updated. As a result, the inundation numbers above are likely underrepresenting the potential value of the feature, as a terrace is a larger overall feature than the initially developed side channel.

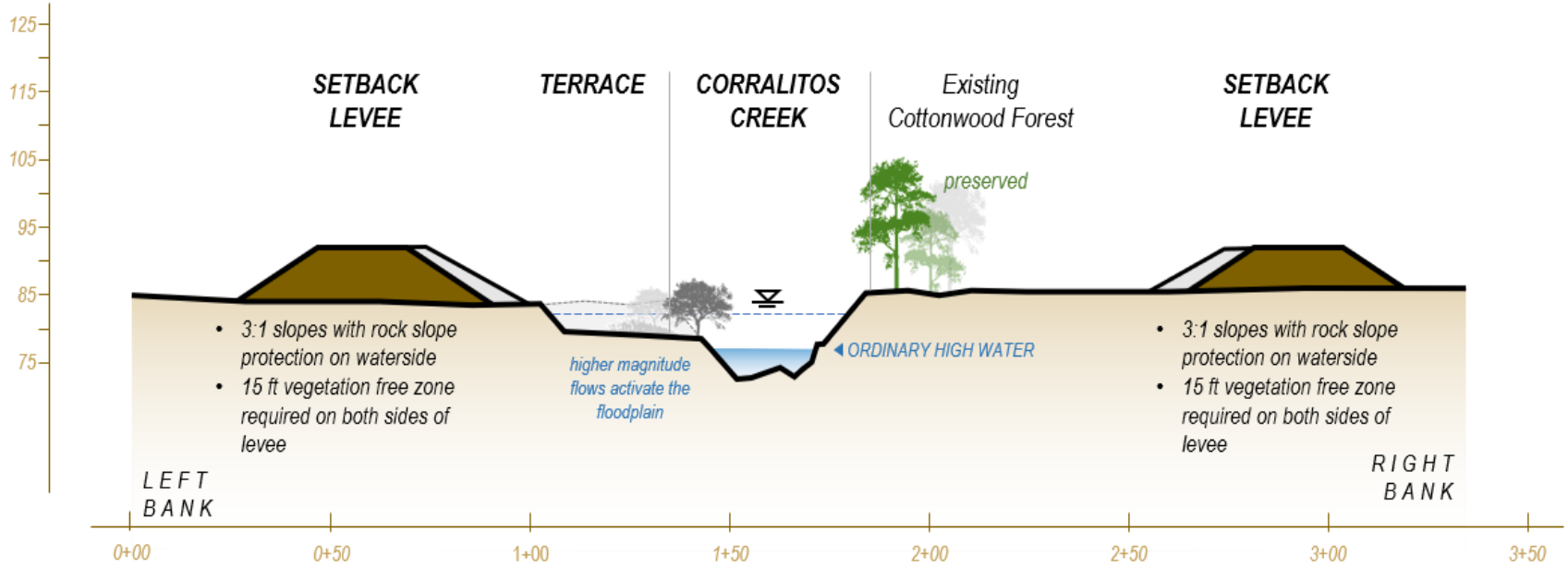

Figure 6. Proposed Terrace 1 Cross-Section

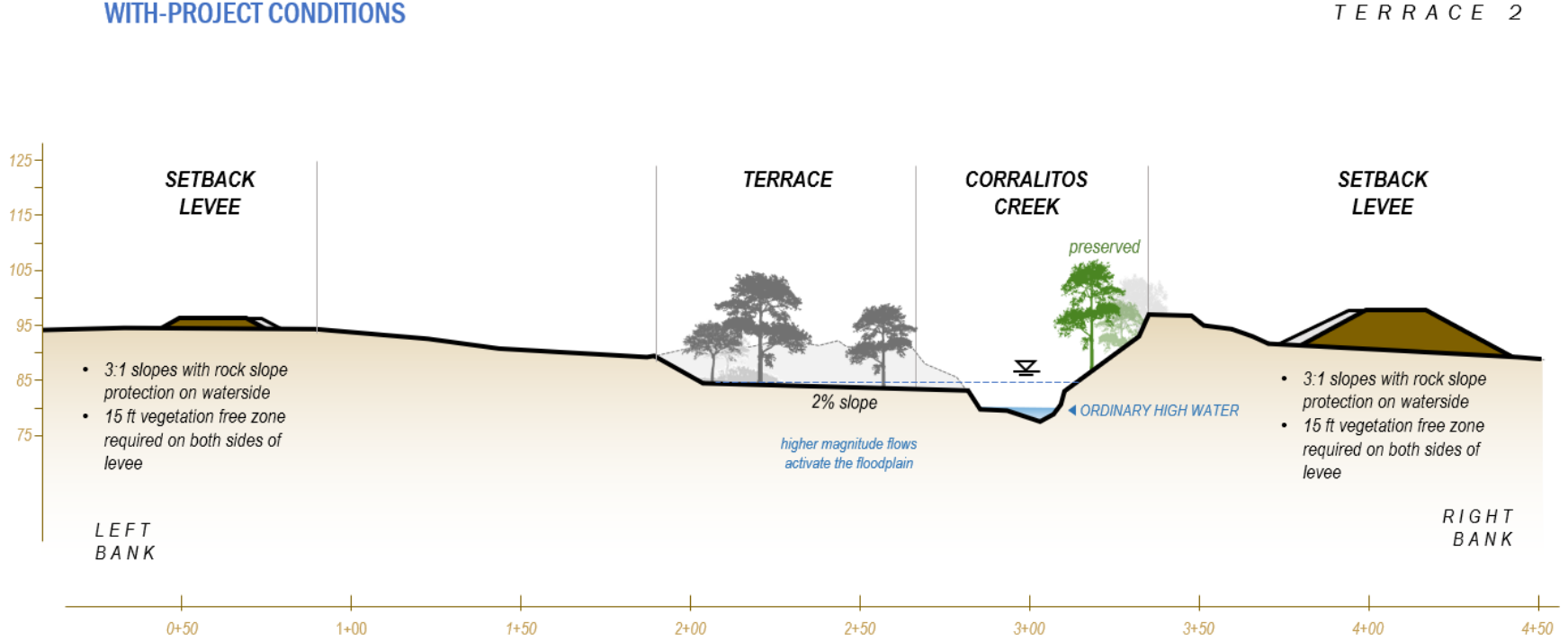

Figure 7. Proposed Terrace 2 Cross-Section

Side Channel/Terrace 3

Side Channel/Terrace 3 (Figure 8) is a combined side channel and terrace feature along the left bank, upstream of Terrace 2. The side channel bottom width would be 10 feet. The feature would be approximately 930 feet long and encompass an area of 155,952 square ft., or approximately 3.6 acres. The total amount of excavation material from the area is expected to be 29,250 cubic yards of material, with 25,500 cubic yards suitable for levee fill material. In its current condition, the site proposed for Side Channel/Terrace 3 would need extreme high-water events to inundate the area. After construction of the feature, activating flows would occur on a much more frequent basis, on the order of 2-5-year events. Activating flows for the side channel would be slightly less than for the terrace, though this feature is still higher in elevation than the main channel.

2.3.4 Construction Details

In total, the excavation of the three borrow areas are expected to produce approximately 42,000 cubic yards of material, with 35,700 cubic yards of usable material for levee fill. Overall, these features could save approximately 2,000 truck trips over the course of the two-year construction period. A map detailing the locations and footprints of the proposed features can be found above in Figure 4.

Construction of Reach 6 would include the following activities and processes:

- Set up designated temporary construction access and staging areas.
- Set up temporary chain link fencing and gates around construction area.
- Install temporary erosion control measures.
- Clear and grub work area, including, but not limited to removing tree stumps and vegetation growing within and immediately adjacent to the project footprint.
- Remove and relocate of any utilities within the project area, including irrigation wells.
- Remove and dispose of existing buildings, structures, fencing, pipe, and asphalt pavement. Prior to demolition of structures, an assessment would be done to confirm the presence or absence of asbestos in these structures. If any asbestos is identified, demolition would occur in compliance with local air quality regulations and coordination with the Monterey Bay Air Resources Board, as appropriate.
- Perform excavation to shape the slope and create features to the design lines. Stockpile excavated soil that meets USACE specifications for reuse as levee fill. Dispose of soil that does not meet specifications at an offsite disposal location.
- Import additional borrow material and mix material to meet required material specifications for levee construction.
- Construct levees and floodwalls (see the Executive Summary of the GRR/EA for construction specifics).
- Seed and place erosion protection measures on the levee landside slope and other disturbed areas.
- Conduct site cleanup and restoration activities, as detailed below.

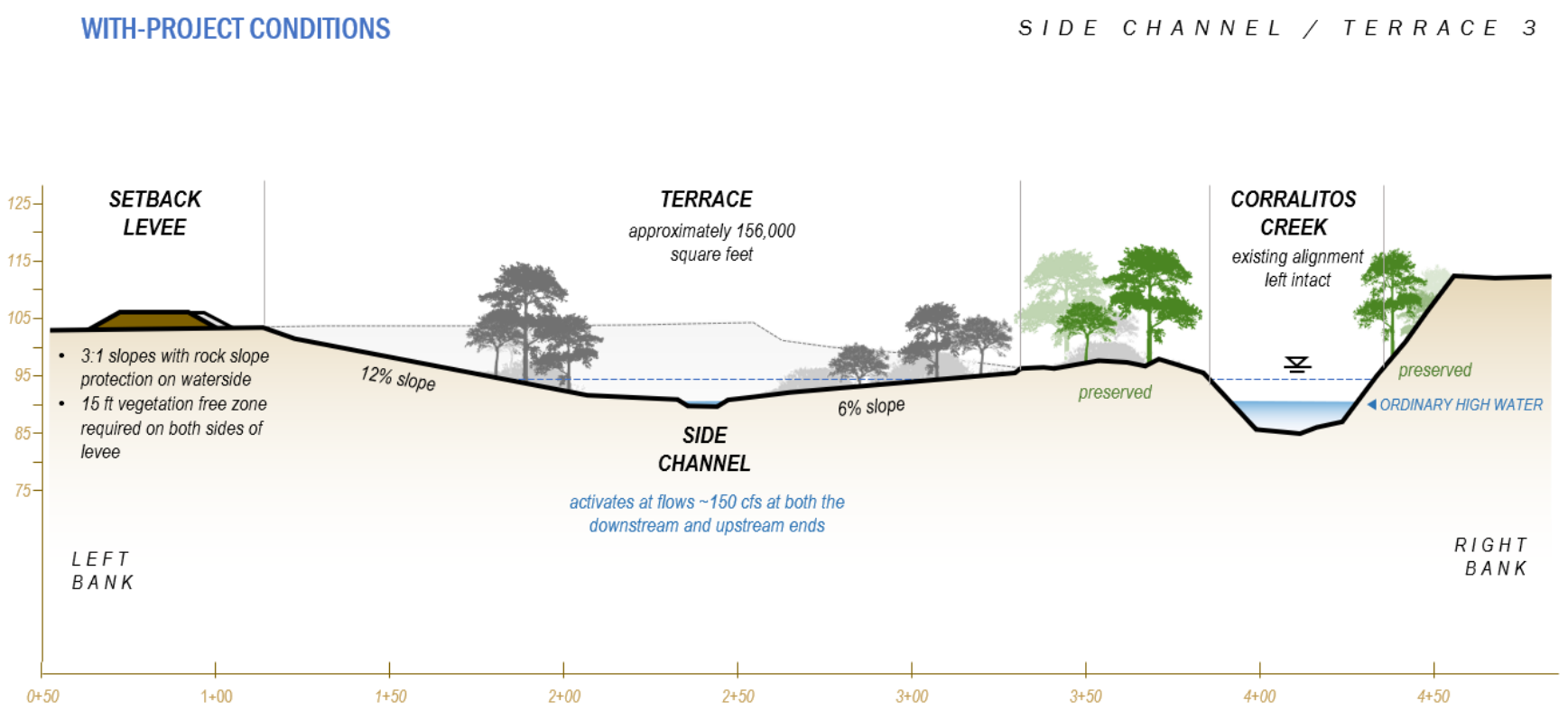

Figure 8. Proposed Side Channel/Terrace #3 Cross Section

Construction is anticipated to begin in the Fall of 2024 and continue, weather permitting, for up to two years. Since there is no existing flood infrastructure in the project area, there is no seasonal flood restriction in the area. Additionally, the proposed construction would not involve any in-water work, therefore the limited work window for steelhead is not applicable. If nesting birds or other sensitive species are found in the project area during the construction period, USACE would coordinate with the appropriate resource agencies and apply avoidance and minimization measures, as appropriate. For more details on environmental work windows and avoidance and minimization measures, see Section 3.2.4, Special Status Species, below.

2.3.5 Site Access and Staging

The project area may be accessed from Highway 152 to the east, Green Valley Rd. to the west, Holohan Rd. to the north, and Atkinson Ln or Brewington Ave. to the south. Haul trucks, construction equipment and construction workers will likely access and leave the project area from either Highway 152 or Highway 129 via Highway 101 to the east or Highway 1 to the west. From any of these highways, surface streets and smaller agricultural access roads would be taken to arrive at the project site. Prior to start of construction, the construction contractor would develop and submit a signed and stamped temporary traffic control plan for approval by the City of Watsonville and other applicable permitting agencies.

Eight staging areas for equipment and materials are proposed within the project area. Two of these staging areas would be co-located with a side channel feature. Likely haul roads and planned staging areas are shown below in Figure 9.

2.3.6 Site Preparation

Prior to the start of construction, the construction area would be set up, with staging areas and construction offices set up, as needed, and the active construction zone fenced off. Any utility relocations necessary to facilitate construction would occur.

Before construction begins, trees and other large vegetative features would be removed as required for project completion. To the greatest extent possible, existing trees would be protected in place, but approximately 2.75 acres of tree cover would need to be cleared within the construction footprint. Trees would be cut at the stump and removed from the project area. All tree removal would be monitored by a qualified arborist or biologist. Following tree removal, the site would be cleared and grubbed, with existing vegetation and debris, including tree stumps, removed from the project area. All tree removal, clearing, and grubbing activities would occur from the landside above the ordinary high-water mark. Silt curtains and other BMPs would be applied during these activities to ensure no impacts to the creek channel. This vegetation and debris would be disposed of at an approved commercial disposal site. Vegetation clearing is scheduled to occur starting in October 2024. For more details on proposed vegetation removal, see Section 3.2.3, Vegetation and Wildlife, below.

Figure 9. Proposed Haul Routes and Staging Areas

2.3.7 Restoration and Cleanup

The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to their preconstruction condition. All trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

2.3.8 Operations and Maintenance

As part of this project, the USACE will prepare a new Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) manual, to establish the long-term maintenance and management requirements for the new levee system. Once construction is complete, the project will be turned over to PRFMA for long term operation and maintenance in accordance with the requirements in the OMRR&R manual. Following construction, the non-Federal partners will assume responsibility for continued operation and maintenance of the project consistent with the new manual[2].

[2] The USACE standards for levee maintenance require that levees, floodwalls, and lands 15 feet landward and waterward of the levee toes or floodwall face, must be maintained free of woody vegetation unless a design deviation is granted by the USACE through the levee safety risk assessment process. The grasses on the slopes and easement areas will be maintained to 12 inches in height or less using mowers and herbicides. Woody vegetation may be planted where acceptable for the purpose of riparian habitat improvement

3 Affected Environment and Environmental Consequences

This chapter describes the affected environment, reports the environmental consequences that would result from the project design refinements, and identifies mitigation measures to address potential adverse effects. See Section 4.1.1 and 4.1.2 of the GRR/EA for the process in determining environmental effects of the project refinements.

While standard procedure is to ensure that the resource evaluation in a supplemental EA is reflective of the original documentation, in this case the evaluation has been reorganized for clarity purposes. The scope of the design refinements is limited enough they only require reanalysis of five resource areas: Hydrology and Hydraulics, Water Quality, Vegetation and Wildlife, Special Status Species, and Cultural Resources. Note that the Aquatic Resources section from the GRR/EA has been integrated into the sections listed above to reduce repetition. The remaining resource sections from the GRR/EA are not evaluated in detail because either the design refinements do not result in further impacts beyond those contained in the GRR/EA's analysis, or because the features remain consistent with those described in the GRR/EA.

Section 3.1 below summarizes the resources not evaluated in detail and directs the reader to the section of the GRR/EA which contains the analysis for that resource. Section 3.2 follows with the full analysis of the five resources that are evaluated in detail.

3.1 Resources Not Evaluated in Detail

Some resources were eliminated from further analysis in this EA because effects were negligible, or because the proposed action would not create additional impacts to the resources beyond the scope of those addressed regionally within the GRR/EA (USACE, 2019). A summary of resources excluded from further analysis in this Supplemental EA document includes the following:

Table 1. Summary of Resources Not Evaluated in Detail

Resource	Location in GRR/EA	Summary of Impacts	Mitigation
Aesthetics	Section 4.3	*Less than significant.* The Reach 6 project would affect the visual character to the same extent as to what was described in the GRR/EA. Any construction related effects would be temporary and construction of new flood risk management features, such as the setback levees and floodwalls, would not be a significant change to the visual character of the area, since Corralitos Creek reach is primarily surrounded by farm fields and does not have any public access.	Mitigation Measure VIS-1: Preserve existing native trees to the extent practicable. Mitigation Measure VIS-2: Locate staging areas on previously disturbed lands where feasible. Mitigation Measure VIS-3: Restore staging areas following construction by restoring pre-construction topography to the degree practicable and hydroseeding the areas with native grasses and forbs.
Agriculture	Section 4.14	*Less than significant.* The proposed design refinements for the Reach 6 project would not significantly impact agricultural lands and production beyond the effects described in the GRR/EA, and conversion of current farmland for the Project would remain minimal. The project would reduce the risk of flooding and its associated impacts on agricultural infrastructure, soil, and production, which would be a beneficial effect for the local agricultural community.	Mitigation Measure AG-1: Compensate Landowners. Property acquisition would be consistent with all applicable laws and regulations, including compensating at fair market value landowners whose lands become part of the project.
Air Quality	Section 4.5	*Less than significant.* All criteria pollutants are within NAAQS attainment or unclassified standards. Therefore, General Conformity does not apply to the proposed action. Thus, any emissions generated by the construction of the proposed action, particularly along traffic and haul routes and the use of machinery, has the potential to result in a temporary and minor effect to air quality.	See Section 4.5 of the GRR/EA for the full list of measures under each category below. Mitigation Measure AQ-1: Contracted Diesel Control Measures Mitigation Measure AQ-2: Diesel Particulate Matter Emission Control Measures Mitigation Measure AQ-3: Basic Dust Control Measures Mitigation Measure AQ-4: Enhanced Dust Control Measures Mitigation Measure AQ-5: Optional Dust Control Measures
Greenhouse Gas / Climate Change	Section 4.5	*Less than significant.* A greenhouse gas emissions analysis was conducted for the GRR/EA, which determined that construction of the overall Pajaro Project would result in greenhouse gas emissions	Mitigation Measure AQ-6: Greenhouse Gas Control Measures. During construction, contractors would be required to implement the following measures to reduce greenhouse gas emissions from fuel combustion and construction activities:

		from the use of heavy construction equipment, increased commute vehicle trips, and haul trucks importing material for the new levee construction. The GRR/EA determined that these impacts would be less than significant, with the implementation of minimization measures. Since completion of the GRR/EA, the project has further reduced the estimated greenhouse gas emissions through incorporation of the borrow features, which will result in fewer haul trips from importing material for the new levees. As a result, the effects remain within the scope of those disclosed in the GRR/EA and remain less than significant.	• Maintain on road and off-road vehicle tire pressures to manufacturer specifications. Check tires and reinflate at regular intervals. • Use lower-carbon fuels such as biodiesel blends where feasible. • Use engine retrofits to remove emissions such as diesel particulate matter filters with diesel oxidation catalysts where feasible. • Maintain construction equipment engines to manufacturer's specifications. • Use locally made materials for construction to the extent feasible. • Recycle construction debris for reuse to the extent feasible. • Feasibility would be determined consistent with Best Available Control Technology (BACT) general criteria: 1) achieved in practice; 2) contained in adopted control measures; 3) technologically feasible; and 4) cost-effective.
Land Use	Section 4.9	*Less than significant.* The proposed design refinements would not change the land use designations, or the relative acreage of different land uses beyond the conversion described in the GRR/EA. See Agriculture, Section 4.14 of the GRR/EA for Agriculture related land use changes.	LU-1: Property acquisition would be consistent with all applicable laws and regulations. Relocation of people, homes or businesses would be minimized to the extent feasible and consistent with the project purpose and would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Implementing this mitigation measure would ensure that effects on land use would be less than significant.
Noise and Vibration	Section 4.10	*Less than significant.* Implementation of Reach 6 would not create any new or additional noise or vibration effects and would remain consistent with the temporary and minor effects as detailed in the GRR/EA. Implementation of the mitigation measures described in 4.10.3 of the GRR/EA would result in a less than significant effect in the Reach 6 project area.	See Section 4.10.3 of the GRR/EA for the full details of each mitigation measure described below. Mitigation Measure NOI-1 NED: Reduce noise from construction and operational activity. Mitigation Measure NOI-2: Reduce vibration from construction and operational activity. Mitigation Measure NOI-3: Coordinate with Potentially Affected Community
Public Health and Environmental Hazards	Section 4.11	*Less than significant.* The proposed design refinements would not change the footprint for Reach 6 as was previously described in the GRR/EA. Overall the project would benefit the community by reducing the flood risk from Corralitos Creek and the associated health and environmental hazards. There are no known hazardous waste sites in the Reach 6 Project Area. Therefore, the Reach 6 project would not result in any changes to the effects as described.	See Avoidance, Minimization, and Mitigation Measures in section 3.2.2 Water Quality, below.
Recreation	Section 4.12	*No effects.* There are no recreation features in the Reach 6 project area, and therefore there would be no effects to recreation.	Not applicable.

Socioeconomics and Environmental Justice	Section 4.13	*Less than significant.* The proposed design refinements would not affect any additional properties beyond what was previously determined in the GRR/EA. The Reach 6 project would continue to benefit minority and low-income communities within the study area by providing much-needed flood risk reduction to the city of Watsonville, as determined in the GRR/EA. This includes reducing property damages, loss of life, and reductions in agricultural income and employment that would likely occur with large-scale flood events. These benefits would far outweigh the minimal impacts associated with the conversion of agricultural lands to flood reduction features. As a result, these impacts would be less than significant.	Mitigation Measures SOCIO-1: Provide Compensation. Development of the Reach 6 project included attention to avoiding and minimizing potential impacts on adjacent properties to the extent feasible in consideration of the FRM goals of the study. Effects on properties would be mitigated through appropriate compensation. If relocation of people or their homes is required, they would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Act.
Traffic and Circulation	Section 4.15	*Less than significant.* The proposed design refinements would result in a temporary increase in traffic levels, largely in the immediate project area and along established truck and access routes. See Figure 9 above for the proposed access routes. The traffic increase would be temporary, during construction, and would be localized to the areas under construction at the time and to the associated haul routes.	Mitigation Measure TRAF-2: Coordinate and Provide Advance Notification. • USACE, Santa Cruz County, and Monterey County will notify tenants and owners of property within 300 feet of the edge of the construction footprint at least 2 weeks before roadway construction. Additionally, schools, businesses, and the Santa Cruz Metro will be contacted in advance to coordinate the development of alternate routes. • Construction notifications will summarize the purpose of construction and modifications at the specific site and include names and phone numbers of Project contacts at Santa Cruz County and Monterey County who will be available to address questions and concerns from the public during the construction period. • USACE, Santa Cruz County, and Monterey County will notify emergency providers at least 2 weeks before roadway or bridge construction of anticipated lane or full road closures and work to coordinate the development of alternate routes. USACE will immediately notify emergency providers of unanticipated lane or full road closures. • USACE, Santa Cruz County, and Monterey County will coordinate with the residents and business owners to ensure that access to private driveways and walkways is maintained. • USACE, Santa Cruz County, and Monterey County will restrict truck operators to truck haul routes identified in Figure 4.10-3 of the GRR/EA. Access routes within the City of Watsonville will be restricted to truck routes defined by city ordinance.

			• USACE, Santa Cruz County, and Monterey County will notify and coordinate alternate routes with Santa Cruz METRO and MST of construction activities on their transit routes 60 days before the start of construction on that route. Mitigation Measure TRAF-3: Prepare a Traffic Control Plan. USACE, Santa Cruz County, and Monterey County will prepare a Traffic Control Plan and submit the plan to Caltrans, Santa Cruz County, Monterey County, and the City of Watsonville for approval. The plan will include the following measures: • Site-specific traffic circulation and detour plans for each roadway construction site. • Site-specific traffic control measures such as changing signal timing, installation of new temporary traffic signals, traffic calming devices, restriping lanes and public outreach for each roadway construction site.
Utilities and Public Services	Section 4.16	*Less than significant.* The proposed design refinements would not change the utilities or public services effects analysis beyond what was described in the GRR/EA.	Mitigation Measure UT-1: Prior to Initiating Construction, the Construction Contractor will Coordinate with the Public and with Public Service Providers. Before beginning construction, coordination with utility providers to implement orderly relocation of utilities that need to be removed or relocated would occur. Coordination would include the following: • Notification of any potential interruptions in service shall be provided to the appropriate agencies and affected landowners. • Before the start of construction, utility locations shall be verified through field surveys and the use of Underground Service Alert services. Any buried utility lines shall be clearly marked where construction activities would take place and on the construction specifications before of any earthmoving activities begin. Before the start of construction, the contractor would be required to coordinate with the local municipality and acquire any applicable permits prior to use of municipal water for construction. • Before the start of construction, a response plan shall be prepared to address potential accidental damage to a utility line. The plan shall identify chain of command rules for notification of authorities and appropriate actions and responsibilities to ensure the public and worker safety. Worker education training in response to such situations shall be conducted by the contractor. The response plan shall be implemented by the contractor during construction activities. • Utility relocations shall be staged to minimize interruptions in service.

3.2 Resources Evaluated in Detail

Resources for which adverse or positive effects from the proposed design refinements could occur outside of the scope addressed in the original GRR/EA are discussed in detail below. The resources considered in detail for this Supplemental EA have been reorganized for clarity purposes from the order they were presented in the GRR/EA. Note that in many cases, the regulatory setting and methodology of assessment, as well as a description of the existing conditions, are incorporated by reference from the original GRR/EA, and the associated section number in the GRR/EA is referenced in those sections. Many of the existing avoidance, minimization, and mitigation measures from the GRR/EA are included for each of the resources below and additional measures have been included where relevant. For clarity and organizational purposes, all mitigation measures have been renamed for this Supplemental EA. A link to the electronic version of the GRR/EA can be found in the reference section under USACE 2019, or can be provided upon request.

3.2.1 Hydrology, Hydraulics, Groundwater, and River Morphology

Affected Environment and Existing Conditions

Section 4.8 of the original GRR/EA adequately describes the environmental setting, regulatory setting, and methodology for hydrology, hydraulics, and river morphology, including the affected environment and existing conditions for the project area.

Environmental Effects

Pajaro River and its tributaries, including Corralitos Creek, are incised and generally disconnected from historic floodplains in their current state. The levee setbacks would reduce hydraulic pressure on the channel by expanding hydraulic geometry at high flow events. This expansion would reduce the potential risk of levee erosion and provide more space for habitat and a wider riparian zone, however because the channel is so incised (up to 30 feet between thalweg and top of bank in some locations) a levee setback alone would not fully restore connectivity between the channel and floodplain except in extreme storm conditions.

The inset floodplains that would result from the proposed borrow features (side channels and terraces) would be designed to provide a wide range of hydrological and morphological benefits. These features would activate the floodplain at ecologically meaningful flows and increase the frequency and duration of floodplain inundation. This inundation would encourage the successional patterns of riparian vegetation and provide a wider riparian forest than currently exists. These off-channel features may increase groundwater recharge potential as compared to the original project design. Additionally, excavated floodplain terraces have the potential to allow for more conveyance capacity during high flows. Furthermore, re-establishment of reconnected, inset floodplains and a side channel would result in higher level of geomorphic diversity and function of the river channel. Over time, this would provide a more geomorphically functional and resilient river channel, allowing the Pajaro River to self-form in a manner that more resembles an unconfined channel.

The setback levees would also widen the channel cross section and create areas of low velocity floodplain where sediments being transported in high flows would be expected to settle out onto the floodplain. This would remove sediment that would otherwise have been transported to the

downstream reaches and would reduce aggradation potential in the low-flow channel area.

In general, the construction of the floodwalls proposed by the design refinements would not significantly impact the groundwater supplies or conditions within the project area. The design refinements would not require sustained pumping nor use of groundwater. The shallow groundwater within the project area is generally at or below sea level. The depths to groundwater in most areas of construction would be greater than ten feet, therefore it is reasonable to assume that groundwater would not be encountered as part of excavation of the floodplain borrow features. Therefore, the effects to groundwater flow patterns or rates of flow are less than significant.

Avoidance, Minimization, and Mitigation Measures

BMPs such as silt trapping and silt fencing will be implemented when excavation is occurring near the active channel to ensure no impacts to the creek would occur. Further detail on these BMPs is included in Section 3.2.2 below.

3.2.2 Water Quality

Affected Environment and Existing Conditions

Section 4.18 of the original GRR/EA adequately describes the environmental setting, regulatory setting, and methodology for water quality, including the affected environment and existing conditions for the project area.

Environmental Effects

Water quality data for Corralitos Creek is very limited. Agricultural and urban uses within the City of Watsonville and the communities of Pajaro and Freedom are likely sources of potential water quality pollutants. Agricultural uses typically contribute runoff containing contaminant nutrients from fertilizers and pesticides, as well as sediment. Urban uses typically contribute runoff containing elevated levels of oil, grease, nutrients, sediments, and heavy metals.

Construction activities have the potential to temporarily impair water quality if disturbed and eroded soil, petroleum products or construction-related wastes (e.g., cement and solvents) are discharged into receiving waters or onto the ground where they can be carried into receiving waters. Soil and associated contaminants that enter receiving waters can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. Accidental spills of construction-related substances such as oils and fuels can contaminate both surface water and groundwater. The extent of potential impacts on water quality would depend on the tendency for erosion of soil types encountered, types of construction practices, extent of the disturbed area, duration of construction activities, timing of construction activities relative to rain events, proximity to receiving water bodies and sensitivity of those water bodies to contaminants.

For the Reach 6 borrow features, all excavation would occur above the ordinary high-water mark. The design of the borrow features has been reassessed to minimize impacts to the creek channel to the maximum extent practicable. Best management practices, listed below, would be used where necessary to manage and avoid impacts from runoff to the creek. While the

construction contractor will design and install the features on the ground prior to construction, USACE will provide oversight and ensure that the BMPs fully contain any potential erosion from entering the creek channel. The expectation is that this would involve silt fencing or other similar barriers installed above the ordinary high-water line. Figure 10 below demonstrates the feasibility of these measures, which have been vetted with USACE construction management personnel.

Following construction, the design refinements would inundate floodplains in areas where setback levees are constructed. Floodplain inundation could mobilize nutrients and pesticides used during previous agricultural activities and could draw these constituents into the waterway as floodwaters recede. Some sediment could also be introduced to the waterway from the floodplain; however, it is anticipated that due to the larger channel cross section in setback areas and the resultant lower water velocities, sediment would most likely drop out of the water onto the floodplain rather than be picked up and transported into the waterway by floodwaters (see Section 4.8.2 of the GRR/EA). The risk of exposure to these potential contaminants is related to the amount of new floodplain offset added to the flood risk management system. BMPs, as discussed below, would be implemented to try to minimize these potential effects, including the use of hydroseeding to minimize post-construction sediment mobilization. Grasses and other vegetation would also allow for some filtration of sediment and nutrients and should result in long-term improvement of overall water quality conditions in Corralitos Creek.

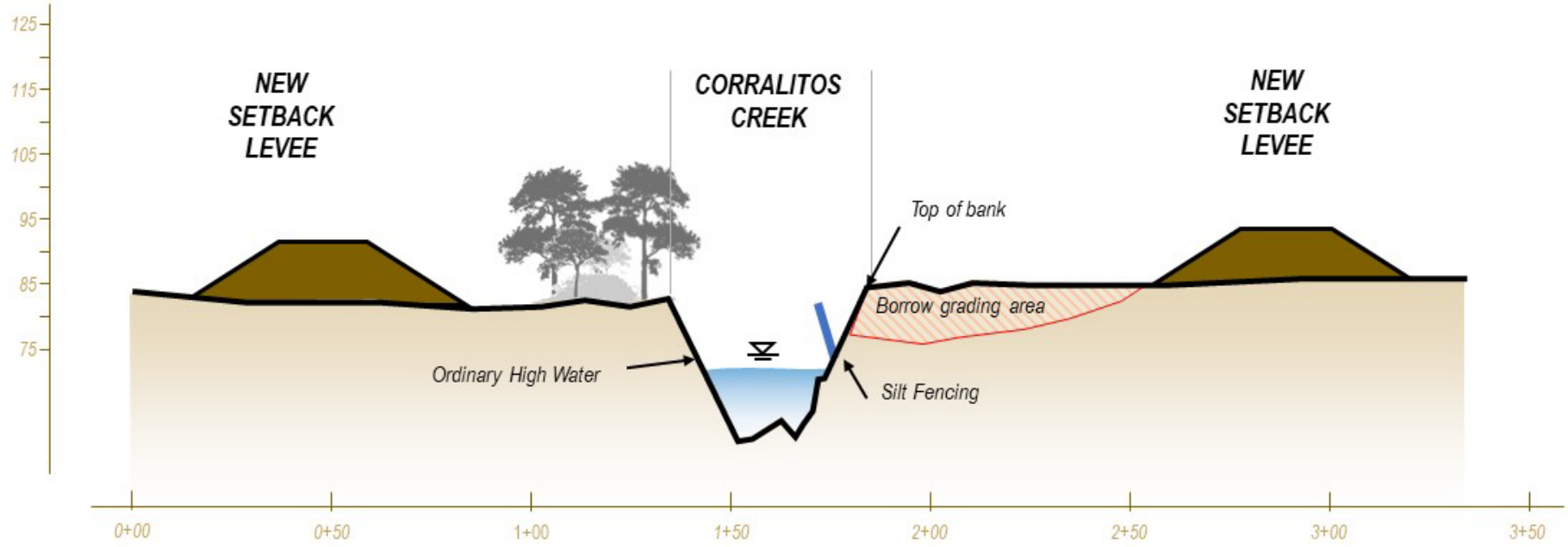

Figure 10. Proposed BMPs for Borrow Areas

Avoidance, Minimization, and Mitigation Measures

Implement Best Management Practices. Some standard BMPs for construction projects include:

- Use a covered, paved area dedicated to vehicle maintenance and washing.
- Develop a spill prevention and cleanup plan.
- Prevent hazardous chemical leaks by properly maintaining vehicles and equipment.
- Properly cover and provide secondary containment for fuel drums and toxic materials.
- Properly handle and dispose of vehicle wastes and wash water.
- Develop a Storm Water Pollution Prevention Plan (SWPPP). The transport of non-visible pollutants by surface runoff from the construction site would be regulated by a site-specific SWPPP. The SWPPP would identify any location where fuels or other hydrocarbons would be stored on-site, as well as any other construction materials that could result in non-visible surface water pollution, such as cement, tackifier, or other materials. The SWPPP would also identify BMPs such that any spills or leakage would be adequately contained.
- Erosion control measures such as straw wattles and hydro seeding will be employed as appropriate.

USACE will also implement standard Best Management Practices to prevent erosion and sediment discharge during construction and ensure protection of water quality in adjacent water bodies including:

- USACE shall not conduct construction activities below top of creek banks or in other Waters of the U.S. during rain events.
- USACE shall implement effective erosion control, sediment control, and other protective measures prior to the start of any rainfall. Erosion and sediment control measures shall be on site prior to the start of construction and kept on site at all times so they are immediately available for installation in anticipation of rain events.
- Silt curtains may be installed above and below the project area to decrease any chance of sediment release from construction area.
- USACE shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite at all project sites at all times in case spills occur.
- All construction vehicles and equipment used on site shall be checked before they are used at the project site for the first time, and then daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials.
- USACE shall designate a staging area for equipment (including sump pumps) and vehicle fueling and storage at least 100 feet away from waterways, if possible, in a location where fluids or accidental discharges cannot flow into waterways. If it is not possible to remain 100 feet from waterways, USACE must provide secondary containment for any staging sites that are closer than 100 feet from the waterbody, where fluid is exchanged.
- All vehicle fueling, sump pump fueling and maintenance activity shall occur at least 100 feet away from waterways, if possible, and in designated staging areas.

- All construction-related equipment, materials, and any temporary management practices no longer needed shall be removed and cleared from the site upon completion of the project.

Since construction is proposed to occur year-round, the following measures would be used to minimize potential runoff issues in the case of rainfall or other winter weather conditions:

- Schedule work to eliminate soil disturbance activities during rain events. If work is to be done when rainfall is predicted, adjust the construction schedule to allow the implementation of erosion and sedimentation controls on all disturbed area prior to rainfall.
- Hydroseeding requires sufficient time in the season to ensure adequate vegetation establishment and erosion control prior to rainfall. If conditions for seeding cannot be met within 14 days of the area becoming inactive, Geotextiles or mats will be installed to ensure soil cover until the optimum seeding time is available.
- If a sediment basin is installed as part of the SWPPP, inspection of the sediment basin shall be conducted prior to any likely forecasted rain event, daily during rain events, after rain events, and a minimum of once per week when a rain event is not likely. Accumulated sediment and standing stormwater shall be removed from the basins periodically to maintain BMP effectiveness.
- Any stockpile on site will be protected from wind and erosion caused by stormwater. Stockpiles will be protected with a temporary linear and sediment barrier prior to the onset of precipitation. Runoff will be diverted around or away from the stockpile on the upstream perimeter. Repair and/or replace perimeter control and covers as needed to keep them functioning properly.
- As part of the SWPPP submittal, the contractor shall develop a Rain Event Action Plan (REAP) outlining protocols for tracking precipitation forecasts and ensuring adequate erosion and sediment controls are implemented prior to the onset of a storm event, even in the dry season. The REAP will be used for all phases of construction. At least one rain gauge will be installed on site to monitor and quantify precipitation at the project site.
- The discharge of stored or contained stormwater from a qualifying rain event shall be inspected following protocols outlined by the SWPPP. Stored or contained stormwater that have the potential to discharge after operating hours due to anticipated precipitation must be inspected in advance of the rain event during daylight hours.

Additional avoidance, minimization, and mitigation measures include:

Immediately contain spills, excavate spill-contaminated soil, and dispose of contaminated soils at an approved facility. In the event of a spill of hazardous materials over soil the contractor would immediately control the source of the leak and contain the spill. Contaminated soils would be excavated, tested, and disposed of off-site at a facility approved to accept such soils. The likelihood of spills from vehicles would be lessened by use of designated parking areas, maintenance of construction equipment, and other preventive measures outlined in the project SWPPP.

Environmental specialist retained to characterize excavations. Personnel responsible for construction oversight would be adequately trained to recognize and evaluate the potential presence of soil and groundwater contamination. During excavation down-gradient of existing commercial properties, field screening would take place as necessary to evaluate excavated soils for the presence of pollutants and would include systematic random sampling of agricultural soils and testing for agricultural chemicals (including but not limited to Dichlorodiphenyldichloroethane (DDD), Dichlorodiphenyltrichloroethane (DDT), and toxaphene). If evidence of a past spill is identified, all work within 100 feet of the evidence would be halted until a Professional Geologist, Professional Engineer, or Registered Environmental Assessor evaluates the area. If hazardous materials are identified, the Construction Contractor would notify the USACE within two days and ensure that all other required release reporting is performed. Alternatively, a pre-construction soil investigation involving trenching or soil borings with analysis for constituents of concern would be conducted to determine whether shallow soils near existing or historical commercial properties are impacted by hazardous materials. Any further action would be dependent upon the result of the investigation.

Implementation of the mitigation measures and best management practices measures identified in this section would ensure that these effects, including effects on designated beneficial uses, are avoided, and minimized resulting in less than significant effects on water quality.

3.2.3 Vegetation and Wildlife

Affected Environment and Existing Conditions

Section 4.17 of the original GRR/EA adequately describes the environmental setting, regulatory setting, and methodology for vegetation and wildlife, including the affected environment and existing conditions for the project area.

Environmental Effects

Levee setbacks and floodplain borrow features would modify the hydraulics of the channel and would affect the processes that create aquatic habitat while additionally allowing the expansion of riparian zones which could affect habitat availability and quality. As the levee setbacks and floodplain borrow features would reduce hydraulic pressure on the channel and provide more space for habitat and wider riparian zones, more natural channel processes would occur within the levees. This would provide an opportunity for increased riparian cover, habitat complexity, and potentially more stream shading, which would improve the overall complexity, diversity, and resilience of riparian and floodplain habitat complexes along the river corridor. This impact would be beneficial to the quality and quantity of riparian habitat in the project area.

Short-term construction activities for the proposed features require the removal of existing vegetation within the immediate levee footprint and vegetation-free maintenance corridor, which may temporarily reduce habitat and displace wildlife from the construction area. Construction activities, including levee setback and floodwall construction, are not expected to directly impact wildlife, but could indirectly impact them through the runoff of sediments or pollutants, if not managed appropriately with the proposed BMPs, discussed above. No fish impediments or significant permanent negative impacts on aquatic wildlife are anticipated to result from the

proposed construction activities. The floodwall and borrow feature construction would not affect habitat except where construction requires removal of riparian vegetation as discussed below.

Vegetation clearing efforts for the project, including the setback levees and proposed borrow features, would result in the removal of approximately 2.75 acres of standing trees, in addition to clearing and grubbing understory vegetation within the footprint of the construction areas. Of the trees to be removed for the proposed design refinements, approximately 40% were non-native or invasive trees. Species of non-native trees to be removed in the project area consisted of acacia, eucalyptus, magnolia, and fruit trees. Native tree species within the project area include cottonwood, willow, sycamore, live oak, walnut, and dogwood.

Cumulatively, the area that would require overstory removal for the proposed features comprises a relatively small amount of riparian habitat in the area (less than 15% of the total riparian corridor area for Reach 6), and similar riparian habitat is present immediately upstream and downstream or on the opposite bank of the proposed features. As such, it is unlikely that this project would substantially decrease shading or increase water temperatures relative to existing conditions. Additionally, construction of the borrow features would provide for the activation of nearly 6 additional acres of floodplain and provide additional long-term benefits in terms of improving riparian habitat complexity and accessibility.

Construction activities taking place on Reach 6 would permanently remove any existing vegetation within the levee footprint and maintenance corridor. Ongoing maintenance activities would ensure that the areas are permanently free of trees and shrubs. All disturbed areas would be hydroseeded with native grasses to assist in erosion control.

As a part of the design process and incorporation of the floodplain borrow features, significant effort was made to ensure that vegetation impacts are minimized to the maximum extent practicable. USACE designed these features to maximize benefits, including designing the elevation of the features such that they would be inundated frequently enough to support riparian successional processes for native hydrophytic trees such as willows, cottonwoods, and sycamores, which in turn would provide wider riparian habitat over time. Further site visits and field surveys resulted in a number of adjustments to the proposed plan to reduce direct impacts, including adjusting the levee footprints to avoid heritage sycamore trees, relocating one of the borrow features from an area with a mature stand of native vegetation to an area with primarily nonnative and shrubby vegetation, and adjusting the excavation footprint to minimize tree impacts and ensure that the creek channel below the ordinary high water mark is not impacted by the borrow features.

The non-Federal EcoFIP analysis, discussed in Section 2.3.2, in addition to identifying the most beneficial locations for these features, also attempted to quantify the potential benefits of the terraces and side channels by estimating the acre-days of inundated area, acre-days of suitable salmonid habitat, and acre-feet of potential groundwater recharge per year. The EcoFIP was run on the originally proposed borrow features prior to the alterations discussed above to minimize impacts to the riparian corridor. The EcoFIP estimated that the features in Reach 6 could potentially provide approximately 7 acre-days of inundation, 2 acre-days of salmonid habitat, and 28 acre-feet of groundwater recharge annually in a normal water year (DWR, 2023b). While

no revegetation efforts are currently proposed for the borrow features beyond hydroseeding, PRFMA would seek opportunities to partner with other local organizations to provide some future vegetative lift in the area. Additionally, USACE would do some limited post-construction monitoring to confirm the function and benefits of the borrow features and would adaptively manage the design of future reaches of the Pajaro River Project to implement lessons learned and best practices from Reach 6.

Vegetation removal and any resulting habitat reduction outside the footprint of the levee, floodwall and vegetation-free zone would be temporary in nature, with long-term benefits anticipated due to increased conveyance capacity providing for a reduction in the intensity or need for vegetative maintenance actions within the channel while still allowing for natural growth and succession. The proposed design refinements would additionally promote the long-term regeneration of native habitat and would result in a net increase of habitat due to the area previously being primarily agricultural lands. A large percentage of the understory and overstory vegetation to be removed during construction activities is non-native. Furthermore, the removal of non-native tree species and vegetation would increase the likelihood of native plant species to grow in areas previously dominated by non-natives. Wildlife temporarily displaced by construction or O&M activities would be expected to return to the area or to the newly established off-channel areas created by construction of setback levees and regeneration with native plants. Additionally, the proposed features (and their benefits to the system) are self-reinforcing, with sediment deposition occurring naturally during high flow events.

With the implementation of avoidance and mitigation measures, discussed in this section and in Section 3.2.4, as well as the long-term benefits provided to the system by these activities, the effects to vegetation and wildlife from this project would be less than significant. The regeneration of vegetation and habitat through the proposed borrow features and increased acreage of riparian habitat on Reach 6 would provide improved long-term conditions for wildlife.

Avoidance, Minimization, and Mitigation Measures

The following list represents the feasible avoidance, minimization, and mitigation measures for the proposed action. See Appendix A, which includes the consultation documentation with USFWS and NMFS for more information.

- Minimize project impacts by reseeding all disturbed areas at the completion of construction in a timely manner with native forbs and grasses. All disturbed areas would be restored to pre-project conditions upon the completion of work.
- To help prevent importation of invasive plants and animals, the construction contractor would be required to thoroughly clean vehicles and equipment before first entering the project site. All construction equipment will be inspected for leaks prior to being brought on site. All equipment shall be well maintained and inspected daily while on site to prevent leaks of fuels, lubricants, or other fluids into aquatic habitat.

Implementation of the mitigation measures for environmental hazards (Section 4.11.3 of the GRR/EA), water quality (Section 4.18.3 of the GRR/EA), vegetation and wildlife (Section 4.17.3 of the GRR/EA), special status species (Section 4.14.3 of the GRR/EA), and measures listed in the Project's Biological Assessment (Appendix A), would ensure that construction and O&M effects to vegetation and wildlife would be less than significant. The regeneration of vegetation

and habitat through the proposed borrow features and increased acreage of riparian habitat on Reach 6 would provide improved long-term conditions for wildlife.

3.2.4 Special Status Species

Affected Environment and Existing Conditions

For the purpose of this section, special-status species are wildlife, fish, and plant species that are listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.). Section 4.14 of the original GRR/EA describes the environmental setting, regulatory setting, and methodology for special status species, including the affected environment and existing conditions for the project area.

Environmental Effects

California red-legged frog (CRLF)

Project implementation could adversely affect aquatic and terrestrial life stages of the CRLF. The project would cause temporary and permanent impacts to suitable habitats and could result in mortality of some frogs. Additionally, the proposed action could have temporary, indirect effects on habitat for the California red-legged frog, including erosion and resultant turbidity. With the implementation of the avoidance and minimization measures detailed below and in Appendix A, these effects are expected to be reduced to less than significant. However, long term the side channel features proposed will generate more quantity and higher quality habitat for any resident and migrant CRLF populations.

South-Central California Coast Steelhead

The action area currently does not contain spawning or rearing sites; however, it does provide a freshwater migration corridor to an estuarine area that free of obstructions and excessive predation. The proposed project is designed to minimize to the extent possible any impacts to migrating adult as well as juvenile steelhead. While the construction of the features may result in a temporary effect on canopy cover in the Corralitos Creek channel, the construction of the new side channel features will create suitable steelhead rearing habitat and provide a benefit for juveniles during out-migration. Preliminary analyses indicated that construction of the borrow area features would likely increase the average water year days of suitable off-channel floodplain habitat for potential suitable steelhead rearing habitat.

Santa Cruz Tarplant

The GRR/EA indicated that USACE would consult on the Santa Cruz Tarplant prior to construction. However, in reviewing the project area and the habitat requirements of the Tarplant, USACE has determined that there is no appropriate habitat for this species in the project area, and therefore the proposed action would have no effects to the Santa Cruz Tarplant. USACE documented this decision in the BA coordination summary and did not include this species in the consultation request.

Tidewater Goby

The GRR/EA indicated that USACE would consult on the Tidewater Goby prior to construction. However, in reviewing the project area and the habitat requirements of Tidewater Goby, USACE has determined that there is no appropriate habitat for this species in the project area, and

therefore the proposed action would have no effects to the Tidewater Goby. USACE documented this decision in the BA coordination summary and did not include this species in the consultation request.

Least Bell's vireo
The Reach 6 project area is within the vireo's historic range. The riparian corridors along the Pajaro River and its tributaries provide appropriate breeding habitat for the vireo with dense lower vegetation under a canopy layer. However, vireos are not known to be present in the project area. USFWS requested that USACE conduct preconstruction surveys to verify presence or absence of the vireo and ensure no potential impacts to nesting vireos. However, construction of Reach 6 is expected to begin outside of nesting season during the appropriate construction window for work in vireo habitat. As a result, Reach 6 is not expected to impact the vireo.

Western pond turtle (WPT)
The western pond turtle is currently listed as Proposed Threatened (PT), indicating that the U.S. Fish and Wildlife Service (USFWS) has proposed a draft rule to list the species as threatened. While western pond turtle has been observed along the mainstem of the Pajaro River (downstream of Reach 6) it is not known to occur within the project area. As a result, the construction of Reach 6 is not expected to negatively impact the turtle. Long-term, the construction of the borrow areas may improve nesting habitat and provide habitat features that are not currently available in the reach (such as backwater ponded habitat) that facilitates and encourages western pond turtle use of the area for breeding.

Western Yellow-billed cuckoo
The cuckoo is not known to occur in the action area, although the action area is within its historic range. The cuckoo has been observed along the Salinas River, approximately 15 miles south of the action area.

Essential Fish Habitat
The proposed project would not occur within designated Essential Fish Habitat (EFH). However, EFH has been designated downstream of the project area (below Highway 1) for Pacific Coast groundfish and coastal pelagic species (market squid, finfish). The project would have no effects on EFH.

In January of 2023, a Biological Assessment in consultation with USFWS and NMFS was completed and submitted for the Pajaro project (Appendix A). In February of 2023, both agencies concurred with USACE's determination that the project was not likely to adversely affect the CRLF or steelhead and that there would be no effects to the cuckoo or vireo. The USFWS Biological Opinion and NMFS letter of concurrence both established required avoidance and minimization measures, which are discussed below. With the implementation of the listed avoidance and minimization measures, impacts from the project would be reduced to less than significant.

<u>Avoidance, Minimization, and Mitigation Measures</u>
The USACE has included conservation measures as a part of this project that are intended to avoid or minimize adverse effects to special status species and their habitat. These include

measures to limit the extent of the work area; implement erosion control best management practices (e.g., use straw wattles); prevent introduction of contaminants (including construction debris and materials) into the stream; and ensure the complete removal and proper disposal of all construction waste. Heavy equipment will not enter the waterway. Additionally, riprap amounts are considered maximum estimates, and USACE would employ environmentally- and fish-friendly levee construction techniques where possible. These may include hydroseeding the new or repaired levees to expedite the restoration of vegetation cover.

Additional mitigation measures include:

Limit work in or near channel until after June 30 to the extent feasible. During cool, wet years when steelhead may be present in the Project area due to a shift in the run timing of adult fish (Shapovalov and Taft 1954), avoid any work in or immediately adjacent to the channel until after June. Construction work before June will be limited to areas away from the channel to ensure no impacts occur to steelhead adults. Additionally, the nesting season for the Western Yellow-billed cuckoo is May 15 to June 30 and the nesting season for the Least Bell's Vireo is April 15 to September 1. Limiting or avoiding construction work in or near-channel until after the nesting season to the extent feasible would ensure no impacts occur to the nesting birds.

Establish a buffer if nest is found. Preconstruction presence/absence surveys by a USFWS-permitted biologist will be conducted t to detect nesting cuckoos and vireos within all accessible suitable habitat within 300 feet of the proposed construction area. If any nesting cuckoos are detected within that area, a 300-foot buffer would be established until the young fledge or the biologist determines that the nest is inactive. Additionally, the biologist will monitor the nest daily when work is occurring within 500 feet of the nest to ensure that the work is not altering nesting behavior.

Preconstruction Surveys prior to in-channel Construction (Steelhead, CRLF, WPT). Preconstruction surveys will be performed by a qualified biologist to determine if steelhead, CRLF, or WPT are present in the construction area. If any species is present, these organisms would be captured and relocated to areas of suitable habitat that would not be affected by the construction activity.

USACE would ensure that all personnel undergo environmental awareness training prior to starting work. The training will include a description of federally listed species with potential to occur, life history and habitat associations, general protection measures, the terms and conditions of proposed project permits, penalties for non-compliance, and the boundaries of the construction areas. A handout will be provided to all participating personnel, and at least one copy will be kept onsite during construction activities. Upon completion of the training, crew members will sign a form stating that they attended the training and understand the avoidance and minimization measures. Refer to Appendix A for a complete description of avoidance and minimization measures to ensure protection of special status species during construction.

With the implementation of avoidance and mitigation measures, construction impacts to Special Status Species for these design refinements would be less than significant. The regeneration of vegetation and habitat through the proposed borrow features and increased acreage of riparian habitat on Reach 6 would provide improved long-term conditions for wildlife.

3.2.5 Cultural Resources

Affected Environment and Existing Conditions

Section 4.8 of the original GRR/EA adequately describes the environmental setting, regulatory setting, and methodology for Cultural Resources including the affected environment and existing conditions for the project area.

Environmental Effects

A Programmatic Agreement, executed in 2019, is being implemented to comply with Section 106 of the NHPA for Reach 6. USACE consulted with the California State Historic Preservation Office and the following Native American Tribes for the Reach 6 phase of the Project: the Esselen Tribe of Monterey County, the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Coastanoan Rumsen Carmel Tribe, the Costanoan Ohlone Rumsen-Mutsen Tribe, the Salinan Tribe of Monterey and San Luis Obispo Counties, the Xolon-Salinan Tribe, Ohlone/Coastanoan-Esselen Nation, Muwekma Oh lone Indian Tribe of the San Francisco Bay Area, the Amah Mutsun Tribal Band, and the Indian Canyon Mutsun Band of Costanoan. The USACE is working with the Amah Mutsun Tribal Band to ensure Tribal Ecological Knowledge is incorporated into studies for the identification of tribal resources that could be impacted by any phase of the Project.

GEI Consultants, Inc. (GEI) completed the inventory and evaluation efforts of Reach 6, which included a records search conducted at the Northwest Information Center (NWIC), archival research, review of previous Native American consultation and on-going Native American consultation by USACE, correspondence with historical societies, archaeological and built environment surveys, geoarchaeological investigations, and evaluations of archaeological and historic-era (45 years old or older) built environment resources.

No previously recorded pre-contact/Native American resources were identified within the Area of Potential Effects (APE) for Reach 6. Five historic-era built environment resources were identified within the Reach 6 APE: a multi-family residential property at 2215 E Lake Avenue, Orchard Park commercial building [P-44-000984] at 2233 E. Lake Avenue, Farm Fresh Produce market at 37 Holohan Road, a segment of Highway 152 (P-44-000408), and Corralitos Creek Bridge (no. 36-0001). The Orchard Park property was previously evaluated for NRHP eligibility and recommended as ineligible because of a lack of historical significance and integrity (JRP, 1015). GEI re-evaluated the resource for the purposes of this project and USACE recommended it as ineligible for the NRHP. The Corralitos Creek Bridge (no. 36-0001) was also previously evaluated and was determined a Category 5 (not eligible for the NRHP) by Caltrans (Caltrans, 2018). The three remaining resources (2215 E. Lake Avenue, Farm Fresh Produce, and the Highway 152 segment) were evaluated for NRHP eligibility for this project and are recommended as not meeting eligibility requirements.

On January 29, 2024, two GEI archaeologists completed an intensive pedestrian survey of the APE for Reach 6. Nothing of archaeological significance was identified during the surveys. Field notes and digital photographs were recorded with Wildnote software, and an Eos Arrow 100TM hand-held GPS was carried for sub-meter accuracy. Pedestrian surveys were completed in

conjunction with geoarchaeological auger-testing. Overall, testing revealed no new resources and provided no indication that undiscovered resources exist within the APE for Reach 6.

None of the resources in the APEs meets NRHP eligibility requirements and they are therefore not considered historic properties under Section 106. Therefore, a finding of No Historic Properties Affected as provided in 36 CFR part 800.4(d)(1) is recommended for Reach 6. Execution of the PA, including the completed identification and evaluation efforts for Reach 6, ensure that effects on cultural resources are less than significant under NEPA.

Avoidance, Minimization, and Mitigation Measures

No historic properties were identified in the APE for Reach 6. However, due to the presence of large, multi-component archaeological resources (which contain numerous human burials) near the APE, a Worker Environmental Awareness Program (WEAP) training focused on cultural resources is recommended for the entire Project. This training will be conducted by a USACE Secretary of the Interior-qualified archaeologist prior to any ground disturbing Project activity.

In the event that historic resources are uncovered, work would be halted immediately and a USACE archeologist would be notified, whom would in turn notify the appropriate SHPOs and/ or Tribes. The work would not be continued until the area is inspected by a USACE archeologist and other appropriate parties. If they determine that the resources require further consultation, USACE will notify the appropriate SHPO and/ or Tribes to determine next steps, including when construction could recommence.

4 Cumulative Effects

NEPA requires the consideration of cumulative effects of the proposed action in combination with the effects of other projects. NEPA defines a cumulative effect as an effect on the environment consisting of the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 C.F.R. § 1508.7).

Cumulative environmental effects expected from the overall Pajaro Project are discussed in section 4.19 of the GRR/EA (USACE, 2019), and it was determined that with mitigation, the project would not have any significant adverse effects on any of the discussed resources. The potential of the proposed changes as described in this document to incrementally contribute to significant cumulative effects on specific resources is discussed below. Although there are no significant impacts from the proposed design refinements, due to the effects of other construction projects in the surrounding study area, this section will discuss the resulting cumulative effects for all relevant resource areas that may have additional impacts since the publication of the GRR/EA in 2019.

Section 4.19.1 of the GRR/EA adequately describes the majority of past, present, and reasonably foreseeable future projects and defines a methodology and geographic scope for this project area. The temporal scope for purposes of the Reach 6 design refinements will include past projects that continue to affect the project area in the winter of 2024, projects that are under construction in the winter of 2024, and future projects that are reasonably foreseeable that could impact the future operation of the Reach 6 design refinements.

4.1 Past, Present and Reasonably Foreseeable Future Projects

The Pajaro FRM GRR/EA established a number of other projects within the study area that were considered in the cumulative effects for the overall FRM project. However, since the Reach 6 project area is just a fraction of the overall FRM project, the list below includes additional past, present and reasonably foreseeable future projects within a narrower geographic and temporal scope consistent with the small footprint of this action.

Emergency Levee Repairs (PL 84-99 Projects)

Since the project was constructed in 1949, high water events and breached and failing levees have resulted in emergency levee repairs and flood fighting. USACE constructed emergency levee repairs following high water events or levee breaches in 1955, 1986, 1989,1993, 1998, and 2018. Levee breaches and flooding events in 2023 have required emergency repair and/or rehabilitation under PL 84-99 to 5 sites along Salsipuedes Creek to restore the levees to their original level of protection. The repairs are currently scheduled for construction in Summer 2024. The repairs would consist of restoring levee slopes and placing new rock slope protection to prevent future erosion. Although none of the Salsipuedes emergency repair sites are located within Reach 6, the repair sites along Salsipuedes Creek which is adjacent and downstream from Reach 6. If construction of the emergency repairs were to overlap with the Reach 6 construction, which currently not anticipated, there could be resulting cumulative impacts to traffic, air quality, water quality, and climate change.

4.2 Cumulative Effects of Resources Not Evaluated in Detail Analysis

A number of the resource areas from the GRR/EA were not evaluated in detail above, due to the Reach 6 project being consistent with the analysis in the GRR/EA, or resulting in reduced effects from those evaluated in the GRR/EA. However, due to the 2023 flood events, there are additional emergency levee repairs ongoing in the overall project area that were not reasonably foreseeable at the time that the GRR/EA was prepared. These emergency levee repairs, described above, could potentially combine with the proposed project to result in new cumulative effects beyond those discussed in the GRR/EA. As a result, the resources that were not evaluated in detail in Chapter 3 are evaluated below. A summary of the Pajaro project's effects and mitigation for these resources is included in Section 3.1 above.

4.2.1 Aesthetics/Visual Resources

Other projects in the study area would not contribute to visual impacts in the same viewshed because local policies or guidelines ensure visual impacts are reduced to the extent feasible. Additionally, there is sufficient physical distance between the emergency repair sites and Reach 6 that they do not contribute to the same viewshed. It is unlikely that any sensitive visual receptors would be impacted by both projects at the same time. Therefore, the design refinements would not result in a cumulative effect on aesthetics.

4.2.2 Agriculture

The addition of the PL 84-99 repairs would not combine with the effects from the implementation of the Reach 6 Project to create a new significant impact to agriculture. Because the PL 84-99 project is a limited action that would only result in temporary effects during construction, it would not be likely to combine with the impacts from the Reach 6 project to create a significant effect. Therefore, any cumulative effects to agriculture would be less than significant.

4.2.3 Air Quality

Other actions within the project area would result in temporary and minor effects to air quality during construction due to the use of heavy equipment and trucking of materials. However, the project area is in a designated attainment area under the Federal Clean Air Act, which means that the region is meeting all ambient air quality standards. As a result, the General Conformity Rule is not triggered by these projects, and they would not be expected to emit criteria air pollutants to a level that would cause significant impacts, either individually or cumulatively. In addition, both projects would implement standard construction BMPs and minimization measures to ensure that the limited and temporary construction effects on air quality further reduced as much as practicable. With implementation of these measures, as described in Section 4.5 of the GRR/EA, the cumulative impacts of air quality would be less than significant.

4.2.4 Greenhouse Gases/Climate Change

Implementation of both the Reach 6 project the emergency levee repairs would result in the emission of greenhouse gases temporarily during construction, due to the use of heavy equipment, haul trucks, and personal commute vehicles. Both projects incorporate minimization measures to reduce emissions to the maximum extent practicable, consistent with local climate

action plans, and the Reach 6 project should further reduce emissions long-term through the incorporation of the borrow features and the associated increase of the riparian corridor. Overall, the contribution from these projects to a cumulative effect on climate would be less than significant.

4.2.5 Land Use

There would be no significant cumulative impacts to land use from the combination of the Reach 6 project and the emergency levee repairs. The emergency levee repairs are limited to fix-in-place actions that would not result in any permanent impacts to land use. Temporary impacts during construction could occur related to use of haul routes and borrow sites, however, these locations would be expected to return to their previous land use following construction of the emergency repairs. As a result, these temporary impacts would be less than significant and would not meaningfully contribute to the effects to land use analyzed in the GRR/EA.

4.2.6 Noise and Vibration

The proposed design refinements of Reach 6 and other related projects would not be likely to overlap to create a cumulative effect because of the physical distance between the projects. Implementation of a traffic management plan, including coordination of haul routes and construction timing, with local traffic management offices would ensure that the proposed action does not result in a cumulative impact on noise.

4.2.7 Public Health and Environmental Hazards

The proposed design refinements would not result in any effect to public health, safety, and emergency planning and response due to the location of the project. Because of its location, the Reach 6 project would not be likely to overlap with other related projects to create a cumulative effect due to the physical distance between the projects and their timeframes.

4.2.8 Recreation

The Reach 6 project area has no existing recreation facilities, and the project would not affect recreation. As a result, it cannot contribute to a cumulative effect to recreation. Although the project does not include specific recreational opportunities or components, future community plans indicate the intention to create trails along the levees; therefore, the proposed action could indirectly enhance recreational opportunities in the project area by creating new levees and their associated maintenance roads, which could allow for future recreation in the area.

4.2.9 Socioeconomics and Environmental Justice

Agriculture is an important industry in the project area. The farmland conversion required for Reach 6 is minimal and would not combine with other projects in the area to create a cumulative effect. Implementation of the Reach 6 Project and future project reaches would benefit local and regional socioeconomic conditions and low-income communities by reducing flood risk and the associated risk to life safety, property, and agricultural production. The proposed design refinements would not result in a significant adverse impact on socioeconomics and environmental justice.

4.2.10 Traffic and Circulation

The proposed design refinements and the emergency levee repairs along Salsipuedes Creek would likely combine to temporarily increase in traffic levels in the immediate project area and along access routes. Coordination with the City of Watsonville and Santa Cruz County would be required to ensure that these impacts are reduced through a Traffic Control Plan and associated minimization measures. With the traffic mitigation measures contained in the GRR/EA, which would be like those required of other construction projects, traffic impact would be mitigated at the individual project level and within the context of the overall transportation system. The proposed action would result in less than significant cumulative traffic impacts.

4.2.11 Utilities and Public Services

Because of its location, the Reach 6 project would not be likely to overlap with other related projects to create a cumulative effect on utilities and public services due to the physical distance between the projects and construction timeframe. The projects would not be expected to combine to excessively impact utility users, and both projects would be required to ensure full access to emergency services and other public service providers. As a result, the cumulative effects from these projects would be less than significant.

4.3 Cumulative Effects of Resources Considered in Detail Analysis

4.3.1 Hydrology, Hydraulics, Groundwater, and River Morphology

The proposed action would reduce the frequency of inundation of floodwaters outside of the proposed levees and floodwalls, which would reduce the potential for future emergency repairs once the full project is in place. The design refinements and future improvements to Reaches 2-5 as part of the overall Pajaro Project, would contribute to beneficial impacts to the hydrology and river morphology of Pajaro River and its tributaries. This would ensure that the project does not result in an incrementally significant effect on hydrology and hydraulics. Any impacts from the emergency levee repairs would be temporary and would be accounted for in the design for the future Pajaro project reaches. With the implementation of minimization measures as described in Section 3.2.3 above, any cumulative effects to hydrology, hydraulics, groundwater, and river morphology would be less than significant.

4.3.2 Water Quality

The proposed action and other local projects may temporarily contribute to impacts to water quality. Water quality in the project area is impaired and the Lower Pajaro River, Salsipuedes and Corralitos Creeks are all 303(d) listed waterways. Soil and associated contaminants that enter receiving waters can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. Accidental spills of construction-related substances occurring at the other project sites, such as oils and fuels, can contaminate both surface water and groundwater. Both construction of Reach 6 and the emergency levee repairs, respectively, would be required to implement BMPs and meet Federal requirements for avoiding degradation of water quality in adjacent waterways, including consistency with TMDLs. With the implementation of the minimization measures, combined

with required permitting including preparation of implementation of a stormwater pollution prevention plan, cumulative effects to water quality would be less than significant.

4.3.3 Vegetation and Wildlife

Impacts to vegetation and wildlife associated with this project are not likely to combine with other local projects to create a cumulative effect. The emergency levee repairs could result in some further vegetation removal, but the repair sites are minor actions of a limited scope and scale. Significant vegetation removal, aside from grubbing, is not expected at most of the repair sites under the PL84-99 projects and would not significantly contribute to a cumulative effect with the Reach 6 project. Additionally, mitigation actions as described in Section 3.2.5 above and the Biological Assessment would further reduce these affects. As a result, with the implementation of the minimization measures, any cumulative effects to vegetation and wildlife would be less than significant.

4.3.4 Special Status Species

Impacts to special status federal species associated with this project are not likely to combine with other local projects to create a cumulative effect with the implementation of avoidance and minimization measures and the terms and conditions of the USFWS Biological Opinion and NMFS letter of concurrence (Appendix A). The emergency levee repair projects would occur in other nearby reaches of the overall Pajaro project. Significant adverse impacts to species or their designated critical habitat are not anticipated as there is a low likelihood of species occurring in the project area during construction, and all projects would be required to comply with the Federal Endangered Species Act. Additionally, construction of the setback levees and their associated borrow features for both Reach 6 and future reaches of the Pajaro project would result in a net increase in ecological function in the project area that would offset any impacts associated with the PL 84-99 repairs long-term. Therefore, with the implementation of minimization measures, any cumulative effects to special status federal species would be less than significant.

4.3.5 Cultural Resources

There is the potential for cumulative effects to cultural resources from the combination of the Reach 6 projects and the emergency levee repairs, since both projects involve ground disturbing construction activities that could unearth buried cultural resources unexpectedly. However, the emergency repair sites are of a limited scope and scale and likely wouldn't contribute significantly to a cumulative impact with the overall Pajaro River Project. The Reach 6 project is covered by the larger Pajaro River Project's Programmatic Agreement, which includes stipulations and processes for mitigating for any unexpected impacts found during construction. As a result, any cumulative effects from the combination of these two projects are anticipated to be less than significant.

5 Compliance

Table 2 below provides a summary of the status of consultation and other requirements that must be met before the proposed Reach 6 design refinements could be implemented. Any significant compliance status changes from the GRR/EA are also included in the table below. See Table 5-1 of the GRR/EA for compliance information for the regulatory requirements that have not been updated.

Table 2. Summary of Federal Environmental Compliance for Proposed Action[2]

Regulatory Requirement	Status of Compliance/Expected Completion
Clean Air Act	*Full Compliance.* No significant changes since GRR/EA. The project is located within a Federal attainment area and therefore would be in compliance with the Clean Air Act Conformity Rule.
Clean Water Act (401)	*Full Compliance.* The Reach 6 project involves no in-channel work below the Corralitos Creek ordinary high-water mark. Avoidance, minimization measures, and other BMPs would be implemented to ensure that no incidental effects occur to the creek. As a result, the proposed action does not trigger compliance with Section 404 or 401 of the Clean Water Act.
Clean Water Act (404(b)(1)	*Full Compliance.* The Reach 6 project involves no in-channel work below the Corralitos Creek ordinary high-water mark. Avoidance, minimization measures, and other BMPs would be implemented to ensure that no incidental effects occur to the creek. As a result, the proposed action does not trigger compliance with Section 404 or 401 of the Clean Water Act.
Coastal Zone Management Act	*Full Compliance.* The Reach 6 project is fully located outside of the designated Coastal Zone and therefore does not trigger compliance with the Coastal Zone Management Act.
Endangered Species Act	*Full Compliance.* USACE consulted with USFWS and received a Biological Opinion, dated February 24, 2023, on the effects of the overall Pajaro project on the federally threatened California red-legged frog (*Rana draytonii*), yellow-billed cuckoo (*Coccyzus americanus*), and the federally endangered least Bell's vireo (*Vireo belliipusillus*). USACE also consulted with NMFS, and received a Concurrence Letter, dated February 17, 2023, specific to the determination that the project is not likely to adversely affect the federally threatened South-Central California Coast steelhead (*Oncorhynchus mykiss*), as designated under

	the Endangered Species Act. Both documents are included in Appendix A.
Farmland Protection Policy Act	*Full Compliance.* No changes since GRR/EA.
Fish and Wildlife Coordination Act	*Full Compliance.* No significant changes since GRR/EA.
Magnuson-Stevens Fishery Conservation and Management Act	*Full Compliance.* There is no designated essential fish habitat in the project area.
Migratory Bird Treaty Act	*Full Compliance.* No significant changes since GRR/EA.
National Environmental Policy Act	*Full Compliance*. A supplemental document was required per NEPA because there were substantial changes to the proposed action that are relevant to environmental concerns, as originally described in the GRR/EA (USACE, 2019). Therefore, this Supplemental EA was developed consistent with the requirements of NEPA (40 CFR 1500-1508).
National Historic Preservation Act	*Full Compliance.* No significant changes since GRR/EA. Identification efforts have been completed as detailed in Section 3.2.5. Consultation with the SHPO and potentially affected Tribes is ongoing and will be completed prior to construction.
Executive Order 11988 – Floodplain Management	*Full Compliance.* No changes since GRR/EA.
Executive Order 11990 – Protection of Wetlands	*Full Compliance.* No changes since GRR/EA.
Executive Order 12898 – Environmental Justice	*Full Compliance.* No significant changes since GRR/EA.
Executive Order 13112 – Invasive Species and Executive Order 13751 – Safeguarding the Nation from the Impacts of Invasive Species	*Full Compliance.* No significant changes since GRR/EA. Invasive species within the project area would be removed as part of construction. The disturbed areas would be reseeded with native grasses following completion of construction.

U "Full Compliance" and "Partial Compliance" indicate the status of the compliance needed for this project. To remain in compliance during construction and operation would require implementation of all related environmental commitments and consistency with compliance documents.

6 Public Involvement Summary

The GRR/EA details the public engagement efforts undertaken as part of the study phase. This Supplemental EA was released for a 30-day public review period on April 17, 2024. During the review period, the draft report was made available online or upon request from USACE. Comments on the draft report were submitted electronically to Pajaro-River@usace.army.mil or in writing to the USACE San Francisco District office. All comments received are included in Appendix B, which also includes responses to the comments and an indication of where changes have been incorporated into the Final EA. A public meeting will be held on July 11, 2024, at the Portuguese Hall of Watsonville, in Watsonville, California to communicate specific pre-construction information to the local community. For further information on the public meeting, please contact USACE at the above e-mail address or on the USACE project website[3].

The following tribes were notified of the availability of this Supplemental EA:

- Amah Mutsun Tribal Band Northern Valley Yokuts
- Amah MutsunTribal Band of Mission San Juan Bautista
- Costanoan Ohlone Rumsen-Mutsen Tribe
- Costanoan Rumsen Carmel Tribe
- Esselen Tribe of Monterey County
- Indian Canyon Mutsun Band of Costanoan
- KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- North Valley Yokuts Tribe
- Salinan Tribe of Monterey, San Luis Obispo Counties
- The Ohlone Indian Tribe
- Xolon-Salinan Tribe

In addition to local residents, businesses, and tribes in the vicinity of Reach 6, the following agencies and organizations will be notified of the availability of this Supplemental EA:

Table 3. Agencies and Organizations to be Notified

Action Pajaro Valley	Association of Monterey Bay Area Governments (AMBAG)
California Native Plant Society - Monterey Chapter	California Department of Fish and Wildlife
California Department of Food and Agriculture	California Department of Water Resources
California Department of Conservation	California Division of Boating and Waterways
California Governor's Office of Emergency Services	California Native American Heritage Commission
California Natural Resources Agency	California Public Utilities Commission
California Resources Agency	California State Water Resources Control Board

[3] https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Pajaro-River-Watsonville/

Casa de La Cultura	Central Coast Regional Water Quality Control Board #3
City of Watsonville	College Lake Reclamation District No. 2049
Community Action Board of Santa Cruz County	Elkhorn Slough Foundation
Federal Emergency Management Agency	Flood Control and Water Conservation District - Zone 7
Monterey Bay Air Resources District	Monterey County Planning Department
Monterey County Water Resources Agency	National Marine Fisheries Service
Native American Heritage Commission	Office of Historic Preservation/SHPO
Pajaro River Watershed Flood Prevention Authority	Pajaro River Watershed Integrated Regional Water Management
Pajaro Sunny Mesa Community Services District	Pajaro Valley Unified School District
Pajaro Valley Water Management Agency	Regeneración Pajaro Valley
Santa Cruz County Planning Department	Santa Cruz County Regional Transportation Commission
Santa Cruz County Resource Conservation District	Sierra Club - Pajaro River Watershed Committee of the Sierra Club
The Pajaro Compass	U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service	Watsonville Planning Department
Watsonville Wetlands Watch	Wildlands' Pajaro River Wetland Mitigation Bank

7 Conclusions

Based on the information in this Supplemental EA, the proposed design refinements would have no significant adverse effects on the quality of the human environment. Mitigation consisting of BMPs, and other measures proposed in this EA are sufficient to reduce all potential direct, indirect, and cumulative effects to less than significant. All public comments received have been considered and revisions to the EA have been incorporated in response, as appropriate. USACE has made the determination that a FONSI is appropriate for this action, as mitigation measures have been incorporated to reduce all impacts to a less than significant level. The final FONSI accompanies this EA.

8 References

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California Department of Water Resources (DWR). 2023a. Fact Sheet: Pajaro River Ecological Floodplain Inundation Potential. August 2023.

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Appendix A:
ESA Consultation Documents

PAJARO RIVER FLOOD RISK MANAGEMENT PROJECT

BIOLOGICAL ASSESSMENT

Revised January 2023

U.S. Army Corps of Engineers
San Francisco District

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APPENDIX

LIST OF ABBREVIATIONS AND ACRONYMS

ACE	annual chance of exceedance
BA	biological assessment
BMPs	best management practices
CAR	Fish and Wildlife Coordination Act Report
CFR	Code of Federal Regulations
cfs	cubic feet per second
CDFW	California Department of Fish and Wildlife
CRLF	California Red-legged Frog
DPS	distinct population segment
E	endangered
EA	Environmental Assessment
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
GANDA	Garcia and Associates
GRR	General Reevaluation Report
HEP	Habitat Evaluation Procedures
IPaC	Information Planning and Conservation System
LAA	likely to adversely affect
lf	linear feet
MCWRA	Monterey County Water Resources Agency
NE	no effect
NEPA	National Environmental Policy Act
NLAA	not likely to adversely affect
NMFS	National Marine Fisheries Service
OMRRR	operation, maintenance, repair, replacement and rehabilitation
PED	preconstruction engineering and design
Qof	Quaternary Older floodplain deposits
Qyf	Quaternary Younger floodplain deposits
RWQCB	Regional Water Quality Control Board
SCC Zone 7	Santa Cruz County Flood Control and Water Conservation District, Zone 7
T	threatened
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRDA	Water Resources Development Act

1.0 INTRODUCTION

The purpose of this Biological Assessment (BA) is to analyze the potential effect of the proposed Pajaro River Flood Risk Management Project (project) on species listed or proposed for listing as Endangered or Threatened under the Endangered Species Act (ESA), and on designated and proposed critical habitat, within the project's action area. The U.S. Army Corps of Engineers (USACE), San Francisco District, proposes to construct the project in Santa Cruz and Monterey counties, California (Figure 1). The purpose of the project is to reduce flood risk (and associated risks to life safety, property, and socioeconomics), to the city of Watsonville, the town of Pajaro, and surrounding agricultural lands. The non-Federal sponsors for the project are the Santa Cruz County Flood Control and Water Conservation District, Zone 7 (SCC Zone 7) and the Monterey County Water Resources Agency (MCWRA).

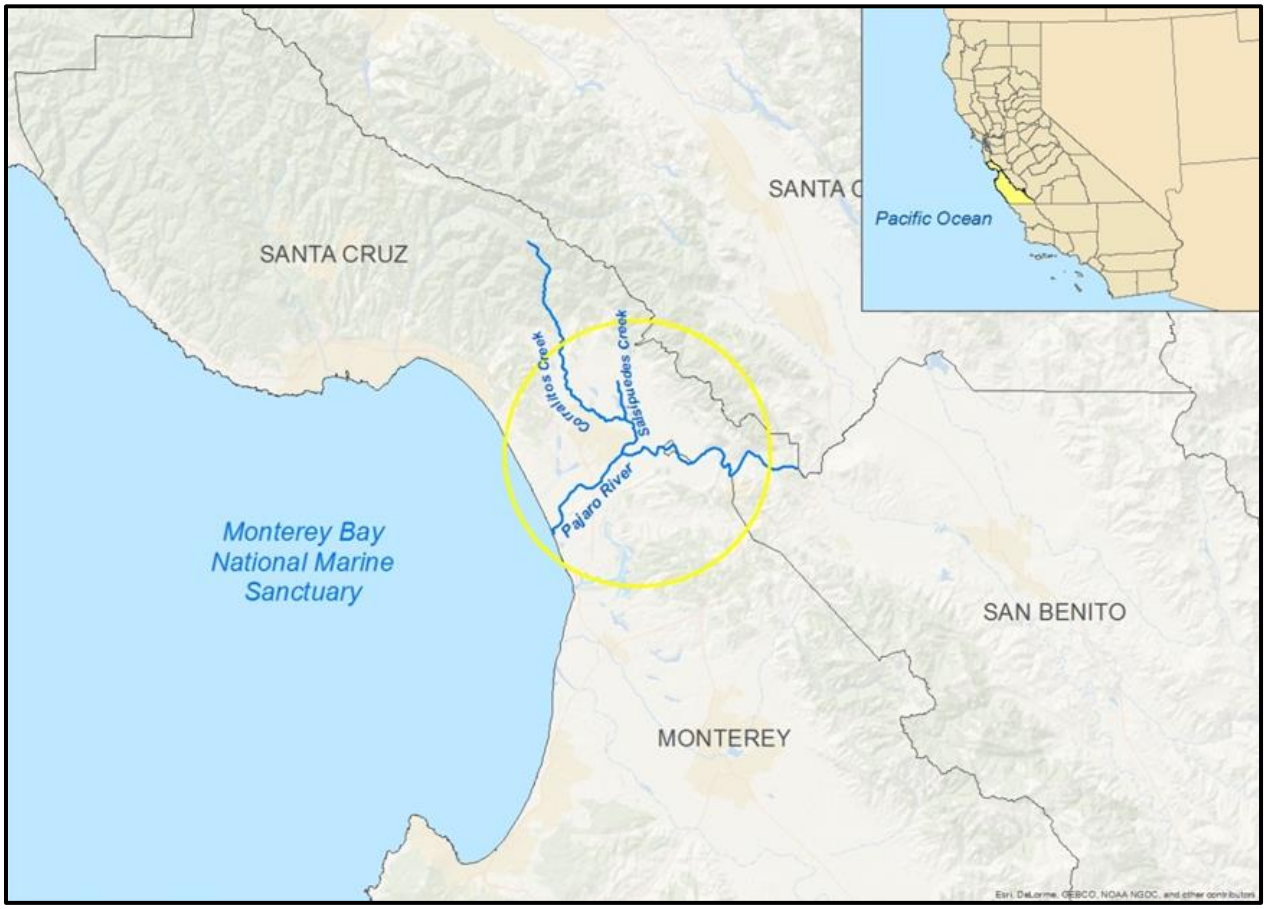

Figure 1. General Location of the Proposed Action.

1.1 Background

In 1949, to reduce potential flood damage to adjacent agricultural and urban lands, USACE constructed the existing earthen levees bordering the Pajaro River. The project consisted of levees along the Pajaro River from its mouth to mile 11.1 on the right (north) bank and to mile 9.9 on the left (south) bank. The project also included levees on Salsipuedes Creek from its confluence with the Pajaro River to the high ground at mile 2.6 on the right (west) bank and at mile 1.7 on the left (east) bank. The 1949 project did not include any structural flood risk management measures on Corralitos Creek. Since the 1949 levee construction, four major floods on the Pajaro River and its tributaries have occurred in 1955, 1958, 1995, and 1998. During these events, significant flooding occurred when flows overtopped and/or breached the levees. The 1995 flood resulted in two lives lost and almost $100 million in damages. The levees nearly broke again during storms in 2017.

Although the 1949 flood project was designed to reduce flood risk in the Pajaro Basin from a two percent annual chance of exceedance (ACE) probability event (50-year event), hydrologic analysis conducted following the flood flows of 1955 and 1958 indicated that the design capacity was more equivalent to a four percent ACE probability event (25-year event). Additionally, the analysis indicated that Corralitos Creek has a twelve percent ACE probability event (8-year event) capacity and flooding from Corralitos Creek circumvents the higher level of protection afforded by the levees on Salsipuedes Creek. Therefore, an expected ACE probability of 12 percent (8-year event) more accurately describes the existing level of flood protection for both Salsipuedes and Corralitos Creeks.

In response to the floods in 1955 and 1958, and the resulting hydrologic analysis, a reevaluation was conducted on the 1949 project and a new project was recommended and authorized by Congress in the Flood Control Act of 1966. The 1966 project included modifications to the existing levee system to ensure that there was a standard level of flood protection on the Pajaro River, Salsipuedes Creek, and Corralitos Creek. However, the 1966 project was never constructed due to a number of factors including economic justification challenges and inconsistent support for the project, both from the local and Federal governments.

Since the 1966 authorization, there have been a number of additional flood events in the project area. The Salsipuedes Creek levees were damaged in the 1986, 2006, and 2017 floods, while the Pajaro River levees were damaged in both 2006 and 2017. In 1982, 1997, and 2016 flooding occurred along Corralitos Creek. Additionally, the Pajaro River levee system was damaged in the 1989 Loma Prieta earthquake. The levee on the Santa Cruz County side of the Pajaro river was breached by high winter flows in 1998, the current flood of record.

In 1995, the most significant flood event occurred on the Pajaro River, breaching the levees along both sides of the river. This flood event resulted in the greatest amount of flood damages to the agricultural and urban lands surrounding the Pajaro River, completely inundated the town of Pajaro, and resulting in at least one death. Following the 1995 flooding, former California Governor Wilson ordered that riparian vegetation be removed

from both banks of the river to provide better flow control as part of emergency flood control measures.

Following the 1995 and 1998 floods and associated emergency levee repairs, there were multiple efforts by USACE and Santa Cruz and Monterey counties to complete a General Reevaluation Study to update and recommend future flood improvements on the Pajaro River, including public outreach in 2004, 2009, 2012, and 2015. Finally, in 2019, the Final General Reevaluation Report and Integrated Environmental Assessment (GRR/EA) was completed[1]. The final GRR/EA confirmed the validity of the 1966 authorized levee improvements and an associated Director's Report approved the findings in December 2019.

1.2 Authority

The original Pajaro River levee project was authorized by the Flood Control Act of 1944 (Public Law No. 534, 78th Congress, Ch. 665, 2nd Session). The current Pajaro River flood risk management project was authorized by the Flood Control Act of 1966 (section 203, Public Law 89-789, 80 Stat. 1421). Section 1001 of the Water Resources Development Act (WRDA) of 1986 states that every 2 years, the Secretary of the Army will submit a list of projects to Congress for de-authorization. The list would include authorized projects that have not been constructed and have received no funding for the previous 10 fiscal years. In order to avoid de-authorization, the Pajaro River flood risk management feasibility study was re-authorized by the WRDA 1990, Section 107 Continuation of Authorization of Certain Projects (Public Law 101-640, November 28, 1990).

Section 107 of WRDA 1990 provided that the Pajaro River flood risk management project as authorized by the Flood Control Act of 1966 remain authorized. With the GRR's approval through the December 2019 Director's Report, the 1966 project remains authorized and is eligible for construction funding. On 30 March 2022, the project was granted initial construction funding under the Infrastructure Investment and Jobs Act of 2021.

1.3 Species and Critical Habitat Addressed in this BA

An official list of species with the potential to occur in the vicinity of the project areas and federally listed or proposed for listing as threatened, endangered, and designated critical habitat or habitat proposed for designation was obtained from the U.S. Fish and Wildlife Service's (USFWS) Information Planning and Conservation System (IPaC) on 1 March 2022. The list is provided in **Appendix A**. The National Marine Fisheries Service (NMFS) mapping tool was also used to confirm the potential for species under NMFS jurisdiction to occur in the project area. The 19 federally endangered and threatened species included on the USFWS species list were considered for inclusion in this BA. Suitable habitat is not present within the action area for 15 of these species. Therefore, USACE has determined

[1] Note that while the 2019 GRR/EA was finalized, the Finding of No Significant Impact (FONSI) was not signed, therefore the project is not in full compliance with the National Environmental Policy Act (NEPA). The NEPA compliance will be completed prior to the initiation of construction.

that the proposed action would have no effect on these species, and no further evaluation or consultation on these 15 species is needed (50 Code of Federal Regulations [CFR] 402.12).

Of the federally listed species considered for inclusion in this BA, only the four species listed in **Table 1** have the potential to occur in the Action Area and may be affected by the proposed project; therefore, these species are the subject of this BA. The analysis is based on documented distribution and habitat requirements for each species.

Table 1. Species Considered in this Biological Assessment

Common Name	Scientific Name	Status[1]	Critical Habitat in Action Area?
South Central California Coast steelhead	*Oncorhynchus mykiss*	T	Y
California red-legged frog	*Rana aurora draytonii*	T	N
Least Bell's vireo	*Vireo bellii pusillus*	E	N
Western Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T	N

[1] Listing status under the federal Endangered Species Act: E = Endangered, T = Threatened.

1.4 Summary of Consultation to Date

This section summarizes project consultation and correspondence between USACE, USFWS, and NMFS. USACE has been informally coordinating with USFWS and NMFS since the General Reevaluation study was initiated in 2001. Note that the consultation history below is not a comprehensive listing of all correspondence and consultation. The summary is based on best available records and data from USACE and may have gaps due to missing or incomplete records.

1.4.1 U.S. Fish and Wildlife Service

2001 - USACE initiated informal consultation with the USFWS on the project in 2001 in combination with community planning and stakeholder meetings in a process to develop and evaluate possible project alternatives.

May 29, 2002 - USACE spoke with Ivana Noell of the USFWS Ventura Field and Wildlife. Issues discussed included California red-legged frog (CRLF), the Fish and Wildlife Coordination Act (FWCA), and stakeholder meeting concerns.

September 11, 2002 - USACE spoke with Ivana Noell of the USFWS Ventura Field and Wildlife Office. Continued discussions of CRLF, FWCA, and stakeholder meeting concerns.

January 16, 2003 - USACE spoke with Ivana Noell of the USFWS Ventura Field and Wildlife Office. Continued discussions of CRLF, FWCA, and stakeholder meeting concerns.

April 14, 2003 - USACE spoke with Amelia Orton-Palmer of the USFWS Ventura Fish and Wildlife Office regarding initiation of Habitat Evaluation Procedures (HEP) and a Fish and Wildlife Coordination Act Report (CAR) in accordance with the FWCA.

April 21, 2003 - USACE continued discussion with Amelia Orton-Palmer of the USFWS Ventura Fish and Wildlife Office regarding initiation of HEP and a CAR in accordance with the FWCA.

September 16, 2003 - USACE spoke with Richard DeHaven and Douglas Weinrich of the USFWS Sacramento Fish and Wildlife Office regarding HEP/CAR.

February 2004 - USACE met with David Pereksta of the Ventura Fish and Wildlife Office and had additional conversations with him regarding HEP/CAR.

September 13, 2017 - USACE submitted request to the USFWS Ventura Fish and Wildlife Office for a species list for the proposed project area via IPaC. The USFWS provided a species list in a letter to USACE dated September 13, 2017 (Consultation Code: 08EVEN00-2017-SLI-0644). The species list covered two U.S. Geological Survey (USGS) 7.5-minute quadrangles: Watsonville West and Watsonville East.

November 2, 2017 – USACE letter to Steve Henry of the USFWS Ventura Fish and Wildlife Office requesting concurrence that the project may affect, but is not likely to adversely affect the CRLF and would have no effect on the tidewater goby or Santa Cruz tarplant. A final BA was enclosed. This informal initiation occurred concurrently with public review of the draft GRR/EA. Informal consultation indicated the likely need for formal consultation during preconstruction engineering and design (PED) as a higher level of design is achieved.

December 13, 2021 – USACE hosted a virtual interagency kickoff meeting for PED and began initial coordination for formal consultation. USACE presented an overview of the study and its completion and the initial strategy for design and construction. A discussion occurred regarding the changed baseline condition for CRLF, which are now known to be breeding in the project area. At the meeting, USFWS confirmed that the project could be self-mitigating, with appropriate establishment of a baseline riparian corridor that could remain unaltered under future conditions. In addition, USFWS requested that USACE consider potential effects from the project to the Least Bell's Vireo and Western Yellow-billed Cuckoo.

March 1, 2022 – USACE conducted a search on the IPaC system and generated an updated species list for the project. The species list and associated research confirmed the potential for Least Bell's Vireo and Western Yellow-billed Cuckoo to be present in the project area, therefore, this BA includes analysis relative to the potential for these birds to be impacted by the project.

April 21, 2022 – USACE, USFWS, NMFS, and Santa Cruz County met for a project status check. USACE updated USFWS and NMFS on the ongoing design and construction schedule planning and notified the agencies that the draft biological assessment for the project was nearing completion. Long term maintenance considerations were discussed, and the opportunity to lower the floodplain benches in conjunction with setting back the levees was discussed.

July 7, 2022 – USACE met with USFWS and provided an additional schedule and status update regarding the draft biological assessment and requested that USFWS provide a review of the draft biological assessment before its transmittal. USFWS and USACE discussed strategies for addressing long term maintenance concerns in the consultation request.

July 18, 2022 – USACE transmitted the draft biological assessment to USFWS and NMFS for review.

July 22, 2022 – USFWS provided their review and comments on the draft biological assessment to USACE.

August 18, 2022 – USACE initiated formal consultation with USFWS on CLRF and transmitted the final BA to the agency. Western Yellow-billed cuckoo and Least Bell's Vireo were also included int the consultation request with a not likely to adversely effect determination.

September 26, 2022 – USFWS provided USACE a letter dated August 25, 2022, indicating that the final BA did not include sufficient information for USFWS to proceed with the consultation request. USFWS requested that USACE provide additional information on operation and maintenance (O&M) activities conducted by Zone 7 and the MCWRA.

September 27, 2022 – USACE and USFWS met to coordinate a strategy for responding to the USFWS request for additional information.

October 28, 2022 – USACE held a meeting with USFWS and NMFS to discuss integrated strategies to address their concerns over the level of detail for the levee maintenance action in the consultation request.

December 2, 2022 – USACE transmitted a Revised Final BA to USFWS reinitiating formal consultation.

December 7, 2022 – NMFS contacted USACE indicating insufficient information regarding O&M activities covered in the BA and requested a coordination meeting to further discuss.

December 13, 2022 – USACE hosted a coordination meeting to discuss the strategy for addressing O&M in the consultation request between both the team and management

levels from USACE, USFWS, NMFS, Santa Cruz County, and Monterey County. On December 20, 2022, a management-level follow up meeting occurred between USACE, NMFS, and USFWS. Agreement was reached that the consultation should cover project construction and future project O&M, and that past and ongoing O&M practices are part of the baseline condition for this consultation. Any compliance needs for ongoing O&M would be addressed through the Stream Maintenance Program (SMP) and USACE Regulatory process.

December 21, 2022 – USACE met with USFWS, at their request, to walk through ongoing revisions to the draft BA in response to the December 13 and 20th meetings. Agreement was reached to continue discussions on January 5th.

January 5-10, 2023 – Ongoing comments, revisions, and reviews between the agencies.

1.4.2 National Marine Fisheries Service

2001 - USACE initiated informal consultation with NMFS on the project in combination with the community planning process.

February 26, 2001 - Letter from NMFS Southwest Region Office requesting that USACE consider the use of setback levees as the preferred project alternative rather than other structural alternatives such as floodwalls. Setback levees were subsequently investigated by USACE and incorporated as a prominent feature of the project.

May 30, 2002 through September 9, 2003 - Numerous technical meetings were held among USACE, NMFS, the California Coastal Commission, the California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board to develop project alternatives that would satisfy the ESA, Clean Water Act, and regulatory requirements of the State of California.

April 11, 2003 - USACE presented a preliminary mitigation and monitoring plan for the project and requested recommendations from the resource agencies. At the request of the agencies, USACE and Counties agreed to investigate the potential for creating additional river meanders and excavating the channel benches to allow more frequent overbank flooding within the project footprint. At the conclusion of these technical meetings, USACE and resource agencies recommended criteria for the preliminary design based on analysis of the project alternatives.

January 27, 2004 – Joint letter from NMFS and CDFW (CDFW 2004) which stated that these agencies would provide specific comments on ways to reduce impacts and improve maintenance efficiency for the proposed project.

April 21, 2004 – Letter from Mr. Patrick Rutten of NMFS that provided information on general performance standards including a paper entitled *Steelhead Requirements and Habitat Performance Standards for the Pajaro River Flood Control Project* (Rutten 2004).

February 8, 2005 - Jonathan Ambrose of NMFS spoke with Garcia and Associates (GANDA), an environmental consultant to USACE, regarding the proposed project. Items discussed included long-term maintenance of the flood control project, geomorphologic conditions in the Pajaro River channel near Murphy's Crossing, establishing performance criteria for steelhead, and extending the analysis area of the BA to include upstream spawning and rearing areas for steelhead.

February 10, 2005 – USACE letter to Dick Butler of NMFS summarizing its previous consultation with the agency on the project and requesting site-specific recommendations regarding performance standards for the project.

March 2, 2006 - GANDA wildlife and fisheries biologists attended a meeting with USACE and Jonathan Ambrose. Items discussed included the long-term project operation, maintenance, repair, replacement and rehabilitation (OMRRR), Best Management Practices (BMPs), bridge modifications, and the need to measure flow velocities.

November 2, 2017 – USACE letter to Amanda Morrison of NMFS requesting concurrence that the project may affect, but is not likely to adversely affect the SCCC steelhead. A final biological assessment was enclosed. This informal initiation occurred concurrently with public review of the draft GRR/EA. Informal consultation indicated the likely need for formal consultation during PED once design refinements occur.

November 30, 2017 – USACE received a letter from NMFS with comments on the draft GRR/EA, the tentatively selected plan, and conservation recommendation.

December 13, 2021 – USACE hosted a virtual interagency kickoff meeting for PED and began initial coordination for formal consultation. USACE presented an overview of the study and its completion and the initial strategy for design and construction.

April 21, 2022 – USACE, USFWS, NMFS, and SCC Zone 7 met for a project status check. USACE updated USFWS and NMFS on the ongoing design and construction schedule planning and notified the agencies that the draft biological assessment for the project was nearing completion. Long term maintenance considerations were discussed, and the opportunity to lower the floodplain benches in conjunction with setting back the levees was discussed.

June 29, 2022 – USACE met with NMFS and provided an additional schedule and status update regarding the draft biological assessment and requested that NMFS provide a review of the draft biological assessment before its transmittal. NMFS and USACE discussed strategies for addressing long term maintenance and other areas of uncertainty in the consultation request.

July 18, 2022 – USACE transmitted the draft biological assessment to USFWS and NMFS for review.

July 21, 2022 – NMFS provided their review and comments on the draft biological assessment to USACE.

August 18, 2022 – USACE initiated informal consultation with NMFS and transmitted the final BA to the agency with a determination of not likely to adversely effect on the steelhead.

September 27, 2022 – NMFS provided USACE a letter, indicating that the final BA did not include sufficient information for NMFS to proceed with the consultation request. NMFS requested that USACE provide additional information on operation and maintenance (O&M) activities conducted by Zone 7 and the MCWRA, as well as additional information on proposed design features and avoidance and minimization measures.

October 26, 2022 – USACE coordinated with NMFS regarding their request for additional information and discussed the strategy for responding to their request. NMFS requested a joint meeting with USFWS to discuss levee maintenance strategy.

October 28, 2022 – USACE held a meeting with USFWS and NMFS to discuss integrated strategies to address their concerns over the level of detail for the levee maintenance action in the consultation request.

November 29, 2022 – NMFS notified USACE that the consultation request had been formally closed out due to information requests responding to the September 27 letter having not been received in a timely enough manner.

December 2, 2022 – USACE transmitted a Revised Final BA to NMFS reinitiating informal consultation.

December 7, 2022 – NMFS contacted USACE indicating insufficient information regarding O&M activities covered in the BA and requested a coordination meeting to further discuss.

December 13, 2022 – USACE hosted a coordination meeting to discuss the strategy for addressing O&M in the consultation request between both the team and management levels from USACE, USFWS, NMFS, Santa Cruz County, and Monterey County. On December 20, 2022, a management-level follow up meeting occurred between USACE, NMFS, and USFWS. Agreement was reached that the consultation should cover project construction and future project O&M, and that past and ongoing O&M practices are part of the baseline condition for this consultation. Any compliance needs for ongoing O&M would be addressed through the Stream Maintenance Program (SMP) and USACE Regulatory process.

January 5-10, 2023 – Ongoing comments, revisions, and reviews between the agencies.

2.0 ACTION AREA

The project area is located in the Pajaro Valley in Santa Cruz and Monterey counties (Figure 1). The Pajaro River generally forms the boundary between these two counties. Salsipuedes Creek and Corralitos Creek are located north of the Pajaro River within Santa Cruz County. The project area includes the city of Watsonville and the town of Pajaro. Approximately 8,250 acres of agricultural land are also located within the floodplain of the lower Pajaro River Basin. The total project length is approximately 9.2 miles.

The project area includes Reaches 2 through 4 of the mainstem Pajaro River, and Reaches 5 and 6 along tributaries (Figures 2 and 3). Reach 2 begins at Highway 1 and continues upstream 1.7 miles to the Watsonville city limits. Reach 3 extends 0.7 mile through the urban area of Watsonville and Pajaro to the confluence with Salsipuedes Creek. Reach 4 continues from the creek confluence approximately 2 miles upstream along the main stem.

Reach 5 of the project area includes Salsipuedes Creek and Reach 6 includes Corralitos Creek (Figures 4 and 5). Reach 5 extends 2.4 miles up Salsipuedes Creek from the Pajaro River confluence to Highway 152. Reach 6 includes Corralitos Creek from Highway 152 to Green Valley Road, approximately 1.8 miles upstream.

The action area refers to the area directly or indirectly affected by the Federal action (50 CFR §402.02 and 402.14[b][2]). This includes the project footprint and surrounding areas where species could be affected by project-related impacts such as ground disturbance, noise, changes in water quality and quantity, changes in air quality, and lighting effects.

The action area for this BA is centered on the project area reaches on the mainstem Pajaro River from upstream of California Highway 1 to the Murphy Road crossing (Murphy's Crossing); on Salsipuedes Creek from the Pajaro River confluence upstream to College Lake; and on Corralitos Creek from the Salsipuedes Creek confluence upstream to the Green Valley Road crossing. These stream reaches are shown in **Figure 2**. Note that Reaches 1, 7, and 8 are shown on the map below, but have no work proposed and therefore are not part of the project area.

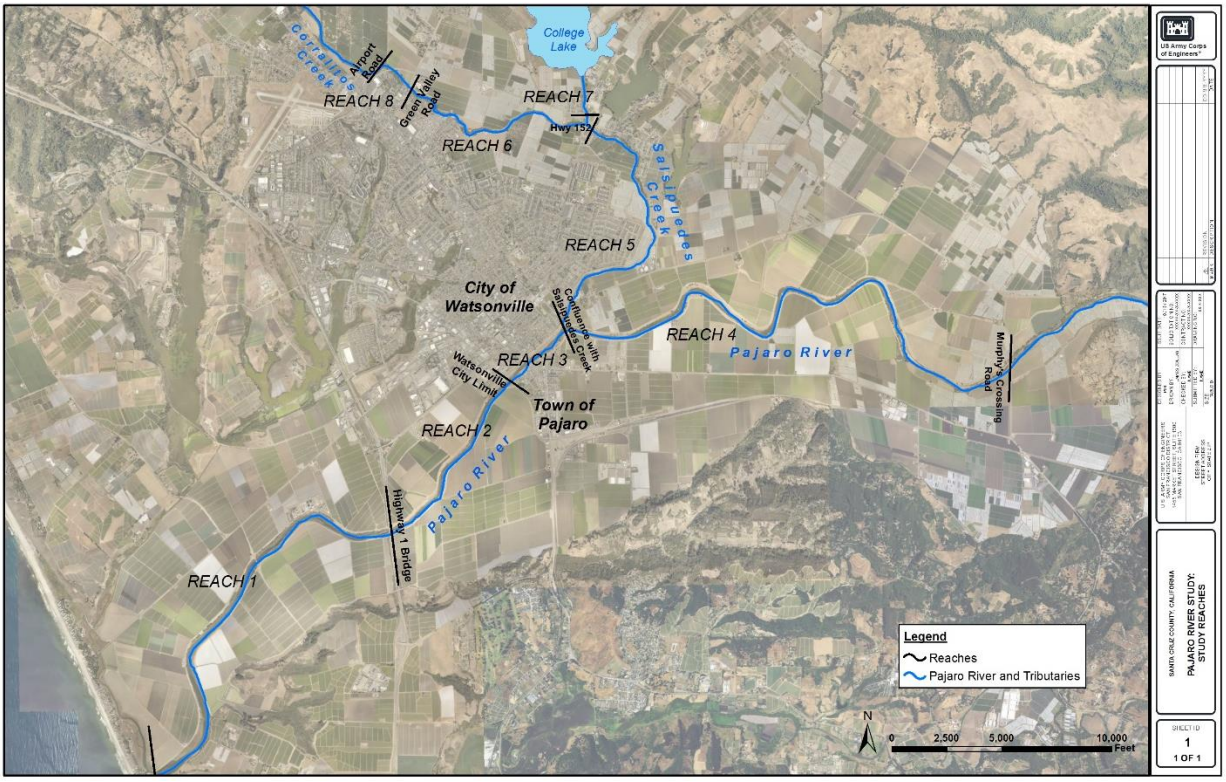

Figure 2. Action Area and Project Reaches

The action area extends laterally outward from these existing stream channels to the outer edge of the proposed new levees and floodwalls (the project footprint). These widths vary from reach to reach depending on the width of the proposed setback area and other geographic considerations. The average widths planned for each reach are discussed in the project description in Chapter 3 below. No project-related effects on listed species are expected beyond this footprint because construction equipment and earth-moving activities would be confined to the area between the existing levees and the new levees. The lands adjacent to the levees are primarily agricultural and urban lands.

3.0 PROPOSED ACTION

3.1 Overview

This BA analyzes the proposed action, which consists of the construction of structural flood risk management measures on the Pajaro River and on Salsipuedes and Corralitos Creeks summarized in **Figure 3** and discussed in additional detail below. It consists of the following:

- Constructing new levees, including setback levees.
- Removing existing levees in reaches where setback levees are proposed.
- Improving existing levees in place and with placement of floodwalls on some levees.
- Constructing new floodwalls in some areas.
- Placing erosion protection (i.e., riprap) on the waterside slope of the Pajaro River levees.
- Raising/replacing the Highway 152 and 129 bridges over Corralitos and Salsipuedes Creeks, respectively.
- Post-construction levee and floodwall maintenance and repair in accordance with the OMRRR manual.
- Post-construction channel maintenance to maintain flood capacity in accordance with the OMRRR manual.

Construction of the new levees and or floodwalls will result in the removal of approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8 acres of riparian forest within the footprint of the new levees and floodwalls, primarily within Reach 5. Individual and small stands of trees and shrubs may be affected in the other project reaches. USACE would attempt to minimize these impacts through the project design process, as practicable.

Setting back the levees would create 61 acres of additional floodplain within the river levee system that could be restored and could provide additional ecosystem benefits. USACE has identified a number of opportunities to pursue as part of the design process that would kickstart floodplain restoration by lowering the existing floodplain benches and grading the benches, as feasible, to activate floodplain features during high water events. Additionally, USACE, in coordination with the non-federal sponsors and USACE's Engineering with Nature program, is considering opportunities separate from the project to initiate further habitat improvement projects within the setback levees.

3.2 Proposed Action

As described in Chapter 2, the project area is divided into five stream reaches numbered from downstream to upstream. Reaches 2 through 4 are located along the main stem of the Pajaro River; while Reach 5 is along Salsipuedes Creek and Reach 6 is along Corralitos Creek (**Figure**

2). In addition to the narrative description below, structural measures with maximum required amounts of riprap are identified by reach in **Table 2**.

3.2.1 Pajaro River

Levee improvements on the Pajaro River are proposed for both banks of Reaches 2, 3, and the left bank (Monterey County) of Reach 4. Improvements on the right bank (looking downstream; Santa Cruz County) of Reach 4 were not economically justified for inclusion in the project. The setback levees would range from 13 to 14 feet in height.

Improvements on both banks of Reach 2 include demolition of the existing levee and construction of a new 100-foot setback levee, resulting in an additional 200 feet of channel width. Riprap will be placed along the entire water side slopes of both setback levees and will total approximately 9,200 lf on the left bank and 7,400 lf on the right bank for Reach 2. Approximately 1,300 feet of the existing right bank levee at the upstream end of Reach 2 will be rebuilt in place including placement of riprap due to constraints from existing development (**Figure 3**).

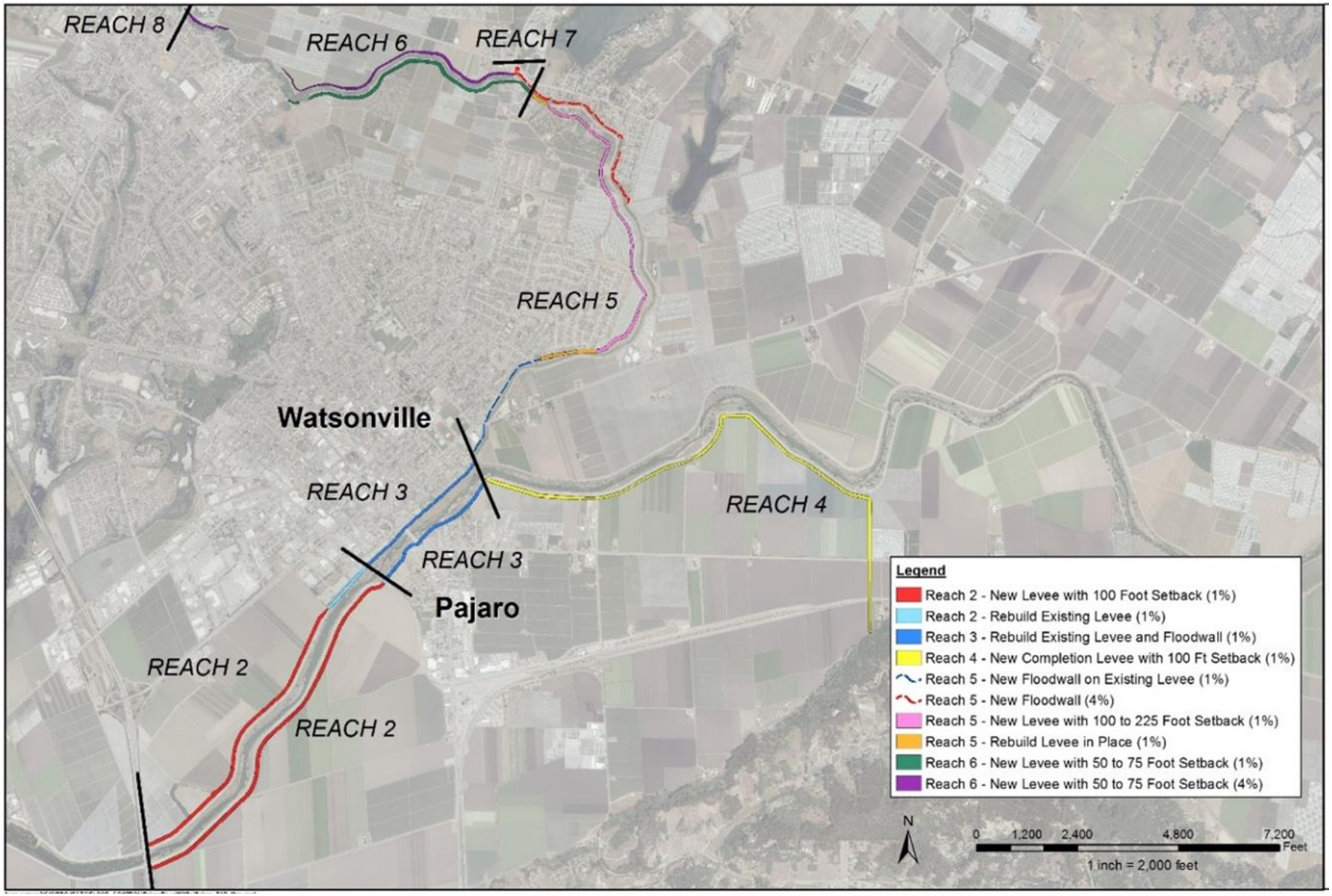

Figure 3. Summary of Pajaro River Project Proposed Action and Estimated Flood Management Levels by Reach.

Table 2. Structural Measures and Riprap Required by Reach.

Reach	Waterway	Left (L) or Right (R) Bank	Measures	Length of Measure	Setback Area Created	Riprap Required
2	Pajaro River	L	100 ft. setback levee. Demolish existing levees	9,200 linear feet (lf)	8 acres	9,200 lf
		R	100 ft. setback levee. Demolish existing levees Rebuild levee in place	7,400 lf 1,300 lf	6 acres	7,400 lf 1,300 lf
3	Pajaro River	L	Floodwall on rebuilt levee Demolish existing levee	3,400 lf	N/A	2,500 lf
		R	Floodwall on rebuilt levee Demolish existing levee	3,600 lf	N/A	2,500 lf
4	Pajaro River	L	100 ft. setback levee New completion levee Demolish existing levee	10,600 lf 3,200 lf	11 acres	4,100 lf
5	Salsipuedes Creek	L	New floodwall	5,400 lf		5,400 lf
		R	Rebuild levee in place New 100-245 ft. setback levee New floodwall on rebuilt levee	1,300 lf 8,500 lf 3,100 lf	20 acres	1,000 lf 8,500 lf 200 lf
6	Corralitos Creek	L	New 50-75 ft. setback levee	9,300 lf	7 acres	9,300 lf
		R	New 50-75 ft. setback levee	6,200 lf	9 acres	6,200 lf

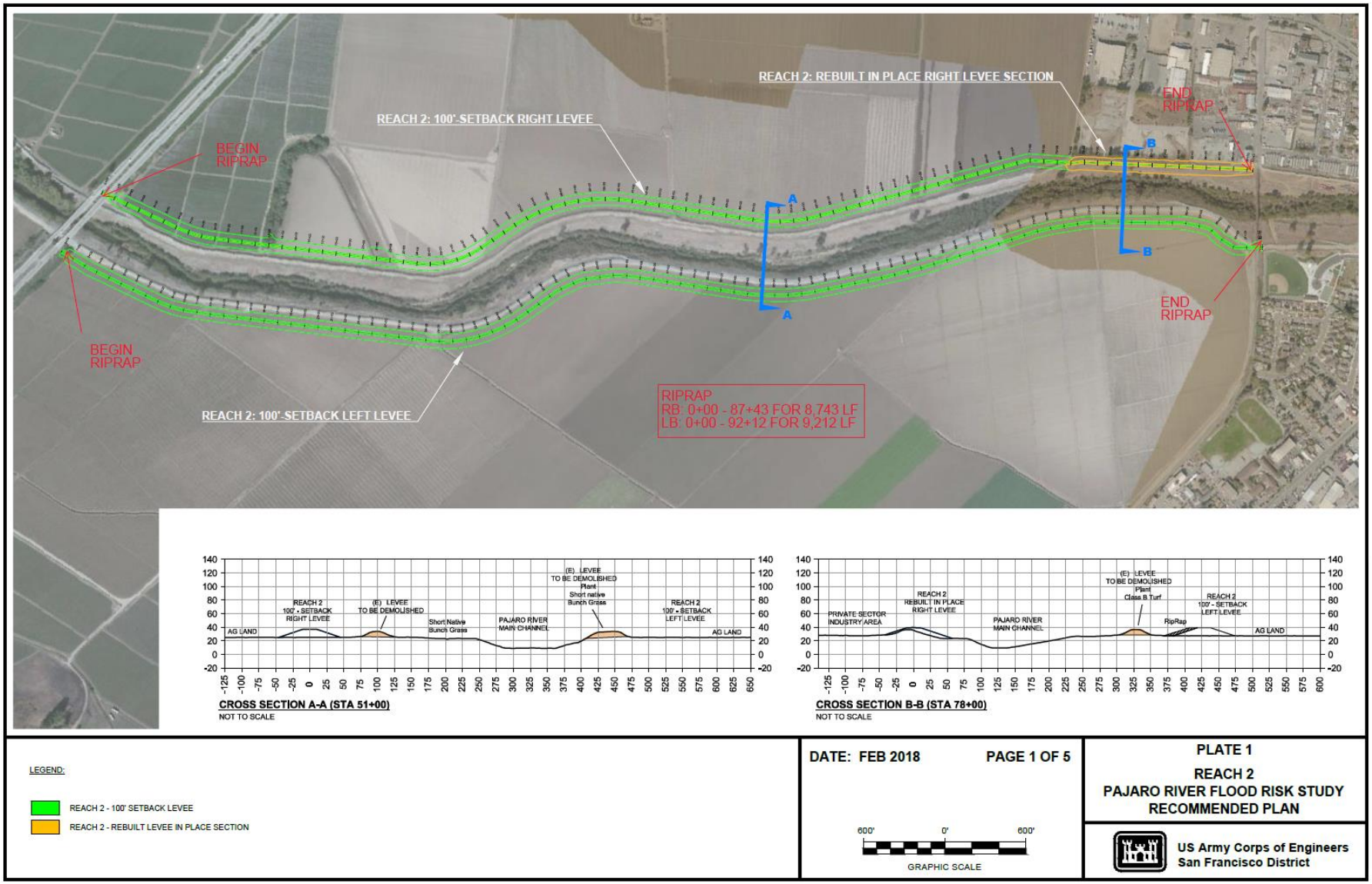

Figure 4. Reach 2 Riprap Placement Locations (located between the red arrows).

In Reach 3 the existing levee on both banks would be rebuilt and improved in place with a floodwall. Approximately 2,500 and 2,500 lf of riprap would be required to rebuild the levee on the left bank and right bank, respectively (**Figure 5**). The improvements would be in order to meet modern design requirements for levees. Any increase in levee height would be to assure that the levee can safely pass the new design flow. The combination of the rebuilt levee and new floodwall would be approximately 13 to 14 feet in height.

In Reach 4 on the left bank the existing levee would be degraded and a new 100 foot setback levee would constructed with a new levee that ties into high ground on the east (upstream) end of the reach. Approximately 4,100 lf of rip rap would be installed on the water side of the levee as shown in **Figure 6**.

3.2.2 Salsipuedes and Corralitos Creeks

Levee improvements proposed for Salsipuedes Creek (Reach 5) include a combination of setback levees, reconstruction of levees in place, and floodwalls on top of the existing levees. On Corralitos Creek (Reach 6), new setback levees are proposed for construction. All measures on the tributaries would be constructed to a range of 10 to 13 feet high.

On the right bank of Salsipuedes Creek, above the confluence with the Pajaro River, approximately 3,100 lf of floodwalls or a combination levee with a floodwall on top would be constructed where urban development prevents raising existing levees (**Figure 7**). Approximately 200 lf of riprap would be required for this measure. An approximately 8,500 foot levee setback between 100 to 245 feet would be constructed upstream of the floodwall section. Riprap would be installed on the entire water side of this levee. Upstream of the setback levee, approximately 1,300 feet of the existing levee would be rebuilt in place, requiring about 1,000 lf of riprap.

For the left bank of Salsipuedes Creek, the first approximately 8,600 feet upstream from the confluence with the Pajaro River have no measures proposed. Beginning approximately 8,600 feet upstream from the Pajaro River, an approximately 5,400 foot-long floodwall requiring riprap along its entire length would be constructed between Lakeview Road and College Road. This floodwall would be a combination of stand-alone floodwall, or floodwall on top of the existing levee, in some locations.

On both banks of Corralitos Creek, a new levee would be constructed with 50- to 75-foot setback from the existing creek bank (**Figure 8**). The new levees would be approximately 6,200 feet long on the right back and 9,300 feet long on the left bank, and require riprap to be installed on the entire length of their sides facing the water. Although these levees are intended to be flood control measures, they would prevent existing agricultural land use from encroaching into the riparian area and allow for activation of up to 150 feet of floodplain adjacent to the channel.

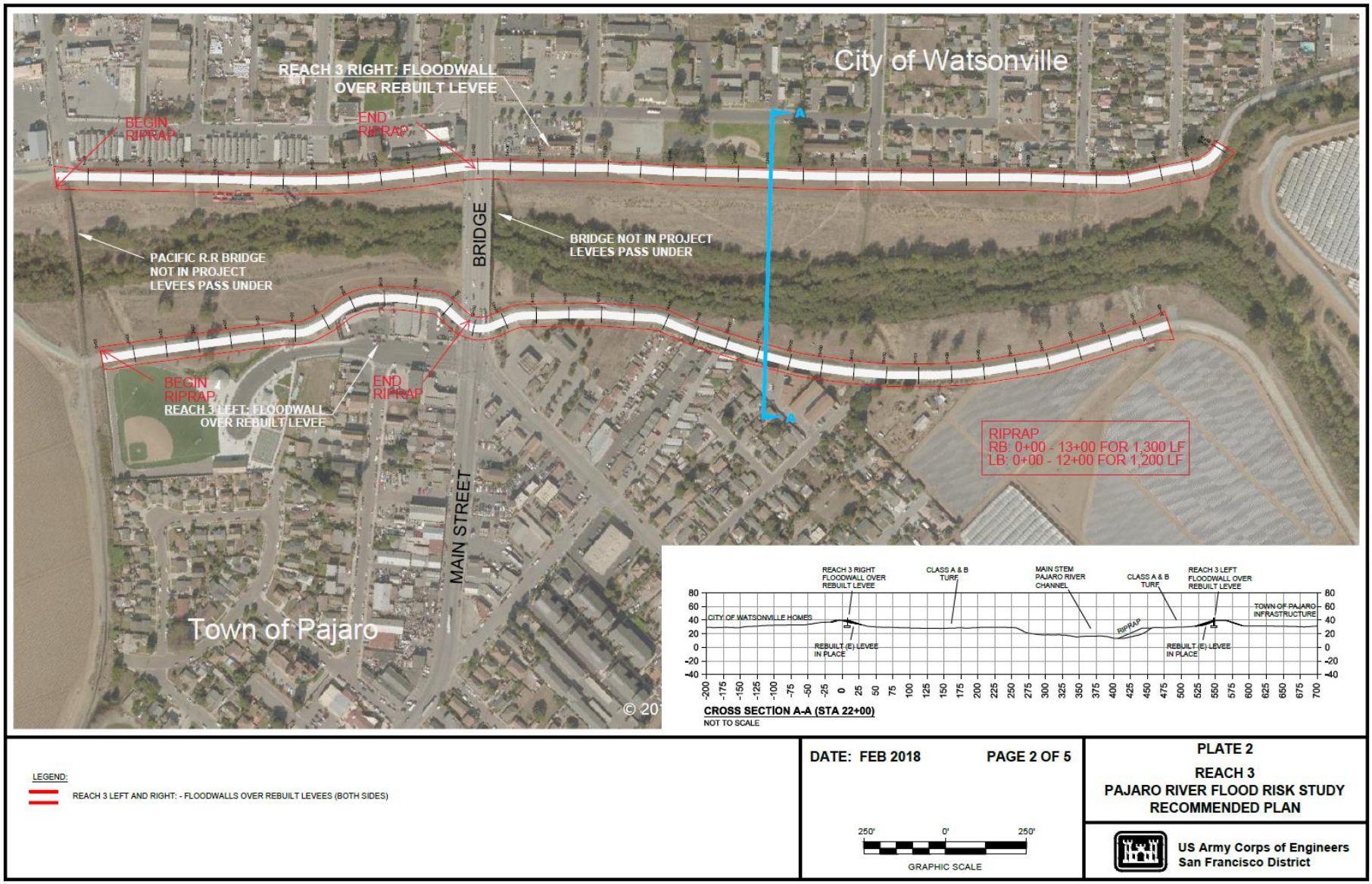

Figure 5. Reach 3 Riprap Placement Locations (located between the red arrows).

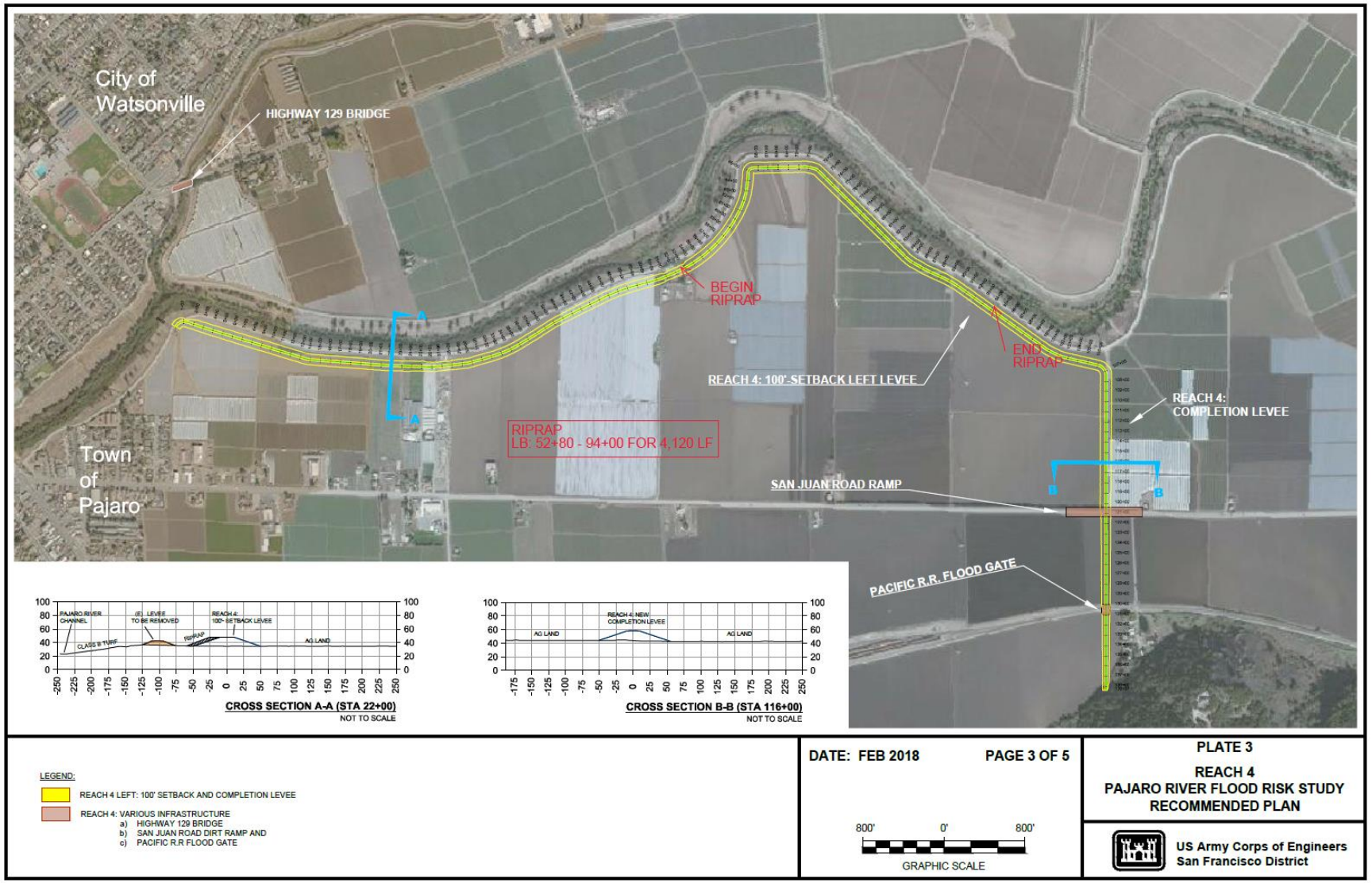

Figure 6. Reach 4 Riprap Placement Locations (located between the red arrows).

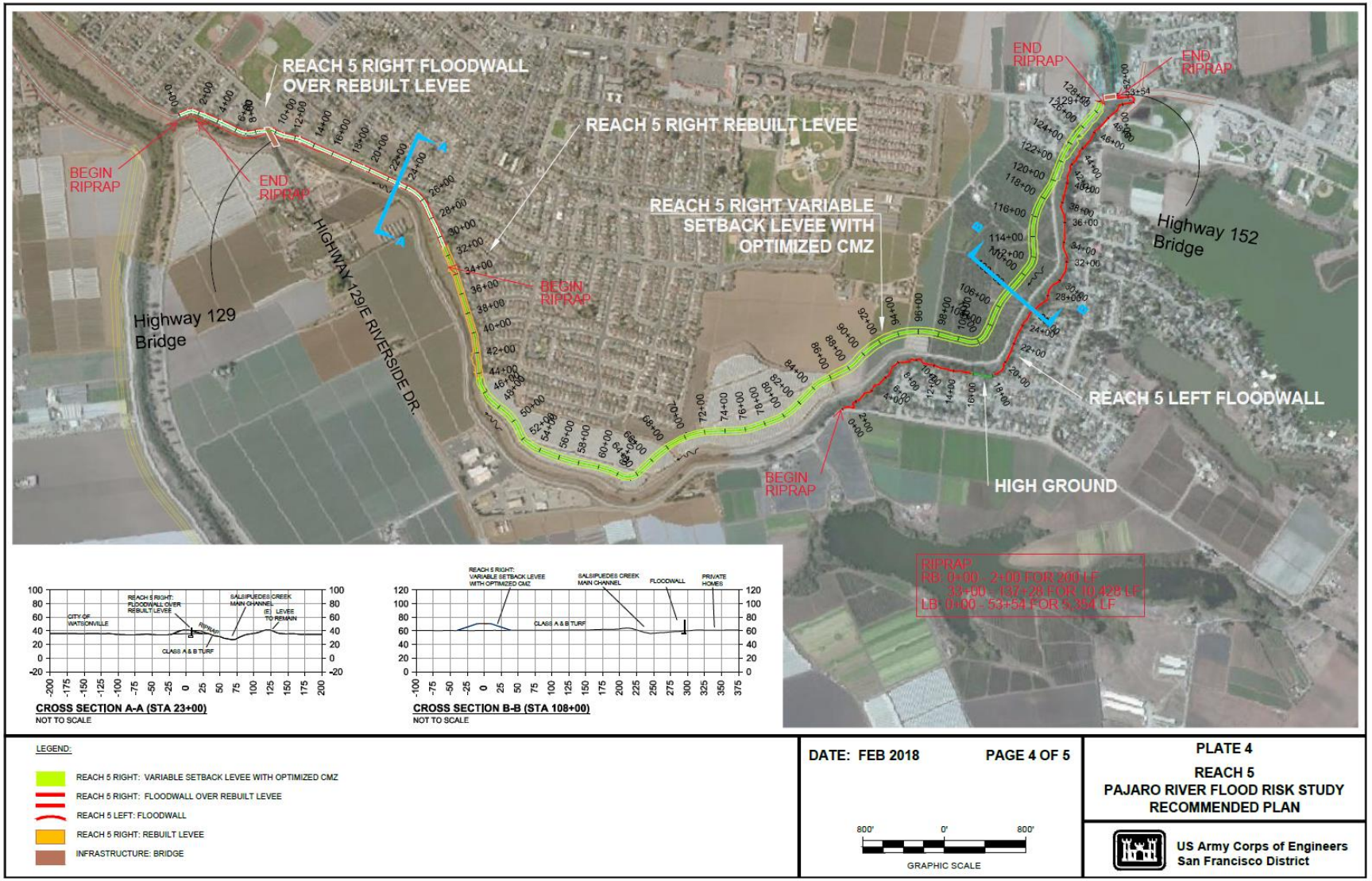

Figure 7. Reach 5 Riprap Placement Locations (located between the red arrows).

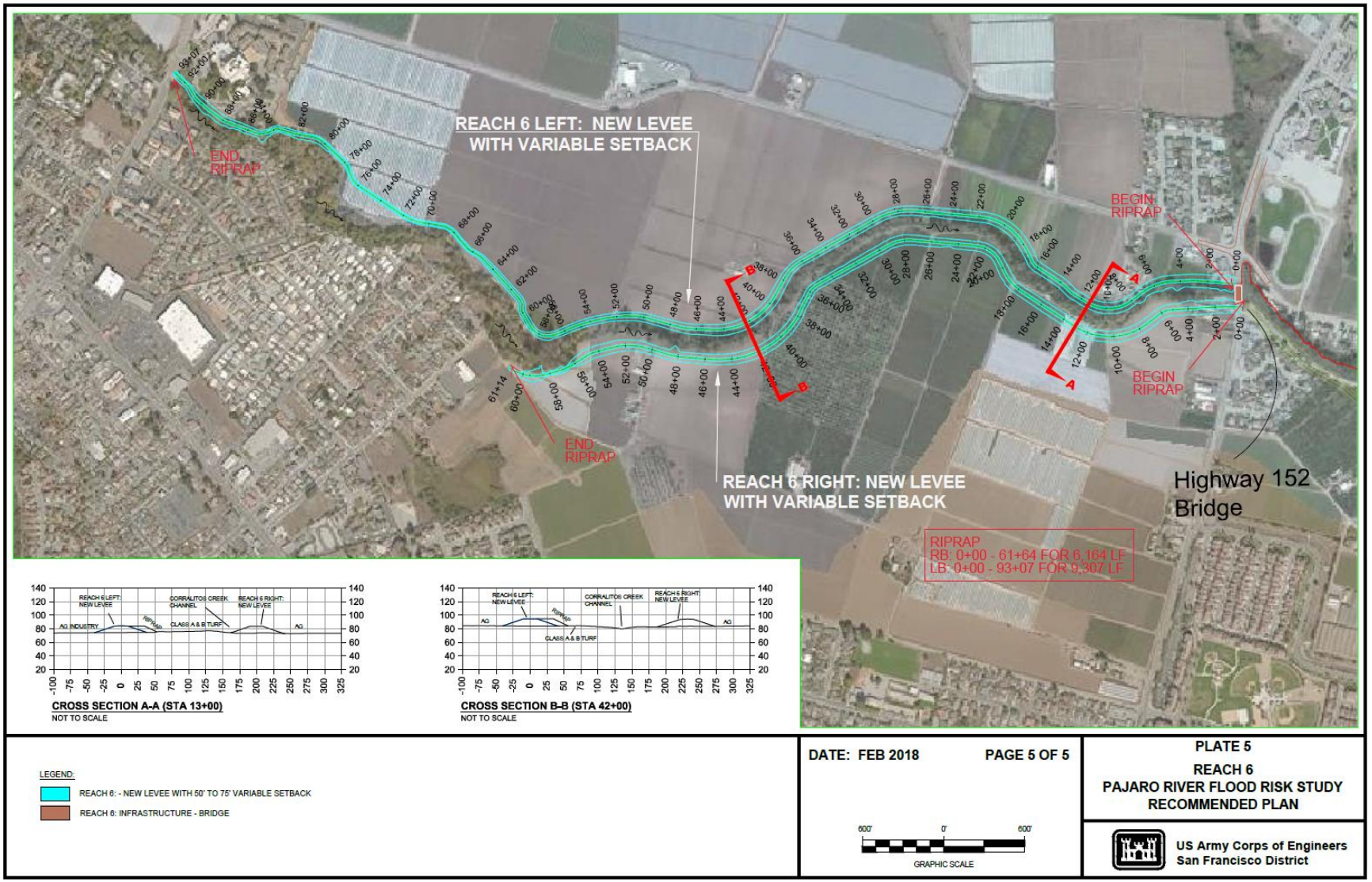

Figure 8. Reach 6 Riprap Placement Locations (located between the red arrows).

Table 3 shows the construction duration in total number of months and construction seasons. Each construction season is assumed to be approximately 6 months. Construction is estimated to begin in spring of 2024.

In-water construction is not anticipated to occur for levee improvements. If in-water work is required it would be associated with replacement of the Highway 152 bridge over Corralitos Creek or 129 bridge over Salsipuedes Creek. There is no design information available for this bridge replacement activity at this time. USACE would coordinate bridge designs and potential effects with the resource agencies when the designs are available to ensure that impacts are as assumed in this biological assessment and to confirm incidental take coverage. If additional take is anticipated, reinitiation of consultation would occur.

However, if unanticipated in-water construction is necessary for bridge replacement, it would occur between June 15 and October 15 when low surface streamflow is likely to be present and SCCC steelhead are unlikely to be present. A water diversion barrier would be used as necessary to provide a temporary work isolation area, separating the work area from surface flows. The water diversion barrier would be placed close to the bank (i.e., 5 to 10 feet into the water) so unimpeded flow is maintained adjacent to the site. Examples of the potential water diversion barrier include sandbags and/or gravel bags or a watertight polyethylene tube filled with water. Dewatering behind the water diversion barrier could be required to facilitate construction. When excess water appears, the contractor will maintain water levels and discharge water over the water diversion structure into the creek. Temporary water diversion structures in the action area are not expected to impact fish movement because the diversion structures will be located close to the bank or levee, leaving a large portion (i.e., at least 50 percent) of the stream channel open.

The USACE has included conservation measures as a part of this project that are intended to avoid or minimize adverse effects to S-CCC steelhead, and their habitat (see Section 3.6, below). These include measures to: limit the extent of the work area; implement erosion control best management practices (e.g., use straw wattles); prevent introduction of contaminants (including construction debris and materials) into the stream; and ensure the complete removal and proper disposal of all construction waste. Heavy equipment will not enter the waterway. Additionally, riprap amounts are considered maximum estimates, and USACE would employ environmentally- and fish-friendly levee construction techniques where possible. These may include hydroseeding the new or repaired levees to expedite the restoration of vegetation cover, etc.

Table 3 shows the estimated borrow material required to construct the project. Sufficient quantities of appropriate borrow materials are anticipated to be available within 25 miles of the project from licensed, permitted facilities that meet all Federal and State standards and requirements. When possible, borrow material would be sourced from existing levees proposed for demolition, or from other lands within the proposed setback area to lower the floodplain benches. Up to 75% of the existing levee material is estimated to be appropriate for construction of the new setback levee based on geotechnical composition. The remaining unsuitable material would be hauled offsite and disposed of at an approved site in the vicinity of the project.

During the design process, USACE will assess the geotechnical condition of the existing levees and floodplain benches to determine the suitability of onsite material for use in constructing the setback levees. USACE will seek to maximize the use of onsite material to provide opportunities to incorporate beneficial flood plain improvements as part of the final project designs. USACE will coordinate these features with USFWS and NMFS to ensure that they incorporate best practices for listed species as part of the final designs. USACE and the non-federal sponsors are committed to designing the setback levees in a manner that would allow for as much incorporation of habitat features as practicable.

For existing levees that would be fixed in place, suitable materials removed from the levees would temporarily be stockpiled and reused to reconstruct the levee. Materials unsuitable for reuse would be removed to commercial and local disposal sites.

In reaches where setback levees are proposed, staging and stockpile areas would be located between the existing and setback levee footprints, whenever practicable. Reaches where no setback levees are proposed would identify staging and stockpile areas on the floodplain bench, as practicable, or on other areas landside of the levees. These areas would include staging of personal worker vehicles, construction equipment, storage of construction materials, any trailers or construction offices needed onsite, and stockpile of sediment, rock, or other levee materials.

Table 3. Construction Duration and Borrow Material.

Construction Duration (months)	48
Construction Seasons (years)	8
Amount of borrow material needed (cy)	1,325,000

3.3 Operation and Maintenance

3.3.1 Local Maintaining Agencies and Baseline Condition Operations and Maintenance

SCC Zone 7 and MCWRA are responsible for the maintenance of the existing levee system. The agencies perform ongoing maintenance under the baseline condition that includes annual vegetation thinning and sediment removal on an as-needed basis to maintain the design capacity of the system in compliance with the 1949 Pajaro River Levee Project Operation and Maintenance Manual. The requirements include conducting ongoing levee and channel maintenance including periodic vegetation thinning and as-needed sediment removal to maintain the design capacity of the system on the Pajaro River from the river mouth at the Monterey Bay to Murphy Road and on Salsipuedes Creek from the confluence with the Pajaro River to the Highway 152 bridge. Generally, the area would also be maintained free of human habitation and dumping, as practicable.

To that end, SCC Zone 7 and MCWRA are in the process of developing the *Pajaro River and Salsipuedes Creek Stream Maintenance Program Manual* (SMP Manual) to describe routine maintenance activities for the Pajaro River from Murphy Crossing to its river mouth at Monterey Bay and Salsipuedes Creek from Highway 152 to its confluence with the Pajaro River. The SMP Manual will include the purpose and objectives for the Stream Maintenance Program (Program); describe the project area and extent of maintenance activities; include descriptions of maintenance activities, implementation requirements and best management practices (BMPs); and will detail the associated mitigation program. A publicly-available draft of the SMP Manual is expected in January 2023.

SCC Zone 7 and MCWRA have indicated that they will request a Regional General Permit (RGP) from USACE for maintenance activities conducted under the Maintenance Program, under the authority of CWA Section 404 (33 U.S. Code [USC] Section 1344) and in accordance with provisions of "Regulatory Programs of the Corps of Engineers" (33 CFR Section 323.2[h]) for activities that are substantially similar in nature and cause only minimal individual and cumulative environmental impacts. A pre-application conference was held in fall 2021 between USACE Regulatory staff and SCC Zone 7 staff to initiate early coordination on the Maintenance Program. It is expected that USACE would initiate ESA section 7 and NHPA consultations with the appropriate federal agency partners as part of the RGP permit process. The RGP would be valid for 5–10 years from the date of issuance and may be renewed at USACE's discretion. The anticipated outcome are program-specific biological opinions (BOs) from USFWS and NMFS for the Maintenance Program which evaluates potential impacts on threatened and endangered wildlife species and their critical habitat. The RGP and associated program specific BOs would cover the interim OMRRR activities until the new Levee Project is complete.

3.3.2 Future Operation and Maintenance of the Levee Project

As a part of the Pajaro River Project, USACE will prepare a new OMRRR Manual to establish the long term OMRRR requirements for the new levee project, including the setback levees and floodplain setback areas. The new OMRRR Manual is expected to be initially completed following construction of Reach 6 in 2024 and would be updated subsequently at the completion of each reach's construction contract. As a result, the new O&M requirements discussed below would be in place on a reach by reach basis starting in 2024 with Reach 6 and would be fully in place following completion of Reach 2, estimated in approximately 2034. Project completion will allow for an opportunity to modernize the maintenance guidelines. Some adjustments to the OMRRR activities anticipated for the future project include:

- OMRRR activities would be expanded into the new flood risk reduction features installed on Reach 6 and the new levee setback areas created under the project.
- Vegetation maintenance for the proposed project would be informed by hydraulic modeling and capacity analysis reporting, similar to the baseline conditions. However, additional vegetation would be able to be retained due to the additional capacity of the new facility. Vegetation maintenance would be triggered when modeling shows that the channel cannot convey the designed discharge.

- Benches within new setback levees would be adaptively managed to promote the establishment of some mature vegetation with appropriate spacing of between mature trees such that they provide for shading, canopy cover, and other habitat features. New vegetation would be managed, as needed, to meet hydraulic roughness targets for maintaining flood capacity for public safety.
- New concrete structures such as floodwalls, bridges, and culverts would be regularly inspected and any cracks or damages would be repaired, as needed.
- An 8-foot vegetation free buffer would be maintained from the underground toe of flood walls. On the surface, this buffer zone could be 8 to 15 feet from the floodwall per Figure A-16 in Engineer Pamphlet 1110-2-18 (Figure 9).

The SMP Manual described in Section 3.3.1 is expected to be updated as needed to account for any new maintenance requirements that arise during the phased implementation of the project. To ensure ESA compliance during and post-construction of the project, the non-Federal sponsors have agreed to incorporate all requirements as discussed in this BA into their SMP Manual updates. The non-Federal sponsor documentation of their concurrence with these requirements is included in Appendix C. Coordination and consultation with USFWS and NMFS under the ESA would be required for SMP updates.

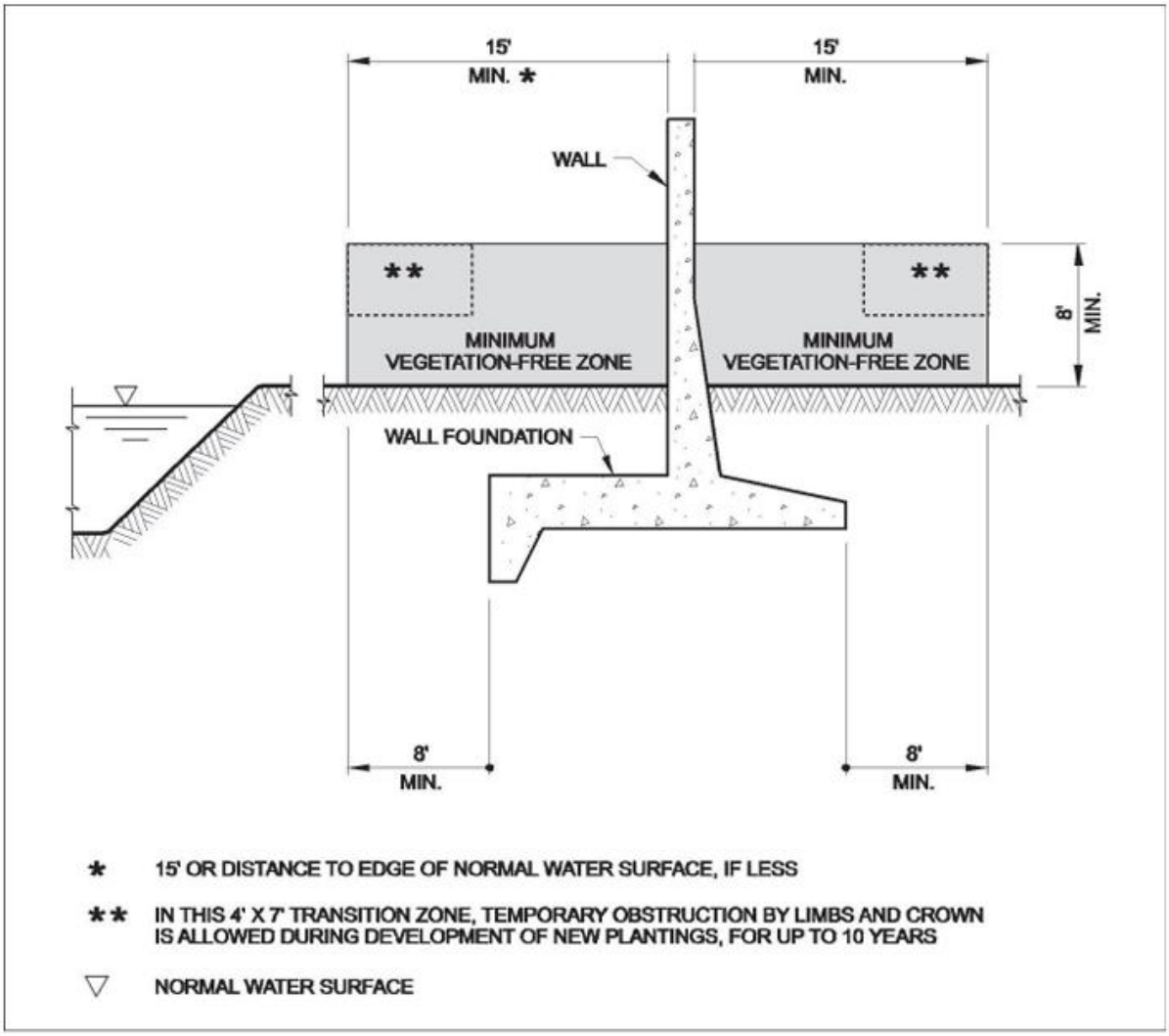

Figure 9. Typical Floodwall Maintenance requirements.

Sediment Management

Sediment and debris jams that accumulate in the project stream channels will be periodically removed to respectively maintain flood flow capacity and reduce scour that may jeopardize the levees. Sediment and debris jam removal will primarily occur outside of the low-flow channel, except when necessary to maintain flood conveyance requirements, when flow is at its lowest level, from July through September. The specific locations, amounts, and frequency of sediment and debris removal are dependent upon hydrologic conditions, but removal is expected to occur in all or a portion of each reach approximately every 3 to 5 years. The volume removed is expected not to exceed 1,200 cubic yards per year. Sediment and debris will be removed with heavy equipment such as backhoes, front-end loaders, etc. If the sediment is deemed to be quality fill, it may be used for local levee repairs, including restoration of levees to the authorized project design height and geometry. If not, sediment will be disposed of at the Buena Vista Landfill as will material removed from debris jams. Disturbance to stream banks and in-channel and riparian vegetation will be minimized as

much as possible by designating an approved path for the movement of heavy equipment. Damage to or removal of large trees (i.e., greater than 4 inches diameter at breast height) will be avoided to the extent possible. Erosion control measures such as straw wattles and hydro seeding will be employed as appropriate.

Vegetation Management

The purpose of vegetation maintenance measures is to maintain vegetative cover for erosion protection and provide terrestrial and aquatic habitat, while concurrently managing the flood conveyance capacity of the facility. Work is performed in the dry areas of the channel without encroaching on standing or flowing waters. Cuttings are disposed of on upland benches and banks, at Buena Vista Landfill, or an industrial composting facility. A generalized illustration of physical features of the channel cross-section showing the levee, bench, banks, channel bottom, and low-flow channel is provided in **Figure 10.** Vegetation maintenance generally takes place between March 1 and October 15. A summary of current vegetation maintenance practices in each part of the channel is provided below. It is anticipated that current vegetation maintenance practices as described below will require modification throughout the project area as a result of new levee setbacks and subsequent reduction or elimination in the need to maintain vegetation below the baseline acreage (Table 4 and Appendix B).

- Low Flow Channel--The low flow channel (wetted channel section during dry season) is intended to be as natural as possible, and, in general, is naturally free of woody or dense vegetation due to the presence of water. Vegetation maintenance and operation of equipment is generally avoided within the low-flow channel area. If limited maintenance is necessary within the low-flow channel, heavy equipment is operated from adjacent dry areas, or work is completed with hand tools. Additionally, a five-foot vegetated buffer is retained on either side of the low-flow channel to provide shading and maintain water temperatures.
- Low Flow Channel Vegetative Buffer / Riparian Zone--The riparian zone varies in width and may extend up to and/or include the upper channel bank. It is generally defined as the densely vegetated area adjacent to the low-flow channel. The riparian zone often has the highest density of vegetation within the channel cross section, offering the most hydraulic resistance to flow. If hydraulic capacity analysis modeling indicates that the channel is unable to pass the design discharge with adequate freeboard, vegetation thinning using methods similar to those in the low flow channel is conducted in the riparian zone to reduce channel roughness.
- Channel Bottom--Vegetation maintenance may be needed in the channel bottom when supported by hydraulic analysis. Vegetation maintenance in the channel bottom is typically conducted by hand crews and often involves removal of lower hanging limbs and cutting or shearing of vegetation; however, removal of roots and/or disturbance of the channel bed is avoided.
- Lower Channel Bank--The lower channel bank is defined as a bank adjacent to the channel bottom that is less than 8 feet high, or the lowest 8 feet of a bank less than 16 feet, or starting 8 feet below the channel bench and extending to the toe of the bank.

Vegetation is typically retained on the lower channel bank but may occasionally need thinning to meet the hydraulic channel capacity. Mature trees are allowed and retained on the channel banks. It is the intent of the vegetation maintenance program that the lower banks are the last area where vegetation would be maintained, if needed, to meet hydraulic roughness targets for a channel reach.

- Upper Channel Bank (up to 8 feet from top of bank)--The upper channel bank is defined as the section of the bank between the top of bank and the upper boundary of the lower channel bank. Vegetation thinning may be necessary on the upper channel bank to meet the hydraulic capacity requirements. Both the upper and lower channel banks are maintained by mowing equipment, hand thinning, or other methods of maintenance.
- Excavated Channel Bench and Inner Channel Bench--Both excavated and unexcavated benches are predominantly maintained with short grasses, scattered shrubs, and evenly spaced mature trees on about 20- to 40-foot centers. Under future-with project conditions it is anticipated that these benches would provide opportunities for mitigative and restoration features, within the limitations of the required flood conveyance capacity to ensure public safety.
- No Vegetation Zone – Includes Outer Channel Bench, Channel Side and Landside Levees Slopes, Levee Road, and Landside Levee Maintenance Easement--The vegetation free zone, shown in Figure 10, encompasses the maintenance corridor, levee slopes, levee top, and maintenance easement. The no vegetation zone is kept free of vegetation except for short grasses on both the waterside and landside of the levee. By regulation, use and maintenance of sod or grass is the primary anchoring method on the banks. Levee maintenance measures are intended to "promote the growth of sod, exterminate burrowing animals, mowing grass and weeds, and repair of damage caused by erosion." Maintenance in the no vegetation zone involves mowing and herbicide spraying. The zone may include areas of base rock, riprap or pavement.

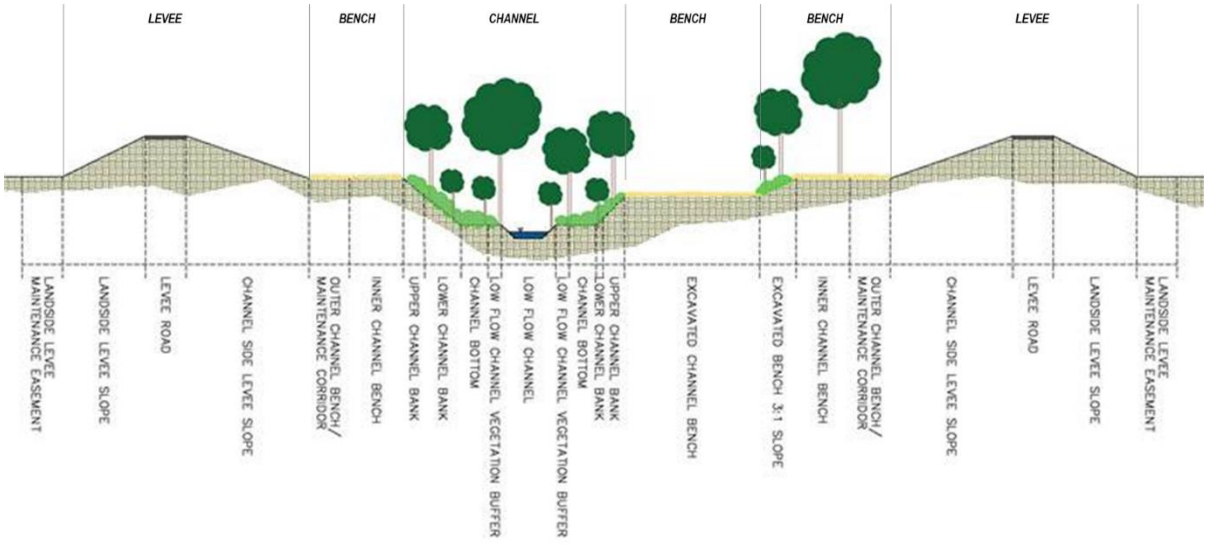

Figure 10. General Cross Section of the Future With-Project Channel Profile.

In coordination with the resource agencies, a vegetation "baseline"—a minimum amount of riparian vegetation, will be retained consistent with the current baseline acreage. A field survey was completed by SCC Zone 7 and MCWRA in 2019 to establish existing vegetation conditions to support their preliminary CEQA analysis. This survey constitutes the best available scientific data to support establishment of a baseline acreage of vegetation within the footprint of the Federal project (i.e., the acreage of native vegetation between the anticipated future with-project levee footprints). Table 4 displays a breakdown of the baseline vegetation acreage by reach. Overall, this analysis resulted in a total of 153.75 acres of in-channel vegetation within the project area (reaches 2 through 6). Maps showing the baseline existing vegetation are included in Appendix B.

Table 4. Vegetation Acreage Estimated Per Reach

Reach	Acres
Reach 2	39.71
Reach 3	17.72
Reach 4	50.59
Reach 5	23.19
Reach 6	15.14
Reach 6*	7.40
TOTAL	**153.75**

*Field mapping in Reach 6 stopped short of the full project footprint, so vegetation was hand digitized for what was visible in the riparian corridor, assuming all vegetation consisted of native species for the unsurveyed portion of Reach 6.

The future with project condition would begin when construction of a levee reach is completed, and a new O&M manual is in place. As discussed in the project description above, Reach 6 is the first scheduled construction contract estimated for completion in 2024. Under the future O&M manual, effects to riparian vegetation would be monitored and assessed against the baseline acreage above. As vegetation growth occurs within the widened channel under the future condition (above baseline acreage), up to 10 acres of vegetation maintenance per year could be required on average throughout the levee system to maintain the flood capacity (does not include mowing of Benches and No Vegetation Zone).

It is anticipated that under the future with-project condition, the baseline acreage should be able to be retained without impacting the flood conveyance capacity of the system to ensure public safety. However, it is likely that the areal extent of baseline conditions will be reduced prior to the construction of one or more of the project reaches, due to current and ongoing vegetation management activities. In this case, once construction of each reach is complete, vegetation management requirements as discussed in this document would take effect. Therefore, once project construction is complete within each project reach, large-scale vegetation reduction within each respective baseline habitat area (see Table 4 and Appendix B) is anticipated to pause until vegetation acreages exceed the baseline acreages described in this document. Standard levee vegetation management such as removal of invasive species and mowing of the levee vegetation-free zone would still be required.

Once each project reach is constructed, in the unlikely situation where vegetation maintenance activities result in the acreage within the system dropping below the "baseline", the local maintaining agency would be required to notify USACE and the Services of the impact, and riparian vegetation or other mitigative features would be implemented by the local maintaining agency on the channel benches to compensate for the encroachment into the baseline acreage and bring the overall acreage back to baseline. Mitigation will not be implemented for reductions to baseline acreage caused by natural processes such as flooding, drought, wildfire, or reductions caused by activities not authorized by the non-federal sponsor such as encampments, illegal activities, etc. Mitigation does not need to be in-kind (no less than 1:1 ratio of mitigation) but must be mutually agreeable between the Services, USACE, and local maintaining agency to offset impacts at a commensurate level. The Services, USACE, and local maintaining agency must agree to commensurate mitigation prior to anticipated impacts taking place. Mitigative features could include actions such as increasing available habitat through installation of large wood within the levee system, increasing microhabitat features such as swales and other wetland features within or near the levee system, creation of California red-legged frog breeding habitat within the levee system, or purchasing credits at a Service-approved conservation bank, species account, or in-lieu-fee program. Mitigation for impacts that reduce vegetation acreage below the baseline must be implemented within 12 months of those respective impacts, consistent with the seasonal nature of plant establishment success. To ensure ESA compliance, the non-Federal sponsors have agreed to the above requirements (reference).

Levees

Levees will be maintained to the as-built condition in perpetuity. This means that the levee should maintain a consistent shape, side slopes, height and composition to when the levee is constructed. If the levee settles to a lower height or the slopes of the levee cause a loss or material and steepened slopes, the local maintainer is expected to return the levee to the as-built lines and grade. If the levee erodes due to water moving across the face or wind and wave run-up, the levee should be restored to the as-built condition and the slope protected against future erosion with stone riprap or other means. Holes or burrows into the levee caused by animals will be properly backfilled by hand or heavy equipment and measures taken to deter, remove, and/or exterminate burrowing animals. The grasses on the slopes and easement areas (up to 15 feet from the levee slopes) will be maintained to 12 inches in height or less using mowers.

Access roads to and along the levee as well as the levee crown will be maintained to the as-built condition ensuring that the crown is sloped to drain and the access roads are sloped to prevent ponding, allowing all-weather access. The local maintainer will be responsible for making sure encroachments do not occur within the right of way of the project that might endanger efficient functioning of the levee.

The USACE Levee Safety Program Guidance (Engineer Circular 1165-2-218) and Guidelines for Landscape Planting and Vegetation Management (Engineer Pamphlet 1110-2-18) provide the standards for levee maintenance, including vegetation, on and adjacent to USACE levees. To be compliant, levees, floodwalls and 15 feet landward and waterward of the levee toes or floodwall face, must be maintained free of woody vegetation unless a design deviation is granted by USACE through the levee safety risk assessment process. Woody vegetation may be planted where acceptable for the purpose of riparian habitat improvement.

Floodwalls

Floodwall maintenance is very similar to the concept of levee maintenance: keep the floodwall in the as-built condition in perpetuity or as long as the project partnership agreement is in effect. The local maintainer will ensure that the floodwall does not settle or shift from its constructed position, which could impact the effective height of the wall or the wall's water tight seals. If the concrete cracks, spalls or has exposed rebar, the wall would be patched or repaired. The vegetation along the wall will be maintained within the project easements to ensure visibility and accessibility to the wall. Erosion near the floodwall and floodwall foundation could threaten the stability and would be repaired. The eroded area would be restored to the as-built condition and the area protected against future erosion. Lastly, drainage features for the wall should be inspected and properly maintained, including any pipes through the levee and drainage features for the wall itself.

3.3 Mitigation and Conservation Measures

The following sections include mitigation measures that are included in the proposed action to avoid and minimize adverse effects on native plants and animals, including federally listed species and designated critical habitat. General mitigation and conservation measures that apply to all species are listed below:

- USACE would ensure that all personnel undergo environmental awareness training prior to starting work. The training will include a description of federally listed species with potential to occur, life history and habitat associations, general protection measures, the terms and conditions of proposed project permits, penalties for non-compliance, and the boundaries of the construction areas. A handout will be provided to all participating personnel, and at least one copy will be kept onsite during construction activities. Upon completion of the training, crew members will sign a form stating that they attended the training and understand the avoidance and minimization measures.
- Personnel would be required to place food-related wastes in self-closing trash containers, to keep wildlife away from construction areas where they might be harmed.
- To minimize dust impacts to vegetation, wetlands, and wildlife, implement dust control measures consistent with the appropriate air quality control board measures.

- Minimize impacts to fish and wildlife resources and their habitat by confining travel to established roads/paths in the project area and confining parking to established areas (parking lots and staging areas).
- Minimize project impacts by reseeding all disturbed areas at the completion of construction in a timely manner with native forbs and grasses. All disturbed areas would be restored to pre-project conditions upon the completion of work.
- To help prevent importation of invasive plants and animals, the construction contractor would be required to thoroughly clean vehicles and equipment before first entering the project site. All construction equipment will be inspected for leaks prior to being brought on site. All equipment shall be well maintained and inspected daily while on site to prevent leaks of fuels, lubricants, or other fluids into aquatic habitat.
- Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.
- Implement appropriate measures to prevent debris, soil, rock or other material from entering the water. These measures would be documented in the required Storm Water Pollution Protection Plan.
- Schedule construction to avoid the rainy season as much as possible. If rains are forecasted during construction, erosion control measures would be implemented as described in the San Francisco Bay Regional Water Quality Control Board's Erosion and Sediment Control Field Manual (RWQCB 2002). Cover and protect materials from wind, rain and runoff to avoid unwarranted dispersal.
- Servicing and refueling procedures will be conducted in a designated area where there is no potential for fuel spills to seep or wash into aquatic habitat. Extreme caution will be used when handling and or storing chemicals (fuel, hydraulic fluid, etc.) near aquatic habitat. All applicable laws and regulations will be abided by. All applicable hazardous waste BMPs will be followed. Spill kits will be kept onsite, and all hazardous spills will be cleaned up and reported immediately.

The proposed action will result in the creation of 61 acres of new floodplain within the levee system. The project will be designed to incorporate habitat improvement features through grading, lowering floodplain benches, and would create opportunities for future restoration.

The Engineering with Nature (EWN) Program at USACE has provided funding to support the San Francisco District Proving Ground over the period of 2022-2023 to create an "EWN playbook" highlighting 5 key projects in the San Francisco District which could benefit from communication tools, design guidelines, research and science related to EWN advancements. The Pajaro River project was chosen to be part of the playbook. The playbook team is comprised of researchers and subject matter experts from University of Virginia, University of Auburn, University of California-Davis, and the Dredge Research Collaborative, Anchor QEA, and SCAPE Landscape Architecture.

Through a collaborative process between the playbook team, USACE, and the non-federal sponsor, the playbook team has been investigating opportunities for increased ecosystem

function on the floodplain including alternative configurations of floodplain design (for example: anastomosing vs braided streams) and quantifying benefits to ecosystem function, as well as flood risk reduction. The outcome of this effort will be used by the non-federal sponsors for improved future management of the floodplain, and will also be used as communication tools to describe potential benefits of levee setbacks. The final report will be presented to USACE San Francisco District EWN proving ground, and the Non-Federal Sponsor in early-mid 2023.

3.3.1 South-Central California Coast Steelhead

- In-water construction is not anticipated. Should in-water work be necessary, it would be limited to the period from July 1 through September 30 when steelhead are unlikely to be present in the project area.
- The project would avoid work immediately adjacent to the channel from April 15 to June 15 to reduce the potential for incidental effects to outmigrating steelhead.
- Vegetation removal that impacts the stream channel is anticipated to primarily involve the removal of immature, shrubby vegetation that does not significantly provide shade to the channel. Mature trees would be protected in place to the maximum extent practicable.
- Runoff of herbicides and sediment during maintenance activities could impact sensitive aquatic species. Some herbicides could be applied as allowed directly within or immediately adjacent to the active channel. These activities would be conducted during the dry season, and would be limited to periods when migrating steelhead are unlikely to be present (June 1 to October 15) therefore, potential effects to steelhead from runoff would be unlikely to occur.
- All herbicides that would be applied near the water would be required to be approved for use in aquatic environments and, therefore, should not impact aquatic organisms.

3.3.2 Least Bell's Vireo

- Schedule work outside of nesting season (April 15 to Sept 1) to the extent feasible.
- Prior to each construction season, a USFWS-permitted biologist will conduct a presence/absence survey for nesting vireos within all accessible suitable habitat within 300 feet of the proposed construction area. The surveys will follow the protocols established in the Least Bell's Vireo Survey Guidelines (USFWS 2001b).
- If any nesting vireos are detected within that area, a 300-foot buffer would be established until the young fledge or the biologist determines that the nest is inactive.
- Additionally, the biologist will monitor the nest daily when work is occurring within 500 feet of the nest to ensure that the work is not altering nesting behavior.

3.3.3 California Red-legged Frog

- A qualified biologist will conduct pre-construction surveys for CRLF species within 7 days prior to the beginning of proposed project activities. Surveys will be conducted within all suitable aquatic and upland habitats within the action area.
- If adults or non-larval juveniles are found during the surveys, the individual will be allowed to move out of the action area on its own.
- Work will be timed to avoid the egg-laying season (approximately December through April). If larvae (tadpoles) are found, an appropriately sized no-disturbance buffer, at the discretion of the biologist, will be established and maintained until larvae have metamorphosed.
- If suitable pool habitat is identified in the action area during pre-construction surveys, a qualified biological monitor must be on-site during all activities occurring within the channel.
- California red-legged frogs that are in danger will be relocated and released by the qualified biologist outside the construction area within the same riparian area or watershed.
- If relocation of the frog outside the fence is not feasible (i.e., there are too many individuals observed per day), the biologist will relocate the animals to a Service-approved location.

3.3.4 Western Yellow-billed Cuckoo

- Schedule work outside of nesting season (May 15 to June 30) to the extent feasible.
- Prior to each construction season, a USFWS-permitted biologist will conduct a presence/absence survey for nesting cuckoos within all accessible suitable habitat within 300 feet of the proposed construction area. The surveys will follow the protocols established in the Survey Protocol for the Western Distinct Population Segment of the Western Yellow-billed Cuckoo (USFWS 2016). Note that this protocol is draft, and therefore the latest updated protocols would be followed at the time of the surveys, as appropriate.
- If any nesting cuckoos are detected within that area, a 300-foot buffer would be established until the young fledge or the biologist determines that the nest is inactive.
- Additionally, the biologist will monitor the nest daily when work is occurring within 500 feet of the nest to ensure that the work is not altering nesting behavior.

3.3.5 Mitigation for Loss of Baseline Habitat

To compensate for the reduction of vegetation acreage below the baseline (Table 4, Appendix B), the local maintaining agency must offset impacts at a commensurate level. Mitigation will not be implemented for reductions to baseline acreage caused by natural processes such as flooding, drought, wildfire, or reductions caused by activities not

authorized by the non-federal sponsor such as encampments, illegal activities, etc. Mitigation does not need to be in-kind (no less than 1:1 ratio of mitigation) but must provide benefits that offset impacts to the California red-legged frog. The Services, USACE, and local maintaining agency must agree to commensurate mitigation prior to anticipated impacts taking place. Mitigative features could include actions such as increasing available habitat through installation of large wood within the levee system, increasing microhabitat features such as swales and other wetland features within or near the levee system, creation of California red-legged frog breeding habitat within the levee system, or purchasing credits at a Service-approved conservation bank, species account, or in-lieu-fee program. Mitigation for impacts that reduce vegetation acreage below the baseline must be implemented within 12 months of those respective impacts. To ensure ESA compliance, the non-Federal sponsors have agreed to the above requirements (Appendix C).

4.0 ENVIRONMENTAL BASELINE

This section identifies and describes known human-induced sources of impact to the listed species in the Action Area, except those caused by the proposed action. Effects of the proposed action are discussed in Section 6.0.

4.1 Regional and Local Setting

The action area is located in the Pajaro Valley in Santa Cruz and Monterey counties. The Pajaro Valley is a flat to gently-sloping alluvial plain that is bounded by Monterey Bay to the west, the Santa Cruz Mountains to the northeast and coastal foothills to the south. Elevations range from sea level at the Pajaro River mouth to approximately 100 feet above sea level at the northern end of the project area adjacent to Corralitos Creek. The surrounding peaks of the Santa Cruz Mountains rise to more than 1,700 feet above sea level adjacent to the Pajaro Valley, and to more than 3,000 feet in more remote areas of the Pajaro River Basin.

The region has a Mediterranean climate characterized by warm, dry summers and mild, wet winters. About 90 percent of the rainfall occurs between the months of November and April. Coastal fog is common in summer months. Snowfall is rare and has no measurable influence on flood runoff.

Land uses in and adjacent to the action area are predominantly agricultural and urban. The Pajaro Valley encompasses approximately 8,250 acres of prime agriculture land: 4,750 acres in Santa Cruz County and 3,500 acres in Monterey County. This valley produces most of the strawberry crop in central California and supports a variety of other crops including lettuce, bush berries, specialty leaf crops, and flowers.

Urban environments in the action area include the city of Watsonville, located in Santa Cruz County adjacent to the Pajaro River and Salsipuedes and Corralitos creeks, and the unincorporated town of Pajaro, located in Monterey County across the Pajaro River from Watsonville. The population of the Pajaro Valley is concentrated in these urban areas. In 2020, the US Census estimated population was approximately 52,590 in the city of Watsonville and 2,882 in the town of Pajaro.

Major roads in the action area include highways 1, 129 and 152. Highway 1 crosses the Pajaro River at the western boundary of the project area. Highway 129 (Riverside Drive) crosses Salsipuedes Creek at the south end of Watsonville and Highway 152 (East Lake Avenue) crosses Corralitos and Salsipuedes creeks near their confluence. Other road crossings in the project area are Thurwachter Road, Main Street, and Murphy Road which cross the Pajaro River; College Road which crosses Salsipuedes Creek; and Green Valley Road and Airport Boulevard which cross Corralitos Creek. The Union Pacific Railroad crosses the Pajaro River at the Walker Street Bridge. Most of the existing crossing structures are bridges except for the Highway 152 and College Road crossings of Salsipuedes Creek, which have culverts.

4.1.1 Hydrology

Pajaro River Watershed

The Pajaro River Basin encompasses a drainage area of approximately 1,300 square miles in the coast ranges of Central California. The basin is approximately 88 miles long and 30 miles wide, and empties into the Pacific Ocean at Monterey Bay west of Watsonville. The normal annual precipitation averages about 19 inches for the entire basin but varies with location due to the influence of the coastal mountains. The normal annual precipitation ranges from 13 inches at Hollister to 44 inches near the headwaters of Corralitos Creek in the Santa Cruz Mountains. About 45 percent of the basin is rangeland, 25 percent is cultivated, 25 percent is brush and forest cover, and the remaining 5 percent is urbanized.

The Pajaro River Basin is divided into five sub-basins. These sub-basins are the Upper San Benito, Hollister-Tres Pinos, Upper Pajaro, Llagas-Uvas, and Pajaro Valley. The largest tributary to the Pajaro River is the San Benito River, which has a drainage area of approximately 660 square miles. The San Benito River drains the east side of the Gabilan Range and the surrounding slopes of the interior coastal range. Llagas and Uvas creeks drain the northeastern slopes of the Santa Cruz Mountains and join the Pajaro River in the southern Santa Clara Valley. Pescadero Creek and several other tributary streams drain the southern slopes of the Santa Cruz Mountains.

The action area is located within the Pajaro Valley sub-basin. This sub-basin is drained from the north principally by Corralitos and Salsipuedes creeks and Watsonville Slough. Salsipuedes and Corralitos creeks drain the southwestern slopes of the Santa Cruz Mountains and join north of Watsonville, approximately 2.5 miles north of the confluence with the Pajaro River. The combined drainage area of these creeks is approximately 57 square miles. Casserly Creek drains much of the upper watershed of Salsipuedes Creek. Browns Creek drains the adjacent upper watershed between Salsipuedes and Corralitos creeks and is the principal tributary to Corralitos Creek.

Pajaro River

The Pajaro River has been highly modified from its natural state by the existing levee project, which has confined and, in some places, realigned the natural river channel. Channel maintenance practices, surrounding agricultural and urban land uses, and upstream land uses all substantially affect the hydrology of the lower Pajaro River.

The USGS gages stream flow in the Pajaro River at Chittenden, approximately 7 river miles upstream of Murphy's Crossing. Median daily stream flows in the Pajaro River are typically highest from early February to early April, exceeding 40 cubic feet per second (cfs) during this period. Median flows decline to less than 20 cfs by mid-May and less than 10 cfs after mid-June. Flows then begin to increase in November with the onset of winter rains. Annual stream flows in the Pajaro River are highly variable.

During flood stages, stream flows in the Pajaro River can increase to several hundred times above the median flows. Estimated peak discharges for the Pajaro River below Salsipuedes Creek, assuming future (with project) hydrologic conditions, are approximately 26,000 cfs for the 4% annual chance of exceedance (ACE) flow and approximately 45,000 cfs for the 1% ACE flow (R&F Engineering 2022). The current levee system was designed to contain a maximum peak discharge of 19,000 cfs between Murphy's Crossing and Salsipuedes Creek. This capacity has been exceeded four times: in December 1955, April 1958, March 1995, and February 1998.

Infiltration rates have a large influence on the amount of runoff and peak discharges in the Pajaro River. For example, the storm of April 1958, which occurred at the end of the flood season, had a three-day rainfall of 2.98 inches and a peak discharge of 23,500 cfs in the Pajaro River. In comparison, the December 1955 storm, which occurred early in the flood season, had a very similar peak discharge of 24,000 cfs in the Pajaro River from a three-day rainfall event more than double the intensity (6.24 inches) (USACE 2004). The difference in discharge was due to the amount of water that infiltrated into the groundwater table during an early season storm versus a storm later in the flood season.

Salsipuedes and Corralitos Creeks

Salsipuedes Creek receives inflow from both College Lake and Corralitos Creek, which joins Salsipuedes Creek immediately downstream from the Highway 152 crossing. Salsipuedes Creek has been modified by the existing levee project and by adjacent urban and agricultural land uses. The existing levee along the right bank of Salsipuedes Creek extends approximately 2.6 miles from the Pajaro River confluence upstream to just below the confluence with Corralitos Creek. On the left bank, the levee ends approximately 1.8 miles upstream of the Pajaro River confluence where higher ground borders the river on that side.

The Salsipuedes Creek levees were designed to convey a peak discharge of 3,400 cfs. Flooding occurs fairly frequently near the upstream end of Reach 5, where the right bank levee is higher than the unleveed bench on the left side. In this area, flood stages can overtop the left bank and flooding can also result from overflow from College Lake and Kelly Lake. Upstream of the Corralitos Creek confluence, two large-diameter (approximately six-foot) pipe culverts carry flow from Salsipuedes Creek under Highway 152 and College Road.

Corralitos Creek has a more natural channel configuration than either the Lower Pajaro River or Salsipuedes Creek and has no levees. The channel of Corralitos Creek is incised with steep banks that rise approximately 15 to 20 vertical feet from the stream bed to the top of bank. Stream flow data have been recorded in Corralitos Creek at the Green Valley Road Bridge in Freedom since 1955. Hydrologic models estimate the existing capacity of this creek to be 2,900 cfs, in its current form. Since the stream gage records began, this capacity has been exceeded five times: in December 1955, January 1982, February 1986, December 1996, and February 2000. When flows in Corralitos Creek exceed 2,900 cfs, flooding occurs in Watsonville and unincorporated areas near College Lake (including the Orchard Park subdivision). This flooding includes the overflow from College Lake, and occurs when high flood stages overtop the channel banks (USACE 2004).

4.1.2 Geology and Geomorphology

Regional and Project Area Geology

The Pajaro Valley is located at the western edge of the California Coast Ranges province. This region is characterized by fault-folded ridges and valleys generally oriented along a northwest-to-southeast axis. The San Andreas Fault Zone traverses the northeastern edge of the Pajaro Valley, approximately two miles north of the eastern extent of the project area.

The soils of the project area are alluvial and are underlain by two Holocene alluvial deposits identified as Quaternary Younger floodplain deposits (Qyf) and Quaternary Older floodplain deposits (Qof). The Qyf unit consists of heterogeneous layers of sand and silt with thin, discontinuous layers of clay. This layer is generally less than 20 feet thick. The Qof unit consists of unconsolidated sand, silt and gravel with layers of silty clay. This unit has been found to extend to approximately 200 feet beneath parts of the Pajaro Valley. Lower parts of these thick deposits include large amounts of gravel and support a major groundwater aquifer (USACE 2004).

Geomorphology

The lower Pajaro River within the project area has a relatively flat hydraulic gradient and is predominantly a sediment depositional zone. The normal low-flow channel tends to form shallow point bars and becomes a meandering stream bed at the bottom of the incised channel.

4.1.3 Vegetation and Wildlife

Vegetation

Vegetation and habitat types within the action area include open water habitat, riparian forest, riparian shrub-scrub, annual grassland, cultivated cropland, ruderal (which includes vegetation on the existing levees and other disturbed areas), and developed areas. The following is a description of the dominant vegetation occurring along the lower reaches of the Pajaro River and along Salsipuedes and Corralitos creeks.

Pajaro River

Routine flood maintenance activities in the levied reach have resulted in floodplain bench surfaces that are primarily non-native annual grasses, weedy annual broad-leaf species, and widely-spaced residual, mature riparian trees. The riparian vegetation in the riparian corridor is composed primarily of arroyo willow (*Salix lasiolepis*) and shining willow (*Salix lucida*) interspersed with black cottonwood (*Populus trichocarpa*) (Kittleson 2004). Common species in the shrub layer include California blackberry (*Rubus ursinus*), coyote brush (*Baccharis pilularis*), mugwort (*Artemisia vulgaris*), and non-native tree tobacco (*Nicotiana glauca*) (Kittleson 2004). River-bottom riparian willow, cottonwoods, box elders, and

sycamores occupy most of the habitat areas between the upper bench surfaces within the levees and below Ordinary High Water. This narrow, managed riparian corridor supports a diverse range of native plant and animal species, including CRLF, steelhead, yellow warbler, and nesting raptors.

Reach 4 supports a somewhat greater diversity of vegetation than Reaches 2 and 3. Sand bars and gravel bars in this reach are well vegetated with thickets of sandbar willow (*Salix exigua*) and mule fat (*Baccharis salicifolia*) (Kittleson 2004). This reach also contains scattered California sycamore (*Platanus racemosa*) and box elder (*Acer negundo* var. *californicum*) trees along with willows and black cottonwood. Invasive, non-native plants occurring along this reach include poison hemlock (*Conium maculatum*), kikuyu grass (*Pennisetum clandestinum*), and giant reed (*Arundo donax*) (Kittleson 2004).

The existing levees and the benches along the Pajaro River support mostly non-native annual grasses and ruderal vegetation. These areas are periodically mowed or sprayed with herbicides to control woody vegetation. Reaches 2 and 4 are bounded on both banks by cultivated fields that extend to the landside toe of the levees. The levees along Reach 3 are bordered by the urbanized areas of Watsonville and the town of Pajaro.

Salsipuedes Creek (Reach 5)

The lower portion of Reach 5 along Salsipuedes Creek supports a mature, mixed riparian forest. This stretch of riparian habitat extends from the confluence with the Pajaro River to the Highway 129 crossing. Dominant tree species in this area include arroyo willow, box elder, black cottonwood, and non-native black locust (*Robinia pseudoacacia*) (Kittleson 2004). Invasive, non-native plants are prevalent in the understory and include Cape ivy, English ivy, and periwinkle (*Vinca major*). Upstream of Highway 129, the channel banks and benches have been largely cleared of riparian vegetation and support mostly non-native annual grasses and ruderal vegetation. A narrow band of dense riparian vegetation also remains along the unleveed portion of the left bank of Reach 5, downstream of the confluence with Corralitos Creek.

Corralitos Creek (Reach 6)

Corralitos Creek supports a dense riparian forest and understory and is well shaded, especially by a diverse mixture of mid-size shrubs. Dominant overstory species include black cottonwood, blue gum (*Eucalyptus globulus*), arroyo willow, shining willow, and red willow (*Salix laevigata*). Willow species are also dominant in the understory along with American dogwood (*Cornus sericea* ssp. *occidentalis*), white alder (*Alnus rhombifolia*), box elder, poison oak, and blue elderberry (*Sambucus mexicana*). Near road crossings and along the adjacent agricultural fields, the vegetation is disturbed and non-native plant species are present. However the vegetation is still composed primarily of native species. The low understory along Corralitos Creek is dominated by California blackberry, California manroot (*Marah fabaceus*), hoary nettle (*Urtica dioica* ssp. *holosericea*), panicled bulrush (*Scirpus microcarpus*), smartweed (*Polygonum* sp.), horsetail (*Equisetum arvense*), mugwort, Cape ivy, and English ivy.

Wildlife Habitat

The variety of vegetative habitat types within the action area support numerous wildlife species. Typical birds found within the action area include mallard (*Anas platyrhynchos*), Anna's hummingbird (*Calypte anna*), Allen's hummingbird (*Selasphorus sasin*), Downy woodpecker (*Picoides pubescens*), Pacific-slope flycatcher (*Empidonax difficilis*), black phoebe (*Sayornis nigricans*), warbling vireo (*Vireo gilvus*), western scrub-jay (*Aphelocoma californica*), Chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), yellow warbler (*Dendroica petechia*), Wilson's warbler (*Wilsonia pusilla*), California towhee (*Pipilo crissalis*), song sparrow (*Melospiza melodia*), black-headed grosbeak (*Pheucticus melanocephalus*), and American goldfinch (*Carduelis tristis*) (ENTRIX and Lee and Pierce, Inc. 2003). Common mammals found within the action area include raccoon (*Procyon lotor*), California ground squirrel (*Spermophilus beecheyi*) brush rabbit (*Sylvilagus bachmani*), black-tailed hare (*Lepus californicus*), Virginia opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*), dusty-footed woodrat (*Neotoma fuscipes*), broad-footed mole (*Scapanus latimanus*), deer mouse (*Peromyscus maniculatus*), western harvest mouse (*Reithrodontomys megalotis*), red bat (*Lasiurus borealis*), and hoary bat (*Lasiurus cinereus*) (ENTRIX and Lee and Pierce, Inc. 2003).

5.0 SPECIES ACCOUNTS

Species accounts are provided below for all species included on the USFWS IPaC list of federally listed species potentially affected by the project for which there is suitable habitat present within the action area (Appendix A).

5.1 South-Central California Coast Steelhead

The South-Central California Coast steelhead (*Oncorhynchus mykiss*) was federally listed as threatened on August 18, 1997 (62 FR 43937) and January 5, 2006 (71 FR 833); updated on April 14, 2014 (79 FR 20802). This distinct population segment (DPS) includes naturally spawned anadromous steelhead originating below natural and manmade impassable barriers from the Pajaro River to (but not including) the Santa Maria River.

The life history of steelhead in this DPS, as well as that of steelhead in general, is complex and highly variable in response to a wide variety of continually changing environmental conditions, including stream flow and flow dynamics, water temperature, dissolved oxygen, pH, stream substrate, and vegetation. The species exists in two forms that are commonly referred to as "steelhead" and "rainbow trout." Either of these forms can be the offspring of the same parents. The steelhead is the anadromous form of this species, spending part of its life in fresh water and the rest in the marine environment. In contrast, the rainbow trout never enters the ocean at all and spends its entire life in fresh water. Both adapt well to changing stream conditions including drought and river barriers that can sometimes prevent it from returning to sea for up to several years.

The South Central California Coast DPS consists of winter-run steelhead populations that are found in the Pajaro, Salinas, and Carmel rivers, streams of the Big Sur Coast, and portions of coastal San Luis Obispo County (Moyle 2002). Steelhead seasonally migrate upstream from the ocean to their native spawning areas once heavy rains increase river flows sufficiently to breach the sandbars that form at the mouths of these rivers during the dry season. Steelhead must have sufficient water velocities and depths to facilitate their upstream migration (Bell 1986). Although steelhead migration generally occurs during the winter months, it may take place from late fall to the middle of spring. During periods of drought, these sandbars may remain intact and unbreached for up to several years with the steelhead remaining at sea.

Spawning occurs in a riffle or the tail end of pool with an abundance of clean gravels . These pools sometimes form in a scoured portion of a river bend or by an obstruction in the water such as a root wad, large rock, or man-made structure such as a bridge overpass support column. Steelhead usually spawn in the same stream and area where they were hatched. The female uses her tail to create a depression in the gravel forming a redd where she buries her eggs. After spawning, most of the spent adults called "kelts" begin their gradual descent back downstream. Depending on water temperature, incubation of eggs can take anywhere from several weeks to four months before hatching (Moyle 2002).

Steelhead development begins with a larval stage, during which the larvae or "alevins" are totally dependent upon food stored in a yolk sac. When the yolk sac has been depleted approximately 2 to 3 weeks after hatching, juvenile steelhead or "fry" emerge from the gravel. At first, the fry remain close to the redd, but as they grow, they move closer to the stream edges and upper portions of the pool where increased flow provides an adequate supply of aquatic invertebrates and other food sources. Deeper waters and more vegetated areas provide cooler water conditions and some protection from predators.

Smoltification is the physiological process that steelhead undergo when migrating from fresh water to the sea. This journey to the sea is largely dependent upon the size of the juvenile. Smolting can begin as early as the fall season following their emergence, but it typically takes 1 to 3 years before steelhead enter the ocean, generally after two years in fresh water. In the estuary prior to migration into the ocean, they begin feeding on estuarine, planktonic, and benthic invertebrates. Once in the ocean, steelhead feed on planktonic marine invertebrates including euphausiid krill. As they grow, fish gradually become a more important component of their diet. They generally spend 2 to 3 years in the ocean where they grow and become sexually mature before returning to their natal stream in winter to spawn as 4 or 5 year olds (Moyle 2002). This spawning cycle may begin again the following year because, unlike the Pacific salmon (*Oncorhynchus* sp.) species, the adult steelhead trout does not always die after spawning and is capable of spawning more than once in its lifetime.

5.1.1 Occurrence in Relation to the Action Area

The action area primarily is used as a migration corridor by steelhead. Consequently, there are two distinct time frames of concern for steelhead: the upstream migration period of adults through the project zone and into the spawning areas higher in the drainage; and the downstream migration period for the juveniles preparing to go out to sea. The adults move in quickly and into the spawning beds. After spawning, most return downstream and back to sea. The normal in-run is from December to March during the high river flow periods. The downstream migration of juveniles can occur at any time there is sufficient flow in the natal streams and downstream into the lagoon, but they generally migrate out between January and June. They can hold in the lagoon for a year or more and have some flexibility regarding their movement into the ocean. Normally, juveniles take up to two years in the streams and lagoon before leaving the river environment.

The Pajaro River is the second largest drainage of the South-Central California Coast DPS. In the mid-1960s, the Pajaro River steelhead runs were estimated to have between 1,000 and 2,000 fish (McEwan and Jackson 1996). Since that time, population numbers have declined substantially. During the drought years of 1987 through 1991, less than 500 steelhead spawned annually in the five largest rivers of the South-Central California Coast DPS combined (Moyle 2002). These rivers include the Pajaro, Salinas, Carmel, Big Sur, and Little Sur. In 1991, following several years of drought starting in 1987, the steelhead run in the Pajaro River alone was estimated to consist of less than 100 fish (Nehlsen et al. 1991). Some of the main factors contributing to this decline include water diversions for agriculture, flood control, and hydroelectric power; sedimentation from adjacent land use activities; fish passage and access to spawning areas; and urbanization (NMFS 1996).

Presently, the Pajaro River within the action area serves primarily as a migration corridor for steelhead. The Pajaro River provides access to spawning and rearing habitat in the Corralitos and Salsipuedes creek watersheds and the upstream watersheds in Santa Clara County. This migration corridor within the project area consists of a total of approximately 12.4 miles. The Pajaro River portion (Reaches 2 through 4) from California Highway 1 to Murphy's Crossing, consists of approximately 11.4 miles. Potential spawning and rearing habitat exists upstream of Murphy's Crossing in several of tributaries of the Pajaro River, including Pescadero, Uvas, Llagas, and Pacheco creeks (Smith 2013). Steelhead spawn and rear in the upper Corralitos Creek watershed, approximately seven miles upstream of the upper boundary of the Pajaro River lagoon (Smith 2002). The number of steelhead that currently use the Pajaro River is unknown; however, juvenile steelhead were present in all of the rearing tributaries in 1997 (Smith, unpublished data). Juveniles were observed in the San Benito River in 2020 following habitat restoration efforts by a local watershed group (KION News 2020). Steelhead are known to use the Pajaro River lagoon to feed and adjust to saltwater conditions before entering the Pacific Ocean (Smith 2002).

5.1.2 Critical Habitat

The action area is within designated critical habitat for South Central California Coast steelhead. Critical habitat for the South Central Coast Steelhead DPS has been designated to include the Pajaro River Hydrologic Unit and Watsonville Hydrologic subarea (Federal Register 2005). In addition, NMFS ranked the conservation value of the Watsonville watershed of the Pajaro River Basin as high based on the presence of spawning habitat, rearing habitat and its importance as a migratory corridor (NMFS 2004). Designated critical habitat Unit 1 (Pajaro River sub-basin, Hydrologic Unit 3305) encompasses the Pajaro River and its tributaries, and includes all reaches of the Pajaro River, and Salsipuedes and Corralitos creeks within the action area. In its recovery plan for the South Central California Coast DPS (NMFS 2013), NMFS identified the Pajaro River steelhead population as a Core 1 (highest priority) for recovery.

NMFS amended the regulations concerning designated critical habitat in 2016. Critical habitat is identified by:

> *…physical or biological features…that support the life history needs of the species, including but not limited to water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity.*
> (50 CFR Part 424)

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.

2. Freshwater rearing sites with:
    a. Water quality and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
    b. Water quality and forage supporting juvenile development; and
    c. Natural cover, such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

3. Freshwater migration corridors free of obstruction and excessive predation, with water quantity and quality conditions, and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks, supporting juvenile and adult mobility and survival.

4. Estuarine areas free of obstruction and excessive predation with:
    a. Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater;
    b. Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and
    c. Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The Pajaro River, Salsipuedes Creek, and Corralitos Creek in the action area all function as freshwater migration corridors No spawning occurs in the action area, and the presence of rearing steelhead likely is limited.

5.2 Least Bell's Vireo

The least Bell's vireo (*Vireo bellii pusillus*) was listed as a Federally endangered species on May 2, 1986 (51 FR 16474). The final critical habitat designated in 1994 encompasses approximately 36,000 acres at ten localities in portions of Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties in southern California.

The least Bell's vireo is a small gray migratory songbird whose historical range extended from Baja California, Mexico, to the northern Sacramento Valley of California, and from the California coastal ranges east to Death Valley. Riparian habitat losses and increases in brown-headed cowbird populations starting in the 1930s eventually caused the vireo to become essentially extinct north of the Transverse Ranges of southern California (Grinnell and Miller 1944; Gaines 1974; Goldwasser et al. 1980; Garrett and Dunn 1981; USFWS 1986). Although still absent from major portions of its historical range, the vireo has responded well to conservation management actions. In a 5-year status review, USFWS

(2006) determined that the number of occupied vireo territories had increased ten-fold (291 to 2,968) since the 1986 listing.

The least Bell's vireo is one of four recognized subspecies of Bell's vireo in the United States (AOU 1957). Least Bell's vireos are obligate riparian breeders, nesting along stream courses typically dominated by willows (*Salix* spp.), cottonwoods (*Populus* spp.), oaks (*Quercus* spp.), and/or mule fat (*Baccharis salicifolia*). In California, this subspecies is strongly associated with riparian stands with dense understory vegetation between about 2 and 10 feet above the ground (Brown 1993; Kus 2002). Vireos occur in disproportionately high frequencies in the wider sections (greater than 250m) of the riparian corridor relative to site availability (RECON 1989).

Vireos spend the winter in southern Baja California, Mexico, and arrive on breeding grounds in California in March or April (USFWS 1998c; Kus 2002). Grinnell and Miller (1944) reported later arrival (early April) for historic northern California populations. The key structural components of suitable breeding habitat are a dense layer of vegetation within 3 to 6 feet of the ground and a canopy layer (USFWS 1994; Kus 2002). Nesting least Bell's vireos prefer early and mid-successional riparian habitats that contain low, dense, shrubby vegetation. Nests are typically built of leaves, bark, willow catkins, and spider webs in a fork of a tree or shrub within 3 feet of the ground (Franzreb 1989). A clutch of 3 to 4 eggs is incubated by both parents for 14 days, and nestlings leave the nest at about 12 to 14 days, after which time they are cared for by the parents for another 2 weeks or more. Vireos may make multiple nesting attempts after nest failure but typically produce no more than one successful clutch during a season (Franzreb 1989). Most vireos leave the breeding grounds for Mexico by late September or earlier (Franzreb 1989).

5.2.1 Occurrence in Relation to the Action Area

The Pajaro River project area is within the vireo's historic range. The riparian corridors along the Pajaro River and its tributaries provide appropriate breeding habitat for the vireo with dense lower vegetation under a canopy layer. However, vireos are not known to be present in the project area.

5.2.2 Critical Habitat

There is no designated critical habitat for the vireo in the Pajaro River project's action area.

5.3 California Red-legged Frog

The California red-legged frog (*Rana aurora draytonii*) (CRLF) was federally listed as a threatened species on April 23, 1996 (USFWS 1996). This species is found mainly in perennial ponds or pools and perennial or ephemeral streams where water remains long enough for breeding and development of young (Jennings and Hayes 1994). Due to increasingly limited natural habitat, and the nature of their dynamic and variable habitat

conditions, this species has become highly adaptable and will utilize a variety of natural and artificial habitats.

Ideal aquatic habitats for this species are those that contain dense emergent or shoreline riparian vegetation closely associated with relatively shallow to deep (greater than 1.6 ft deep), still or slow-moving water. The types of riparian and wetland vegetation that seem to be most structurally suitable are willows, cattails, and bulrushes. Another favorable habitat condition is the absence of introduced predators such as bullfrogs (*Rana catesbeiana*) and predatory fish (i.e., sunfish and bass), which may feed on the larvae at higher levels than naturally co-evolved predators (Jennings and Hayes 1994). Emergent vegetation, undercut banks, and semi-submerged root-balls provide shelter from predators (USFWS 1997). However, some stock ponds and other water bodies with little emergent vegetation can sometimes support both CRLF and non-native predators (USFWS 2002d).

The habitats used by the CRLF are variable. It may use a pond for all of its life stages or, as is more often the case, use multiple habitat types. Sites used for breeding and rearing of larvae and metamorphs include streams with deep pools, backwater streams and creeks, natural and artificial ponds, and freshwater marshes and lagoons. CRLF lay their eggs from late November to late April on emergent vegetation such as cattails and bulrushes. The eggs cannot survive above a salinity of 4.5 and increased siltation during the breeding season can cause asphyxiation of eggs and small larvae (USFWS 2002d). The larvae remain in the aquatic habitats until they metamorphose into juvenile terrestrial frogs several months later. At the age of two years for males and three years for females, these juveniles will reach sexual maturity and become adults. CRLF can occasionally live as long as eight to ten years.

Adult and juvenile CRLF may disperse upstream, downstream, or upslope of their breeding habitat to forage and seek sheltering habitat. Juveniles disperse nocturnally and diurnally, while adults primarily move at night. These frogs may take shelter in small mammal burrows, moist leaf litter, and other refugia up to several dozen meters from the water during any time of the year (Jennings and Hayes 1994). During the hot, dry months, if the appropriate aquatic and upland habitats become unavailable, they may take shelter under boulders, downed trees, industrial debris, drains, stock ponds, and watering troughs. Although CRLF prefer deeper pools, they have been observed inhabiting stream pools that are less than 18 inches deep. Occasionally, they will use large, deep cracks in the bottom of dried ponds for moisture and avoidance of sunlight and predators. During wet periods, CRLF can move long distances between aquatic habitats, traversing upland habitats or ephemeral drainages up to one mile from the nearest known frog populations. One translocated CRLF in coastal San Luis Obispo County was known to have moved more than 2,850 meters (1.8 miles) (Rathbun and Schneider 2001). These movements can occur through drainages or in relatively straight lines without much regard to topography, vegetation type, or riparian corridors (USFWS 2002d). Seeps and springs in open grasslands can function as foraging habitat or refugia for wandering frogs (Jennings and Hayes 1994).

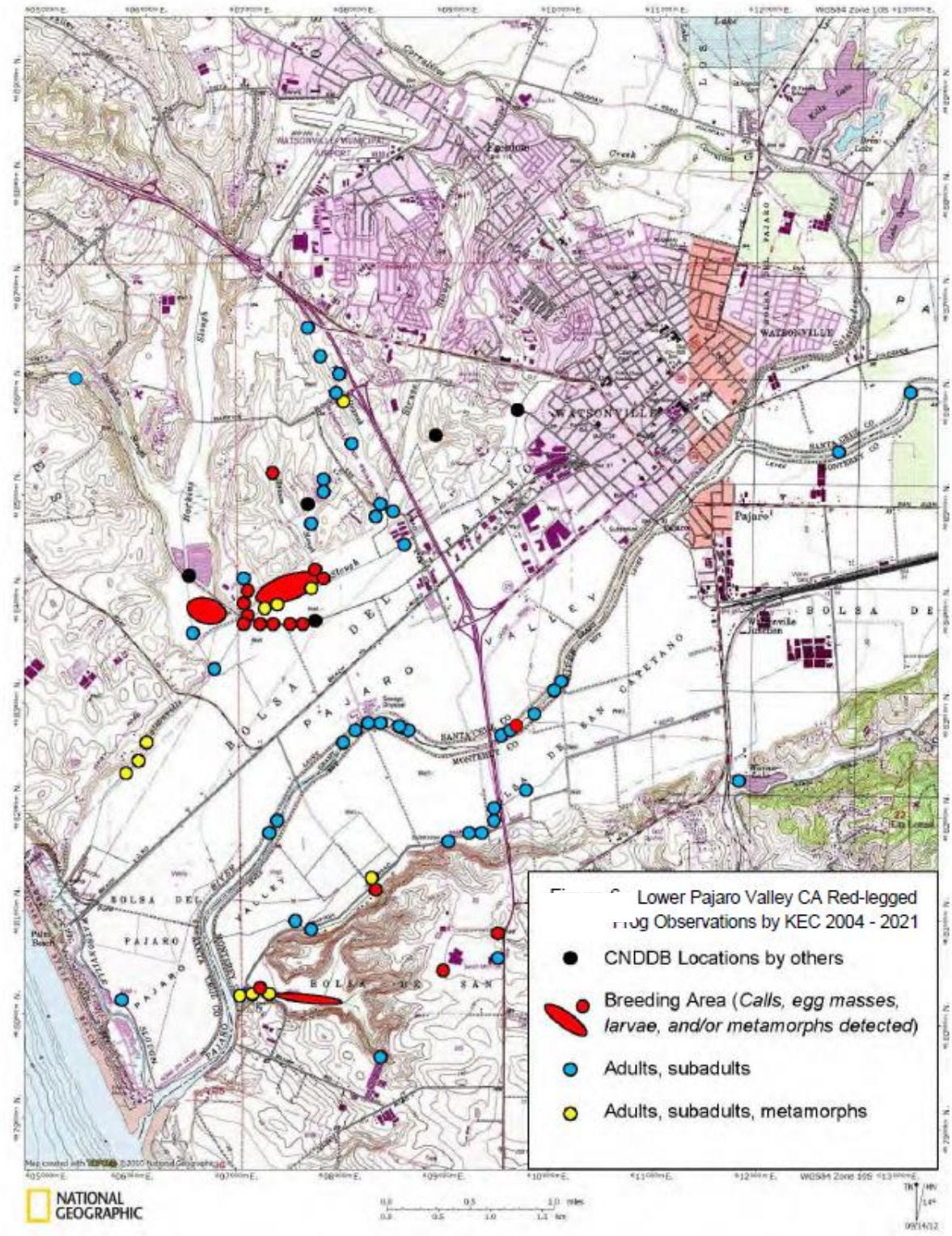

Figure 11. Lower Pajaro Valley CRLF Observations

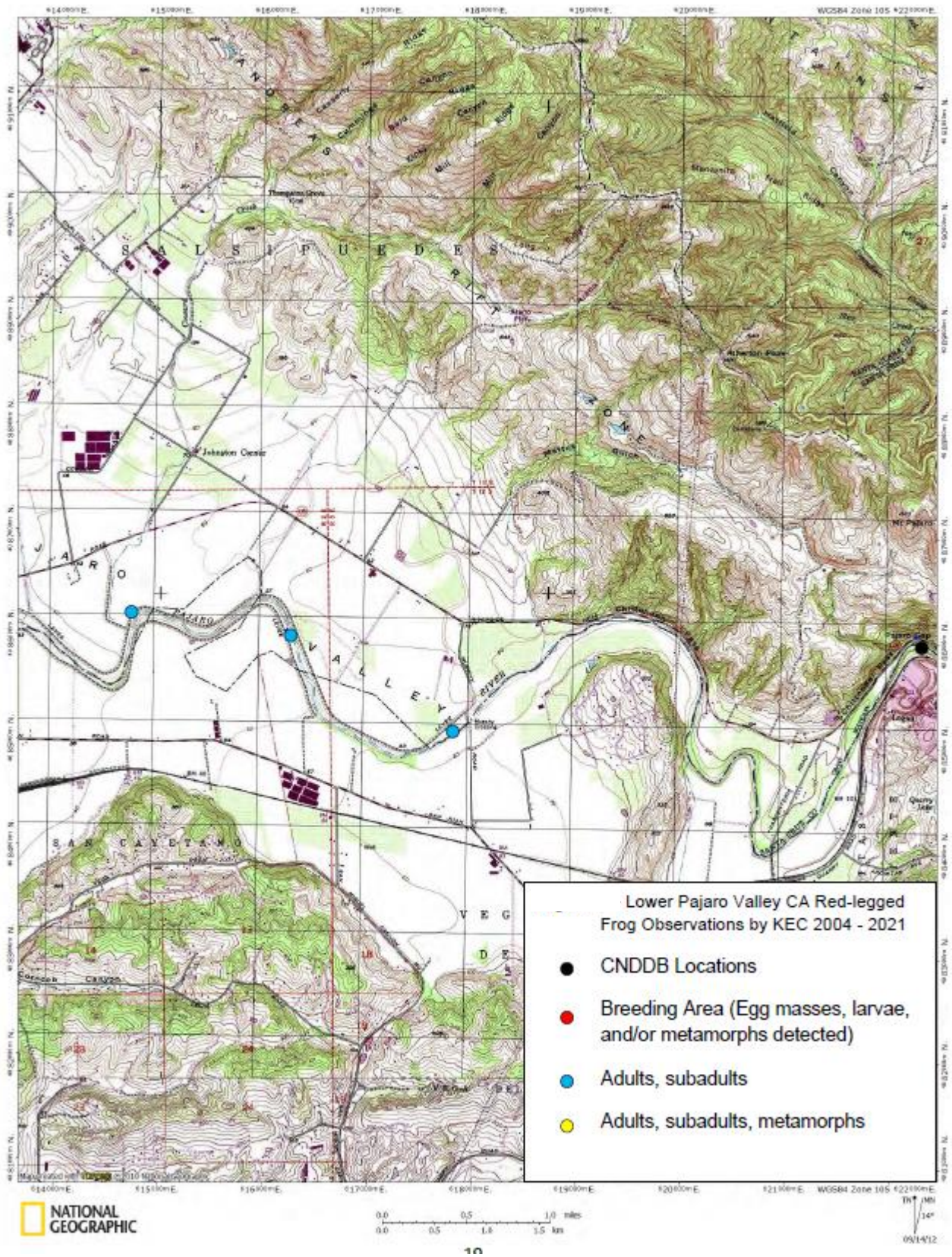

Figure 12. Lower Pajaro Valley CRLF Observations

5.3.1 Occurrence in Relation to the Action Area

CRLF are present in the Pajaro River in the project area. CRLF have been observed at 18 distinct locations in the Pajaro River downstream of Murphy's Crossing since 2009 (Kittleson, personal observations). Six known breeding locations are within 1 mile of the project area, with four on the Monterey County side at the Salinas Road pond complex and along the Trafton Road ditch system and two on the Santa Cruz County side at ponds at the Land Trust of Santa Cruz County Watsonville Slough Farm (Kittleson, personal observations). Recently, CRLF have been observed breeding in scour ponds that formed following the 2017 high water event along the mainstem Pajaro River in Reach 2. Figures 11 and 12 illustrate pertinent project-area CRLF observations.

5.3.2 Critical Habitat

Critical habitat for CRLF was designated on April 13, 2006 (Federal Register 2006c), however the action area has no designated critical habitat for CRLF.

5.4 Western Yellow-billed Cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) was Federally listed as threatened in October 2014. The cuckoo is a migratory bird species, traveling between its wintering grounds in Central and South America and its breeding grounds in North America each spring and fall often using river corridors as travel routes. The cuckoo nests and forages in riparian habitats. Nests are primarily in willow (*Salix* spp.) trees and cottonwood (*Populus fremontii*) trees. All studies indicate a highly significant association with relatively expansive stands of mature cottonwood-willow forests, especially dynamic riverine habitats where the river is allowed to meander. Meandering streams create habitat for new rapidly-growing young stands of willow, which create preferred nesting habitat conditions. Channelized streams or levied systems that do not allow for these natural processes become over-mature and presumably less optimal.

Over the last 100 years, western yellow-billed cuckoo (*Coccyzus americanus occidentalis)* population declined dramatically due to extensive loss of suitable breeding habitat. Once considered a common breeder in California, by 1940 the yellow-billed cuckoo suffered severe population reduction (Grinnell and Miller 1944) and by 1987 was estimated to occupy only 30 percent of its historical range (Laymon and Halterman 1987).

Yellow-billed cuckoos are among the latest-arriving Neotropical migrants. They arrive on their breeding grounds in Arizona and California by June (Hughes 1999). Nesting usually occurs between late June and late July, but can begin as early as late May and continue until late September (Hughes 1999). Nests consist of a loose platform of twigs, which are built by both sexes and take one to two days to build (Hughes 1999), though occasionally the nest of another species is used (Jay 1911, Bent 1940, Payne 2005). Fall migration is thought to begin in late August, with most birds gone by mid-September

(Hughes 1999); however on the Lower Colorado River some individuals appear to begin migrating in early August (McNeil et al. 2011).

Habitat losses associated with manmade flood control and water management features that alter watercourse hydrology have contributed to the decline of the species. The natural processes that sustained riparian habitat in western North America have greatly diminished. Loss and degradation of habitat has occurred as a result of livestock overgrazing and encroachment from agriculture. These losses are exacerbated by the conversion of native habitat to predominantly nonnative vegetation. Habitat losses result in additional effects such as increased predation and reduced dispersal potential. These effects are associated with small and widely separated habitat patches. These threats are particularly persistent where small habitat patches are within proximity to human-altered landscapes, especially agricultural fields, resulting in the potential for pesticides to poison individual cuckoos and reduce their prey base.

5.4.1 Occurrence in Relation to the Action Area

The cuckoo is not known to occur in the action area, although the action area is within its historic range. The cuckoo has been observed along the Salinas River, approximately 15 miles south of the action area.

5.4.2 Critical Habitat

Critical habitat for the cuckoo was designated on April 21, 2021; however the action area has no designated critical habitat for the cuckoo.

6.0 EFFECTS OF THE PROPOSED ACTION

This section describes the potential effects of the Pajaro River flood risk management project on federally listed species and on designated critical habitats. The proposed action is described in Section 3.0. The environmental baseline is described in Section 4.0, and include the existing levee project and the ongoing channel maintenance practices performed by the Counties.

The proposed action would result in the removal of approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8 acres of riparian forest within the footprint of the new levees and floodwalls. The shrub and forest impacts occur in areas that may serve as habitat to the special status species that could occur within the action area, and may affect cover and shading for CRLF and juvenile steelhead. However, the proposed action, through the construction of setback levees, would also establish approximately 61 acres of floodplain habitat, which in the long-term would result in increased habitat availability for these species as well, including reestablishment of riparian vegetation that could offset the direct effects, providing shade for listed species and nesting habitat for the vireo, natural scouring of the floodplain to allow for additional aquatic rearing habitat for CRLF, and increased food sources for migrating steelhead. This would be a beneficial effect of the project.

Temporary, reparable damage to natural vegetation and wildlife habitats within work areas may occur, as could displacement of individuals of listed species from temporary work areas, and short-term disruption of life-cycle activities such as breeding and migration. For example, aquatic species could be affected during construction activities by temporary increases in water turbidity and sedimentation. Terrestrial wildlife species could be displaced, harmed, or harrassed by earth moving and vegetation removal activities. Disturbance to listed wildlife species could also result from construction-related increases in noise, dust, vibration, human presence, and nighttime lighting.

Long-term direct effects could include permanent alteration of streambank features and other riparian habitats for listed species (i.e., approximately 10,400 feet of riprap not including setbacks will be installed in or adjacent to the stream channel); effects of on-going channel maintenance activities; the inadvertent introduction or spread of non-native, invasive species; or other permanent alterations to the biological communities. Long-term effects on species and habitats are anticipated to be primarily beneficial, as setting back the levees is anticipated to create additional habitat features associated with floodplain activation, including opportunities for increased channel meanders, scour ponds, and increases in riparian vegetation. The local maintaining agencies would be required to ensure that channel capacity is maintained through periodic removal of excessive vegetation, however, in general it is anticipated that mature vegetation will be allowed to remain in place. Additionally, as part of long-term maintenance, the local agencies would be required to remove and prevent the spread of invasive species.

Indirect effects are project-related effects that would typically occur later in time and which could occur outside of the area directly affected. For this project, indirect effects could include long-term changes in sediment transport mechanisms and deposition patterns within

the stream channels, significant changes in adjacent land uses, and increased human access and presence within the action area. The proposed action is not expected to have any growth-inducing effect because the surrounding floodplain is already fully utilized for cultivated agriculture and urban development. While increases in human population and conversions of land to urban or suburban uses are likely to occur in the future within the action area, these changes would occur independent of the proposed action and would not be promoted or facilitated by the action.

6.1 Effects on Listed Species

The following section evaluates direct and indirect effects of the action on listed species based on the anticipated changes to the physical environments and habitats in the action area and the species life history, habitat use, and distribution in the action area.

6.1.1 South Central California Coast Steelhead

The current number of steelhead in the migratory run into the Pajaro River are not known (Smith 2002); however, juvenile fish were noted in major rearing tributaries in 1997 (Smith, unpublished). Juveniles were observed in the San Benito River in 2020 following habitat restoration efforts by a local watershed group (KION News 2020). The primary spawning and rearing area in the Pajaro Basin is upper Corralitos Creek approximately 7 miles above the project boundary (Smith 2002). The juveniles would likely migrate downstream to the estuarine lagoon to complete their smoltification prior to moving out to sea.

The direct impacts to steelhead are centered around their ability to move through the project area on their upstream migration and the outrun of spawned adults back to sea, and juveniles to the lower, estuarine reaches of the Pajaro River to complete the smoltification process. The spawning adults normally migrate upstream in the winter and early spring during high flow periods and return to their natal streams to spawn. After spawning, the surviving adults quickly move downstream, through the estuary and back to sea. After the eggs hatch, juvenile steelhead typically stay in the stream for two years. The older juveniles then move downstream into the lagoon, where they can spend some time continuing the process of smoltification. Depending upon stream flow and water availability, the juveniles will move downstream into the areas of more perennial water.

Direct Effects

When considering the necessary physical and biological features for steelhead habitat, the action area does not contain spawning or rearing sites; however, it does provide a freshwater migration corridor to an estuarine area that is both free of obstructions and excessive predation. The levee structures will continue to constrain the river channels and will require some level of vegetation and sediment management, and therefore limit the ability of the habitat to fully evolve. However, the new setback levees will provide some floodplain habitat for increased habitat evolution and steelhead use relative to baseline. The project has been designed to minimize to the extent possible any impacts to migrating adult as well as juvenile

steelhead. In-stream construction is not anticipated to occur for this action, however, if unanticipated in-stream construction activities are required they would occur during the period from June 15 to October 15 to allow unobstructed migration for any steelhead.

The project includes installation of approximately 10,400 feet of riprap along the waterside of the levees and floodwalls, which will form the channel sides during flood flows. The new riprap would be installed on levee slopes outside of the low-flow channel and would not be inundated under normal or ordinary high water conditions. During high water events it would be inundated and would protect the levees from erosion from high velocities during flood events.

Construction of the setback levee system will result in direct beneficial effects by providing access to additional floodplain during high flow periods and improving overall habitat conditions for fish passage in both directions by providing areas of reduced water velocity. An approved construction stormwater pollution prevention plan will be in place during construction to minimize any increase in sediment flow and turbidity, as will a plan to prevent the spill of toxic or potentially toxic materials (including concrete) into the stream during all construction.

Indirect Effects

On-going channel maintenance activities will limit the amount of riparian vegetation permitted to grow. Also, large pieces of instream woody material deemed a threat to bridge structures or likely to cause jams impeding the transport of water for flood control will be removed from the channel. Sediment removal will maintain flood flow capacity and higher water velocities under high flow conditions. These are considered negative effects, although if higher water velocities allow outmigrating juveniles to move through the project area faster they may be more likely to avoid predation.

Some indirect effects of the proposed project will be beneficial and include increased habitat value for juveniles in the reaches (primarily Reaches 2 and 4) with setback levees and the associated floodplain that will be reconnected to the river. The project will create approximately 61 acres of new floodplain habitat.

6.1.2 Least Bell's Vireo

Vireos are not known to be present in the action area, although the riparian corridor in the action area does provide suitable habitat for this species. Prior to construction, surveys would be conducted to verify the presence or absence of the vireo. If vireo nests are found, a buffer zone would be established around the active nests, as discussed above, and no construction activities would proceed within the buffer zone. If construction activities must proceed, further coordination with the USFWS would occur to determine appropriate avoidance or minimization measures.

Direct Effects

Construction of the proposed action would result in potential direct effects to vireo habitat through the removal of riparian habitat to facilitate construction of project levees and floodwalls. Approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8 acres of riparian forest habitat would be removed to enable project construction. USACE would ensure that any vegetation removal occurs outside of the vireo's nesting season to minimize potential impacts to the species. Surveys would be conducted prior to any vegetation removal activities, and would be monitored by a qualified biologist. While there is the potential for direct impacts to the vireo associated with the removal of riparian vegetation during construction, the vireo is not likely to be present in the action area. Any riparian habitat that is removed to facilitate construction of the project is anticipated to return in time due to the increase in floodplain space provided by the setback levees. The natural processes associated with floodplain activation will allow pond areas to form and associated riparian habitats which will provide higher quality opportunities for vireo nesting habitat than exist under the baseline condition. Due to the unlikelihood of vireo nesting in the project area, the proposed action is not likely to adversely affect the vireo. With the implementation of the proposed project, there is a potential opportunity for long-term benefits to the vireo.

Indirect Effects

The project would create approximately 61 acres of floodplain habitat, which could provide indirect benefits to the vireo, as it would enable the river to have a more natural function than the baseline condition and would result in an opportunity for higher value riparian habitat to develop over time. Improved habitat value and function within the setback areas, particularly along the mainstem Pajaro River, could provide opportunity for vireo recovery in their historic range long-term. Indirect effects would not affect the species and likely would provide long-term benefits over the life of the project.

6.1.3 California Red-legged Frog

Direct Effects

Project construction activities could directly affect CRLF if they are present within the work areas. As described in Chapter 5, CRLF have been known to occur in the action area, and are currently known to breed in intermittent scour ponds within Reach 2. If present during construction, individual frogs could be crushed or buried during levee construction, vegetation removal, or bank excavation activities.

Installing levees along Corralitos Creek could affect upland migration habitat by impeding CRLF movement between the river banks and surrounding habitats; however, the degree to which this species would be impeded would probably be small due to the red-legged frogs' ability to traverse over steep hillsides. Vegetation removal within the footprints of the proposed levees and floodwalls, and subsequent vegetation management on and within 15 feet of those structures, could reduce the amount of potential upland shelter and foraging habitat along Corralitos Creek.

Maintenance activities for the project include mowing and spraying with herbicides on and within 15 feet of the levees and floodwalls. However, the project includes the actions identified in Section 3.5, Conservation and Mitigation Measures. These measures, including pre-construction surveys, relocations (if necessary), breeding avoidance measures, and monitoring, would avoid or minimize potential direct effects on CRLF. The project would also result in increased riparian vegetation and floodplain along the main stem of the Pajaro River, primarily in reaches 2 and 4.

Indirect Effects

The project could have temporary, indirect effects on habitat for the CRLF related to increased turbidity. Although erosion control measures will be implemented to effects could still include a slight increase in turbidity during levee construction that could be carried downstream.

The project would create approximately 61 acres of floodplain habitat, which could provide indirect benefits to the CRLF, as it would enable the river to have a more natural and dynamic function than the baseline condition. This would result in an opportunity for additional scour ponds, meanders, and other potential breeding habitat areas to develop in time within the floodplain. Additionally, higher value riparian habitat would likely develop over time, providing shelter and foraging areas adjacent to the river. The long-term benefits of the project are anticipated to self-mitigate and offset any potential direct and indirect impacts associated with project construction. It is anticipated that with the implementation of the proposed avoidance and minimization measures, including preconstruction surveys and identification efforts, the project should minimize potential adverse effects to CRLF. However, even with the avoidance and minimization, since CRLF is known to be present in the project area, there remains the potential for incidental take of the species during construction activities. As a result, the project may affect, but is likely to adversely affect the CRLF.

6.1.4 Western Yellow-billed Cuckoo

Cuckoos are not known to be present in the action area, although the riparian corridor in the action area does provide suitable migratory habitat for this species, and may provide low-quality nesting habitat for this species, due to the narrow width of the riparian corridor. Prior to construction, surveys would be conducted to verify the presence or absence of the cuckoo. If cuckoo nests are found, a buffer zone would be established around the active nests, as discussed above, and no construction activities would proceed within the buffer zone. If construction activities must proceed, further coordination with the USFWS would occur to determine appropriate avoidance or minimization measures.

Direct Effects

Construction of the proposed action would result in direct effects to potential cuckoo habitat through the removal of riparian habitat to facilitate construction of project levees and floodwalls. Approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8

acres of riparian forest habitat would be removed to enable project construction. USACE would ensure that any vegetation removal occurs outside of the nesting season to minimize potential impacts to the species. Surveys would be conducted prior to any vegetation removal activities, and would be monitored by a qualified biologist. While there is the potential for direct impacts to the cuckoo associated with the removal of riparian vegetation during construction, the cuckoo is not likely to be present in the action area. As a result, the proposed action is not likely to adversely affect the cuckoo.

Any riparian habitat that is removed to facilitate construction of the project is anticipated to return in time due to the increase in floodplain space provided by the setback levees. The natural processes associated with floodplain activation will allow pond areas to form and associated riparian habitats, which could provide opportunities for higher quality nesting habitat to develop than currently exist under the baseline condition. Due to the unlikelihood of cuckoos nesting in the project area, the proposed action is not likely to adversely affect the cuckoo. With the implementation of the proposed project, there is a potential opportunity for long-term benefits to the cuckoo.

Indirect Effects

The project would create approximately 61 acres of floodplain habitat, which could provide indirect benefits to the cuckoo, as it would enable the river to have a more natural function than the baseline condition and would result in an opportunity for a wider riparian corridor to develop over time. Improved habitat value and function within the setback areas, particularly along the mainstem Pajaro River, could provide opportunity for cuckoo recovery in their historic range long-term. Indirect effects would not affect the species and likely would provide long-term benefits over the life of the project.

6.2 Effects on Designated Critical Habitat

6.2.1 South Central California Coast Steelhead

The proposed project has been designed to minimize to the extent possible any effects to migrating adult as well as juvenile steelhead. All of the river and tributary habitats included in this project are primarily migratory routes for both adults and juveniles. Temporary, short term effects to steelhead habitat could include the removal of approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8 acres of riparian forest. However, changes in the shade component of the habitat would be insignificant in the project area since construction and the associated vegetation removal would primarily be occurring away from the wet channel. Any vegetation removal that does impact the channel is anticipated to be primarily the removal of immature, shrubby vegetation that does not significantly provide shade to the channel. Mature trees would be protected in place to the maximum extent practicable.

The project includes installation of approximately 10,400 feet of riprap along the stream channel which will form the channel sides during flood flows. The new riprap would be

installed on levee slopes outside of the low-flow channel and would generally not be inundated under normal conditions. During high water events it would be inundated and would protect the levees from erosion from high velocities during flood events. On-going channel maintenance activities will limit the amount of riparian vegetation permitted to grow as well as the accumulation of instream woody material. Sediment removal will maintain flood flow capacity and higher water velocities under high flow conditions. These are considered negative effects, although if higher water velocities allow outmigrating juveniles to move through the project area faster they may be more likely to avoid predation.

Long term, setting back the levee would allow for the creation of up to 61 acres of floodplain habitat, which is anticipated to be beneficial to migrating steelhead, particularly during high flows when the floodplains are activated. The additional space will allow for mature vegetation to be protected in place, and additional riparian habitat to develop, while maintaining the channel capacity for flood flows. Periodic vegetation removal would be required to ensure that the channel capacity is maintained, but the project would provide the opportunity for higher quality habitat long term. Reduced water velocities and more cover can be expected in the floodplain areas when they are activated, which would provide outmigrating juveniles resting locations and better protection from predators. As a result, the proposed project is anticipated to provide long term beneficial improvements to steelhead migratory habitat.

7.0 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. There are several activities in the watershed that may have a cumulative effect on listed steelhead, least Bell's vireo, California red-legged frog, and Western yellow-billed cuckoo that would likely be covered under separate Section 7 consultations. These activities include regular Pajaro River flood system maintenance activities, the Pajaro River Lagoon Flood Control Program conducted by Santa Cruz County, the Salsipuedes and Corralitos Creek Flood Control Program conducted by Santa Cruz County, operation of the College Lake Reclamation Project, and impaired water quality from agricultural and urban runoff.

7.1 Anticipated Non-Federal Actions in the Action Area

The following non-federal actions are reasonably certain to occur within the action area considered in this BA.

1. The City of Watsonville prepared a Trails and Bicycle Master Plan in 2012, which included plans for the Pajaro River Levee System to be used as a public bike path along the entire length of the main stem levee and a portion of the Salsipuedes Creek levee. This trail is currently operational from Highway 129 along the mainstem Pajaro River downstream to the Pacific Ocean. The Master Plan calls for additional trails to be developed upstream of Highway 129 along the Pajaro River, Salsipuedes, and Corralitos Creek throughout the project area.

2. The Pajaro River levee currently interfaces with two regional recreation pathways: the Pacific Coast Bike Route and the California Coastal Trail. A third pathway is the planned Santa Cruz County Rail Trail. The Rail Trail is planned to connect Santa Cruz County to Monterey County by adding a recreational path along 31 miles of railroad from Davenport to the Pajaro River levee in Watsonville at the Walker Street Union Pacific Railroad Bridge.

7.2 Cumulative Effects

The potential for long-term cumulative impacts on the listed species identified in this BA is low. The long-term maintenance of the riparian corridors both along the Pajaro River and in the tributary streams and the elimination in the in-stream construction-related processes have the potential to increase the amount of suitable habitat available for the special status species. The majority of the proposed actions are designed to provide increased public access through bike paths and hiking trails and should have no impact on the listed species based upon analyses conducted prior to their development.

8.0 CONCLUSIONS

For the proposed action, the determination of effects on federally listed species is based on the potential for these species to occur within the action area, and the potential for adverse or beneficial effects of the action on these species. Table 5 defines the possible determinations for listed species and designated critical habitat under the Endangered Species Act (USFWS and NMFS 1998).

Table 5. Definition of Determinations for Listed Species

Determination	Definition
No effect (NE)	No direct or indirect effects
May Affect, Not Likely to Adversely Affect (NLAA)	Effects are beneficial, insignificant (very small in scale and cannot be meaningfully measured, detected, or evaluated), or discountable (extremely unlikely to occur)
May Affect, Likely to Adversely Affect (LAA)	Adverse effects that are not insignificant or discountable

8.1 Determinations for the Proposed Action

Table 6 lists the determinations for the species and critical habitat that are addressed in this BA. The rationale for these determinations is provided above in the discussion of effects for each species (see Section 6.0) and is briefly summarized in the text that follows.

Table 6. Determinations for Species and Designated Critical Habitat

Species	Determination
South Central California Coast steelhead	NLAA
Least Bell's Vireo	NLAA
California red-legged frog	LAA
South Central California Coast steelhead Designated Critical Habitat	NLAA

8.1.1 South Central California Coast Steelhead

The proposed action may affect, but is not likely to adversely affect South Central California Coast steelhead. Effects would be avoided and minimized by implementing the conservation and mitigation measures identified in Section 3.5, most importantly, a limited operating period will be imposed on any in-water construction activities from October 15 to June 15. The setback levees and increased floodplain will provide some beneficial effects for steelhead by increasing the sinuosity of the channel and improving overall habitat conditions for fish passage in both directions. An approved Storm Water Pollution Prevention Plan will be in place to minimize any increase in sediment flow and turbidity, as will a plan to prevent

the spill of toxic or potentially toxic materials (including concrete) into the stream during all construction.

8.1.2 South Central Steelhead Designated Critical Habitat

The proposed action may affect, but is not likely to adversely affect designated critical habitat for the South Central California Coast steelhead because the project has been designed to avoid and minimize any impacts to migrating adult as well as juvenile steelhead, including their habitat, to the extent possible

8.1.3 Least Bell's Vireo

The proposed action is not likely to adversely affect the least Bell's vireo because, while there is suitable habitat present, this species is not expected to be present within the action area. Prior to construction surveys would be conducted to confirm the presence or absence of the vireo, and construction scheduling will ensure that no vegetation removal occurs during the vireo nesting season.

8.1.4 California Red-legged Frog

The proposed action may affect, and is likely to adversely affect California red-legged frog. Individual frogs could be crushed or buried during levee construction. While this is unlikely, individuals may encounter construction activities during migration and foraging. Effects would be avoided and minimized though the implementation of the conservation and mitigation measured discussed in Section 3.5.

8.1.5 Western Yellow-billed Cuckoo

The proposed action is not likely to adversely affect the Western yellow-billed cuckoo because, while there is suitable habitat present, this species is not expected to be present within the action area. Prior to construction surveys would be conducted to confirm the presence or absence of the cuckoo, and construction scheduling will ensure that no vegetation removal occurs during the nesting season.

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Appendix A

Species List

Appendix B

Baseline Habitat Acreage Maps

Appendix C

Local Maintaining Agency Concurrence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958

In Reply Refer To: March 01, 2022
Project Code: 2022-0014182
Project Name: Pajaro River Flood Management Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a written request for formal consultation. During this review process, the Federal agency may

engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)).

For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
(805) 644-1766

Project Summary

Project Code: 2022-0014182
Event Code: None
Project Name: Pajaro River Flood Management Project
Project Type: Flooding
Project Description: Action area includes the Pajaro River from Hwy 1 to Murphy Rd Crossing, Salsipuedes Creek from Pajaro River to Corralitos Creek, and Corralitos Creek from Salsipuedes Creek to Airport Blvd Crossing. Project includes construction of floodwalls and new levees within the city of Watsonville and town of Pajaro, and setting back levees from 50-200 feet wherever practicable.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.91256205,-121.71991818729211,14z

Counties: Monterey and Santa Cruz counties, California

Endangered Species Act Species

There is a total of 18 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Santa Cruz Long-toed Salamander *Ambystoma macrodactylum croceum* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7405	Endangered

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Marsh Sandwort *Arenaria paludicola* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Monterey Gilia *Gilia tenuiflora ssp. arenaria* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower *Chorizanthe pungens var. pungens* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/396	Threatened
Santa Cruz Tarplant *Holocarpha macradenia* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6832	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

February 17, 2023 **Refer to NMFS No:** WCRO-2023-00102

Julie Beagle
Chief, Environmental Planning Section
U.S. Army Corps of Engineers, San Francisco District
450 Golden Gate Avenue, 4th Floor, Suite 0134
San Francisco, California 94102-3406

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter for the Pajaro River Flood Risk Management Project

Dear Ms. Beagle:

On August 18, 2022, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the U.S. Army Corps of Engineers' (Corps) proposed Pajaro River Flood Risk Management Project (Project) is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA).

This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA and implementing regulations at 50 CFR 402. On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the letter of concurrence would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions, would not be any different.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the Environmental Consultation Organizer [https://www.fisheries.noaa.gov/resource/tool-app/environmental-consultation-organizer-eco]. A complete record of this consultation is on file at the North-Central Coast Office in Santa Rosa, California.

CONSULTATION HISTORY

NMFS began technical assistance with the Corps in September 2000 for the development of a revised flood control project on the lower Pajaro River. Through agency meetings, field tours, and workshops, NMFS shared its desired environmental attributes for the revised flood control project, which included increases in floodplain connectivity, mature riparian vegetation, and natural geomorphic processes. In a letter to the Corps dated April 22, 2003, NMFS shared its concern that the then proposed alternatives for the flood control project would not effectively minimize impacts on steelhead.

From 2003 through 2008, NMFS continued technical assistance with the Corps, its consultants, and the local agencies. During this time, the Corps presented a series of alternative designs for review that were deemed to have a federal cost/benefit ratio ≥ 1.0. On December 5, 2008, NMFS and California Department of Fish and Wildlife (CDFW) issued a joint letter to the Corps outlining its continued concerns with proposed project alternatives and their ability to meet both flood control and environmental objectives, and that the proposed action did not include descriptions of necessary maintenance activities.

In 2011 and 2012, NMFS and other agencies continued meeting with the Corps regarding design alternatives. In a letter to the Corps dated April 30, 2012, NMFS proposed an additional levee design alternative based on the Channel Migration Zone (CMZ) concept and a preliminary cost-comparison analysis. The intent of the CMZ design was to provide a sustainable channel design that maximizes natural geomorphic and riverine processes and space, including improved floodplain connectivity, while providing necessary flood control benefits at similar costs.

On November 2, 2017, NMFS received a letter from the Crops requesting informal consultation under ESA, and to announce the availability of the General Reevaluation Report and Environmental Assessment (GRR/EA) for the Tentatively Selected Plan (TSP). In a letter dated November 30, 2017, NMFS provided extensive comments on the draft GRR/EA as well as specific comments on the TSP. Regarding the TSP, NMFS requested additional information on channel dimensions, extents of riprap, floodplain enhancement, and the scope of future operations and maintenance activities. By April 27, 2018, NMFS had not received the requested information and, therefore, closed the consultation.

On December 13, 2021, the Corps held a Project kick-off meeting to present an overview of the revised selected alternative and the initial strategy for design and construction. On August 18, 2022, the Corps sent NMFS a letter requesting informal consultation along with a Biological Assessment (BA) for the Project. NMFS found the information in the BA insufficient and provided a written request for additional information to the Corps on September 27, 2022. Between late September 2022 and late January 2023, NMFS continued to meet regularly with the Corps via teleconference, and provided the Corps with written comments on revised drafts of the BA. On January 31, 2023, NMFS determined the information received to date was sufficient to initiate consultation.

PROPOSED ACTION AND ACTION AREA

Proposed Action

The purpose of the Project is to reduce flood risk and public safety in the City of Watsonville, the town of Pajaro, and surrounding agricultural lands. The non-federal sponsors of the project are the Santa Cruz County Flood Control and Water Conservation District, Zone 7 (SCC Zone 7) and the Monterey County Water Resources Agency (MCWRA). The proposed action, or Project, consists of the following general elements: removal of existing levees in reaches where setback levees are proposed; construction of new setback levees; improvements of existing levees (in place), construction of new floodwalls; placement of riprap on levee slopes; replacement of the Highway 152 and Highway 129 bridges; maintenance and repair of levees and floodwalls in accordance with the Corps Operations, Maintenance, Repair, Replacement and Rehabilitation (OMRRR) manual; and channel maintenance in accordance with the OMRRR manual.

Levee/Floodwall Improvements

Levee improvements along the Pajaro River are proposed for both banks of Reaches 2, 3, and the left bank of Reach 4. Improvements on the right bank of Reach 4 were not economically justified for inclusion. Setback levees, ranging from 13 to 14 feet high, are proposed for Reaches 2 and 4, whereas levees in the confined Reach 3 will be rebuilt in place with added floodwalls.

In Reach 2, actions will include demolition of the existing levees and construction of a new 100-foot setback levees. Riprap will be placed along the entire water side slopes of both setback levees (Table 1). Approximately 1,300 feet of the existing right bank levee at the upstream end of Reach 2 will be rebuilt in place due to constraints from existing development (Figure 2). Similarly, through Reach 3, the Pajaro River is confined between urban development in the City of Watsonville and the town of Pajaro and, therefore, space for setback levees is not available. The existing levees on both banks will be rebuilt and improved in place with an added floodwall. Approximately 2,500 linear feet (lf) of riprap would be placed on both banks (Table 1).

In Reach 4, the existing levee of the left bank would be demolished and a new 100-foot setback levee would constructed. This new setback levee would terminate at its upstream end with a new completion, or tieback, levee that runs south of the Pajaro River into high ground (Figure 2). No action is proposed on the right bank. Approximately 4,100 lf of riprap will be placed on the water side slope of the left bank levee with no riprap proposed for the tieback levee. In Reach 5 (Salsipuedes Creek), levee improvements include a combination of setback levees, reconstruction of levees in place, and floodwalls on top of the existing levees with varying extents of riprap proposed (Figure 2 and Table 1). In Reach 6 (Corralitos Creek), new 50 to 75-foot setback levees are proposed for both banks. The new levees will be approximately 6,200 feet long on the right bank and 9,300 feet long on the left bank. Riprap will be installed on the waterside extents of these new levees.

In Reach 5 and 6, the existing Highway 129 (Salsipuedes Creek) and Highway 152 (Corralitos Creek) bridges will require replacement to meet new design flow capacities. Design plans for these new bridges are in the early stages of development. The Corps will coordinate bridge design and construction methods with the resource agencies to ensure that impacts to species and habitats are avoided or minimized.

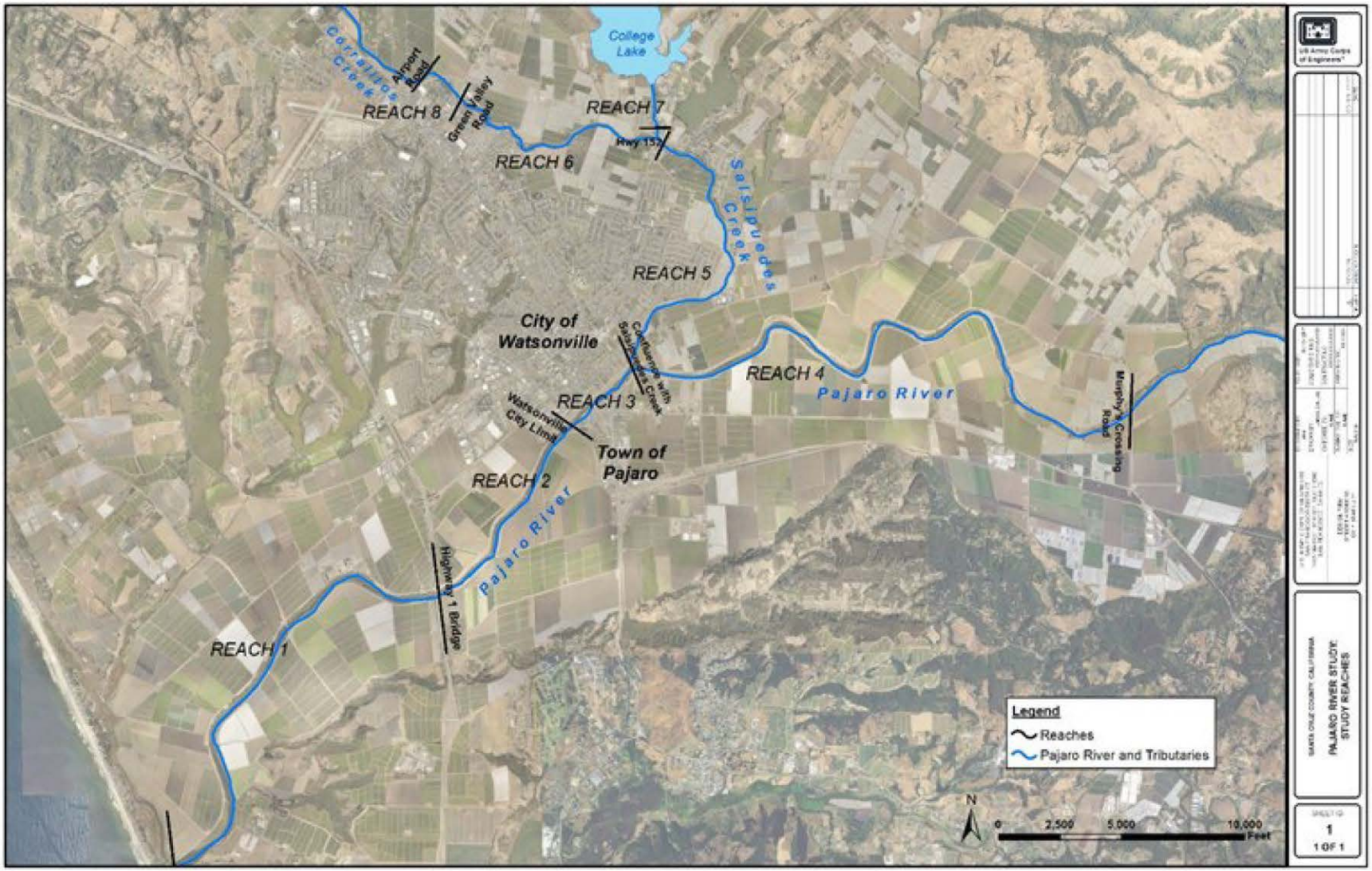

Figure 1. Aerial view of the Project extent, waterways, reaches and surrounding land cover/land use (Corps 2023). Note, the Project does not propose any action in Reaches 1, 7 or 8.

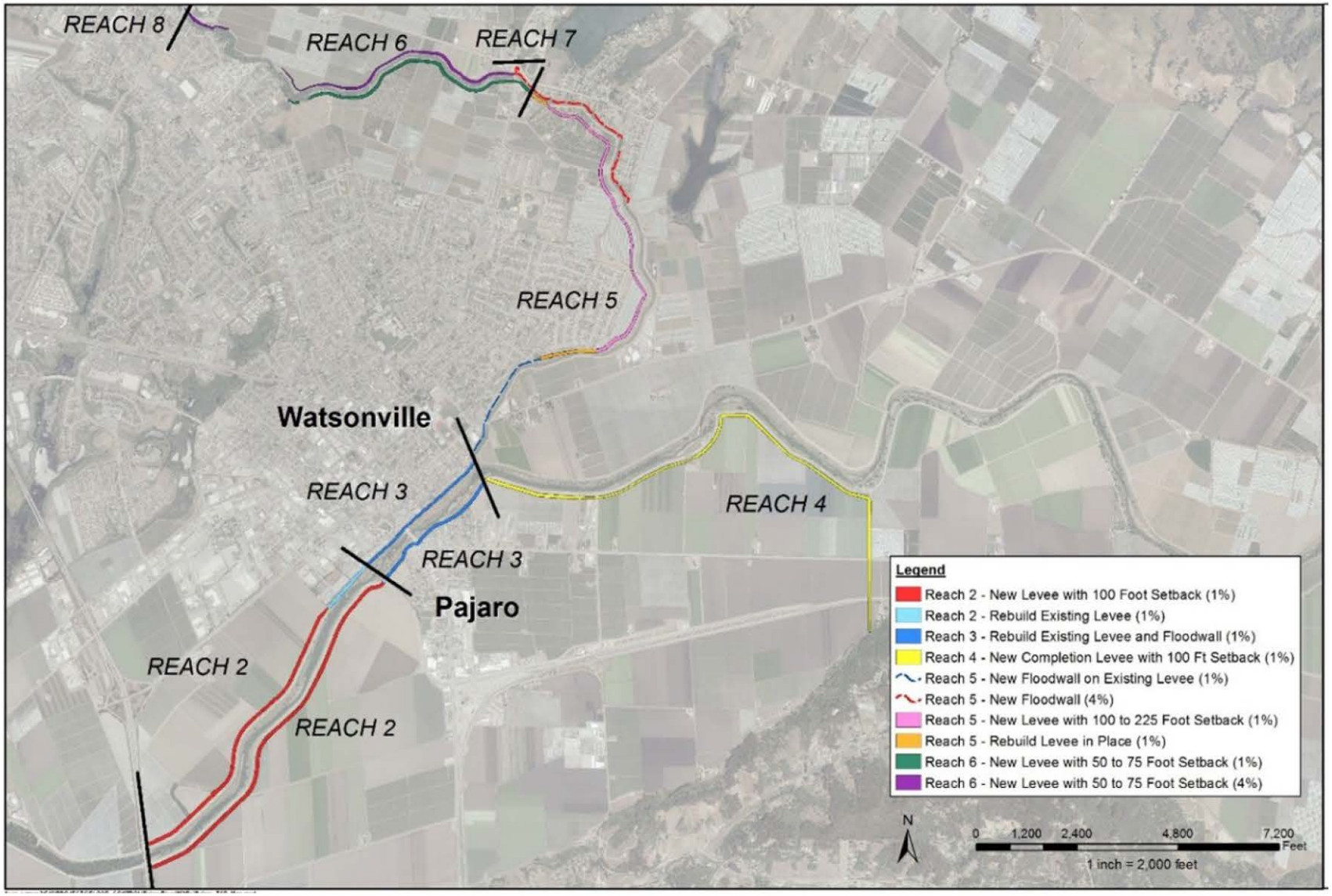

Figure 2. Proposed levee/floodwall treatments and estimated flood management levels (i.e., 1 or 4% exceedance probability) by reach. From Corps (2023).

Table 1. Proposed structural measures, setback areas created and 2019 baseline vegetation acreage by reach.

Reach	Waterway	Bank	Length (linear feet)	Measures	Riprap (linear feet)	Setback Area Created (acres)	2019 Baseline Vegetation (acres)
2	Pajaro River	Left	9,200	100-foot setback levee Demolish existing levees	9,200	8	39.71
		Right	7,400 1,300	100-foot setback levee Demolish existing levee Rebuild levee in place	7,400 1,300	6	
3	Pajaro River	Left	3,400	Floodwall on rebuilt levee Demolish existing levee	2,500	N/A	17.72
		Right	3,600	Floodwall on rebuilt levee Demolish existing levee	2,500	N/A	
4	Pajaro River	Left	10,600 3,200	100-foot setback levee Demolish existing levee New completion/tieback levee	4,100 0	11	50.59
5	Salsipuedes Creek	Left	5,400	New floodwall	5,400		23.19
		Right	8,500 1,300 3,100	100 to 245-foot setback levee Rebuild levee in place New floodwall on rebuilt levee	8,500 1,000 200	20	
6	Corralitos Creek	Left	9,300	New 50 to 75-foot setback levee	9,300	7	22.54
		Right	6,200	New 50 to 75-foot setback levee	6,200	9	

Construction

Construction will begin with Reach 6 and continue in a downstream progression as funding becomes available. In total, the Project would require approximately 8 construction seasons, with up to 6 months per season. In-water construction is not anticipated to occur for levee improvements. If in-water work is required it would be associated with replacement of the bridges over the creek channels. In-water, or in-channel, work for these bridge replacements would be restricted to June 15 to October 15. A water diversion may be necessary to provide a temporary dry work area. Examples of a water diversion include use of sand and/or gravel bag barriers or a watertight water bladder dam (polyethylene tube filled with water). Any flow in the channel would be diverted around the construction site in a culvert or by shunting water to a portion of the channel.

Approximately 1.33 million cubic yards of soil will be needed for construction. When possible, borrow material will be sourced from the existing levees proposed for demolition, or from other lands within the proposed setback area to lower the floodplain elevations (i.e., create lower benches). Up to 75 percent of the existing levee material is estimated to be appropriate for construction of the new setback levees based on geotechnical composition, and the remaining material would be disposed of appropriately. Construction of the new levees and floodwalls will result in the removal of approximately 3.6 acres of riparian shrub-scrub habitat and approximately 6.8 acres of riparian forest within the footprint of the new levees and floodwalls. The majority of this will occur in Reach 5, with individual and small stands of trees/shrubs potentially affected in the other project reaches. The Corps will attempt to minimize these impacts through the design process, as practicable.

In reaches where setback levees are proposed, staging and stockpile areas will be located between the existing and setback levee footprints, whenever practicable. Reaches where no setback levees are proposed will have identified staging and stockpile areas on the floodplain bench, as practicable, or on other areas landside of the levees. These areas will include staging of personal worker vehicles, construction equipment, storage of construction materials, any trailers or construction offices needed onsite, and stockpile of sediment, rock, or other levee materials.

Maintenance

SCC Zone 7 and MCWRA are the local agencies (agencies) responsible for the maintenance of the existing levee system as well as channel maintenance. This includes vegetation thinning and sediment removal on an as-needed basis to maintain the design capacity of the system. Maintenance of levees and floodwall facilities will also be performed to maintain as-built conditions and function.

The agencies are in the process of developing the Pajaro River and Salsipuedes Creek Stream Maintenance Program Manual (SMP Manual) for maintenance activities in the Pajaro River from Murphy Crossing to its river mouth at Monterey Bay, and Salsipuedes Creek from Highway 152 to its confluence with the Pajaro River. The agencies will pursue a Regional General Permit (RGP) from the Corps for ongoing maintenance activities conducted under the SMP.

As part of the proposed action, the Corps will prepare a new OMRRR manual to establish the long-term maintenance requirements within the action area, including the levee facilities and floodplain setback areas. The new OMRRR manual is expected to be initially completed following construction of Reach 6 in 2025, and would be updated subsequently at the completion of each reach's construction contract. As a result, the operations and maintenance requirements would be in place on a reach by reach basis starting with Reach 6, and would be fully in place following completion of Reach 2, estimated in approximately 2034.

The SMP Manual, under development for current/ongoing maintenance (described above), would be updated as needed to account for any new maintenance requirements developed for the OMRRR that arise during the phased implementation of the Project. To ensure ESA compliance during and following construction, the agencies have agreed to incorporate all requirements described in the BA (Corps 2023) into their SMP Manual updates.

Sediment and Debris Management – Sediment and other debris (i.e., trash, refuse) that accumulate in the Project channels will be removed periodically to maintain flow capacity and reduce the potential of scour of Project facilities. Sediment and debris removal will occur outside of the low-flow channel, when flow is at its lowest levels between July through September. The specific locations, amounts, and frequency of sediment and debris removal are dependent upon hydrologic conditions. Sediment and debris will be removed using heavy equipment such as backhoes or front-end loaders. If the sediment is deemed to be quality fill, it may be used for local levee repairs. Removed sediment may also be made available to local partners seeking material for restoration projects, such as tidal marsh restoration. If neither, then the sediment (and debris) will be disposed of appropriately. Disturbance to stream banks and riparian vegetation will be minimized as much as possible by designating an approved path for the movement of heavy equipment. Damage to or removal of large trees (i.e., greater than 4 inches diameter at breast height, DBH) will be avoided to the extent possible. Erosion control measures such as straw wattles and hydro seeding will be employed as appropriate.

Vegetation Management – The purpose of vegetation maintenance activities is to maintain vegetative cover for erosion protection and to provide terrestrial and aquatic habitat, while concurrently managing the flood conveyance capacity (i.e., public safety) of the facility. This would be performed in dry areas of the channel without encroaching on standing or flowing waters. Cuttings may be disposed of on upland benches and banks, at a local landfill, or an industrial composting facility. Vegetation maintenance would take place between March 1 and October 15.

A vegetation baseline acreage will be preserved. The intent behind this baseline condition is to ensure that high value riparian habitat, particularly habitats adjacent to aquatic features, is preserved under future with-project conditions while allowing for maintenance to primarily, but not exclusively, occur within areas of lower value habitat. Under the future conditions, with levee setbacks in place, the channel corridor will be wider, and allow more space for fluvial processes, including increased scour and deposition, which would naturally alter the existing vegetation extent. These dynamic processes are encouraged and expected to contribute to higher value habitat within the riparian corridor. The baseline was established from a 2019 aerial survey

and resulted in a baseline extent of 153.75 acres of native vegetation within the Project footprint (Table 1).

Under the future with-project conditions, it is anticipated that largescale vegetation reduction will cease until vegetation growth has exceeded the baseline acreage. Standard levee vegetation management such as removal of invasive species and mowing of the levee vegetation-free zone would still be required. The need for vegetation maintenance would be demonstrated through hydraulic analyses or by expert opinion provided by a registered engineer or practicing hydrologist or geomorphologist. The agencies will coordinate potential vegetation management actions among the Corps and the Services, as outlined below.

Any vegetation management activities planned by the agencies that would reduce the vegetated baseline acreage would require mitigation. However, mitigation will not be required for reductions to baseline acreage caused by natural processes, including events such as flooding, drought, wildfire, natural stream meander, or reductions caused by activities not authorized by the non-federal sponsor such as encampments, illegal activities, etc.

When future maintenance activities need to occur within a portion of the baseline acreage that has been established for preservation as a high value habitat area (determined by the Services), the agencies will meet with the Corps and the Services to discuss: 1) planned vegetation and/or sediment removal strategies and associated effects; and 2) proposed mitigation for these effects (if any). The coordination meetings would also provide an opportunity to discuss observed changes to the baseline condition, including any changes caused by natural processes (flooding, drought, wildfire, etc.), increases in vegetation extent from active or passive restoration, or reductions caused by activities not authorized by the non-federal sponsor such as encampments, or other illegal activities. The Services, the Corps, and the agencies must agree to commensurate mitigation prior to anticipated authorized impacts taking place. Mitigative features could include, but are not limited to, actions that increase available habitat through installation of large wood within the channel and floodplain areas, increased microhabitat features such as swales and other wetland features within or near the levee system, or other features that enhance species habitat within the levee system, or purchasing credits at a Service-approved conservation bank, species account, or in-lieu-fee program. Mitigation for impacts that reduce vegetation acreage below the baseline must be implemented within six months of those respective impacts, or within a timeframe agreed upon by the Services.

Levees and Floodwalls – Levees will be maintained to the as-built condition in perpetuity including maintaining a consistent shape, including side slopes, height and composition. Holes or burrows into the levee caused by animals will be properly backfilled by hand or heavy equipment and measures taken to deter, remove, and/or exterminate burrowing animals. Access roads to and along the levee as well as the levee crown will be maintained to the as-built condition ensuring that the crown is sloped to drain and the access roads are sloped to prevent ponding, allowing all-weather access. The agencies will be responsible for making sure encroachments do not occur within the right of way of the project that might endanger efficient functioning of the levee.

The Corps' standards for levee maintenance require that levees, floodwalls, and lands 15 feet landward and waterward of the levee toes or floodwall face, must be maintained free of woody vegetation unless a design deviation is granted by the Corps through the levee safety risk assessment process. The grasses on the slopes and easement areas will be maintained to 12 inches in height or less using mowers and herbicides. Woody vegetation may be planted where acceptable for the purpose of riparian habitat improvement.

For floodwall maintenance the maintaining agency will ensure that the floodwall is maintained in its as-built condition and constructed position. If the concrete cracks, spalls or has exposed rebar, the wall would be patched or repaired. Vegetation along the wall will be maintained within the Project easements to ensure visibility and accessibility to the wall. Erosion near the floodwall and floodwall foundation could threaten the stability and would be restored to the as-built condition and protected against future erosion. Lastly, drainage features for the wall will be inspected and properly maintained, including any pipes through the levee and drainage features for the wall itself. An 8-foot vegetation free buffer would be maintained from the underground toe of floodwalls. On the surface, this buffer zone could be 8 to 15 feet from the floodwall.

Herbicides will be used for targeted treatment of vegetation, particularly invasive, non-native species. To avoid or minimize potential adverse effects from exposure to the herbicides, only formulations approved for aquatic habitats (e.g., Rodeo®, Aquamaster®) will be applied around aquatic habitats, and their use will adhere to the manufactures' recommendations, as well as all state and federal regulations. Herbicides will only be applied to dry work sites, when no rain is forecasted to occur within 48 hours, and when wind conditions will limit or avoid drift. No surfactants (e.g., Competitor® - active ingredient Ethyl Oleate) will be added to herbicides used within 20 feet of an aquatic habitat. Application of herbicide treatments may occur from June 15 to October 15, with a backpack or hand-held sprayer when wind speeds are reduced. These methods of application are anticipated to result in low volumes of herbicide being applied to vegetation and soils.

Avoidance and Minimization and Conservation Measures

The Corps proposes several avoidance and minimization measures (AMMs) and best management practices (BMPs) during construction and future maintenance activities (see Section 3.3 of the BA [Corps 2023]). These measures include: conducting environmental awareness training for construction staff; implementing dust management actions; limiting ingress/egress paths for staff and equipment; reseeding all disturbed areas with native plant mix; implementing soil erosion control measures; restricting in-channel work to approved work windows; applying only herbicides approved for use around aquatic habitats and following application guidelines measures described above; and using designated areas for servicing and fueling equipment to avoid spills or leakage of fuels or oils in sensitive habitats (Corps 2023).

The Project is will reconnect 61 acres of floodplain/channel. The Project will incorporate habitat improvement features through grading and lowering of floodplain surface elevations that will create opportunities for future, more specific habitat restoration. The Corps' Engineering with Nature (EWN) Program has provided funding to support the San Francisco District over the period of 2022-2023 to create an "EWN playbook" that would highlight five key projects in the District that could benefit from communication tools, design guidelines, research, and science

related to EWN advancements. The Pajaro River project was chosen to be part of the playbook. The playbook team is comprised of researchers and subject matter experts from various entities including the University of Virginia, University of Auburn, and the University of California-Davis.

We considered, under the ESA whether or not the proposed action would cause any other activities and determined that it would not.

Action Area

The action area is located in the Pajaro Valley along the boundary of Santa Cruz and Monterey counties, and includes portions of three named waterbodies: the Pajaro River and its tributaries Corralitos and Salsipuedes creeks (Figure 1 and Figure 2). The action area includes areas within the City of Watsonville and the town of Pajaro as well as 8,250 acres of surrounding agriculture. The Project extends along 9.2 river miles and will include activities along and within the channel banks and bottom.

The presence and extent of riparian vegetation in the action area varies by reach and bank (Table 1). On the Pajaro River, relatively dense vegetation, consisting of mixed-aged stands exists along the low-flow channel and portions of the channel banks. Outside of the channel banks, riparian vegetation on the channel benches and levees is less prominent or absent due to maintenance. These areas are managed by the agencies to minimize channel roughness. With the exception of the upper and lower most reach extents, Salsipuedes Creek is devoid of riparian vegetation, while the short stretch of Corralitos Creek within the action area supports mature riparian vegetation on both banks. Sediment within the river/creek channels varies but is comprised predominantly of sand and fine sediments.

Streamflow in these channels varies widely across seasons. During the dry season, flow in the Pajaro River is typically less than 3 cubic feet per second, and consists largely of agricultural return flows. During the dry season lower Corralitos Creek is dry, while Salsipuedes Creek has intermittent agricultural and urban return flows. Available surface flow during the dry season is warm, with elevated turbidity (Smith 2007; 2013). Extensive sections of the existing levees are lined with riprap, or old rubble (e.g., broken concrete or other debris). Portions of the Pajaro River channel within the action area support extensive homeless communities which generate considerable amounts of debris as well as other alterations to the habitat (e.g., cutting of vegetation, fires, channel/levee excavations).

BACKGROUND AND ACTION AGENCY'S EFFECTS DETERMINATION

Available information indicates the following Distinct Population Segment (DPS) under the jurisdiction of NMFS may be affected by the proposed Project:

South-Central California Coast (S-CCC) steelhead DPS (*Oncorhynchus mykiss*)
threatened (71 FR 834; January 5, 2006)
critical habitat (September 2, 2005; 70 FR 52488).

The Corps determined the proposed Project may affect, but is not likely to adversely affect S-CCC steelhead DPS or its designated critical habitat due to the proposed avoidance and minimization measures (work windows), and because the project will increase the amount of floodplain habitat available.

The Pajaro River watershed supports a population of steelhead, which NMFS identified as a Core 1 for the recovery of the DPS (NMFS 2013). The life history of steelhead is summarized in Shapovalov and Taft (1954) and Busby et al. (1996). Juvenile steelhead may reside in freshwater anywhere from one to three years before emigrating to the ocean as smolts from January to June (Shapovalov and Taft 1954). Adult steelhead migrate upstream from the ocean to spawning grounds from December through May (Shapovalov and Taft 1954). S-CCC steelhead utilize the waterways within the action area as a migration corridor between spawning and juvenile rearing habitat located in upstream tributary streams.

NMFS designated Corralitos Creek, Salsipuedes Creek, and the Pajaro River as critical habitat for the S-CCC steelhead DPS. The designation of critical habitat for S-CCC steelhead uses the term primary constituent element (PCE), or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a ''destruction or adverse modification'' analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. The PBFs for S-CCC steelhead critical habitat and their associated essential features within freshwater include:

- freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
- freshwater rearing sites with:
    - water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
    - water quality and forage supporting juvenile development; and
    - natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and
- freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

For the proposed action, PBFs for steelhead within the action area are those related to freshwater migration.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not

occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Effects are considered discountable if they are extremely unlikely to occur.

The proposed action will result in the loss of riparian vegetation during construction and future maintenance activities; minor reductions in future large wood recruitment to the channels; temporary and minor increases in turbidity following construction and maintenance activities; potential exposure to herbicides; ongoing containment of the channels by levees and floodwalls; and a permanent increase in accessible floodplain habitat.

Effects to Steelhead

The levee and floodwall construction activities will occur outside of the river/creek low-flow channel, with most occurring in current agricultural lands. For construction, the Corps proposes a work window for in-channel, activities of June 15 to October 15. For sediment management, the Corps will follow a July 1 through September 30 work window, and for vegetation management, the Corps will follow a March 1 through October 15 work window. For both sediment and vegetation management activities, equipment would avoid entering flowing or standing waters. Based on the locations of the proposed construction and maintenance activities, the proposed seasonal work windows and low likelihood of species presence in the action area, NMFS expects S-CCC steelhead will not be exposed during these activities.

Disturbance to the channel bank slopes and floodplain benches during construction and maintenance activities is expected to result in temporary and minor increases in turbidity during the initial rewetting of disturbed surfaces. High and prolonged turbidity concentrations can reduce respiratory function, lower disease tolerance, and cause fish mortality (Sigler et al. 1984; Newcombe and Jensen 1996). NMFS expects the proposed BMPs and AMMs will effectively limit sediment erosion and not allow suspended sediment concentrations to reach levels that would cause injury or death to steelhead or alter their migratory behaviors. Therefore, NMFS believes any increases in suspended sediment concentrations resulting from the Project will be insignificant.

Vegetation maintenance will include the use of herbicides, particularly for the control of invasive, non-native species. Vegetation management with the application of herbicides has the potential to adversely affect steelhead from direct exposure and through impacts to their critical habitat (discussed below). As described above, the Corps proposes several measures to avoid or minimize their use and exposure to waters and steelhead. Only formulations approved for use in and around aquatic habitats will be used, and applications will be directly applied to targeted species using hand sprayers. Glyphosate is highly soluble in water, and studies have shown that glyphosate dissipates from streams within 3-14 days of exposure (Feng et al. 1990;

Goldsbourough et al. 1993; Newton et al. 1994). Sediment appears to be the major sink for glyphosate residue. Glyphosate readily binds to soil types and clay materials; and, therefore, it is highly immobile in soils and rendered inactive in a period of weeks (Norris et al. 1991). Based on the seasonal use and unlikely presence of steelhead, NMFS does not expect steelhead or their prey will be exposed to herbicides. Therefore, any potential effects to steelhead from herbicide applications, as proposed, will be discountable.

Effects to Critical Habitat

Sediment and Debris Removal – Sediment and debris removal will be conducted as needed in targeted areas. Sediment removal activities will focus on the benches and outer channel areas and will avoid the wetted channel. Due to the low channel gradients, or slope, and the lack of coarse sediments, sediment/debris removal is not expected to impair steelhead migration by creating hydraulic drops or other impediments within the channel bed. Furthermore, once higher winter flows inundate the treated areas, the sand-fine sediment substrate will be redistributed as it is exposed to scour and depositional processes. Therefore, NMFS finds that the relatively minor and localized removal of sediment and anthropogenic debris from the channel will result in only temporary and localized disturbances to the channel and floodplain areas, and that these effects to the steelhead migration PBFs will be insignificant.

Vegetation Removal – As described above, vegetation will be removed during construction of the new levee/floodwall facilities (majority in Reach 5) and during future channel maintenance activities. Riparian vegetation influences riverine habitats in a variety of ways including influences on water temperature, contributions of detritus and organic material, and physical habitat characteristics such as channel topography and flow velocities (Meehan et al. 1977; Montgomery et al. 2003; Opperman and Merenlender 2007).

For construction, an estimated 10.4 acres of vegetation will be removed. Based on the design plans, this vegetation will be located along the outer, landward edge of the existing riparian extent and not along wetted areas. With the exception of the required vegetation-free buffer zones at the foot of the levees/floodwalls, riparian areas disturbed during construction will be allowed to naturally recolonize by fast-growing tree species such as willow and cottonwood and associated understory species. In addition, the creation of new floodplain space will allow for some riparian vegetation to become established, both passively and through future restoration actions identified through the EWN and other local efforts.

Annual vegetation maintenance will consist of trimming or removing vegetation (including with herbicides) to maintain design flow capacity and public safety. The Corps has proposed to maintain a minimum baseline of 153.75 acres of mixed riparian scrub-shrub and riparian forest within the action area. The vast majority of vegetation that will be removed or trimmed is expected to occur on the levee surfaces, facility buffer areas, the benches, and the upper channel banks, while vegetation removal along the lower channel banks and bottom, and especially within 5 feet of the low flow channel, will be very limited.

For the Pajaro River, the upper and lower banks and low flow channel area are well-vegetated by mixed-aged riparian forest and scrub shrub, despite continued maintenance. Future channel maintenance will limit tree and shrub removal in the baseline area (i.e., near the aquatic habitats),

and where vegetation is removed appropriate tree spacing will be preserved to minimize creation of canopy openings. Thus, shade conditions along the Pajaro River should not experience change from baseline conditions. In Salsipuedes Creek (Reach 5), the channel largely lacks vegetation capable of providing shade due to existing management within the confined channel. With the future larger channel capacity, maintenance requirements for vegetation (particularly along the low flow channel) will decrease, which is expected to allow some vegetation establishment in this reach. In Reach 6 (Corralitos Creek), mature riparian vegetation exists on both banks, and like the Pajaro River reaches, construction and future vegetation maintenance activities in this reach are not expected to appreciably alter the amount or extent of canopy cover over the channel. Where riparian vegetation exists within the action area it is comprised almost exclusively of deciduous species, and, therefore, during the majority, if not all, of the steelhead migration periods, shade (and its water temperature influences) is naturally limited.

Standing riparian vegetation and in-channel wood also influence the physical environment by creating structural complexity, inducing scour and deposition, and by diversifying flow velocities; all of which influence habitat conditions for salmonid migration. As such, the removal of some trees each year will result in a minor reduction in standing trees/shrubs and future wood recruitment to the channel. To minimize this loss, removal of larger trees will be limited to the greatest extent possible, particularly close to aquatic habitats (i.e., waters). Low-stature shrubs and tree branches will be targeted for trimming or removal to reduce roughness. Farther out on the floodplain and benches, some shrubs and trees are expected to become established where they currently do not exist. Collectively, the amount and extent of vegetation clearing is not expected to modify the physical channel dimensions or complexity to an extent that would adversely affect steelhead migration through the action area.

Overall, the larger channel provided by the setback levees is expected to reduce the frequency and the quantity of vegetation disturbance, which is expected to allow for a greater abundance, diversity, and spatial extent of riparian vegetation communities within the action area—including the 61 acres of newly exposed floodplain that have largely been farmed for nearly 75 years. Based on the limited, and targeted, amount of vegetation expected for removal, the rapid regrowth of native riparian species, and proposed minimization measures, NMFS finds the effects of vegetation management during construction and maintenance will be temporary and localized in nature, and not expected to appreciably alter the quality or extent of migratory PBFs for steelhead. These effects are considered insignificant.

Channel Confinement and Levee Armoring – Since their construction in 1949, the existing flood control facilities have kept the Pajaro River and Salsipuedes Creek channels in their current alignments, and have limited the amount of floodplain habitat accessible to species. The under-sized facilities have required frequent disturbance to wetland communities to avoid flooding and as a reactionary response to damaging flood events (Corps 2023). The proposed action will continue to restrict the evolution of the channel alignments within the action area but will decrease the extent of channel confinement, while reducing maintenance needs.

The S-CCC steelhead recovery plan (NMFS 2013) identified multiple recovery actions related to flood control in the Pajaro River. These actions included:

- Paj-SCCC-5.1. Develop and implement a flood control maintenance program;
- Paj-SCCC-7.1. Develop and implement a plan to vegetate levees and eliminate or minimize herbicide use near levees;
- Paj-SCCC-7.2. Develop and implement a plan to restore natural channel features;
- Paj-SCCC-7.3. Develop and implement a stream bank and riparian corridor restoration plan.

The proposed action will contribute towards fulfilling each of these recovery actions. The exposed 61 acres of floodplain in the action area will provide space for both passive and active restoration including minimizing disturbance to and the expansion of riparian vegetation (Paj-SCCC-7.3), restore more natural floodplain interaction and the development of more natural channel features (Paj-SCCC-7.2), and will ultimately result in a flood control maintenance program (Paj-SCCC-5.1). Revegetation of the levee slopes and toes (Paj-SCCC-7.1) is not allowed per safety requirements regardless of their location. However, this recovery action was developed with the existing levee configuration in mind. As described above, the setback levees will facilitate more vegetation, less disturbance (less need for herbicide) and, therefore, an improved riparian community within the action area. Levee surfaces will be maintained primarily by mowing and only herbicide formulas approved for use in and around aquatic habitats will be used during the dry season to avoid impacts to aquatic environments.

The proposed action includes the placement of riprap along much of the levee alignments to minimize risk of damage to facilities and public safety. Armoring of channel banks with riprap can greatly limit riparian vegetation and natural channel forming processes that in turn help shape the diversity of habitats available for aquatic species (Fischenich 2003). These impacts are most pronounced where levee slopes are located immediately adjacent to and along the low flow, or even bankfull, channel margins where the riprap is a more persistent feature with more regular interaction with species. For the proposed action, the placement of riprap will be limited only to the water side levee slopes at the outer margin of the floodplain. Only during periods of high discharge would species have an opportunity to interact with the riprap.

Although the wider flood control facilities (levees, floodwalls, and riprap) will continue to restrict channel migration and evolution on the valley floor, NMFS does not expect the new, larger flood control facility will diminish the overall quality or extent of PBFs for steelhead migration. NMFS, therefore, considers the future effects of the new facilities on steelhead critical habitat to be insignificant. Moreover, the proposed action is expected to reduce channel confinement along much of the 9.2 mile action area and provide a wider channel cross section with varying surface elevations, which in turn will increase the variability of water velocities in the channel. These physical changes are expected to improve the PBFs for migrating adult and juvenile steelhead.

Conclusion

Based on this analysis, NMFS concurs with the Corps that the proposed action is not likely to adversely affect the subject listed species and designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Corps or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the proposed action causes take; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA consultation.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. The Corps also has the same responsibilities, and informal consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1). To that end, NMFS has the following recommendations for the Corps.

- As designs for the new setback levees (particularly Reaches 2 and 4) continue to be developed, we encourage the Corps to work with the agencies, landowners, and other regional stakeholders to maximize levee setback distances to the greatest extent possible. Greater setback distances would increase the conservation value of the flood control facility by: providing additional habitat space for species; increasing climate resiliency and ecosystem adaptation (including sea level rise); and improving groundwater recharge. In addition, greater setback distances would further reduce maintenance needs within the action area.

- NMFS also recommends the Corps continue to develop and help facilitate the implementation of restoration actions identified through their Engineering with Nature effort in the Pajaro River.

Please direct questions regarding this letter to Joel Casagrande at joel.casagrande@noaa.gov or at 707-575-6016.

Sincerely,

A. Ingham

Amanda Ingham
Central Coast Branch Supervisor
North-Central Coastal Office

cc: Anne Baker, NEPA Regional Technical Specialist, Corps, Anne.E.Baker@usace.army.mil
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Ecological Services
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
2022-0014182-S7-001

February 24, 2023

Julie Beagle, Chief, Environmental Planning Section
San Francisco District
U.S. Army Corps of Engineers
450 Golden Gate Avenue
San Francisco, California 94102

Subject: Biological Opinion on Pajaro River Flood Risk Management Project

Dear Julie Beagle:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the U.S. Army Corps of Engineers' (Corps) proposed authorization and funding of the Pajaro River Flood Risk Management Project (project) near the City of Watsonville in Santa Cruz and Monterey Counties, California and its effects on the federally threatened California red-legged frog (*Rana draytonii*) and yellow-billed cuckoo (*Coccyzus americanus*), and the federally endangered least Bell's vireo (*Vireo bellii pusillus*) in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act or ESA) (16 U.S.C. 1531 et seq.).

We received your August 16, 2022, request for formal consultation and biological assessment (Corps 2022) via electronic mail on August 18, 2022. We responded to your consultation request on September 26, 2022 (Service 2022b), requesting additional information primarily regarding post-construction maintenance of the levee system. You provided all requested information in the revised biological assessment on January 31, 2023 (BA) (Corps 2023), subsequently enabling consultation to proceed. Please refer to the Consultation History section of this document for additional information.

We have based this biological opinion on information that accompanied your August 16, 2022, request for consultation, the BA (Corps 2023), electronic mail between Corps and Service staff, and other information in our files.

Not Likely to Adversely Affect Determinations

Your request for consultation included the determination that the proposed action may affect, but is not likely to adversely affect the yellow-billed cuckoo and least Bell's vireo.

Avoidance and Minimization Measures:

1. Construction activities will be scheduled to occur outside of the nesting seasons (April 15 – September 1) to the extent feasible.

2. Prior to each construction season, a Service-approved biologist will conduct presence absence surveys in accordance with Service-established protocols and guidelines within 300 feet of all areas where construction will occur that season.

3. If nesting vireos or cuckoos are detected within 300 feet of where construction activities would occur, a 300-foot buffer would be established until the young fledge or the biologist determines that the nest is inactive.

4. When working within 500 feet of an active vireo or cuckoo nest, a Service-approved biologist will monitor the nest(s) daily to determine if project activities are affecting nesting behavior. If nesting behavior is being affected, all work within 500 feet will cease and the Service immediately contacted.

After reviewing the information provided, we concur with your determination that the proposed action may affect, but is not likely to adversely affect the yellow-billed cuckoo and least Bell's vireo. Our concurrence is based on the following:

1. Although the project occurs with the ranges of the yellow-billed cuckoo and least Bell's vireo, these species have not been observed within the action area.

2. The Corps has committed to implement the above avoidance and minimization measures.

Our concurrence with the determination that the proposed action is not likely to adversely affect the yellow-billed cuckoo and least Bell's vireo is contingent on the measures outlined being implemented by the Corps. If the Corps fails to implement these measures, we will consider our concurrence invalid. If the proposed action changes in any manner or if new information reveals the presence of listed species not addressed by this biological opinion in the project area, you should contact our office immediately and suspend all project activities until the appropriate compliance with the Act is completed.

Consultation History

The Service has participated in many planning and stakeholder meetings from 2001 to 2023 regarding this project. Please refer to the BA (Corps 2023, pp. 8-10) for a detailed accounting of coordination between the Service and Corps regarding this project.

As stated above, you requested initiation of consultation on August 16, 2022, and we responded (Service 2022b) discussing the need for additional information. In particular, the original BA (Corps 2022) states that "Specific requirements for maintenance of this area will be completed

prior to completing project construction and included in the Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual (OMRRR)…. If the OMRRR Manual requires additional maintenance that would create additional effects on listed species beyond those analyzed in this BA, USACE would reinitiate consultation to ensure appropriate measures are incorporated to ensure compliance with the ESA." We indicated in our letter (Service 2022a) that "Because vegetation management to achieve flood reduction risk reduction, as required by the OMRRR, is part of a larger action (proposed action) and depends on the larger action for its justification, this interrelated and interdependent activity must be included in your consultation request…" These concerns are substantiated in that ongoing maintenance, as required by the original Pajaro River Levee Project Operation and Maintenance Manual, has been and continues to be conducted by the non-Federal partners of this project without complying with the ESA.

This issue was addressed through coordination among the Service, non-Federal sponsors (also known as the local maintaining agency), and your staff between September 26, 2022, through January 30, 2023. You also indicated during a conference call on December 21, 2022, that the non-Federal sponsors of this project have committed to obtaining a Regional General Permit (RGP) for maintenance activities that are anticipated to occur prior to construction of this project and that the non-Federal sponsors have participated in a pre-application meeting regarding obtaining an RGP for ongoing vegetation management activities.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Corps proposes to fund and authorize the project which consists of structural improvements to the Pajaro River levee system. Additional project components include post-construction levee and floodwall maintenance and repair and post-construction channel (vegetation) maintenance to maintain hydrologic channel capacity. The project is located in the Pajaro Valley in the vicinity of the City of Watsonville and Town of Pajaro, with the river constituting the boundary between Santa Cruz and Monterey Counties.

Levee Construction

Depending on factors such as physical location within specific reaches and economic justification, the levee system would be improved by a variety of methods. These include removing existing levees and constructing new levees that are setback between 100-250 feet, improving existing levees in place and placement of floodwalls, constructing new levees, and placing erosion protection (i.e., rip-rap) to reinforce levees. For more detail on levee system improvements, refer to Corps 2023, pp. 17-28, which is hereby incorporated by reference.

The total project length is approximately 9.2 miles and is described in the BA in reaches. Reaches 2 through 4 are located along the main stem, with reach 2 beginning at Highway (HWY) 1 extending 4.4 miles upstream through Reach 4. Reach 5 includes 2.4 miles of

Salsipuedes Creek, upstream of the confluence with the Pajaro River, and Reach 6 includes Corralitos Creek extending 1.8 miles upstream from HWY 152 to Green Valley Road (Figure 1).

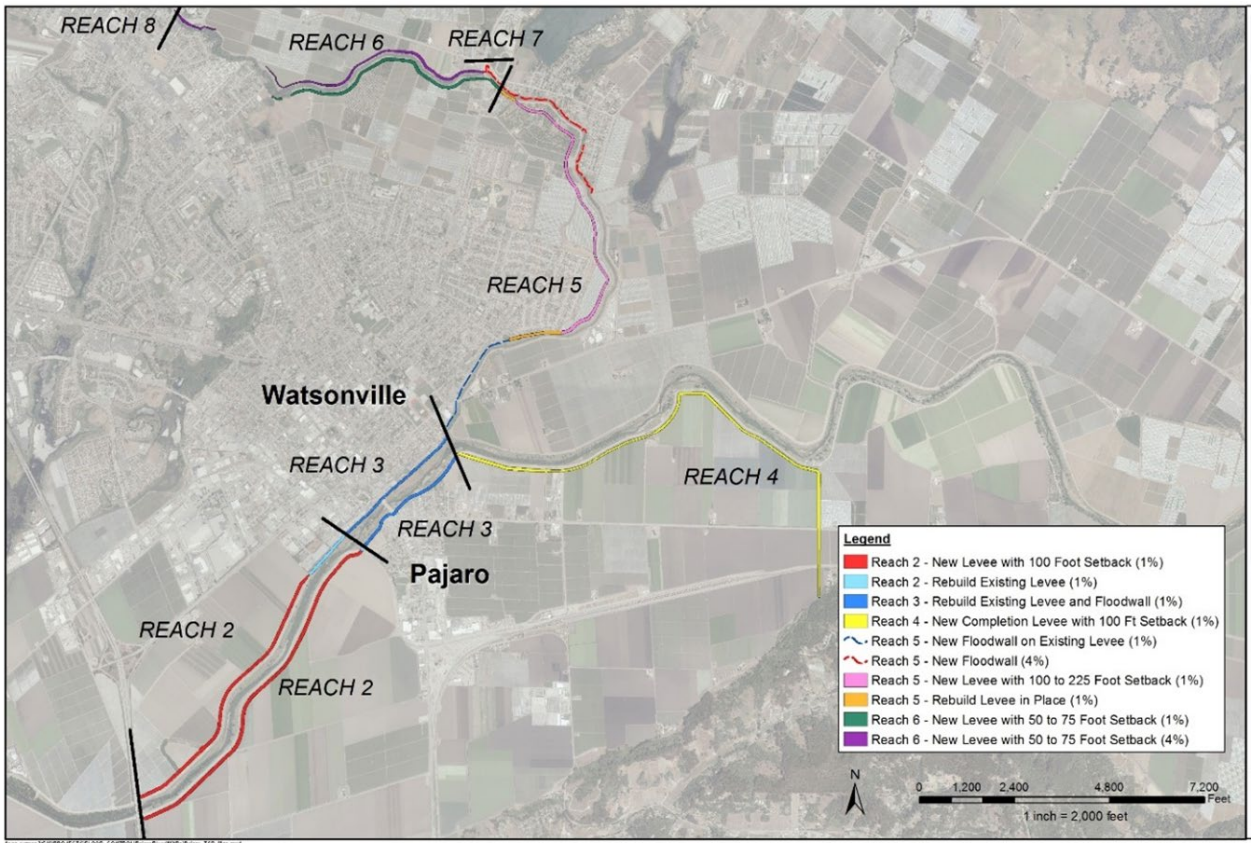

Figure 1. Project Area (reaches).

Construction of the project would result in the removal of approximately 3.6 acres of riparian shrub-scrub and 6.8 acres of riparian forest habitat, primarily within Reach 5. Levee setback associated with the project is anticipated to create approximately 61 acres of additional floodplain throughout the levee system, offsetting anticipated impacts to riparian habitats. The creation of 61 acres of additional floodplain is anticipated to increase hydrologic capacity, subsequently reducing or eliminating the need for the non-Federal sponsors of this project, who are charged with maintaining hydrologic channel capacity, to encroach on riparian habitat within an established vegetation baseline[1] (Corps 2023, Table 4).

Construction is anticipated to begin in the spring of 2024, taking 8 to 10 years to complete. In-water work is not anticipated to occur, with the possible exception of work involving replacement of the HWY 152 bridge over Corralitos Creek.

[1] The need to establish a vegetation baseline stems from recent appeals from the Service (Service 2021, 2022a) for the non-Federal sponsors to comply with the Act regarding ongoing vegetation management within the Pajaro River levee system.

Post-Construction Sediment, Floodwall, Levee, and Vegetation Maintenance and Management

As part of this project, the Corps would prepare a new OMRRR manual (manual) to establish the long-term maintenance and management requirements for the new levee system. The new manual is expected to be initially completed following construction of the first reach (Reach 6) in 2024 and would be updated periodically as each reach is constructed, culminating in a final manual at the end of construction (anticipated in 2034).

Based on discussions among the Service, National Marine Fisheries Service (NMFS), Corps, and the non-Federal sponsors, it is expected that after completion of the levee system improvements within each reach, the baseline acreage (Corps 2023, Table 4) (within each respective reach) would remain in place without the need for large-scale vegetation management due to the substantial increase in available floodplain. In particular, riparian habitat adjacent to aquatic features is expected to be preserved post-construction. Once construction is complete within each project reach, large-scale vegetation management activities (within each completed reach) is anticipated to cease until vegetation growth exceeds the baseline acreage. Any planned vegetation management activities of the local maintaining agency that would reduce the extent of vegetation below the baseline acreage will require mitigation (Corps 2023, p. 34). Mitigation would not be required for reductions to baseline acreage caused by natural processes including events such as flooding, drought, wildfire, natural stream meander, or reductions caused by activities not authorized by the non-Federal sponsor such as homeless encampments and illegal activities.

Once a project reach is constructed, when maintenance or management activities are anticipated to result in the reduction of the baseline acreage that has been established as high value habitat as determined by the Service and NMFS, the local maintaining agency will coordinate with the Service and NMFS to discuss the planned vegetation removal and proposed mitigation for those effects. The Service, NMFS, Corps, and local maintaining agency must agree to commensurate mitigation prior to those impacts taking place and mitigation must be implemented within 6 months of those respective impacts taking place, or within a timeframe agreed upon by the Service and NMFS (Corps 2023, p. 34).

Sediment and debris jams that accumulate in the project area would be periodically removed to maintain flood capacity and reduce scour. Sediment and debris jam removal would occur outside of the low-flow channel when flow is at its lowest. The specific location, amount, and frequency of sediment and debris removal would be dependent on hydrologic conditions but is expected to occur every 3 to 5 years.

New concrete structures such as floodwall, bridges, and culverts would be regularly inspected, and damages repaired as needed. Levees would be maintained in perpetuity to ensure consistency with the as-built condition and could include repairs to maintain shape, slope, height, and composition. For a complete description of proposed activities, please refer to the revised BA (Corps 2023, pp. 28-35).

Upon completion of construction of the new levee system the Corps' permit would lapse, therefore resulting in the loss of take authorization for future maintenance and management activities conducted within the action area. Following the loss of take authorization, the local maintaining agency must obtain take coverage under the Act for activities that would result in take of the California red-legged frog, including those activities that result in harm via significant habitat modification. Based on discussions with the Corps and non-Federal sponsors, we expect the local maintaining agency (and subsequently the Corps) to obtain take coverage through reinitiation of this consultation (with the Federal nexus being a proposed RGP from the Corps). At that time, we expect that the local maintaining agency would implement a stream maintenance program, which would detail all aspects of maintenance and management activities within the Pajaro River levee system and would incorporate vegetation management and mitigation criteria as discussed in the BA (Corps 2023, pp. 33-34) and this document.

Conservation Measures

To minimize impacts to the California red-legged frog during construction of the project, the Corps agrees to implement the following measures.

1. A qualified biologist will provide training to all workers on the identification, habitat requirements, and conservation measures that are intended to protect California red-legged frogs.

2. A Service-approved biologist will conduct preconstruction surveys for California red-legged frogs immediately prior to or concurrent with activities taking place within upland (riparian) or aquatic habitat.

3. Prior to work activities each morning, construction personnel will survey under vehicles and equipment, and within all areas that could provide cover for the California red-legged frog.

4. If a California red-legged frog(s) is observed by anyone during project activities, all work that could impact the species must cease and a Service-approved biologist immediately notified. Work may continue in these areas when California red-legged frogs leave the area on their own volition or are captured and relocated by a Service-approved biologist.

5. The Service-approved biologist will have the authority to halt work at any time to prevent harm to the California red-legged frog or when any of the conservation measures are not being properly implemented.

6. A Service-approved biologist will be the contact for any employee or contractor who inadvertently kills or injures a California red-legged frog or finds a dead, injured, or entrapped individual. The biologist will report the incident to the Service via electronic mail within one working day.

7. All food-related trash items will be disposed of in secure, closed containers and removed regularly to reduce the potential to attract predators. After construction, all trash and construction debris will be removed from work areas.

8. All steep-walled earthen holes and open trenches 6 inches deep or greater will be covered each night or provided with escape ramps to prevent entrapment of California red-legged frogs. Excavations will be inspected for animals each morning, prior to any work in or around them, and before they are backfilled.

9. If a work area is to be dewatered by pumping, intakes will be completely screened with mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system.

10. Project personnel will conduct daily inspections of vehicles and equipment to reduce the potential for contamination of habitats.

To minimize impacts to the California red-legged frog during operations and maintenance (including vegetation management) of the project, the Corps agrees to implement the following measures.

1. A qualified biologist will provide training to all workers on the identification, habitat requirements, and conservation measures that are intended to protect California red-legged frogs.

2. A Service-approved biologist will conduct preconstruction surveys for California red-legged frogs immediately prior to or concurrent with activities taking place within upland (riparian) or aquatic habitat.

3. Prior to work activities each morning, construction personnel will survey under vehicles and equipment, and within all areas that could provide cover for the California red-legged frog.

4. If a California red-legged frog(s) is observed by anyone during project activities, all work that could impact the species must cease and a Service-approved biologist immediately notified. Work may continue in these areas when California red-legged frogs leave the area on their own volition or are captured and relocated by a Service-approved biologist.

5. The Service-approved biologist will have the authority to halt work at any time to prevent harm to the California red-legged frog or when any of the conservation measures are not being properly implemented.

6. A Service-approved biologist will be the contact for any employee or contractor who inadvertently kills or injures a California red-legged frog or finds a dead, injured, or

entrapped individual. The biologist will report the incident to the Service via electronic mail within one working day.

7. Vehicle travel will be confined to established roads or paths in the project area and parking will be confined to established parking and staging areas.

8. Project personnel will conduct daily inspections of vehicles and equipment to reduce the potential for contamination of habitats.

Compensation for Habitat Loss

1. Temporary or permanent losses of California red-legged frog habitat that reduce the established vegetation baseline acreage (Corps 2023, Table 4) that has been established for preservation as a high value habitat area as determined by the Service and NMFS will be commensurately offset. The local maintaining agency will notify the Corps and Service of anticipated impacts to baseline acreage vegetation resulting from planned maintenance activities. The Corps, Service, NMFS, and local maintaining agency must agree to commensurate mitigation to offset losses of California red-legged frog habitat prior to those impacts taking place. Mitigation can include actions such as installation of large wood, increasing microhabitat features such as swales and other wetland or vegetation components within or near the project area, creation of California red-legged frog breeding habitat within the levee system, or purchasing credits at a Service-approved conservation bank, species account, or in-lieu-fee-program. Mitigation for impacts that reduce the baseline acreage must be implemented within 6 months of those respective impacts taking place or within a time-frame agreed upon by the Service (Corps 2023, p. 34).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species” (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the current rangewide condition of the California red-legged frog, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog; (3) the Effects of the Action, which determines all consequences to the California red-legged frog caused by the proposed action that are reasonably certain to occur in the action area; and (4) the Cumulative Effects, which evaluates the effects of

future, non-Federal activities, that are reasonably certain to occur in the action area, on the California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the California red-legged frog, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the California red-legged frog in the wild by reducing the reproduction, numbers, and distribution of that species.

STATUS OF THE SPECIES

Legal Status

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 Federal Register (FR) 25813). Revised critical habitat for the California red-legged frog was designated on March 17, 2010 (75 FR 12816, Service 2010). The Service issued a recovery plan for the species on May 28, 2002 (Service 2002).

Natural History

The California red-legged frog uses a variety of habitat types, including various aquatic systems, riparian, and upland habitats. They have been found at elevations ranging from sea level to approximately 5,000 feet. California red-legged frogs use the environment in a variety of ways, and in many cases, they may complete their entire life cycle in a particular area without using other components (i.e., a pond is suitable for each life stage and use of upland habitat or a riparian corridor is not necessary). Populations appear to persist where a mosaic of habitat elements exists, embedded within a matrix of dispersal habitat. Adults are often associated with dense, shrubby riparian or emergent vegetation and areas with deep (greater than 1.6 feet) still or slow-moving water; the largest summer densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Hayes and Jennings 1988, p. 147). Hayes and Tennant (1985, p. 604) found juveniles to seek prey diurnally and nocturnally, whereas adults were largely nocturnal.

California red-legged frogs breed in aquatic habitats; larvae, juveniles, and adult frogs have been collected from streams, creeks, ponds, marshes, deep pools and backwaters within streams and creeks, dune ponds, lagoons, and estuaries. They frequently breed in artificial impoundments such as stock ponds, given the proper management of hydro-period, pond structure, vegetative cover, and control of exotic predators. While frogs successfully breed in streams and riparian systems, high spring flows and cold temperatures in streams often make these sites risky egg and tadpole environments. An important factor influencing the suitability of aquatic breeding sites is the general lack of introduced aquatic predators. Accessibility to sheltering habitat is essential for

the survival of California red-legged frogs within a watershed and can be a factor limiting population numbers and distribution.

During periods of wet weather, starting with the first rains of fall, some individual California red-legged frogs may make long-distance overland excursions through upland habitats to reach breeding sites. In Santa Cruz County, Bulger et al. (2003, p. 90) found marked California red-legged frogs moving up to 1.7 miles through upland habitats, via point-to-point, straight-line migrations without regard to topography, rather than following riparian corridors. Most of these overland movements occurred at night and took up to 2 months. Similarly, in San Luis Obispo County, Rathbun and Schneider (2001, p. 1302) documented the movement of a male California red-legged frog between two ponds that were 1.78 miles apart in less than 32 days; however, most California red-legged frogs in the Bulger et al. (2003, p. 93) study were non-migrating frogs and always remained within 426 feet of their aquatic site of residence (half of the frogs always stayed within 82 feet of water). Rathbun et al. (1993, p. 15) radio-tracked three California red-legged frogs near the coast in San Luis Obispo County at various times between July and January; these frogs also stayed close to water and never strayed more than 85 feet into upland vegetation. Scott (2002, p. 2) radio-tracked nine California red-legged frogs in East Las Virgenes Creek in Ventura County from January to June 2001, which remained relatively sedentary as well; the longest within-channel movement was 280 feet and the farthest movement away from the stream was 30 feet.

After breeding, California red-legged frogs often disperse from their breeding habitat to forage and seek suitable dry-season habitat. Cover within dry-season aquatic habitat could include boulders, downed trees, and logs; agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay-ricks, and industrial debris. California red-legged frogs use small mammal burrows and moist leaf litter (Rathbun et al. 1993, p. 15; Jennings and Hayes 1994 p. 64); incised stream channels with portions narrower and deeper than 18 inches may also provide habitat (61 FR 25814). This type of dispersal and habitat use, however, is not observed in all California red-legged frogs and is most likely dependent on the year-to-year variations in climate and habitat suitability and varying requisites per life stage.

Although the presence of California red-legged frogs is correlated with still water deeper than approximately 1.6 feet, riparian shrubbery, and emergent vegetation (Jennings and Hayes 1994, p. 64), California red-legged frogs appear to be absent from numerous locations in its historical range where these elements are well represented. The cause of local extirpations does not appear to be restricted solely to loss of aquatic habitat. The most likely causes of local extirpation are thought to be changes in faunal composition of aquatic ecosystems (i.e., the introduction of non-native predators and competitors) and landscape-scale disturbances that disrupt California red-legged frog population processes, such as dispersal and colonization. The introduction of contaminants or changes in water temperature may also play a role in local extirpations. These changes may also promote the spread of predators, competitors, parasites, and diseases.

Rangewide Status

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Storer 1925, p. 235; Jennings and Hayes 1985, p. 95; Shaffer et al. 2004, p. 2673). The California red-legged frog has sustained a 70 percent reduction in its geographic range because of several factors acting singly or in combination (Davidson et al. 2001, p. 465).

Over-harvesting, habitat loss, non-native species introduction, and urban encroachment are the primary factors that have negatively affected the California red-legged frog throughout its range (Jennings and Hayes 1985, pp. 99-100; Hayes and Jennings 1988, p. 152). Habitat loss and degradation, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Continuing threats to the California red-legged frog include direct habitat loss due to stream alteration and loss of aquatic habitat, indirect effects of expanding urbanization, competition or predation from non-native species including the bullfrog, catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquito fish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkii*), and signal crayfish (*Pacifastacus leniusculus*). Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations, and is considered a threat to California red-legged frog populations.

Recovery

The 2002 final recovery plan for the California red-legged frog (Service 2002) states that the goal of recovery efforts is to reduce threats and improve the population status of the California red-legged frog sufficiently to warrant delisting. The recovery plan describes a strategy for delisting, which includes: (1) protecting known populations and reestablishing historical populations; (2) protecting suitable habitat, corridors, and core areas; (3) developing and implementing management plans for preserved habitat, occupied watersheds, and core areas; (4) developing land use guidelines; (5) gathering biological and ecological data necessary for conservation of the species; (6) monitoring existing populations and conducting surveys for new populations; and (7) establishing an outreach program. The California red-legged frog will be considered for delisting when:

1. Suitable habitats within all core areas are protected and/or managed for California red-legged frogs in perpetuity, and the ecological integrity of these areas is not threatened by adverse anthropogenic habitat modification (including indirect effects of upstream/downstream land uses).

2. Existing populations throughout the range are stable (i.e., reproductive rates allow for long-term viability without human intervention). Population status will be documented through establishment and implementation of a scientifically acceptable population monitoring program for at least a 15-year period, which is approximately 4 to 5

generations of the California red-legged frog. This 15-year period should coincide with an average precipitation cycle.

3. Populations are geographically distributed in a manner that allows for the continued existence of viable metapopulations despite fluctuations in the status of individual populations (i.e., when populations are stable or increasing at each core area).

4. The species is successfully reestablished in portions of its historical range such that at least one reestablished population is stable/increasing at each core area where California red-legged frog are currently absent.

5. The amount of additional habitat needed for population connectivity, recolonization, and dispersal has been determined, protected, and managed for California red-legged frogs.

The recovery plan identifies eight recovery units based on the assumption that various regional areas of the species' range are essential to its survival and recovery. The recovery status of the California red-legged frog is considered within the smaller scale of recovery units as opposed to the overall range. These recovery units correspond to major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of the range of the California red-legged frog. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit.

Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations that combined with suitable dispersal habitat, will support long-term viability within existing populations. This management strategy allows for the recolonization of habitat within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of the California red-legged frog.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) (50 CFR 402.02) define the environmental baseline as "the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline."

Action Area

The implementing regulations for section 7(a)(2) of the Act (50 CFR 402.02) define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area for this biological opinion includes all areas where construction, staging, maintenance, and access would occur, downstream aquatic habitats that may receive sediment, and areas where California red-legged frogs would be relocated.

Condition (Status) of Habitat and the Species in the Action Area

The action area has been highly modified from its natural state by existing land use and construction of the 1949 levee project. Management of the levee system, and subsequently river and creek channels and adjacent banks, are guided by requirements to maintain hydrologic capacity resulting in a highly managed system. Typically, riparian and forested vegetation is present within and along the river and creek channels extending up to approximately 100 feet from the center of the channel. Varying densities of mixed woodland and grassland habitats are present between riparian areas and the levees.

California red-legged frogs have been observed in Reaches 2 and 4 and have been confirmed breeding in Reach 2. The river and creek channels and associated vegetation provide upland, dispersal, breeding, and non-breeding habitat throughout the action area, and frogs may occur anywhere in the action area at any time of year.

Recovery

The action area is located within the Central Coast recovery unit and the Watsonville Slough – Elkhorn Slough core area (Unit 19) for the California red-legged frog (Service 2002). Within the Central Coast recovery unit, San Francisco to Santa Barbara County supports the greatest number of currently occupied drainages. Core areas are locations targeted for implementation of management and protection plans for the California red-legged frog. The Watsonville Slough – Elkhorn Slough core area was designated in the recovery plan because it is currently occupied by the species, provides connectivity between populations, and supports stable source populations that may provide dispersing individuals that can colonize other areas.

Threats to California red-legged frogs in the Central Coast recovery unit include agriculture, livestock grazing and dairies, mining, non-native species, recreation, timber extraction, urbanization, water management, water diversions, and reservoirs. Conservation needs identified for the Watsonville Slough – Elkhorn Slough core area include: protect existing populations; protect habitat connectivity; reduce impacts of agriculture; improve water quality; and reduce impacts of urbanization.

EFFECTS OF THE ACTION

Effects of the Proposed Action

All California red-legged frogs that occur within the action area could be adversely affected by project activities. Injury or mortality could occur from animals being crushed by heavy equipment, vehicles, debris, and worker foot traffic and from activities such as grading and vegetation removal and trimming. Adults and juveniles could become trapped and die in upland sheltering habitat or be exposed to predators if refugia is removed. The survey, capture, and relocation of individuals out of harm's way before work commences would minimize these effects.

Uninformed workers could disturb, injure, or kill California red-legged frogs. The potential for this to occur would be reduced by educating workers on the presence and identification of the species and the measures that are being implemented to protect them during project activities.

California red-legged frogs may experience a significant disruption of normal behavioral patterns from worker foot traffic and activities and their associated noise and vibration. This disruption could cause individuals to leave or avoid suitable habitat and may increase the potential for predation, desiccation, competition for food and shelter, or strike by vehicles. Pre-construction surveys and relocation of individuals by Service-approved biologists prior to construction would limit these impacts.

California red-legged frogs could become trapped and die in excavated or backfilled trenches. Examination of trenches before the start of work and provision of escape ramps or covers would minimize this impact.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade aquatic or upland habitat to a degree where California red-legged frogs are injured or killed. The potential for this effect to occur would be reduced by conducting daily inspections of vehicles and equipment.

Capture and relocation of California red-legged frogs could result in injury or death because of improper handling, containment, transport, or release into unsuitable habitat. Although survivorship for translocated California red-legged frogs has not been estimated, survivorship of translocated wildlife in general is reduced due to intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation. Using Service-approved biologists to conduct these activities would reduce these potential impacts. The relocation of individuals from work areas is expected to greatly reduce the overall level of injury and mortality, if any, which would otherwise occur if individuals were not removed.

Trash left during or after project activities could attract predators to the work site, which could in turn prey upon California red-legged frogs. This potential impact would be reduced by the control of waste products at all work sites.

Vegetation management activities resulting in the loss or degradation of terrestrial habitat within the vegetation baseline could reduce the species ability to forage and find refuge when dispersing throughout the action area. The Corps and local maintaining agency commit to offset losses of California red-legged frog habitat at a 1:1 ratio, which would offset these effects.

Effects on Recovery

The proposed activities would not increase the threats currently impacting the California red-legged frog in the Central Coast recovery unit and Watsonville Slough – Elkhorn Slough core area or preclude the Service's ability to implement recovery actions. Although implementation of the project would adversely affect terrestrial, and possibly aquatic habitat of the California red-legged frog and could injure or kill individuals, impacts are expected to be offset through setting back levees within the river system, thus providing additional floodplain and upland habitat for the species. The project would also ensure that a baseline quantity of vegetation remains along the Pajaro River corridor, thereby ensuring California red-legged frog habitat remains functional in the action area.

Based on our review of the project, we do not expect its implementation to affect the ability of the Watsonville Slough – Elkhorn Slough core area to remain occupied by the species, provide connectivity between occupied areas, and provide dispersing individuals to colonize other areas as specified in the recovery plan.

Summary of Effects

We anticipate no long-term effects to the overall population, reproductive capacity, or recovery of the California red-legged frog from implementation of the project. Project implementation could adversely affect aquatic and terrestrial life stages of the California red-legged frog throughout the action area. The project would cause temporary and permanent impacts to suitable habitats and could result in mortality of some California red-legged frogs. However, based on the conservation measures to be implemented, we conclude that few, if any, California red-legged frogs are likely to be killed or injured. We do not expect that local populations would be affected to a magnitude that would prevent them from sustaining themselves. We do not expect that implementation of the project would affect the ability of the Watsonville Slough – Elkhorn Slough core area to remain occupied by the species, provide connectivity between occupied areas, or provide dispersing individuals to colonize other areas.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. We do not

consider future Federal actions that are unrelated to the proposed action in this section because they require separate consultations pursuant to section 7 of the Act. We are not aware of any other non-Federal actions that are reasonably certain to occur in the action area.

CONCLUSION

The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the California red-legged frog's status as the basis to assess the overall effect of the proposed action on the species.

Reproduction, Numbers, and Distribution

We expect no appreciable effects on California red-legged frog reproduction, numbers, or distribution. While the proposed project would cause small temporary or permanent losses to suitable habitats, impacts would be compensated for onsite through levee setbacks or implementation of mitigation. Proposed activities may harm aquatic and terrestrial life stages of the California red-legged frog, if present, but the Corps would implement conservation measures to reduce or avoid adverse effects. Conservation measures include conducting surveys when working in upland and aquatic habitats and having a Service-approved biologist survey for and relocate any California red-legged frogs at risk of harm to suitable sites. Proposed activities could cause disturbance to California red-legged frogs and their habitats, potentially reducing reproduction, numbers, and distribution. However, given the proposed conservation measures to minimize impacts to individuals, and the resulting levee setback and subsequent increased floodplain and commitment to maintain an established vegetation baseline, we expect that the species' reproduction, numbers, and distribution in the action area and rangewide would not be appreciably reduced.

Recovery

We do not anticipate that the proposed action would appreciably affect recovery of the California red-legged frog in the Watsonville Slough – Elkhorn Slough core area. While implementation of the project could adversely affect aquatic, upland and dispersal habitat for the California red-legged frog and may injure or kill a small number of individuals, implementation of the project is not expected to decrease the overall quality of habitat of the California red-legged frog. Thus, we do not expect project activities to affect the ability of the Watsonville Slough – Elkhorn Slough core area to remain occupied by the species, provide connectivity between occupied areas, or provide dispersing individuals to colonize other areas as specified in the recovery plan.

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area, the effects of the Pajaro River Flood Risk Management Project, and the cumulative effects, it is the Service's biological opinion that the Corps' funding and authorization

of the Pajaro River Flood Risk Management Project, as proposed, is not likely to jeopardize the continued existence of the California red-legged frog because:

1. The effects on reproduction are low;
2. The effects on numbers are low;
3. The effects on distribution are low; and
4. The effects on recovery are low.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE

We anticipate that some California red-legged frogs could be taken as a result of the proposed action. We expect the incidental take to be in the form of capture during relocation activities and in the form of harm, injury, or death as a result of project activities if individuals are accidentally injured or killed during capture and relocation, or are unable to be collected for relocation and remain in active construction areas. California red-legged frogs could also be killed or wounded by predators if they abandon habitat within or adjacent to work areas and be subject to desiccation if they leave shelter sites.

We cannot quantify the precise number of California red-legged frogs that may be taken as a result of the proposed action because the species moves over time; for example, animals may have entered or departed the action area since the time of pre-construction surveys and initial capture and relocation. California red-legged frogs may be difficult to detect due to their small size and use of aquatic habitats, underground burrows, or dense cover. Animals injured or killed during relocation efforts are likely to be observed; however, mortality from other sources, including the indirect effects of relocation (e.g., unable to find food in a new location) or displacement from the action area, would be difficult to observe. Finding a dead or injured California red-legged frog may also be unlikely due to their cryptic coloration and potential to be quickly scavenged. The protective measures agreed to by the Corps and local maintaining agency are likely to prevent mortality or injury of most individuals.

Consequently, we are unable to reasonably anticipate the actual number of California red-legged frogs that would be taken by the proposed action; however, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to the California red-legged frog would likely be low given the nature of the proposed activities, and we therefore anticipate that take of California red-legged frogs would also be low. We also recognize that for every California red-legged frog found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level we are anticipating that the actual take would be higher and we set the number below that level.

Similarly, for estimating the number of California red-legged frogs that would be taken by capture, we cannot predict how many may be encountered for reasons stated earlier. While the benefits of relocation (i.e., minimizing mortality) outweigh the risk of capture, we must provide a limit for take by capture at which consultation would be reinitiated because high rates of capture may indicate that some important information about the species in the action area was not apparent (e.g., it is much more abundant than thought). Conversely, because capture and relocation can be highly variable, depending upon the species and the timing of the activity, we do not anticipate a number so low that reinitiation would be triggered before the effects of the activity were greater than what we determined in the biological opinion's Effects of the Action.

Therefore, if 100 larvae or 20 adult or juvenile California red-legged frogs are captured and relocated, or 5 larvae or 3 adult or juvenile California red-legged frogs are found dead or injured as a result of project activities, the Corps must contact our office immediately to reinitiate formal consultation. Project activities that are likely to cause additional take should cease as the exemption provided pursuant to section 7(o)(2) may lapse and any further take could be a violation of section 4(d) or 9.

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary, and must be undertaken by the Corps or made binding conditions of any grant or permit issued by the Corps, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the non-Federal partners to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of California red-legged frogs:

1. Biologists must be authorized by the Service before they capture and move California red-legged frogs and must implement recommended decontamination procedures to prevent the spread of pathogens.

2. The Service must be notified of the initiation of the project activities and provided access to the project site upon request.

3. The local-maintaining agency must implement agreed-upon mitigation requirements as detailed in this document and the BA (Corps 2023, p. 34).

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implements the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

    a. Biologists Gary Kittleson and Bryan Mori are authorized to act as Service-approved biologists for actions covered under this biological opinion. The Corps or local maintaining agency must request our approval of any other biologists that they or their contractors employ to conduct project activities associated with the California red-legged frog pursuant to this biological opinion. Such requests must be in writing or electronic mail (fw8venturasection7@fws.gov) and include the reference number 2022-0014182-S7, and be received by the Ventura Fish and Wildlife Office at least 30 days prior to any such activities being conducted. Please be advised that possession of a 10(a)(1)(A) permit for the California red-legged frog does not substitute for the implementation of this measure. Authorization of Service-approved biologists is valid for this project only.

    b. Biologists conducting surveys for or capture and relocation of California red-legged frogs must follow decontamination procedures as established by the Declining Amphibian Task Force Fieldwork Code of Practice (Appendix A).

2. The following term and condition implements reasonable and prudent measure 2:

    a. The Corps or local maintaining agency must provide the Service access to the action area to survey and inspect project activities.

3. The following terms and conditions implement reasonable and prudent measure 3:

    a. The Corps or local maintaining agency must notify the Ventura Fish and Wildlife Office via electronic mail (fw8venturasection7@fws.gov) and include the reference

number of 2022-0014182-S7 in the electronic mail, at least 30 days prior to conducting vegetation management activities pursuant to this biological opinion.

b. Temporary or permanent losses of California red-legged frog habitat that reduce the established vegetation baseline (Corps 2023, Table 4) will be commensurately offset. The local maintaining agency will notify the Corps and Service of anticipated impacts to baseline vegetation resulting from planned maintenance activities. The Corps, Service, NMFS, and local maintaining agency must agree to commensurate mitigation to offset anticipated losses of California red-legged frog habitat prior to those impacts taking place. Mitigation can include actions such as installation of large wood, increasing microhabitat features such as swales and other wetland or vegetation components within or near the project area, creation of California red-legged frog breeding habitat within the levee system, or purchasing credits at a Service-approved conservation bank, species account, or in-lieu-fee-program. Mitigation for impacts that reduce baseline vegetation acreage must be implemented within 6 months of those respective impacts taking place or within a time-frame agreed to by the Service.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), the Corps or non-Federal partners must report the progress of the action, including annual vegetation management activities, and its impact on the species to the Service as specified in this incidental take statement. The Corps or non-Federal partners will provide a report following implementation of each phase of the project, including vegetation management activities within each reach (post-construction of that reach). The report will describe project activities that were implemented; acreage of losses to California red-legged frog habitat; the status of implementation of compensation for impacts to habitat; the number of California red-legged frogs observed, captured, and relocated; and the number killed or injured during project activities, if any. Reports must include the reference number 2022-0014182-S7 and be sent via electronic mail to fw8venturasection7@fws.gov within 60 days of the completion of each phase or vegetation management activity.

DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured California red-legged frog, initial notification within 3 working days of its finding must be made by electronic mail (fw8venturasection7@fws.gov), which should include the reference number 2022-0014182-S7, to the Ventura Fish and Wildlife Office. The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

We recommend that any dead California red-legged frogs identified in the action area be tested for amphibian disease. However, this recommendation is discretionary and is to be determined by the Corps or non-Federal partners upon contacting the Ventura Fish and Wildlife Office at the

discovery of a dead California red-legged frog. If the Corps or non-Federal partners chooses not to submit dead California red-legged frogs for testing, they must contact the California Academy of Sciences for placement of specimens; Contact: Lauren Scheinberg, Collections Manager, California Academy of Sciences Herpetology Department, Golden Gate Park, San Francisco, California, 94118, (415) 379-5292. The California Academy of Sciences must be contacted immediately if a freshly deceased California red-legged frog is discovered in good condition for guidance on appropriate protocols for specimens collected for scientific collections. Remains of California red-legged frogs can also be placed with educational or research institutions holding the appropriate State and Federal permits.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the Service-approved biologist(s) relocate other native reptiles or amphibians found within work areas to suitable habitat outside of project areas if such actions are in compliance with State laws.

2. We recommend that dead California red-legged frogs found in the action area be tested for amphibian disease.

3. We recommend that Corps or local maintaining agency remove non-native aquatic animals such as bullfrogs and crayfish which may prey on California red-legged frogs and other native amphibians whenever these are detected during surveys.

4. As a Federal agency, the Corps should promote the conservation of all federally listed species under the Act. Mitigation that is intended to offset take of listed species or the loss of their habitat should not only offset the effects of the proposed action, but promote the recovery of listed species. We are available to assist you in developing appropriate mitigation or you may use the Service’s recovery plans and 5-year reviews where we outline actions needed to promote conservation of listed species. The Act defines "conservation" as "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the Corps' consultation request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact Chad Mitcham of my staff by electronic mail at chad_mitcham@fws.gov.

Sincerely,

Stephen P. Henry
Field Supervisor

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Appendix A

The Declining Amphibian Task Force Fieldwork Code of Practice

A code of practice, prepared by the Declining Amphibian Task Force (DAPTF) to provide guidelines for use by anyone conducting field work at amphibian breeding sites or in other aquatic habitats. Observations of diseased and parasite-infected amphibians are now being frequently reported from sites all over the world. This has given rise to concerns that releasing amphibians following a period of captivity, during which time they can pick up unapparent infections of novel disease agents, may cause an increased risk of mortality in wild populations. Amphibian pathogens and parasites can also be carried in a variety of ways between habitats on the hands, footwear, or equipment of fieldworkers, which can spread them to novel localities containing species which have had little or no prior contact with such pathogens or parasites. Such occurrences may be implicated in some instances where amphibian populations have declined. Therefore, it is vitally important for those involved in amphibian research (and other wetland/pond studies including those on fish, invertebrates and plants) to take steps to minimize the spread of disease and parasites between study sites.

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires and all other surfaces. Rinse cleaned items with sterilized (e.g. boiled or treated) water before leaving each study site.
2. Boots, nets, traps, etc., should then be scrubbed with 70% ethanol solution (or sodium hypochlorite 3 to 6%) and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland.
3. In remote locations, clean all equipment as described above upon return to the lab or "base camp". Elsewhere, when washing machine facilities are available, remove nets from poles and wash with bleach on a "delicates" cycle, contained in a protective mesh laundry bag.
4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolates species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean and store them separately and the end of each field day.
5. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact between them (e.g. via handling, reuse of containers) or with other captive animals. Isolation from un-sterilized plants or soils which have been taken from other sites is also essential. Always use disinfected/disposable husbandry equipment.
6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.
7. Used cleaning materials (liquids, etc.) should be disposed of safely and if necessary taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

Appendix B:
Public Comment Summary

APPENDIX B: PUBLIC COMMENT SUMMARY

Introduction

This appendix provides responses to public and agency comments on the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment (Supplemental EA), as received during the public comment period.

Public Comment Summary

The draft supplemental EA was circulated for public review beginning on April 17, 2024. The draft Supplemental EA and the draft Finding of No Significant Impact (FONSI) were made available on the Pajaro project page on the San Francisco District website[1]. Emails were also sent to interested parties, residents, and to the agencies and tribes listed in Section 6 of the Supplemental EA. All comments received during the public review period were considered and incorporated into the final Supplemental Environmental Assessment, as appropriate.

A summary and history of public involvement and outreach can be found in Chapter 5 of the GRR/EA (USACE, 2019). The next public meeting for the Pajaro Project will be held on Thursday, July 11, 2024, at 6:30 PM. The meeting will be held at the Portuguese Hall of Watsonville, in Watsonville, California.

Summary of Primary Comments on the Final Report

Public comments on the draft document focused in part on 1) land use; 2) real estate acquisition; 3) recreation and public access; and 4) monitoring and maintenance of project features.

Matrix of Comments and Responses

During the public review period, a total of 12 comment letters were received from the public via email. Each comment letter contains multiple comments. The responses are annotated to refer to the corresponding letters and comments that precede them. Each letter and comment have been annotated with a designation such as “A-5”. The letter, “A” refers to the comment letter, and the number “5” refers to the comment number within the letter. Immediately following the comment letter is the response table.

[1] https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Pajaro-River-Watsonville/

Monterey Bay Air Resources District
Serving Monterey, San Benito, and Santa Cruz Counties

24580 Silver Cloud Court
Monterey, CA 93940

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LETTER A

May 13, 2024

Department of the Army, San Francisco District
US Army Corps of Engineers
450 Golden Gate Avenue, 4th Floor
San Francisco, CA 94102-3406
Submitted via email: Pajaro-River@usace.army.mil

Re: Draft Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project – Supplemental Environmental Assessment

Dear U.S. Army Corp of Engineers,

Thank you for providing the Monterey Bay Air Resources District (MBARD) with the opportunity to comment on the Draft Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project – Supplemental Environmental Assessment (SEA). MBARD has reviewed the SEA and has the following comments:

Hazardous Materials **A-1**

MBARD Rule 424, National Emissions Standards for Hazardous Air Pollutants (NESHAP) apply to the demolition plans. Rule 424 contains the NESHAP requirements for asbestos which includes surveys and advanced notification for structures being renovated or demolished. Notification to MBARD is required at least ten days prior to renovation or demolition activities. Rule 424 could also apply if old underground piping or other asbestos containing construction materials are encountered during trenching activities. Rules 424 can be found online at https://ww2.arb.ca.gov/current-air-district-rules. Please contact Bronwyn Nielson, Air Quality Compliance Inspector, at 831-718-8024 for more information regarding these rules.

In addition, MBARD Rule 439 Building Removals, which includes requirements and work practices for building removals, applies regardless of whether Rule 424 also applies to the project.

Air Quality **A-2**

- Construction Dust
  To mitigate any fugitive dust issues during the project's excavation, grading and moving soil, moving aggregate, removing asphalt and/or concrete, or any trenching/shoring/boring operations, apply Dust Mitigation Measures as listed in MBARD's 2008 CEQA Guidelines (Chapter 8) https://www.mbard.org/ceqa including:

- Prohibit all grading activities during periods of high wind (over 15 mph)

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.

- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)

- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations, or hydro-seed area.

- Maintain at least 2'0" of freeboard in haul trucks.

- Cover all trucks hauling dirt, sand, or loose materials.

- Plant vegetative ground cover in disturbed areas as soon as possible.

- Cover inactive storage piles.

- Install wheel washers or other appropriately effective track-out capture methods at the construction site for all exiting trucks.

- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. MBARD's phone number shall be visible to ensure compliance with Rule 402 (Nuisance)

- Construction Equipment **A-3**
  MBARD suggests that when possible cleaner construction equipment be used for any construction project. This includes equipment that conforms to CARB's Tier 3 or Tier 4 emission standards. We further recommend that, whenever feasible, construction equipment use alternative fuels such as compressed natural gas, propane, electricity, or biodiesel.

- Vegetation Removal **A-4**
  It is MBARD's preference that any vegetation removed during this project be disposed of/recycled either as green waste or chipped and used onsite or taken to a waste facility to be reused or recycled. Any chipper used onsite must follow MBARD's requirements or be registered in the state Portable Equipment Registration Program (PERP).

  If open burning is proposed for disposal of vegetation, contact Irene Miranda at MBARD, Air Quality Planner, at 831-718-8021 regarding how to obtain a smoke management permit.

Permits Required

- Portable Equipment **A-5**
  MBARD permits to operate, or statewide portable equipment registration, may be required for portable and/or auxiliary equipment such as engine generator sets and compressors. Any stationary piston-type internal combustion engine of greater than or equal to 50 brake horsepower (bhp) requires a permit. Please contact MBARD's Engineering Division at 831-718-8018 if there are any questions regarding the permitting process.

We appreciate the opportunity to comment on the Supplemental Environmental Assessment for the Draft Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project. Please let me know if you have any questions. You can reach me at (831) 718-8021.

Best regards,

Irene Miranda

Irene Miranda, Ph.D.
Air Quality Planner I

cc: Rich Stedman, Air Pollution Control Officer
David Frisbey, Planning and Air Monitoring Manager
Shawn Boyle, Planning and Air Monitoring Supervisor

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THOMAS P. MURPHY
KATHRYN G. SPELMAN

SENT VIA OVERNIGHT MAIL AND EMAIL

May 15, 2024

Letter B

Timothy W. Shebesta LTC, EN
c/o Anne Baker, NEPA Regional Technical Specialist
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CO 94102-3406

Email: *Pajaro-River@usace.army.mil*

Re: Comments on Pajaro River at Watsonville, Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment

Dear Lt. Col. Shebesta:

I am writing on behalf of my client, Lori Lester Johnson, co-owner of the approximately twenty acres of prime farmland along the Corralitos Creek, APNs 051-102-06 and APN 051-102-11. Below please find our comments on the Draft Supplemental Environmental Assessment along with recommended mitigation measures. We cannot fully evaluate and comment on the impact of the Project at this time due to the inadequate project description and incomplete analysis. Our concern is that the Pajaro Valley Flood Risk Management Project ("Project") will cause a loss of use for over 25% of our client's prime farmland with cumulative damages both during construction and after project completion. **B-1**

1. INADEQUATE PROJECT DESCRIPTION AND ANALYSIS CREATES UNCERTAINTY AND UNKNOWN RISKS

We submit these comments with concern that the Environmental Assessment contains a Project description that is incomplete. The Final General Reevaluation Report and Integrated Environmental Assessment Revised 2019 ("Environmental Assessment Report (2019)") states, "future community plans indicate the intention to create trails along the levees" and repeatedly mentions recreation as a benefit and main objective of the Project. *Environmental Assessment Report (2019) p.4, p.6, p.10, p. 19, p. 43.* However, the April 2024 Draft Supplemental Environmental Assessment ("Draft") indicates that there are no plans for recreation along Reach 6. *Draft p.24.* And yet, the Draft also states, "Although the project does not include specific recreational opportunities or components, future community plans indicate the intention to create trails along the levees; therefore, the proposed action could indirectly enhance recreational opportunities in the project area by creating new levees and their associated maintenance roads, which could allow for future recreation in the area." *Draft p.43.* This conflicting information suggests that the Project plans could change, which in turn means that the impact of the Project on the environment and our client's property is unknown; we cannot fully evaluate and analyze the impact of the Reach 6 Levy because the scope and impact of the Project remains unclear. B-2

The disconnect between the actual impacts of the Project to farmland and the stated conclusion also shows insufficient and incomplete analysis. The Draft should determine whether the Project is a major federal action significantly affecting the quality of the human environment. *42 U.S.C. 4321 et seq.* The Draft concludes that the Project refinements for Reach 6 would not significantly impact agriculture because the percentage of overall farmland converted for the Project is minimal. However, this conclusory statement relies on the statement that the range of farmland conversion lies somewhere between 35.6 and over 170.2 acres. *Environmental Assessment Report (2019) Table 4.4-1 p.20.* This range is far too broad to facilitate meaningful, fully informed and well-considered analysis, which is what is required under the National Environmental Policy Act before any irreversible and irretrievable commitment of resources is made. *Sierra Club v. DOE, 867 F.3d 189 (2017); 40 C.F.R. 1501.2.* B-3

2. THE IMPACTS OF THE PROJECT ON PRIME FARMLAND ARE SIGNIFICANT

Despite the uncertainty of the Project description, the impact of the Project on my client's prime farmland and the vast majority of the total farmland within the construction footprint is significant. Our client will suffer a loss of over 25% of her prime farmland along Corralitos Creek that has never flooded. My client's prime farmland is currently in productive use leased as agricultural land used to grow blackberries. A draft appraisal map issued on July 19, 2022, shows that 232,308 square feet of the property are required for the levee, with a remainder to our client of 852,367 square feet. And in addition, the Project describes a 15,575 square foot construction easement to include a haul route and a staging area. *Draft Figure 9, p.20.* B-4

The largest Project alternative would result in a loss of over 165 acres of prime farmland in the region. *Environmental Assessment Report (2019) p.20.* Prime farmland is irrigated land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. According to the California Department of Conservation Division of Land Resources Protection, Farmland Mapping and Monitoring Program, this land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

While the obvious significant impacts of this Project on the human environment include loss of use, there are additional cumulative effects that will impact her, her lessee, and other prime farmland in the region. Regulations define a "cumulative impact" as "the impact on the environment which results B-5

from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." *40 C.F.R. § 1508.7*. The Proposed Project will be adjacent to areas that are actively farmed. The Proposed Project may temporarily disrupt utilities during construction and require relocation of some farm-related infrastructure. If there is damage to the water supply, for example, my client would experience an additional loss of crops on her remaining land. A new well costs approximately $100,000 to build. Damage to her lessee's crop or loss of the remaining value of the land that remains due to reduction in size and/or change in access may also be significant.

3. SUGGESTED MITIGATION MEASURES B-6

It appears that the loss of farmland is significant. We suggest the following partial mitigation measures.

1. To mitigate the adverse effects on agriculture, provide fee simple compensation to property owners at fair market value when land becomes part of the Project pursuant to Mitigation Measure AG-1. *Draft p.23.*

2. Ensure staging areas for construction are not in or directly adjacent to the active farming currently occurring in order to allow for farming, including pesticide use, throughout the Project construction period.

3. Ensure construction does not block or inhibit access to existing farmland or farm access roads.

4. Limit construction during peak blackberry harvest periods, which typically runs from May through September.

5. Restore vegetation of sensitive habitat through reseeding and forbs. *Draft p.3, p.21.*

Thank you for your attention to our comments, concerns, and suggested mitigation measures. Please contact me with any questions.

Sincerely,

Andy L. Faber

BERLINER COHEN, LLP

CC: (BY EMAIL) THOMAS.R.WILLIAMS@USACE.ARMY.MIL; DEPUTY FOR PROJECT MANAGEMENT
(BY EMAIL) MARK.STRUDLEY@PRFMA.ORG
(BY EMAIL) LORI@LESTERCOMPANY.COM

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Letter C

April 27,2024

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS 450 GOLDEN GATE AVE.
SAN FRANCISCO, CA 94102

Subject: PAJARO RIVER AT WATSONVILLE, CALIFORNIA REACH 6 FLOOD RISK MANAGEMENT PROJECT
Draft Supplemental Environmental Assessment

Sierra Club Ventana Chapter Santa Cruz Group
Pajaro Watershed Committee
robin@baymoon.com

Dear USACE

Thank You for the opportunity to review the Design refinements for Reach 6 of Corralitos Creek, an integral Part of the Pajaro River Flood Risk Management Project (PRFRMP) We applaud USACE Design Staff for taking the initiative to refine the planning level channel architecture to a ecological functional form enabling habitat, groundwater recharge, and operation and maintenance benefits to be realized. We also appreciate the collaboration among Local Agency Staff and USACE on the Design Refinements, advancing our goals for infrastructure-ecological function integration, sustainability, and efficiency. We look forward to and support this policy on the Final Design of the remaining Reaches of the PRFRMP. C-1

Sincerely

Lois Robin
Chair Sierra Club Pajaro River Committee

C.C.
Kenneth Reiller
kennethreiller@gmail.com

Patricia Matcejcek
patachek3@gmail.com

Steven Dobler
[redacted]

May 16, 2024

Timothy W. Shebesta LTC, EN
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CA 94102-3406

Letter D

Dear Lt. Col. Shebesta:

Please accept the following comments on the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project, Draft Supplemental Environmental Assessment.

As an owner of property affected by flooding along Reach 6, specifically the Holohan Road section, I am supportive of the long-overdue project and fair acquisition of real estate to support its implementation. This would include a strip of land I own along Corralitos Creek.

My concerns and comments regarding the project, specifically along my property are:

1. The project was proposed to us who voted on the maintenance of the project, which I was a supporter of, that PRFMA would take our property needed for the project via a fee title and purchase it outright from us. Now they have told us it will be taken as an easement. This is unacceptable. We will have no use of the property once it is taken from us. To pay property taxes and endure untold liability on land we have no control over is not an option. I understand the policy of not taking more property rights from owners than necessary, but that would be in a case where an owner may have some continued use of the property. That is not the case here. The property will be inaccessible to us. This is not about the price for purchase of an easement vs fee but the liability that remains for the landowner with an easement. **D-1**
2. I believe the project is taking way too much valuable farmland, just from myself alone will lose approximately 15% of our productive prime farmland. We envisioned a straightening of some of the curves and minor loss of land but they are extending the project well into our prime farmland, farmland that can never be replaced. **D-2**
3. We need to ensure fencing will be installed along the project between the project and private property. If not, there will be foot traffic cutting through farmland to access the river and cars dumping trash along the project. Fencing also will stop animals both domestic and wild from roaming into farm fields from the project area now that it is being substantially increased in size. **D-3**
4. The project needs to ensure that people do not begin to take up residence inside the project area. Food is being grown on the adjacent property, food that is sent all over the country when harvested. Litter, garbage and human waste can not be allowed in the project area that will affect the neighboring fields and render food products unsafe. The take of this **D-4**

much land may create opportunities for some to try and take up residence there. THIS IS A BIG DEAL AND WE NEED TO BE ASSURED THIS WILL NOT BE ALLOWED TO HAPPEN.

5. Recreation and Public access cannot be allowed in or along the project area. There is no recreation or public access along our property or nearby now and we need it to remain that way. When people are present next to farming it creates issues where farming activities need to stay back certain distances for certain crops which effectively takes more farmland out of production than just the area condemned by the project. Pesticides, under supervision of our Agricultural Commissioner, are applied to the farmland along the proposed project. Even when we farm organically, smells associated with organic farming inputs such as fertilizers and organic pest control create concern and complaints for nearby citizens, even though they are certified organic products. Domestic animals associated with public access also cause food safety issues for neighboring farms. This is not a place for the public to recreate or have access. It's not safe for them and it creates an unhealthy relationship between the public and the farming community, which is the largest employer in our County. D-5

This proposed flood control project, land take, and future use of the property being taken from us is a big change to the current land use adjacent to us. We currently have use of all of our land, we have no issues with pedestrians nearby or passersby because there are none and there is no reason for them to go to there, just our dirt road and a small creek with overgrown cover. There are currently no persons living in or near the creek along our property or adjacent to it. We enjoy farming in compliance with our local Agricultural Commissioner with no complaints or concerns from the public because there is no public nearby. D-6

I am supportive of the proposed project in general. To remain in support of the project, the project must be able to acquire my property in fee, not an easement, and the adjacent land use must remain as close as possible in the after condition as we currently enjoy it in the before project condition. D-7

This is our livelihood. This land provides for my family and creates a tremendous amount of well-paying jobs for local workers and we need to be able to continue to farm our prime farmland as it has been farmed and not have use of our land curtailed due to adjacent land use issues introduced by the proposed flood control project along our property.

Thank you for your time and consideration and I welcome the opportunity to discuss my concerns.

Sincerely,

Steven Dobler
[redacted]
sdobler@doblerandsons.com

CC: (By email) Pajaro-River@usace.army.mil

Steven Dobler
[redacted]

May 16, 2024

Timothy W. Shebesta LTC, EN
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CA 94102-3406

Letter E

Dear Lt. Col. Shebesta:

Please accept the following comments on the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project, Draft Supplemental Environmental Assessment.

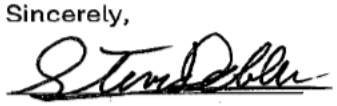
The advancement of design and construction on Reach 6, which is more adequately described in the Supplemental EA, has revealed issues with the terms for the acquisition of required real estate. As they stand, those terms create both financial and legal harms for property owners.

As an owner of property affected by flooding along Reach 6, specifically the Holohan Road section, I am supportive of the long-overdue project and fair acquisition of real estate to support its implementation. This would include a strip of land which I own along Corralitos Creek. However, as I understand it, PRFMA – the non-federal sponsor – can only secure rights to that land in easement. There is no allowance for PRFMA to acquire my land in fee title. But once my land is acquired by easement, it will be unusable and devoid of any value for farming or future sale. Then we will be harmed by what remains: property tax liability for that land, along with other legal liabilities not covered by an easement. E-1

I understand PRFMA could request a "a non-standard estate" for fee title acquisition, but that it would involve a lengthy approval process via USACE headquarters. This could unnecessarily delay the project that is already decades late, and thus is not an acceptable solution. Therefore, we request a more efficient, reasonable approach. The USACE SF District should direct PRFMA to acquire land in fee title so it may appropriately protect and compensate the impacted landowners. While compensable value is important, our primary concern is avoiding liability and any other legal exposure that remains on land that will essentially be "off limits" for use by us moving forward. We also shouldn't be responsible for property taxes on land we would have no use of.

I welcome the opportunity to discuss my concerns. Thank you for your time and consideration.

Sincerely,



Steven Dobler
[redacted]
sdobler@doblerandsons.com

CC: (By email) Pajaro-River@usace.army.mil

From: Chris Matthews
To: Pajaro-River
Cc: Steven Dobler; Strudley, Mark
Subject: [Non-DoD Source] Pájaro River Project Reach 6
Date: Friday, May 17, 2024 1:40:03 PM

Lt. Col. Shebesta,
Please see attached page 1 and 2 of my letter regarding the Pajaro River Project Reach 6.
Regards,
Chris Matthews
[redacted]

LETTER F

Timothy W. Shebesta LTC, EN
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CA 94102-3406
Pajaro-River@usace.army.mil

Dear Lt. Col. Shebesta:

As the son of a proud veteran of the 589th Engineering Battalion, 'A' company, based in Phan Rang, Vietnam during our conflict there, I hope these comments find you with due respect of your service and the service of the US Army Corps of Engineers.

Please accept the following comments on the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project, Draft Supplemental Environmental Assessment.

The advancement of design and construction on Reach 6, which is more adequately described in the Supplemental EA, has revealed issues with the terms for the acquisition of required real estate. As they stand, those terms create both financial and legal harm for the property owners, and by extension the tenant farmers on those lands. F-1

As an operator lessee of property that experienced flooding in 2023 along Corralitos Creek, I'm supportive of the project and fair acquisition of real estate to support its implementation. This would include four parcels of land I operate along Corralitos Creek. However, as I understand it, PRFMA – the non-federal sponsor – can only secure rights to that land in easement. There is no allowance for PRFMA to acquire this land in fee title. If these strips of land are acquired by easement, it will be unusable and devoid of any value for farming or future sale. Plus, we're harmed by what remains: potential liabilities of unauthorized use of these lands, along with a risk to our operations due to unhoused people or the public using the area as living quarters and/or a 'transit corridor', and thus inadequate recourse to have the county step up enforcement and maintenance of the area, that ideally, they would take ownership of. F-2

As an operator of this land for well over 20 years, we've enjoyed the solitude and beauty that bordering the creek has brought us, and the ability for us to produce our berries safely and efficiently. If any type of public access is allowed or permitted, this will greatly reduce our ability to do this. Public access needs to be discouraged through proper design and access restricting measures, along with a rigorous maintenance program that will keep the brush to an absolute minimum, as these are the areas that attract encampments of unhoused people. The proposed take line is also a bit aggressive in my opinion, as there are some areas where the proposed levee has been 'straightened-out' to a point where we'll be losing some prime farmland, of which we'll never recover, and the encroachment of other developments in the Pajaro Valley in general continue to only decrease the amount of arable high quality ground in the valley, i.e. it can't be replaced.

F-3

F-4

I'm also concerned about the drainage being sufficient during non-flood periods. There needs to be multiple locations for our wet season storm runoff water to quickly and easily exit our ranch to avoid flooding on the outside of the levee. One block in particular slopes towards the levee, and this would need an additional drainage pipe through the levee to accommodate drainage when the river is flowing at a non-flood stage (which is 99.9% of the time).

F-5

I welcome the opportunity to discuss my concerns. Thank you for your time and consideration.

Respectfully,

Chris Matthews
Alta Vista Farms, LP
Garroutte Farms, Inc.
chris@altavistafarms.com

SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION
1101 Pacific Avenue, Suite 250, Santa Cruz, CA 95060-4418 • (831) 460-3200 • info@sccrtc.org

May 17, 2024

United State Army Corps of Engineers
San Francisco District (USACE)
450 Golden Gate Avenue, 4th Floor
San Francisco, CA 94102-3406

LETTER G

Attn: Ms. Anne Baker

RE: Draft Supplemental Environmental Assessment (EA) for the Pajaro River at Watsonville, California Reach 6 Flood Risk Management Project

The Santa Cruz County Regional Transportation Commission (RTC) is the countywide agency responsible for the planning, design and implementation of transportation projects to meet the needs of the citizens of Santa Cruz County, as well as those who travel to and from the County for jobs, education and recreation. The RTC owns the Santa Cruz Branch Rail Line, which is an active freight railroad within the Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project area.

In response to the notice of the availability of draft Supplemental EA for the Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project, the RTC has identified the following concerns:

- The Supplemental EA incorrectly refers to the SCBRL as being owned by Union Pacific, rather than the RTC;
- There is no discussion of the cumulative impacts related to passenger rail service being implemented on the SCBRL; and **G-1**
- The Supplemental EA does not reference any actions related to the improvement or replacement of the Pajaro River bridge to account for the flood risk management project improvements.

To each of these points, the following narrative provides background for our concerns.

SANTA CRUZ BRANCH RAIL LINE OWNERSHIP & CURRENT USE

The SCBRL is a former Union Pacific Railroad line which has served Santa Cruz County for more than 140 years. In 2012, the RTC acquired the SCBRL, providing a unique opportunity for Santa Cruz County to have a dedicated transportation facility connecting the county's two largest cities, Watsonville

and Santa Cruz, and the communities in between. RTC contracts with a common carrier, Progressive Rail who operates the railroad as the St. Paul and Pacific Railroad. As a short line, the St. Paul and Pacific Railroad provides switching for freight, serving 60-120 cars per quarter.

PROPOSED USE

Several planning studies evaluated public transportation investment options for Santa Cruz County, including Monterey Bay Sanctuary Scenic Trail Network Master Plan, Rail Transit Feasibility Study, Unified Corridor Investment Study, and Transit Corridor Alternatives Analysis. These culminated in a preferred scenario comprising high-capacity zero emission passenger rail with a multi-use bicycle and pedestrian trail (Coastal Rail Trail) along the SCBRL. Seventeen miles of Coastal Rail Trail projects have been constructed or are under development as separate projects. The passenger rail project along the SCBRL is included in the California State Rail Plan.

In 2022, the RTC began the development of the project concept report and subsequently the environmental documentation for the proposed passenger rail transit and coastal rail trail project. The scope includes zero emission passenger rail along the SCBRL between Pajaro and Santa Cruz, the remaining segments of the Coastal Rail Trail including between Rio del Mar and Pajaro (Segments 13 through 20), and the Capitola Trestle (Segment 11, Phase 2).

Currently, RTC and the project team are evaluating the existing bridges along the SCBRL as well as engaging stakeholders in understanding the many factors affecting the corridor and the development of passenger rail. Through these conversations, we were made aware of the USACE' Reach 6 project and its potential impact to the Pajaro River bridge.

PAJARO RIVER RAILROAD BRIDGE

The Pajaro River Railroad Bridge forms a vital transportation connection, via the SCBRL, between the communities in Santa Cruz County and the California State Rail Network via the connection at Pajaro in northern Monterey County to the Central Coast Corridor route. The Pajaro River Railroad Bridge, located in Reach 4 of the Flood Risk Management Project, provides the sole connection to the California State Rail Network for both freight and passenger rail services, enabling intercity and transnational connections to goods, materials and passengers. Goods, such as award-winning sparking cider produced by S. Martinelli's & Company, are regularly transported across the bridge.

In 2023, the RTC completed a construction project to rehabilitate the Pajaro River Railroad Bridge, utilizing local tax revenues and short line operational revues as a 50% match to a grant from the State of California's Short Line Railroad Improvement Program. The rehabilitation efforts were successful in addressing immediate needs to extend the life of the bridge for many more years of operations.

As currently proposed, the Reach 6 Flood Risk Management Project includes flood gates that would impact the operation of the railroad at the Pajaro River Railroad Bridge. The flood gates, as proposed, are not a reasonable solution for the continued operation of the railroad. Flood gates, when employed, would result in an indefinite interruption in rail transportation services along the SCBRL and cut off Santa Cruz County from the California State Rail Network. Moreover, prior to resuming service, costly bridge inspections would need to be undertaken to inspect the bridge for flood damage, resulting in further delays and cessation of rail traffic over the bridge. Notwithstanding the former, the impact of inundating flood waters and debris against the railroad bridge would also inevitably damage the bridge during flood stages and result in further delays, service disruptions, and costs as the bridge is inspected, repaired, and restored to service. G-2

It is our understanding that USACE and Pajaro Regional Flood Management Agency are evaluating designs for Reach 4 that would eliminate the need for flood gates. This would be a preferable solution for the SCBRL and the Pajaro River Railroad Bridge as opposed to the installation of flood gates.

We urge USACE and the Pajaro Regional Flood Management Agency to implement a solution for the Flood Risk Management Project that excludes the need to install flood gates at the Pajaro River Railroad Bridge. G-3

Sincerely,

Mitch Weiss
Interim Executive Director

cc: RTC
Zero Emission Passenger Rail & Trail Project
Pajaro Regional Flood Management Agency

Central Coast Regional Water Quality Control Board

May 17, 2024

Anne Baker
U.S. Army Corps of Engineers
450 Golden Gate Avenue, Fourth Floor
San Francisco, CA 94102-3406
Email: Pajaro-River@usace.army.mil

VIA ELECTRONIC MAIL

LETTER H

Subject: Comments Regarding the Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment

Dear Anne Baker:

The Central Coast Regional Water Quality Control Board (Central Coast Water Board) appreciates the opportunity to comment on the Pajaro River at Watsonville, CA Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment (EA). We have the following comments on the EA.

1. The project should include planning for surface water and/or groundwater seepage during the winter season. The project may encounter overland flow from early winter rains. The EA should describe preparation for stabilizing the project construction site for the winter season, since large flows over un-stabilized project areas could result in significant sediment discharges and turbidity. Preparation for early winter flows should include being prepared to divert water if necessary. Detailed information on how the project will prepare for diversion of surface waters should be added to the BMPs list of the EA. **H-1**
2. The EA only describes revegetation as only hydroseeding the floodplain borrow areas. While natural colonization may partially be successful, revegetating some areas in a strategic manner will improve project benefits and ensure impacts are reduced to a less than significant level. In addition, maintenance of flood plain borrow area revegetation should be included in the EA. **H-2**
3. The EA states "USACE would do some limited post-construction monitoring to confirm the function and benefits of the borrow features and would adaptively manage the design of future reaches of the Pajaro River Project to implement lessons learned and best practices from Reach 6." Such a large-scale project proposed to have far reaching effects should include a robust monitoring plan to ensure effective maintenance and adaptive management. A more detailed post-construction monitoring plan should be discussed in the EA. **H-3**

We appreciate the opportunity to comment on the EA. Please contact Kim Sanders via email at Kim.Sanders@waterboards.ca.gov or Phil Hammer at 805-549-3882 with any questions or comments.

Sincerely,

Digitally signed by Phillip Hammer
Date: 2024.05.17 15:56:46 -07'00'

Water Boards

for
Ryan E. Lodge
Executive Officer

Dobler & Sons, LLC
[redacted]

May 17, 2024

Timothy W. Shebesta LTC, EN
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CA 94102-3406

LETTER I

Dear Lt. Col. Shebesta:

Please accept the following comments on the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project, Draft Supplemental Environmental Assessment.

As tenant farmers of property affected by flooding along Reach 6, specifically the Holohan Road section, APNs 051-102-02 & -03 & -09, we are supportive of the long-overdue project.

We as a farming company have concerns of how the use and maintenance of the project area may affect our farming operations along that area once the project is completed and so we would like to bring them to your attention during the comment period. The concerns are as follows:

1. We believe the project is taking a substantial amount of valuable farmland along this Reach that can never be replaced and would hope the take could be minimized. I-1
2. Fencing should be installed along the project between the project and private property. If not, there will be foot traffic cutting through farmland to access the river and cars dumping trash along the project. I-2
3. We ask that the project managers ensure that people do not begin to take up residence inside the project area. We grow healthy food that is sold across the country on the property now that is scheduled to be taken for the project, and we will continue to grow on the property adjacent to the project once completed. Litter, garbage, human waste and drug paraphernalia cannot be allowed to accumulate in the project area after completion; it would affect the neighboring fields and render food products unsafe. The take of this much land may create opportunities for some to try and take up residence there. There is no such problem along our fields now and we hope the project can ensure it will not be allowed to occur in the after condition. I-3
4. Recreation and Public access should not be allowed in or along the project area. There is no recreation or public access along these fields now and its imperative it remain that way. When people are present next to farming, there become setbacks that need to be observed for certain crops which effectively takes more farmland out of production than just the area condemned by the project. Pesticides, fungicides and herbicides under supervision of our Agricultural Commissioner, are applied to the farmland along the proposed project. Even with Organic farming, smells associated with inputs such as fertilizers and organic pest control create concern and complaints from nearby citizens, even though they are certified organic products. (Organic inputs are mainly derived from animal byproducts and fish meal I-4

which create such smells.) Domestic animals associated with public access also cause food safety issues and concerns for adjacent farms. This is a proposed flood control project and should not be a place for the public to recreate or have access. It's not safe for them and it creates an unhealthy relationship between the public and the farming community, which is the largest employer in our County.

We currently have no issues with pedestrians or passersby because there is no reason for them to go to where the project is proposed, only our dirt road and a small creek with overgrown cover. There are currently no persons living in or near the creek along the property we farm or adjacent to it. We enjoy farming in compliance with our local Agricultural Commissioner with no complaints or concerns from the public because there is no public nearby.

I-5

We are supportive of the proposed project in general. We simply ask that the adjacent land use remain as close as possible in the after condition to the condition in which it currently operates.

This is our livelihood, and this land creates a tremendous number of jobs for local workers. We ask to be able to continue to farm this prime farmland as it has been farmed and not have the use of the land curtailed due to adjacent land use issues introduced by the proposed flood control project.

Thank you for your time and consideration and I welcome the opportunity to discuss my concerns.

Sincerely,

Brian Dobler
[redacted]
bdobler@doblerandsons.com

CC: (By email) Pajaro-River@usace.army.mil

Timothy W. Shebesta LTC, EN
c/o Anne Baker, NEPA Regional Technical Specialist
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CA 94102-3406

Email: *Pajaro-River@usace.army.mil*

LETTER J

Re: Comments on Pajaro River at Watsonville, Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment

Dear Lt. Col. Shebesta:

I am the property owner of approximately 120 acres of prime farmland along the Corralitos Creek, APNs 051-102-02 and -03 and -09. Below please find my comments on the Draft Supplemental Environmental Assessment along with recommended mitigation measures. I cannot fully evaluate and comment on the impact of the Project at this time due to the inadequate project description and incomplete analysis. Our concern is that the Pajaro Valley Flood Risk Management Project ("Project") will cause a loss of use for over 15% of our prime farmland with cumulative damages after project completion. J-1

1. INADEQUATE PROJECT DESCRIPTION AND ANALYSIS CREATES UNCERTAINTY AND UNKNOWN RISKS J-2

We submit these comments with concern that the Environmental Assessment contains a Project description that is incomplete. The Final General Reevaluation Report and Integrated Environmental Assessment Revised 2019 ("Environmental Assessment Report (2019)") states, "future community plans indicate the intention to create trails along the levees" and repeatedly mentions recreation as a benefit and main objective of the Project. *Environmental Assessment Report (2019) p.4, p.6, p.10, p. 19, p. 43.* However, the April 2024 Draft Supplemental Environmental Assessment ("Draft") indicates that there are no plans for recreation along Reach 6. *Draft p.24.* And yet, the Draft also states, "Although the project does not include specific recreational opportunities or components, future community plans indicate the intention to create trails along the levees; therefore, the proposed action could indirectly enhance recreational opportunities in the project area by creating new levees and their associated maintenance roads, which could allow for future recreation in the area." *Draft p.43.* This conflicting information suggests that the Project plans could change, which in turn means that the impact of the Project on the environment and our client's property is unknown; We cannot fully evaluate and analyze the impact of the Reach 6 Levy because the scope and impact of the Project remains unclear.

The disconnect between the actual impacts of the Project to farmland and the stated conclusion also shows insufficient and incomplete analysis. The Draft should determine whether the Project is a major federal action significantly affecting the quality of the human environment. *42 U.S.C. 4321 et seq.* The Draft concludes that the Project refinements for Reach 6 would not significantly impact agriculture because the percentage of overall farmland converted for the Project is minimal. However, this conclusary statement relies on the statement that the range of farmland conversion lies somewhere between 35.6 and over 170.2 acres. *Environmental Assessment (2019) Table 4.4-1 p.20.* This range is far

too broad to facilitate meaningful, fully informed and well-considered analysis, which is what is required under the National Environmental Policy Act before any irreversible and irretrievable commitment of resources is made. *Sierra Club v. DOE, 867 F.3d 189 (2017); 40 C.F.R. 1501.2.*

2. THE IMPACTS OF THE PROJECT ON PRIME FARMLAND ARE SIGNIFICANT J-3

Despite the uncertainty of the Project description, the impact of the Project on my prime farmland and the vast majority of the total farmland within the construction footprint is significant. I will suffer a loss of over 15% of my prime farmland along Corralitos Creek. Our prime farmland is currently in productive use leased as agricultural land used to grow strawberries, raspberries and vegetables. A draft appraisal map issued on July 19, 2022, shows that approximately 18 acres of our property are required for the levee.

The largest Project alternative would result in a loss of over 165 acres of prime farmland in the region. *Environmental Assessment Report (2019) p.20.* Prime farmland is irrigated land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. According to the California Department of Conservation Division of Land Resources Protection, Farmland Mapping and Monitoring Program, this land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

While the obvious significant impacts of this Project on the human environment include loss of use, there are additional cumulative effects that will impact us, our lessee, and other prime farmland in the region. Regulations define a "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." *40 C.F.R. § 1508.7.* The Proposed Project will be adjacent to areas that are actively farmed. The Proposed Project may temporarily disrupt utilities during construction and require relocation of some farm-related infrastructure. If there is damage to the water supply, or delay in relocating it, for example, we would experience an additional loss of crops on the remaining land. Damage to crops or loss of the remaining value of the land that remains due to reduction in size and/or change in access/or activities allowed in the adjacent area may also be significant.

3. SUGGESTED MITIGATION MEASURES J-4

1. To mitigate the adverse effects on agriculture, provide fee simple compensation to property owners at fair market value when land becomes part of the Project pursuant to Mitigation Measure AG-1. *Draft p.23.*

2. Ensure staging areas for construction are not in or directly adjacent to the active farming currently occurring in order to allow for farming, including pesticide use, throughout the Project construction period.

3. Ensure construction does not block or inhibit access to existing farmland or farm access roads.

4. Limit construction during peak farming periods, which typically runs from May through September.

5. Do not allow public access to the area being taken after the project is completed. When people are present in a public or private setting, additional measures need to be taken by farmers to accommodate which at times includes additional buffers on our remaining property which in turn causes further ground being lost to production.

6. Ensure fencing is installed along the new border between the project and private property owners. This will stop people from cutting across farmland and private property to access the creek.

Thank you for your attention to our comments, concerns, and suggested mitigation measures and I welcome the opportunity to discuss my concerns.

Sincerely,

Steven Dobler
[redacted]
sdobler@doblerandsons.com

CC: (BY EMAIL) PAJARO-RIVER@USACE.ARMY.MIL

Timothy W. Shepesta LTC, EN
c/o Anne Baker, NEPA Regional Technical Specialist
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th floor
San Francisco, CO 94102-3406

Email: *Pajaro-River@usace.army.mil*

LETTER K

Re: Comments on Pajaro River at Watsonville, Reach 6 Flood Risk Management Project Draft Supplemental Environmental Assessment

Dear Lt. Col. Shepesta:

I am the property owner of of the approximately 43.54 acres of prime farmland along the Corralitos Creek, APN 048-231-12. Below please find my comments on the Draft Supplemental Environmental Assessment along with recommended mitigation measures. I cannot fully evaluate and comment on the impact of the Project at this time due to the inadequate project description and incomplete analysis. Our concern is that the Pajaro Valley Flood Risk Management Project ("Project") will cause a loss of prime farmland with cumulative damages both during construction and after project completion. K-1

1. INADEQUATE PROJECT DESCRIPTION AND ANALYSIS CREATES UNCERTAINTY AND UNKNOWN RISKS

We submit these comments with concern that the Environmental Assessment contains a Project description that is incomplete. The Final General Reevaluation Report and Integrated Environmental Assessment Revised 2019 ("Environmental Assessment Report (2019)") states, "future community plans indicate the intention to create trails along the levees" and repeatedly mentions recreation as a benefit and main objective of the Project. *Environmental Assessment Report (2019) p.4, p.6, p.10, p. 19, p. 43.* However, the April 2024 Draft Supplemental Environmental Assessment ("Draft") indicates that there are no plans for recreation along Reach 6. *Draft p.24.* And yet, the Draft also states, "Although the project does not include specific recreational opportunities or components, future community plans indicate the intention to create trails along the levees; therefore, the proposed action could indirectly enhance recreational opportunities in the project area by creating new levees and their associated maintenance roads, which could allow for future recreation in the area." *Draft p.43.* This conflicting information suggests that the Project plans could change, which in turn means that the impact of the Project on the environment and our property is unknown; We cannot fully evaluate and analyze the impact of the Reach 6 Levy because the scope and impact of the Project remains unclear. K-2

The disconnect between the actual impacts of the Project to farmland and the stated conclusion also shows insufficient and incomplete analysis. The Draft should determine whether the Project is a major federal action significantly affecting the quality of the human environment. *42 U.S.C. 4321 et seq.* The Draft concludes that the Project refinements for Reach 6 would not significantly impact agriculture because the percentage of overall farmland converted for the Project is minimal. However, this conclusory statement relies on the statement that the range of farmland conversion lies somewhere between 35.6 and over 170.2 acres. *Environmental Assessment (2019) Table 4.4-1 p.20.* This range is far

too broad to facilitate meaningful, fully informed and well-considered analysis, which is what is required under the National Environmental Policy Act before any irreversible and irretrievable commitment of resources is made. *Sierra Club v. DOE, 867 F.3d 189 (2017); 40 C.F.R. 1501.2.*

2. THE IMPACTS OF THE PROJECT ON PRIME FARMLAND ARE SIGNIFICANT K-3

Despite the uncertainty of the Project description, the impact of the Project on my prime farmland and the vast majority of the total farmland within the construction footprint is significant. I will suffer a loss of prime farmland along Corralitos Creek that has never flooded. My prime farmland is currently in productive use leased as agricultural land used to grow raspberries.

The largest Project alternative would result in a loss of over 165 acres of prime farmland in the region. *Environmental Assessment Report (2019) p.20.* Prime farmland is irrigated land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. According to the California Department of Conservation Division of Land Resources Protection, Farmland Mapping and Monitoring Program, this land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

While the obvious significant impacts of this Project on the human environment include loss of use, there are additional cumulative effects that will impact my tenant, and other prime farmland in the region. Regulations define a "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." *40 C.F.R. § 1508.7.* The Proposed Project will be adjacent to areas that are actively farmed. The Proposed Project may temporarily disrupt utilities during construction and require relocation of some farm-related infrastructure. If there is damage to the water supply, for example, I would experience an additional loss of crops on my remaining land. A new well costs approximately $200,000 to build. Damage to tenant's crop or loss of the remaining value of the land that remains due to reduction in size and/or change in access may also be significant.

3. SUGGESTED MITIGATION MEASURES K-4

It appears that the loss of farmland is significant. We suggest the following partial mitigation measures.

1. To mitigate the adverse effects on agriculture, provide fee simple compensation to property owners at fair market value when land becomes part of the Project pursuant to Mitigation Measure AG-1. *Draft p.23.*

2. Ensure staging areas for construction are not in or directly adjacent to the active farming currently occurring in order to allow for farming, including pesticide use, throughout the Project construction period.

3. Ensure construction does not block or inhibit access to existing farmland or farm access roads.

4. Limit construction during peak harvest periods, which typically runs from May through September.

Thank you for your attention to our comments, concerns, and suggested mitigation measures. Please contact me with any questions.

Sincerely,

Barabara J. Leighton

Barbara J. Leighton

County of Santa Cruz

Department of Community Development and Infrastructure

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Matt Machado – Deputy CAO / Director

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Permit Division	Housing & Policy	Special Services	Transportation	Capital Projects	Administration

MS. ANNE BAKER
Department of the Army
San Francisco District, US Army Corps of Engineers
450 Golden Gate Avenue, 4th Floor
San Francisco, CA 94102-3406

LETTER L

Subject: PAJARO RIVER AT WATSONVILLE, CALIFORNIA
REACH 6 FLOOD RISK MANAGEMENT PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Dear Ms. Anne Baker:

Santa Cruz County Flood Control and Water Conservation District Zone 7 appreciates the opportunity to comment on the Draft Supplemental Environmental Assessment (EA) for the Pajaro River at Watsonville, California, Reach 6 Flood Risk Management Project. As a local agency participating in the Pajaro River Flood Risk Management Project, we appreciate the time and effort staff at the Army Corps of Engineers' (USACE) and the Pajaro Regional Flood Management Agency (PRFMA) have invested in this project.

The design refinements including the inset floodplains and the extension of flood walls at both ends of the left bank of Reach 6 are particularly appreciated.

We understand that the final Hydrology and Hydraulics Analysis is being developed along with the final design plans for Reach 6, the pump southwest of Highway 152, and the Highway 152 bridge replacement components. We look forward to reviewing these documents to understand how the final design has addressed Mitigation Measure H&H-1 from the original General Reevaluation Report and Environmental Assessment (GRR/EA) so that potential induced flooding on the left bank of Reach 6 is avoided. L-1

We are excited to see this important project begin implementation. Thank you once again for the opportunity to review and comment on the EA and for all of the work the USACE has done on this project to help protect our communities.

Yours truly,

DocuSigned by:
Matt Machado
50EBAC64454C48C...

MATT MACHADO
Deputy CAO
Director of Community Development
& Infrastructure

Responses to Comments

Comment Number	Response	Location in Supplemental EA
A-1	Comment noted. At this time, the project has not identified any asbestos concerns associated with the limited demolition of structures associated with the Reach 6 project. Measures would occur before demolition to identify the presence or absence of asbestos, and the appropriate procedures would be followed to comply with local requirements. Language reflecting this consideration will be added to the final Environmental Assessment.	Section 2.3.4 – Construction Details
A-2	Thank you for your comment. As noted in Section 4.5 of the GRR/EA, and reinforced in Table 1 of the Supplemental EA, all applicable dust control measures have been incorporated into the project. USACE will ensure that the construction contractor manages fugitive dust during construction activities.	Section 3.1 – Resources Not Evaluated in Detail
A-3	Comment noted. USACE will encourage the contractor to select cleaner construction equipment, as appropriate.	N/A
A-4	Thank you for the comment. Consistent with the comment, there are no plans to conduct open burning for disposal of vegetation for this project. Disposal of vegetation would either occur by removing material from the site and relocating to a landfill or other appropriate reuse site, or vegetation could potentially be chipped and disposed onsite, if appropriate and beneficial to the post-construction site restoration.	N/A
A-5	Comment noted. USACE will ensure that the construction contractor complies with local permitting requirements for portable equipment such as onsite generators, as appropriate, prior to initiation of construction.	N/A
B-1	The Supplemental Environmental Assessment provided an update on changes to the project during the design process. The full project description is comprised of a combination of the project described in the 2019 GRR/EA and this Supplemental Environmental Assessment. The Supplemental EA was prepared consistent with the National Environmental Policy Act (NEPA) process for tiering as described in 40 CFR 1501.11b. Impacts associated with agricultural loss were fully assessed in the 2019 GRR/EA and did not change as a result of these design refinements. The Pajaro Regional Flood Management Agency (PRFMA) will be coordinating with each landowner regarding the amount of land and type of real estate interest needing to be acquired to protect the Watsonville community.	Section 1.1 – Proposed Action

B-2	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
B-3	The project is a major federal action, however, the 2019 GRR/EA determined that there are no significant, unmitigable effects, including the effects to agricultural landowners, with mitigation in the form of acquisition of property at fair appraisal rate in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. PRFMA will continue to work with affected landowners to ensure appropriate acquisition of properties consistent with Federal laws and regulations.	N/A
B-4	The Reach 6 project designs are based upon a hydraulic analysis and the levee alignment and dimensions were developed based upon the project's purpose for reducing flood risk to the Watsonville community. PRFMA will be contacting landowners to acquire real estate rights for constructing the Reach 6 levee. PRFMA will have individual discussions with specific landowners regarding the amount of land and type of real estate interest needing to be acquired.	N/A
B-5	During construction, any unanticipated damage to adjacent landowner property would be the responsibility of the construction contractor and would be repaired. Landowners would be notified of any temporary disruptions to utilities that is required, and the project would ensure that these disruptions are minimized to the maximum extent practicable.	N/A
B-6	Thank you for your recommended measures. Please see the responses to each recommended measure below. 1) The method of compensation to property owners is actively being discussed and would be coordinated with each individual landowner prior to acquisition. We encourage you to join us for a discussion on July 11th at 6:30pm at the Portuguese Hall on Atkinson Road. 2) Given the geographic constraints of the project, it is unrealistic to prevent staging and construction activities adjacent to farming activities. However, dust control measures have been incorporated into the construction specifications and USACE will ensure that contact information is available to notify the government if dust	Section 3.1 – Resources not Evaluated in Detail

	suppression measures are insufficient. 3) Coordination would occur between the government, construction contractors, and the farm owners to ensure sufficient access is available for both construction and farm operations. 4) Construction will occur during this time, however, as indicated above, the government will ensure that dust control measures are implemented to minimize impacts as much as practicable. 5) Reseeding will be required as part of post-construction site restoration.	
C-1	Thank you for your comment.	N/A
D-1	Discussions between USACE and PRFMA regarding the appropriate method of real estate acquisition is ongoing and will be coordinated directly with the landowners. We invite you to join us for a discussion on this issue on July 11 at 6:30pm at the Portuguese Hall on Atkinson Road.	N/A
D-2	The Reach 6 project designs are based upon a hydraulic analysis and the levee alignment and dimensions were developed based upon the project's purpose for reducing flood risk to the Watsonville community. PRFMA will be contacting landowners to acquire real estate rights for constructing the Reach 6 levee. PRFMA will have individual discussions with specific landowners regarding the amount of land and type of real estate interest needing to be acquired.	N/A
D-3	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
D-4	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
D-5	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent	N/A

	farming operation.	
D-6	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
D-7	Discussions between USACE and PRFMA regarding the appropriate method of real estate acquisition is ongoing and will be coordinated directly with the landowners. We invite you to join us for a discussion on this issue on July 11 at 6:30pm at the Portuguese Hall on Atkinson Road.	N/A
E-1	Discussions between USACE and PRFMA regarding the appropriate method of real estate acquisition is ongoing and will be coordinated directly with the landowners. We invite you to join us for a discussion on this issue on July 11 at 6:30pm at the Portuguese Hall on Atkinson Road.	N/A
F-1	Discussions between USACE and PRFMA regarding the appropriate method of real estate acquisition is ongoing and will be coordinated directly with the landowners. We invite you to join us for a discussion on this issue on July 11 at 6:30pm at the Portuguese Hall on Atkinson Road.	N/A
F-2	Discussions between USACE and PRFMA regarding the appropriate method of real estate acquisition is ongoing and will be coordinated directly with the landowners. We invite you to join us for a discussion on this issue on July 11 at 6:30pm at the Portuguese Hall on Atkinson Road.	N/A
F-3	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
F-4	The Reach 6 designs were based upon a hydraulic analysis and the levee alignment and dimensions were developed based upon the project's purpose for reducing flood risk to the Watsonville community.	N/A
F-5	Thank you for your comment. Several ponding locations were identified in an interior drainage analysis, which accounted for the newly constructed levee. This analysis also addresses the culvert locations to drain accumulated rain runoff, and the placement and replacement of storm drains and the pump station for the proposed levee system being designed for Reach 6. These combined measures are	N/A

	anticipated to address these concerns.	
G-1	The Supplemental EA does not discuss the SCBRL, nor the cumulative impacts related to the passenger rail service because the Reach 6 project does not overlap the railroad right-of-way. This comment will be considered in the design and development of the future reaches for the Pajaro Project that do have the potential to affect the railroad. The Pajaro River Bridge is also not within the Reach 6 project area, which only includes Corralitos Creek from Green Valley Road to Highway 152. Site specific considerations for the bridge will be incorporated into detailed designs for future reaches on the mainstem Pajaro River. These comments will be considered as those designs progress.	N/A
G-2	The Supplemental EA does not discuss the SCBRL, nor the cumulative impacts related to the passenger rail service because the Reach 6 project does not overlap the railroad right-of-way. This comment will be considered in the design and development of the future reaches for the Pajaro Project that do have the potential to affect the railroad. The Pajaro River Bridge is also not within the Reach 6 project area, which only includes Corralitos Creek from Green Valley Road to Highway 152. Site specific considerations for the bridge will be incorporated into detailed designs for future reaches on the mainstem Pajaro River. These comments will be considered as those designs progress.	N/A
G-3	The Supplemental EA does not discuss the SCBRL, nor the cumulative impacts related to the passenger rail service because the Reach 6 project does not overlap the railroad right-of-way. This comment will be considered in the design and development of the future reaches for the Pajaro Project that do have the potential to affect the railroad. The Pajaro River Bridge is also not within the Reach 6 project area, which only includes Corralitos Creek from Green Valley Road to Highway 152. Site specific considerations for the bridge will be incorporated into detailed designs for future reaches on the mainstem Pajaro River. These comments will be considered as those designs progress.	N/A
H-1	Thank you for your comment. We concur that measures associated with winter season surface water flows and runoff should be incorporated into the project. Language regarding the planning for the winter season has been incorporated into the final Supplemental EA in Section 3.2.2.	Section 3.2.2 – Water Quality

H-2	Thank you for your comment. There are ongoing discussions with other local groups regarding potential opportunities for restoration post-construction. However, any restoration would likely be conducted and managed long-term through PRFMA's Stream Maintenance Program. PRFMA has committed to ensuring that the Water Board is engaged in these discussions as they progress in the future.	N/A
H-3	Monitoring of any post-construction restoration features would likely occur as part of PRFMA's Stream Maintenance Program. PRFMA is committed to working with the Water Board to develop any monitoring plans associated with post-construction restoration efforts.	N/A
I-1	The Reach 6 designs were based upon a hydraulic analysis and the levee alignment and dimensions were developed based upon the project's purpose for reducing flood risk to the Watsonville community.	N/A
I-2	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
I-3	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
I-4	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
I-5	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A

J-1	The Supplemental Environmental Assessment provided an update on changes to the project during the design process. The full project description is comprised of a combination of the project described in the 2019 GRR/EA and this Supplemental Environmental Assessment. The Supplemental EA was prepared consistent with the NEPA process for tiering as described in 40 CFR 1501.11b. Impacts associated with agricultural loss were fully assessed in the 2019 GRR/EA and did not change as a result of these design refinements. The Pajaro Regional Flood Management Agency (PRFMA) will be coordinating with each landowner regarding the amount of land and type of real estate interest needing to be acquired to protect the Watsonville community.	Section 1.1 – Proposed Action
J-2	The Reach 6 project will not implement recreational features nor increase public access opportunities. The project includes specifications for permanent fencing to be installed between the new setback levee and the adjacent properties. This fencing has been designed with input from local landowners to ensure consistency with adjacent farming operation.	N/A
J-3	The Supplemental Environmental Assessment provided an update on changes to the project during the design process. The full project description is comprised of a combination of the project described in the 2019 GRR/EA and this Supplemental Environmental Assessment. The Supplemental EA was prepared consistent with the NEPA process for tiering as described in 40 CFR 1501.11b. Impacts associated with agricultural loss were fully assessed in the 2019 GRR/EA and did not change as a result of these design refinements. The Pajaro Regional Flood Management Agency (PRFMA) will be coordinating with each landowner regarding the amount of land and type of real estate interest needing to be acquired to protect the Watsonville community.	Section 1.1 – Proposed Action
J-4	Thank you for your recommended measures. Please see the responses to each recommended measure below. 1) The method of compensation to property owners is actively being discussed and would be coordinated with each individual landowner prior to acquisition. We encourage you to join us for a discussion on July 11th at 6:30pm at the Portuguese Hall on Atkinson Road. 2) Given the geographic constraints of the project, it is unrealistic to prevent staging and construction activities adjacent to farming activities. However, dust control	Section 3.1 – Resources Not Evaluated in Detail

	measures have been incorporated into the construction specifications and USACE will ensure that contact information is available to notify the government if dust suppression measures are insufficient. 3) Coordination would occur between the government, construction contractors, and the farm owners to ensure sufficient access is available for both construction and farm operations. 4) Construction will occur during this time, however, as indicated above, the government will ensure that dust control measures are implemented to minimize impacts as much as practicable. 5) Reseeding will be required as part of post-construction site restoration.	
K-1	The Supplemental Environmental Assessment provided an update on changes to the project during the design process. The full project description is comprised of a combination of the project described in the 2019 GRR/EA and this Supplemental Environmental Assessment. The Supplemental EA was prepared consistent with the NEPA process for tiering as described in 40 CFR 1501.11b. Impacts associated with agricultural loss were fully assessed in the 2019 GRR/EA and did not change as a result of these design refinements. The Pajaro Regional Flood Management Agency (PRFMA) will be coordinating with each landowner regarding the amount of land and type of real estate interest needing to be acquired to protect the Watsonville community.	Section 1.1 – Proposed Action
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	Supplemental Environmental Assessment. The Supplemental EA was prepared consistent with the NEPA process for tiering as described in 40 CFR 1501.11b. Impacts associated with agricultural loss were fully assessed in the 2019 GRR/EA and did not change as a result of these design refinements. The Pajaro Regional Flood Management Agency (PRFMA) will be coordinating with each landowner regarding the amount of land and type of real estate interest needing to be acquired to protect the Watsonville community.	
K-4	Thank you for your recommended measures. Please see the responses to each recommended measure below. 1) The method of compensation to property owners is actively being discussed and would be coordinated with each individual landowner prior to acquisition. We encourage you to join us for a discussion on July 11th at 6:30pm at the Portuguese Hall on Atkinson Road. 2) Given the geographic constraints of the project, it is unrealistic to prevent staging and construction activities adjacent to farming activities. However, dust control measures have been incorporated into the construction specifications and USACE will ensure that contact information is available to notify the government if dust suppression measures are insufficient. 3) Coordination would occur between the government, construction contractors, and the farm owners to ensure sufficient access is available for both construction and farm operations. 4) Construction will occur during this time, however, as indicated above, the government will ensure that dust control measures are implemented to minimize impacts as much as practicable. 5) Reseeding will be required as part of post-construction site restoration.	Section 3.1 – Resources Not Evaluated in Detail
L-1	The bridge replacement and design of the pump station are currently early in the design phase and are not scheduled for construction as part of the Reach 6 project. These features will be constructed separately following the completion of the Reach 6 levee work. When the design of these features progresses further, they will be evaluated for additional environmental compliance requirements, including potentially additional NEPA analysis and will be provided for review, as appropriate.	N/A