

APPENDIX A1
2015 CEQA Document

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
MITIGATED NEGATIVE DECLARATION
FOR
THE 2015 FISHERIES RESTORATION GRANT PROGRAM
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, MONTEREY, NAPA, SAN LUIS
OBISPO, SAN MATEO, SANTA BARBARA, SANTA CLARA, SANTA CRUZ,
SISKIYOU, SONOMA, TRINITY, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE
ALTERATION

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This Report Has Been Prepared Pursuant to the
California Environmental Quality Act of 1970
State of California
The Resources Agency
California Department of Fish and Wildlife

INITIAL STUDY
AND
MITIGATED NEGATIVE DECLARATION
FOR
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The Project: This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal and central valley streams and watersheds. Years of poor land management within California's watersheds which combined with natural events has altered native habitats. This has limited the ability of fish to survive and successfully reproduce in coastal and central valley streams that historically produced large populations of salmon and steelhead. This proposed project is designed to increase populations of wild anadromous fish in coastal and central valley streams by restoring their habitat.

The project objective is to improve spawning success for adult salmon and steelhead as well as to increase survival for eggs, embryos, and rearing juvenile salmonids. Bank erosion and riparian enhancement treatments improve spawning conditions and embryo survival by reducing sediment yield to streams. Upslope road decommissioning or upgrading also help address these widespread problems. The replacement of migration barriers at stream crossings with bridges or natural stream bottom culverts allow adult and juvenile salmonids access to additional spawning and rearing habitats. The installation of instream habitat improvement structures recruit and sort spawning gravel for adult salmon and steelhead, and create summer rearing pool and over-wintering habitat for juveniles.

The Finding: Although the project may have the potential to cause minor short-term impacts on soil, vegetation, wildlife, water quality, and aquatic life, the measures that shall be incorporated into the project will lessen such impacts to a level that is less than significant (see initial study and environmental checklist).

Basis for the Finding: Based on the initial study, it was determined there would be no significant adverse environmental effects resulting from implementing the proposed project. In addition, the project is expected to achieve a net benefit to

the environment by enhancing and maintaining quality salmonid spawning and rearing habitat in the fifteen-county project area.

The California Department of Fish and Wildlife (CDFW) finds that implementing the proposed project will have no significant environmental impact.

Therefore, this mitigated negative declaration is filed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code § 21080 (c2). This proposed mitigated negative declaration consists of all of the following:

- **Introduction - Project Description and Background Information**
- **Initial Study Environmental Checklist Form**
- **Explanation of Response to Initial Study Environmental Checklist Form**
- **Appendix A.**
 - **Non-physical Items**
 - **Action Items**
 - **State-wide Action Items Location Maps**
- **Appendix B. Mitigation Measures, Monitoring and Reporting Program For the 2015 Fisheries Restoration Grant Program**
- **Appendix C. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**
- **Appendix D. Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program**
- **Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fisheries Restoration Grant Program**

DETAILED PROJECT DESCRIPTION AND BACKGROUND INFORMATION
FOR
THE 2015 FISHERIES RESTORATION GRANT PROGRAM
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, MONTEREY, NAPA, SAN LUIS
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INTRODUCTION

The 2015 Fisheries Restoration Grant Program (FRGP) in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura counties is a “project” subject to review under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The FRGP involves funding, in whole or in part, of 111 habitat restoration items. These 111 restoration items are divided into 66 action items and 45 non-physical items.

The 66 action items, which are discussed in detail in the environmental analysis that follows (listed in Appendix A, Action Items) are the principal focus of the environmental analysis set forth below.

The 45 non-physical activities are implemented within various counties of the CDFW FRGP region. These non-physical activities involve grants for projects such as watershed evaluation, assessment, project planning, technical training, monitoring, and public involvement. Each of these non-physical activities are identified in Appendix A, Non-Physical Items. If reviewed individually, these projects would fall under categorical exemptions such as CEQA Guidelines § 15262 (Feasibility and Planning Studies), § 15306 (Information Collection), and § 15313 (Acquisition of Lands for Wildlife Conservation Purposes). However, as part of the FRGP project, these activities are included within the analysis of this Initial Study and mitigated negative declaration (MND). Because these activities are limited to non-physical activities that would not be anticipated to result in any environmental impacts or result in significant impacts due to unusual circumstances, they would not incrementally add to any potentially significant impacts that may result from the Action Items. Therefore, these activities are not discussed further in the analysis.

This Initial Study and MND describe and analyze the potential significant impacts of all 111 action items and non-physical items. These 111 items represent

all fundable applications that have been received in response to the Proposal Solicitation Notice and received initial review by CDFW. At the time this document is being prepared, CDFW has not made final funding decisions on these items. Therefore, some of the items described in this document may not receive funding from the FRGP. This analysis includes all potential items in order to disclose the greatest possible potential impacts that could result from CDFW's implementation of the FRGP.

This Initial Study and the MND analyze the environmental impacts that might result from implementation of the proposed FRGP. The initial study and MND also serve to address potential environmental impacts that may occur to the extent an individual restoration activity requires a Streambed Alteration Agreement (SAA) from the CDFW (See Fish and Game Code, § 1600 et seq.). Construction of all or a portion of some of the individual restoration activities may actually occur in subsequent years, depending on the terms for each respective individual grant provided by the CDFW.

PROJECT GOAL AND OBJECTIVES

The primary goal of this restoration program is to maintain and restore natural watershed processes that create habitat characteristics favorable to salmonids.

The objectives of the restoration program action items are to enhance the capability of streams to produce wild anadromous salmonids by maintaining, restoring, and improving stream habitat essential to salmonid production.

Finally, it is the CDFW's objective to implement this project while not causing a significant adverse effect on the environment, or reducing the number or restricting the range of an endangered, threatened, or rare species.

BACKGROUND

The CDFW may grant funds for habitat restoration to public and nonprofit organizations, and Native American tribes. Sections 1501 and 1501.5 of the Fish and Game Code and Public Resource Code 6217.1 pertain to activities funded by the CDFW.

The FRGP was established in 1981 and is administered by the CDFW. This program was initiated by the precipitous drop in the population of fish in coastal streams, mainly salmon and steelhead. This program was developed as a mechanism to administer grant funds designated for the restoration of fish populations. Through the past several decades to the present time, funds allocated by the California Legislature have been used in this grant program in an effort to

rebuild fish populations (see Fish and Game Code § 6900 et seq.). Initially, grants were awarded in three categories: stream restoration, fish rearing, and education. Since 1997, a more holistic restoration approach has been emphasized that facilitates habitat enhancement throughout the watershed.

There are many factors responsible for the decline of California coastal salmon and steelhead stocks. One important factor is the degradation of stream habitats. Activities in watersheds including logging, mining, road building, livestock grazing, water diversions, and dam construction have seriously impacted the ability of fish to survive and reproduce. For example, excessive fine-sediment has reduced egg and fry survival, removal of riparian vegetation has contributed to increased water temperatures, habitats have been impaired by water diversions, and culverts and dams have blocked fish passage. Habitat destruction has been instrumental in drastically reducing native anadromous fish populations. Natural events such as wildfire, drought, and floods have exacerbated these problems and accelerated the alteration of habitat further. The resulting decline in fish populations has caused extreme financial hardship to a once thriving commercial fishery and drastically reduced, or in some cases eliminated, a very popular sport fishery. Poor ocean conditions resulting in the collapse of the marine food chain along with the various factors stated above has culminated in the population crash of the Central Valley Chinook salmon in 2008 and 2009. This event prompted the closure of recreational and commercial ocean salmon season in 2008 and 2009. Most stocks have been reduced to the point where listing under the Federal and State Endangered Species Acts has become necessary.

The FRGP was instituted because the critical need to restore salmon and steelhead habitat was recognized. Guided by the *California Salmonid Stream Habitat Restoration Manual* 4th Edition (Flosi et al., 2009), hundreds of habitat restoration actions funded by the FRGP have been completed by government agencies, Indian Tribes and nonprofit groups. Activities have included revegetation with livestock exclusion fencing, riparian planting, removal of barriers to fish passage, bank stabilization and other bank protection structures, decommissioning of roads, and improving drainage systems on existing roads. Instream structures such as boulder clusters, wing deflectors, and log cover have also been used. Road crossings that have impeded fish migration have been replaced with bridges or culverts with natural stream bottoms allowing fish to access additional stream reaches. Finally, other watershed improvement activities include installation of fish screens to prevent entrainment of juvenile salmon and steelhead. These actions create spawning and nursery habitat, provide escape cover and prevent fine sediments from entering streams. Project monitoring has shown significant habitat improvements in streams where this work has taken place. A gradual rebuilding of salmon and steelhead populations is expected as this program continues.

Special funds will also be awarded for projects focusing on restoring anadromous salmonid habitat impacted by the 2014 drought as well as the legacy effects of forest management. These projects have a designated Proposal ID prefix of either D or F (Attachment A).

PROJECT LOCATION

Activities performed in the FRGP typically occur in watersheds that have been subjected to significant levels of logging, road building, mining, grazing, and other activities that have reduced the quality and quantity of stream habitat available for native anadromous fish.

Coastal watersheds previously dominated by mature redwood and Douglas fir forests, contain extensive road and skid trail systems from tractor logging. These previous mature, forested areas can now be found in various seral stages of vegetative recovery and are predominate in the coastal FRGP region. Most restoration action items are implemented within the stream course to improve fish habitat. Upslope restoration actions improve fish habitat by reducing the input of fine sediment to the stream environment.

Inland locations are usually in watersheds dominated by pine and fir forests, often with steep unstable terrain; some inland locations are in valley areas in agricultural use. Most restoration activities are intended to reduce sediment delivery to streams, and provide spawning and rearing habitat in the streams. Streams flowing through valley areas will be treated to stabilize stream banks and increase riparian vegetation.

Projects focused on restoring coho salmon, Chinook salmon, steelhead trout, or coastal cutthroat trout habitats impacted by the 2014 drought are located within the limits of anadromy as depicted in Map 1. Projects focused on restoring habitat impacted by forest management are located on private and nonfederal public forests within the San Lorenzo River/Pescadero Creek complex, the Ten Mile/Garcia Rivers complex, and the Scott River as depicted in Map 2.

SCHEDULE

The activities carried out in the FRGP typically occur during the annual period of dry weather. Stream work is normally confined to the period of June 15 through November 1 or the first significant fall rainfall, whichever comes first. This is to take advantage of low stream flows and is outside the spawning and egg/alevin incubation period of salmon and steelhead.

Generally, upslope work occurs during the same approximate period. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Equipment access on dirt roads and the ability of equipment to move soil is inhibited by wet conditions. The scheduling of upslope work may also be affected by the avoidance of nesting or breeding seasons of birds and terrestrial animals.

Some activities may continue after November 1, but the extent of such activities is limited through grant conditions and compliance with any required permit. Post-November 1 activities are generally limited to hand planting of tree seedlings, which typically does not begin until December 1 and may continue until the end of March. Planting during the wet season is necessary to ensure the best survival of seedlings.

PROJECT DESCRIPTION

The CDFW releases an annual Proposal Solicitation Notice (Solicitation) for proposals that cover fishery restoration, watershed assessment, and planning work throughout California. In addition to the annual Solicitation, the CDFW also released the 2014 Forest and Drought Solicitation Notice (F&D Solicitation) which solicited projects that focused on restoring anadromous salmonid habitat impacted by the legacy effects of forest management and the 2014 drought as well as projects that proposed to enhance habitat that showed resiliency during the drought and projects that utilized education, planning, and design to better prepare for future droughts.

Following initial review by the CDFW Technical Review Team (TRT), proposals are sent to appropriate fishery staff for field review, comment, and scoring, using standardized evaluation criteria. The evaluation process requires consideration of benefits to the fishery resources, the benefit for targeted species, project costs, and positive or negative impacts to the environment. The need for work in particular drainages or sites is evaluated and reviewed by the TRT utilizing the watershed assessment and planning work funded through the program, and from other CDFW and agency programs at work in California. The proposals, technical scores, and comments are forwarded to the California Coastal Salmonid Restoration Grants Peer Review Committee (PRC). The PRC also evaluates and scores each proposal, and makes recommendations for funding priorities. After CEQA review is completed the Director of the CDFW reviews the recommendations of the TRT and PRC, and makes the final funding decision. Grants are written for the approved proposals.

The FRGP operates under two Regional General Permits (RGP) issued by the U.S. Army Corps of Engineers (USACE). RGP12 (file number: 2003-27922N) was issued in 2010 by the USACE San Francisco District and covers action items implemented within the regulatory boundaries of the San Francisco District. RGP78

(file number: SPL-2003-01123-BAH) was issued in 2009 and re-issued in 2014 by the USACE Los Angeles District and covers action items implemented within the regulatory boundaries of the Los Angeles District. The RGP's allow the CDFW, grantees, and other individuals and groups to conduct fishery habitat restoration activities using methods described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2009) that have been evaluated by CDFW biologists. The National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS) have issued biological opinions, which are incorporated into the corresponding RGP's. The biological opinions address the impacts of the CDFW's FRGP and stipulate the mitigations that shall be implemented to avoid and/or minimize impacts to listed species.

The FRGP shall submit an annual application for a programmatic Section 401 Water Quality Certificate to the State Water Resources Control Board. A description of project work and methods to prevent impacts on water quality shall be provided annually to the State Water Resources Control Board and to the appropriate regional boards.

The CDFW's lake and streambed alteration agreement process (Fish and Game Code § 1600 et seq.) is an integral part of stream restoration planning and implementation. An agreement is developed for each action item which defines required measures to minimize disturbance to the stream environment. Procedures to accomplish this task are contained in the CDFW Lake and Streambed Alteration Program (1600) webpage <http://www.dfg.ca.gov/habcon/1600/>. Activities such as installing replacement culverts to provide fish passage, operating equipment in or near streams, and installing bank stabilizing structures are all discussed in the context of minimizing impacts, and all required measures for species protection discussed in this document are incorporated into the agreement for each project.

All features of this project requiring CEQA review are being provided in sufficient detail to facilitate public review and clearly define the environmental evaluation. In order to achieve this goal, the FRGP items are considered to fall into two categories corresponding to similar activities and requirements for CEQA review. These two categories of items are as follows.

Public Involvement, Planning, Research, Monitoring, and Habitat Acquisition – Non-physical Items

Non-physical items include watershed evaluation, assessment, planning, habitat acquisition, and monitoring projects. The names of 45 non-physical items are presented in a list in Appendix A, non-physical Items. These non-physical items all qualify as either statutory or categorical exemptions under CEQA Guidelines § 15262 (Feasibility and Planning Studies), § 15306 (Information Collection), § 15313 (Acquisition of Lands for Wildlife Conservation Purposes), and § 15321 (Enforcement Actions by Regulatory Agencies). These non-physical items will not have a significant

effect on physical conditions including land, air, water, minerals, plants, animals, ambient noise, historic sites, or aesthetics. Based on these facts, these non-physical items will not be discussed further in this document.

Restoration Element - Action Items

There is a notable difference in the level of activity found under this category. The names of the 66 action items in this category are presented in a list in Appendix A, Action Items. The location of each action item is illustrated on a state-wide and on CDFW regional level maps in Appendix A. A detailed description of each action item in this element is also located in Appendix A, sorted by county.

Stream bank stabilization may include the use of boulder and cobble armoring of eroding banks, log cribbing, willow mattresses, or willow siltation baffles. Revegetation of riparian habitat normally involves the use of willow sprigs or willow or alder seedlings or transplants to stabilize banks and slopes, promote long-term shade and channel stability, and enhance large-wood recruitment. Indigenous stocks (when available) shall be used for planting projects. Upslope earthmoving and culvert replacement require large size material and increased volumes to be moved by heavy equipment and, in so doing, involve certain limited construction activities. The techniques that are used for these action items have proven successful on many coastal streams and are detailed in the current version of the *California Salmonid Stream Habitat Restoration Manual* 4th edition. This manual describes in detail how the work shall be performed in the field.

Typically, these stream habitat restoration activities use dump trucks to deliver logs, root wads, or quarry rock to staging areas, and front-end loaders to deliver material to restoration sites. Existing stream crossings are used to access the stream in most cases. If stream crossings do not exist, the least damaging access points are selected based upon the size, type, and density of riparian vegetation. Where use of such access points is necessary, riparian vegetation can be affected, particularly the upper part of plants may be damaged, with the roots and lower parts receiving minimal damage. Plants damaged in this way usually re-sprout and recover. Access to restoration activity sites are identified before implementation of the action item and shall not create bank erosion or cause the removal of riparian trees. Staging areas at the activity sites are set up on dry stream banks where there is a minimum, and less than significant, impact to vegetation. Disturbed or bare mineral soils resulting from work activities, which are subject to surface erosion, are seeded and straw mulched.

Hydraulic excavators or backhoes may be used to excavate trenches or keyways in stream banks to anchor logs or boulder structures. Excavators are used to place materials, construct instream structures, and stabilize stream banks with boulders and logs. Willow cuttings are usually placed into the keyway trenches around the logs or boulders and then the trench is backfilled with cobble and native

soil. This procedure anchors the structure into the stream bank, accelerates the establishment of willows around the structure, and prevents the stream from scouring around the newly placed structure.

Action items that stabilize stream banks or small stream-side landslides shall armor and buttress the landslide or stream bank using boulders, logs, root wads, and loose rock revetment. Revetments are designed with logs, root wads, and boulders that extend into the stream to provide instream cover and velocity breaks for salmonids. Smooth riprap, however, which accelerates water velocities along the stream bank, is not permitted under this program. When practical, the bank will be sloped back to a minimum 1.5 to 1 slope. A toe trench will be excavated at the toe of the landslide or eroding bank. The excavated trench shall be backfilled with boulders and will extend up to the high-water mark. Rock from the toe trench, up to the high-water mark, shall be of a size that will withstand normal high flows. Revetment shall extend upstream and downstream of the unstable reach and shall be keyed into the stable banks.

Runoff from above the slide or eroding banks shall be diverted away from the area being stabilized. The slide face shall be re-vegetated using indigenous plants. Willow cuttings shall be placed in the toe trenches. Browse protectors shall be used on seedlings to prevent predation by browsing animals.

All work, except for the revegetation, shall take place during the summer and fall (low flow period) and shall be completed by November 1 or before the first significant seasonal rainfall, whichever comes first. Planting of seedlings takes place after December 1, or when sufficient rainfall has occurred, to ensure the best chance of survival of the seedlings, but in no case later than April 15. All habitat improvements shall be done in accordance with techniques described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Upslope action items upgrade or decommission roads by implementing all or part of the following tasks: road ripping or decompacting; installing or maintaining rolling dips (critical dips); installing or maintaining waterbars and crossroad drains; replacing, maintaining or cleaning culverts; outsloping roadbeds; re-vegetating work sites; and excavating stream crossings with spoils stored on site or end-hauled.

Sites which are expected to erode and deliver sediment to the stream are the only locations where work shall be authorized under this category. Work shall not be authorized to improve aesthetic values only.

Removal of road and skid trails shall include retrieving unstable material sidecast during original road construction and excavation of stream crossings and other watercourse fill. Stream crossings shall be excavated to original width, depth, and slope to expose natural channel morphology and armor. Side slopes will

generally match original contours above and below the road. Culverts that are replaced in fish bearing reaches of streams shall be done in a manner to allow for unimpeded upstream and downstream fish passage.

When fill material is placed on road benches for permanent storage, the road bench shall be ripped or decompacted first. The fill shall then be placed against the cutbank and shaped to blend with the surrounding topography that existed prior to road construction. Outsloping of the roadbed will occur as needed, to reduce potential sediment delivery to the stream where there is insufficient fill available to recontour the site, or where there is evidence that the overall long-term stability of the site does not justify a full recontour treatment. Where practical, fill shall be compacted to the top of the filled cut to reduce the potential for fill cut failure. Spoil material shall be stored in stable locations where it will not erode. If stable spoils storage sites are not available within the project area, they will be end-hauled to a stable storage site outside of the project area. Areas chosen for this purpose shall be devoid of tree and shrub vegetation. Upon completion of each site, woody debris shall be scattered over the surface of the restored area as mulch.

Road crossing removal may involve some removal of vegetation that has grown in sediment that has been deposited upslope of road prisms. Most of this vegetation shall be used as coarse wood mulch on bare soils to reduce surface erosion. Some of the material shall be transplanted on-site as one component of the restoration action items. In all cases, disruption of existing vegetation shall be minimized.

Culvert replacement requires diverting stream flow around the project site and excavating the existing culvert with heavy equipment. Normally concrete footings are constructed to support a new bottomless culvert or bridge. If appropriate, grade control structures are incorporated into the project area to prevent excessive down-cutting of the stream. All work concerning culvert replacement shall be consistent with current CDFW and NOAA criteria concerning fish passage. Current NOAA fish passage guidelines can be found on the web at:

http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html. CDFW fish passage guidelines can be found in Part IX of the *California Salmonid Stream Habitat Restoration Manual* 4th edition, available at <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

Fish screens are constructed within existing irrigation diversions to prevent entrainment of juvenile salmon and steelhead. Fish screens are often composed of a concrete foundation and walls. A steel framework supports perforated screen panels with a mechanical cleaning system. A stream flow bypass carries the fish back to the stream. Current NOAA and CDFW fish screen criteria can be found in Appendix S of the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Appendix A contains a list of action item titles, locations, and descriptions of work that shall be implemented at each site. The action item designs are reviewed by the CDFW and are implemented by grantees utilizing heavy equipment and some hand labor crews. During a pre-project inspection, the grantee and the CDFW will tour the entire activity area and identify the sites and techniques necessary to carry out the recommendations. The site-specific recommendations shall be listed in an inspection report which will be acknowledged by the grantee's signature, as a required element of the activity. The CDFW shall continue to inspect the work site during and after completion of the action item. All road upgrading or decommissioning shall be done in accordance with techniques described in Part X of the *California Salmonid Stream Habitat Restoration Manual 4th edition*, available at <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>. All culvert replacement projects shall be done in accordance with techniques and criteria consistent with current CDFW and NOAA guidelines concerning fish passage. Implementation of each major action item shall be conditioned and controlled to prevent any potentially significant impacts under CEQA.

Complete site plans and prescriptions for action and non-physical items located in Del Norte, Humboldt, Lake, Mendocino, Siskiyou, Tehama, and Trinity counties are available for review at the California Department of Fish and Wildlife, Northern Regional Office at 1455 Sandy Prairie Court, Suite J, Fortuna, California 95540. For an appointment to view this information, contact Environmental Scientist, Trevor Tollefson at (707) 725-1027, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Alameda, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties are available for review at the California Department of Fish and Wildlife, Bay Delta Region, office of Senior Environmental Scientist, Gail Seymour, 5355 B Skylane Dr., Santa Rosa, California 95403. Appointments may be made by telephoning (707) 576-2813, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Merced, Monterey, San Luis Obispo, and Stanislaus counties are available for review at the California Department of Fish and Wildlife, Central Region, office of Senior Environmental Scientist, Margaret Paul, 20 Lower Ragsdale Dr. Ste. 100, Monterey, California 93940. Appointments may be made by telephoning (831) 649-2882, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items in Los Angeles, Orange, San Diego, Santa Barbara, Riverside, and Ventura counties are available for review at the California Department of Fish and Wildlife, South Coast Region, office of Senior Environmental Scientist, Mary Larson, 4665 Lampson Ave,

Suite C, Los Alamitos, California 90720 and 1933 Cliff Drive, Suite 9, Santa Barbara, CA 93109. Appointments may be made by telephoning (562) 342-7186, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Environmental Assessment of Each Action Item

Each action item is assigned to the appropriate category using the established criteria for each category. The work to be completed for each action item is carefully evaluated to make this determination. Once this evaluation process is completed, the action items described under the Restoration Element - Action Items section, are subjected to a systematic environmental analysis. This analysis ultimately prescribes site-specific conditions which must be applied in order to avoid potentially significant negative effects on the environment, including such effects on endangered, rare, or threatened species and their habitat.

First, all action items listed in Appendix A shall comply with CDFW policies to protect rare, endangered, and listed animal species. A review of the CDFW's CNDDDB for the entire fifteen-county project location indicated which animal species found on a State or Federal special status list may be present at the work sites. This site specific information is also attached to each statement of work in Appendix A. Mitigation measures to avoid impacts to these species are presented along with other mitigation measures in Appendix B; Mitigation Measures, Monitoring and Reporting Program. In the absence of site-specific information, species identified as having potential to be affected at a work site shall be assumed present at the work site and mitigation measures to avoid impact to that species shall be implemented. Any site-specific surveys to confirm the presence, or absence, of a listed animal species at a work site will be performed by qualified biologists according to protocols described in Appendix B. Streambed Alteration Agreements and grants for each site shall be conditioned to avoid impacts to any special status species that could potentially be affected at that site. The CDFW shall ensure that the grantee or responsible party is aware of all specific conditions that apply to their work site. Also, the CDFW shall inspect the work site before, during, and after completion of the action item to ensure compliance with mitigation measures to avoid potential impacts to endangered, rare, or threatened species. Any violation of the specific recommendations shall be immediately rectified. Failure or inability to rectify a particular recommendation will cause all work to cease at that site until a remediation plan is developed.

Second, all action items listed in Appendix A shall comply with CDFW policies to conduct rare plant surveys. A qualified botanist shall be contracted to complete the surveys using standard protocols. Rare plant surveys shall be conducted following the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife, 2009), Appendix C. A review of the CDFW's current California Natural Diversity Data Base (CNDDDB) for each project located in the entire fifteen-county programmatic project area is attached to the statement of work for each action item

listed in Appendix A and indicates which plant species found on a State or Federal special status list that could potentially be affected at the work sites. Rare plant surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a CDFW biologist, or other qualified biological consultant, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Third, all action items listed in Appendix A shall comply with CDFW policies to conduct cultural resource surveys, including archaeological or paleontological surveys (if necessary). A qualified cultural resource specialist(s) shall be contracted to complete the surveys using standard protocols. Research shall be done on available cultural data repositories and a review of cultural resources with regional experts to identify possible areas of importance within the fifteen-county programmatic project area will occur. Site specific detailed research shall be done for projects sites deemed likely to encounter cultural resources (Appendix D & E). Review of cultural surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a qualified cultural specialist, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Through careful design, scheduling, and monitoring, any and all potentially significant impacts associated with the action items shall be avoided or mitigated to below a level of significance under CEQA. To ensure that each action item adheres to avoidance and mitigation measures, a CDFW grant manager is assigned to each action item. Additional details regarding implementation of action items, including required mitigation measures, are detailed in the environmental checklist section below.

Monitoring

Project monitoring is considered an important element in the activity development and implementation process. The monitoring process provides performance control during the activity and also helps provide a measure of the benefits, insight, and guidance for future projects.

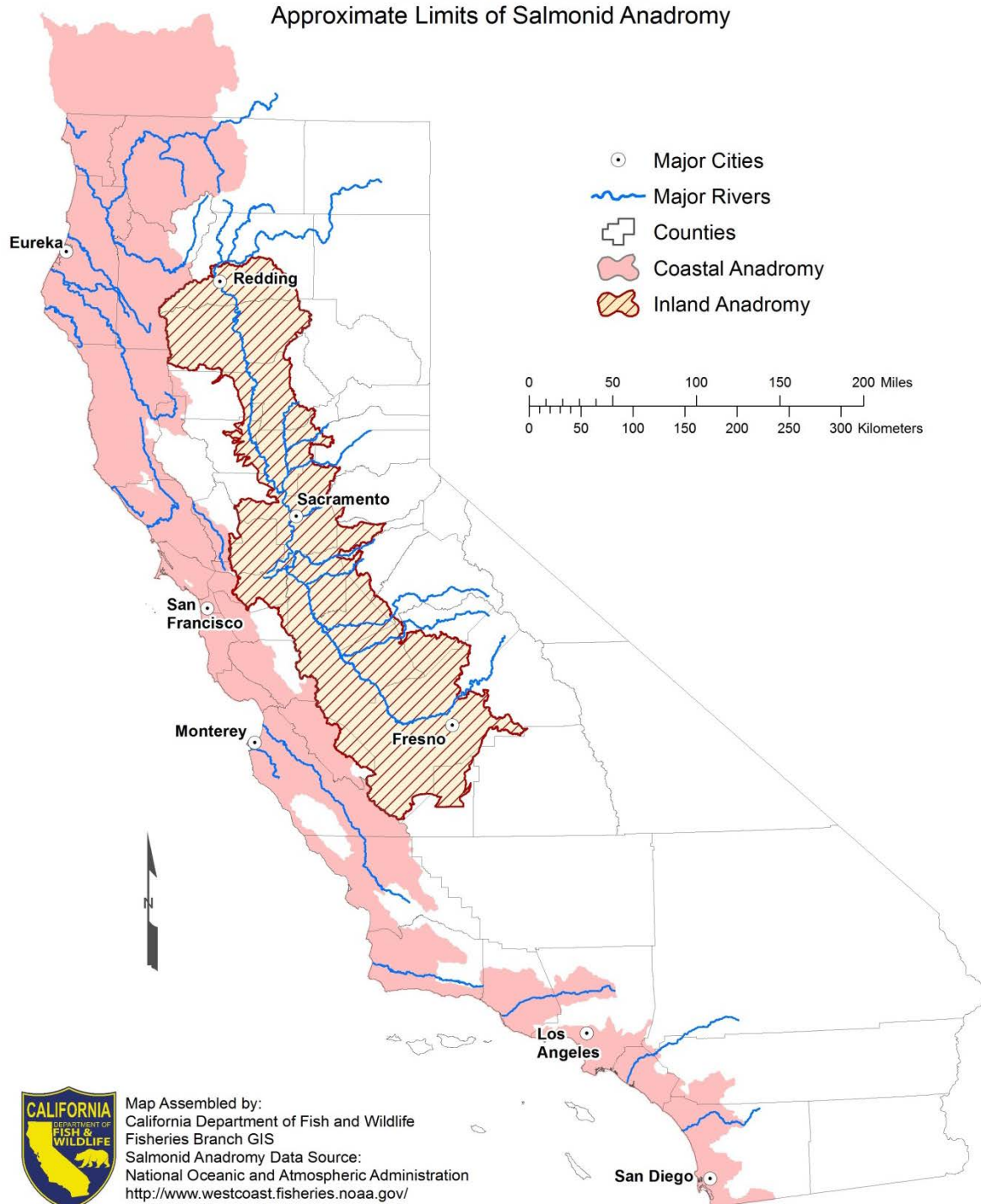
Activity during implementation is overseen by a CDFW grant manager and is geared to ensure that all regulatory environmental issues are strictly addressed including air, water, and avoiding impacts to sensitive plant and animal species. During implementation, activities are carefully monitored to make sure plans are followed and that the correct materials and techniques are used so that the objectives of the activities are met while protecting the environment.

Post-activity monitoring begins with information collected immediately after the activity is completed and documents whether the project was completed as designed and according to grant specifications. This information includes documenting the exact location where the activity has occurred with reference points and survey marks. Final project reports should contain "as-built" descriptions with design drawings and photographs (both before and after the activity) are collected. A complete activity description including the objectives of the activity must be retained.

The next phase of post-activity monitoring is designed to assess the efficacy of the project and shall occur within one to three years after an action item is complete. The CDFW shall randomly select ten percent of the action items within each project work type for effectiveness/validation monitoring. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. This evaluation shall be recorded on standard project evaluation forms. Effectiveness monitoring addresses the physical response associated with an activity, while validation monitoring evaluates fish response to the project. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring will be performed within three years following project completion.

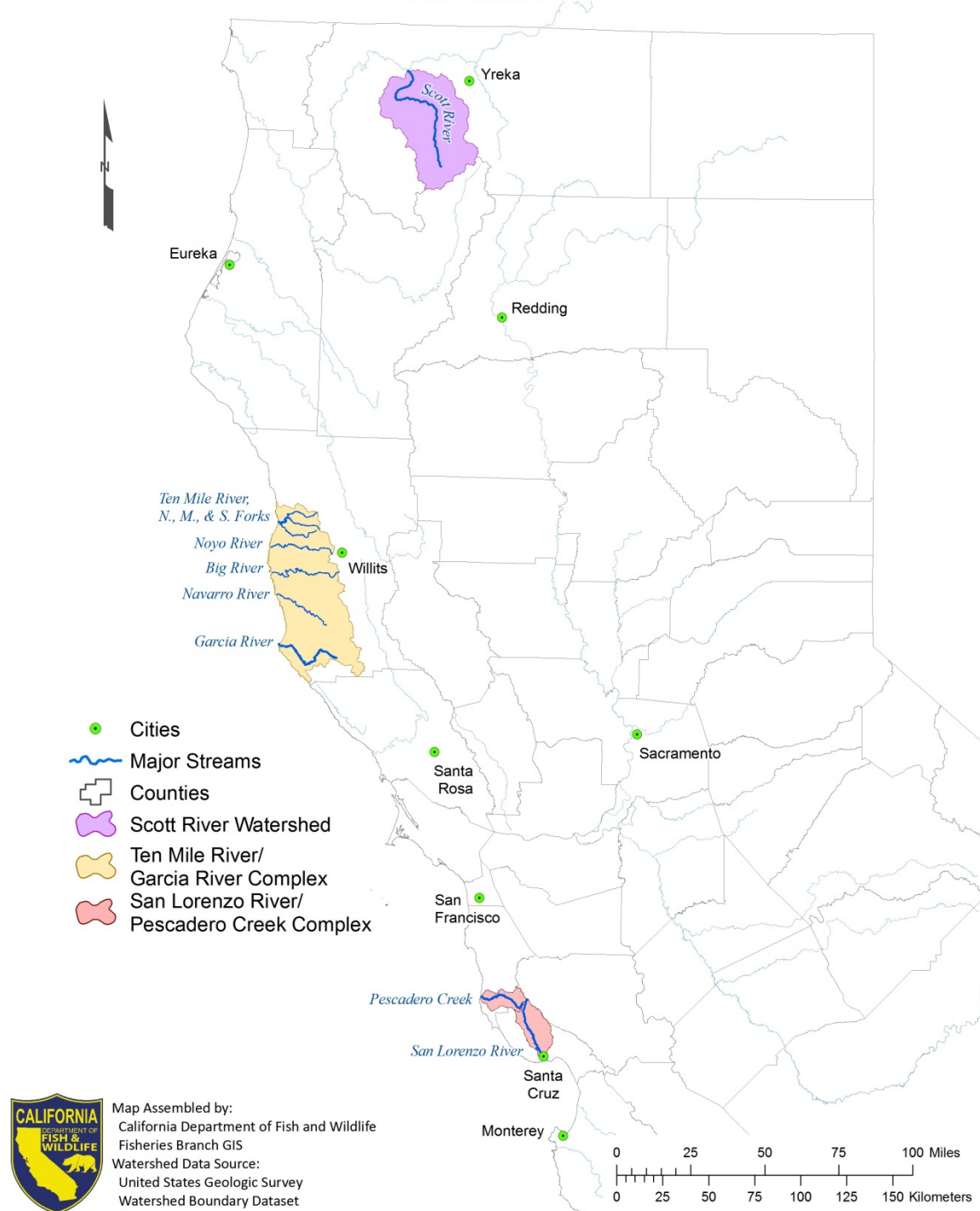
Complete monitoring specifications can be found in Part VIII of the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2009) (<http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>). Additional details on monitoring and reporting requirements are presented in Appendix B.

Coho Salmon, Chinook Salmon, Steelhead Trout,
and Coastal Cutthroat Trout
Approximate Limits of Salmonid Anadromy



Map 1: Area covered by Drought Focus (excluding Oregon)

Forest Land Anadromous Restoration Focus Watersheds



Map 2: Area covered by Forest Land Anadromous Restoration Focus

REFERENCES:

California Department of Fish and Wildlife. Lake and Streambed Alteration Program (1600) webpage <http://www.dfg.ca.gov/habcon/1600/>

California Department of Fish and Game. 2000. Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. The Resources Agency, State of California, Sacramento, CA.

Flosi, G, S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins. 1998. *California Salmonid Stream Habitat Restoration Manual*. Third Edition. Calif. Fish and Game. The most current version of the manual is available at: <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

Flosi, G, S. Downie, M. Bird, R. Coey, and B. Collins. 2003, 2006. *California Salmonid Stream Habitat Restoration Manual*. Volume II, Third Edition. Calif. Fish and Game. The most current version of the manual is available at: <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

Hagans and Weaver. 1994. Handbook for Forest and Ranch Roads. 161 p. Prepared by William E. Weaver, Ph.D. and Danny K. Hagans, Pacific Watershed Associates for the Mendocino County Resource Conservation District, 405 Orchard Ave., Ukiah, CA 95482.

ENVIRONMENTAL CHECKLIST FORM

1. Project Title: **The 2015 Fisheries Restoration Grant Program in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura Counties.**

2. Lead Agency Name and Address:

California Department of Fish and Wildlife
Fisheries Branch
830 S Street
Sacramento, CA 95811

3. Contact People and Phone Numbers:

Melissa Mandrup
(916) 327-8658
Fisheries Branch
830 S Street
Sacramento, CA 95811

Trevor Tollefson
(707) 725-1062
Northern Region
1455 Sandy Prairie Ct.
Suite J
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Gail Seymour
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Bay Delta Region
5355 B Skylane Dr.
Santa Rosa, CA
95403

Margaret Paul
(831) 649-2882
Central Region
20 Lower Ragsdale Dr.
Ste. 100
Monterey, CA 93940

Mary Larson
(562) 342-7186
South Coast Region
4665 Lampson Ave.
Los Alamitos, CA
90720

4. Project Location: Various sites in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura Counties (Appendix A).

5. Project Sponsor's Name and Address:

California Department of Fish and Wildlife
Fisheries Branch
830 S Street
Sacramento, CA 95811

6. General Plan Designation: Various

7. Zoning: Various

8. Description of Project: Implementation of 66 action items for restoration of anadromous salmonid habitat (Appendix A). These action items include measures to improve anadromous fish passage, reduce erosion and sedimentation, enhance instream habitat, improve water quality and improve juvenile survival.
9. Surrounding Land Uses and Setting: Briefly describe the project's surroundings: Action items will be surrounded by lands consisting of agriculture, private holdings, forests used for timber production as well as national, state, and county parks.
10. Other Public Agencies Whose Approval Is Required: U.S Army Corps of Engineers, North Coast Regional Water Quality Control Board, San Francisco Bay Regional Water Quality Control Board, and Central Coast Regional Water Quality Control Board, Los Angeles Regional Water Quality Control Board, and Central Valley Regional Water Quality Control Board.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance


This project will not have a "Potential Significant Impact" on any of the environmental factors listed above; therefore, no boxes are checked.

DETERMINATION:

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required


Stafford Lehr, Chief, Fisheries Branch


Date

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

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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II. AGRICULTURE AND FOREST

RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. GREENHOUSE GAS EMISSIONS:

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. HYDROLOGY AND WATER

QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XIII. POPULATION AND HOUSING:

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- | | | | | |
|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XV. RECREATION:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVI. TRANSPORTATION/TRAFFIC:

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. UTILITIES AND SERVICE

SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

EXPLANATION OF RESPONSES TO INITIAL STUDY ENVIRONMENTAL CHECKLIST

I. AESTHETICS

- a) The project will not have an adverse effect on a scenic vista. Such an impact will not occur because the project will stabilize, restore, and re-vegetate damaged and eroded sites to produce a more natural and esthetically pleasing appearance.
- b) The project will not damage scenic resources such as trees, rock outcroppings, and historic buildings. Such an impact will not occur because the project will not disturb large trees or other scenic features in the process of restoring damaged sites.
- c) The project will not substantially degrade the existing visual character or quality of the work sites and their surroundings. Such an impact will not occur because in most cases the restoration project will restore the natural character of disturbed sites. Where non-natural structures (such as fish screens) are constructed, they will be of small size and compatible with the appearance of their surroundings.
- d) The project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area of the worksites. Such an impact will not occur because none of the restoration project action items require installation of artificial lighting.

II. AGRICULTURE AND FOREST RESOURCES

- a) The project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use. Such an impact will not occur because most project worksites are located away from FMMP designated farmland. Project actions associated with farmland (such as fish screens) are designed to allow continued use of farmland with reduced impacts to anadromous salmonids.
- b) The project will not conflict with existing zoning for agricultural use or a Williamson Act contract. Fish habitat restoration actions will not change existing land use.
- c) The project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timber zoned Timberland Production. Fish habitat restoration actions will not change existing land use.
- d) There will be no loss of forest land and the project will not result in the conversion of forest land to non-forest use. Road decommissioning projects

in forest land will reduce fine sediment delivery to the streams while restoring forest land by planting with native vegetation.

- e) The project will not involve other changes in the existing environment, which due to their location or nature, could not result in conversion of farmland to non-agricultural use. Fish habitat restoration actions are either away from, or are compatible with, existing agricultural uses.

III. AIR QUALITY

- a) The project will not conflict with or obstruct implementation of the applicable air quality plan. Such an impact will not occur because implementation of the project does not create any features that would be a source of air pollution.

The work window for restoration activities is generally limited from June 15 to November 1. Under a worst case scenario, the most work that a project can have in a single field season is eighteen weeks and the most number of years a project has to be completed is four years. Based on the worst case scenario, the CDFW finds that each restoration activity will not likely adversely affect air quality plans through the use of vehicle and heavy equipment because of the short duration of each restoration activity. For most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Also, projects do not need to be implemented in consecutive years. Thus, the amount of time it takes to complete a restoration activity varies. Additionally, not all projects require the use of heavy equipment (although heavy equipment may be used to transport materials to the work site) and not all projects occur simultaneously. Calculating the emissions from a single restoration activity to use as an example would not be representative of the other restoration activities in Appendix A for the reasons listed above.

- b) The project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Such an impact will not occur because of the limited scope of construction activities and the fact that work sites are located in rural areas that are in overall attainment of air quality standards.
- c) The project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Such an impact will not occur because the project involves no ongoing sources of air pollution.
- d) The project will not expose sensitive receptors to substantial pollutant concentrations. Such an impact will not occur because the project will not significantly increase pollutant concentrations.

- e) The project will not create objectionable odors affecting a substantial number of people. Project actions are designed to restore natural habitat conditions for salmonids, and will not create any stagnant water that might produce objectionable odors.

IV. BIOLOGICAL RESOURCES

- a) The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW), National Oceanic and Atmospheric Administration (NOAA) or U. S. Fish and Wildlife Service (USFWS). Such an impact will not occur because project activities are designed to improve and restore stream habitat, to provide a long-term benefit to both anadromous salmonids and other fish and wildlife. The project will be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals and cultural resources during construction; the mitigation measures that will be implemented to avoid short-term impacts to rare plants and animals and cultural resources are described in Appendices B, C, D, and E. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance. In addition,

Species Impacts for the following species include (mitigation measures are included in Appendix B):

- i. Arroyo toad (*Anaxyrus californicus*)

The arroyo toad was federally listed as endangered in 1994. Typically found in coastal areas, the toad ranges from Salinas River Basin in Monterey and San Luis Obispo Counties south to Arroyo San Simón in northern Baja California, México. The preferred habitat for arroyo toad during breeding season (February – July) includes low gradient sections of slow moving streams which have adjacent stream terraces, sandbars, and shallow pools. In non-breeding months, this species can be found in a variety of upland habitats such as coastal sage scrub, chaparral, sycamore-cottonwood woodlands, oak, woodlands and grasslands.

During the implementation of a project, activities such as (but not limited to) channel dewatering, unscreened pumping, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into streams may have the potential to impact arroyo toad—this does not result in habitat removal and/or degradation. All impacts that occur are temporary and can be minimized to avoid take of the species. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

ii. California freshwater shrimp (*Syncaris pacifica*)

In 1998, the US Fish and Wildlife Service listed California freshwater shrimp (CAFS) as endangered. The distribution of CAFS is limited to four drainage units in the California counties of Marin, Sonoma, and Napa: 1) tributary streams of the lower Russian River drainage, that flow westward to the Pacific Ocean, 2) coastal streams flowing westward directly into the Pacific Ocean, 3) streams draining into Tomales Bay, and 4) streams flowing southward into San Pablo Bay. California freshwater shrimp depend on the availability of slow moving perennial water adjacent to continuous, stable, well vegetated stream banks, or deep stable undercuts banks during winter high flows.

Salmonid restoration projects typically enhance or create habitat that is also suitable for CAFS. Although project activities in wetted stream habitats may directly impact individuals when present, project activities in dry stream habitats will not have a direct impact on individuals. Mitigation measures are implemented to avoid directly impacting individuals when present however, some short term direct and indirect impacts can occur.

iii. California red-legged frog (*Rana draytonii*)

The California red-legged frog was listed as threatened in the Federal Registry in 1996. This species is the largest native frog in the western United States and is primarily found in streams and drainages along the California coast, ranging from southern Mendocino County south to northwestern Baja California. An eastern extension of this population can be found in the Sierra Nevada foothills, though a majority of the species is found in Monterey, San Louis Obispo, and Santa Barbara counties. Individuals found in coastal areas are active year round and those found farther inland are less active during the colder months. Breeding season is typically November through March, slightly earlier in southern regions. This species of frog prefers permanent quiet bodies of water but can be found in damp thickets and forest as well as along riparian corridors.

Impacts to the CAFS have the potential to occur during project implementation activities such as (but not limited to) channel dewatering, degradation of water quality, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into stream. All impacts that occur are temporary and can be minimized to avoid take of the species and does not result in habitat removal and/or degradation. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

iv. California tiger salamander (*Ambystoma californiense*)

The central California population of California tiger salamander was federally listed as threatened in 2004 but had been endangered in Santa

Barbara County since 2000 and in Sonoma County since 2002. The state of California listed the entire population as threatened in 2010. The salamander can be found coastally from Sonoma to Santa Barbara counties as well as in the Central Valley and surrounding foothills—primarily in grassland or open woodland areas from Alameda County south to Monterey County and east to Merced and Madera counties. This nocturnal salamander breeds during the rainy season (November – May) depositing egg masses in standing water. Outside of estivation, the California tiger salamander spends a majority of its time underground finding refuge in animal burrows.

Impacts to the species are highly unlikely as most implementation projects occur in or near the stream and riparian corridor. Upslope projects are typically limited to road upgrading and decommissioning in areas that are steep, eroding, and often in areas vegetated with trees and shrubs. The species uses ponds and vernal pools for breeding and grassland habitat for estivation, both of which are usually not in proximity to anadromous fish-bearing streams.

- v. Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss irrideus*), and coastal cutthroat trout (*Oncorhynchus clarki clarki*)

Winter-run chinook has been listed as endangered by the state since 1989 and federally since 1994. Spring-run chinook was listed in 1999 as threatened by both the state of California and USFWS. Depending on the evolutionary significant unit (ESU) of the coho salmon, the species is listed either as threatened or endangered; federally since 1996 and by the state since 2005. In 1997, USFWS listed the distinct population segment (DPS) of the southern California steelhead as endangered. The 4 other DPS of steelhead (south central, central, Central Valley, and northern) have been federally listed as threatened as early as 1997. Coastal cutthroat trout is not listed as threaten or endangered. These salmonids can be found throughout the coastal and inland river systems of north and central California. The salmonid lifecycle involves adults maturing in the ocean, migrating back to their home streams and spawning, embryos incubating, fry emerging, juveniles growing, and smolts migrating to the estuary to acclimate to saltwater and moving out into the ocean.

Habitat loss and modification are believed to be the major factors determining the current status of salmonid populations. Conservation and recovery of salmonid depend on having diverse habitats with connections among those habitats. While all of the work proposed under this program will enhance habitat for one or more of these species, impacts to the species have the potential to occur during project implementation activities such as (but not limited to) channel dewatering,

disturbance of banks, and fish relocation. All impacts are temporary and can be minimized to avoid take of the species.

vi. Least Bell's vireo (*Vireo bellii pusillus*)

The least Bell's vireo was listed as endangered federally in 1986 and by the State in 1980. The breeding season distribution of these small, monogamous, territorial birds range from coastal southern California east to the foothill Central Valley with the majority of the population is found in San Diego County (March – September). In colder, non-breeding months, the least Bell's vireo migrates south into Baja California. Many return to their same lowland riparian territory to breed, with some building nests in the same scrub used the previous year.

Impacts to the species have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing vireo habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

vii. Marbled murrelet (*Brachyramphus marmoratus*)

In 1992, the marbled murrelet was listed as threatened, federally, and as endangered, by the State. As coastal birds that range from Alaska to Santa Barbara County, CA, they can be found nesting and brooding along the California coastline in old-growth or mature forests from April to September—possibly using the same nest in successive years. In the winter, they can be found using the same habitat for roosting and courtship.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Limiting such work (e.g. culvert removal or placement of large woody debris) to the fall and winter months will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

viii. Northern spotted owl (*Strix occidentalis caurina*)

The Northern spotted owl has been federally listed threatened since 1990 and has recently (2013) been listed as a threatened species candidate by the state of California. Old growth and mature forests of northwestern California and Pacific Northwest are the preferred habitat for these monogamous, territorial, medium-sized birds of prey. A pair of owls can occupy up to a 40 sq. km territory, nesting in hollow trees and cliff crevices from February to June.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Preventing such work (e.g. culvert removal or placement of large woody debris) from occurring during February to July will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

ix. Point Arena mountain beaver (*Aplodontia rufa nigra*)

In 1991, the US Fish and Wildlife listed the Point Arena mountain beaver (PAMB) as an endangered species. This beaver a burrowing rodent found in coastal Mendocino County, in an area of approximately 24 square miles (from about 2 miles north of Bridgeport Landing south to about 5 miles south of the town of Point Arena, and from the coast to about 5 miles inland). Mountain beaver inhabit underground burrow systems, associated with moist areas with well drained soils and lush herbaceous vegetation. Populations of PAMB are typically found in riparian, coastal scrub, or dune scrub habitats; however they may occur in any habitat with brushy or herbaceous cover. The presence of PAMB is evaluated by surveying for burrows of characteristic size and shape, with signs of recent activity.

Potential impacts to PAMB from salmonid habitat improvement projects include disruption of nesting or other activities due to equipment noise; collapse or damage to burrows from heavy equipment, riparian planting, or foot traffic; and removal of vegetation (such removal is usually temporary, but may nonetheless impact PAMB).

x. San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

The San Francisco garter snake has been federally listed as endangered since 1967 and by the State since 1970. Endemic to California, this multi-colored garter snake is only found from southern San Francisco County south to San Mateo County in grasslands or wetlands near ponds, marshes, and sloughs. Breeding season starts in spring, soon after females will bare live young from June to September. Typically found in densely vegetative ponds nears hills however, the SF garter snake will find animal burrows when ponds dry up in the summer months and will go into a dormant state.

The potential for impacts to the San Francisco garter snake will be mitigated by consulting with the USFWS prior to the implementation of the projects.

xi. Southwestern Willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher (a sub species of the Willow flycatcher, *Empidonax traillii*) was placed on the federal species list in 1995 as endangered. Extirpated from most of its California range, this small migratory bird has been reported to return to various river systems in southern California during breeding season. Breeding season is from

May to September, with a majority of breeders returning to the same sites in areas of dense mature riparian woodlands along streams and rivers. Native vegetation is preferable for nesting, but this bird will also nest in thickets of non-native species (e.g. tamarisk and Russian olive).

Impacts to the southwestern willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing southwestern Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

xii. Tidewater goby (*Eucyclogobius newberryi*)

The tidewater goby was listed by the state of California for protection in 1987, and federally listed in 1994. The species, which is endemic to California, is typically found in coastal lagoons, estuaries, and marshes with relatively low salinities. Tidewater gobies can withstand a range of habitat conditions: they have been documented in waters with salinity levels from 0 to 42 ppt thousand, temperatures from 8 to 25° C, depths from 25 to 200 cm, and dissolved oxygen levels of less than one milligram per liter. Reproduction occurs from late April or May to July and as late as November or December, depending on the seasonal temperature and rainfall.

Measures to reduce impacts to tidewater goby habitat will include adjusting the timing of projects to avoid disruption to breeding activities, the use of silt fencing to reduce sediment loads and as barricades around project sites, and installing coffer dams above and below project sites. Additional measures include, moving individual tidewater gobies found within the enclosures prior to dewatering, minimizing project areas, and requiring qualified biologists to oversee project activities.

xiii. Willow flycatcher (*Empidonax traillii*)

The Willow flycatcher was listed as endangered by the State of California in 1991. This small migratory bird can be seen during their summer migration throughout a majority of northern and western US. In California, the Willow flycatcher can be found primarily in dense moist willow thickets and riparian woodlands in northern California and along the western side of the Sierras. During spring (May to June), adults can be seen in north central California counties during the spring migration to their breeding sites farther north. Fall migration occurs primarily in August as the travel to the winter habitats in Central and South America.

Impacts to the Willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

- b) The project will not have a substantial adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies and regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service. Such an impact will not occur because the project actions are designed to correct past habitat degradation and restore and enhance riparian habitat and associated upland habitats. In accordance with the Regional General Permits 12, 78, and the § 401 Water Quality Certification, construction of action items is allowed during the summer dry season (generally June 15-November 1) to avoid impacts to aquatic habitats. Work that is permitted after November 1 is limited to hand planting of seedlings. Planting of seedlings generally occurs after December 1, or when there is sufficient rainfall to ensure the best survival chance of the seedlings. Mitigation measures to avoid impacts to riparian habitat are found in Appendix B: Mitigation measures, monitoring, and reporting program for the 2015 Fisheries Restoration Grant Program (§ IV subsection C).

Furthermore, the CDFW LSAAs include project-specific terms and conditions that set out reasonable measures determined by CDFW to be necessary to protect fish and wildlife resources that may be affected by the project.

- c) The project will not have a substantial adverse effect on federally protected wetlands as defined by § 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The project actions will have either no effect on wetlands or will be beneficial to wetlands.
- d) The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The project will enhance the movement of anadromous fish by the replacement or removal of culverts and bridges that are barriers to fish migration.
- e) The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Such an impact will not occur because project actions are designed to restore and enhance biological resources. Some minor disturbance of grasses and shrubs will occur where stream structures are keyed into the stream banks.

Care will be taken not to disturb any mature trees. Riparian vegetation will be reestablished where construction activities disturb existing plants, and additional native plants will be planted to enhance the riparian vegetation.

- f) The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Such a conflict will not occur because the project restoration actions will not have a significant adverse impact on any species or habitat. Project actions are designed to restore the natural character of the fish and wildlife habitat at the project work sites. The project specifically supports the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act (Fish and Game Code § 6900 et. seq.)

V. CULTURAL RESOURCES

- a) The project will not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect historical resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B and E for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- b) The project will not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect archaeological resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- c) The project will not directly or indirectly destroy any unique paleontological resources or sites, or unique geologic features. While ground disturbance to implement the project at some work sites has the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B and D for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- d) The project will not disturb any human remains, including those interred outside of formal cemeteries. While ground disturbance will be required to

implement the project at some work sites that have the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

VI. GEOLOGY AND SOILS

- a) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault. Such an impact will not occur because the project does not create any structures for human habitation.
 - i. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Such an impact will not occur because the project does not create any structures for human habitation.
 - ii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Such an impact will not occur because the project does not create any structures for human habitation.
 - iii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Such an impact will not occur because the project does not create any structures for human habitation.
- b) The project will not result in substantial soil erosion or the loss of topsoil. Such an impact will not occur because implementation of the restoration project is designed to contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. The potential for substantial soil loss associated with road improvement and decommissioning will be avoided through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result,

mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

- c) Some project worksites are on unstable soils; however, the project will not increase the risk of landslides, lateral spreading, subsidence, liquefaction, or collapse. The project actions are designed to stabilize conditions at these sites in order to reduce sediment delivery to salmonid habitat. Actions implemented to stabilize sites may not be successful in all cases, but site instability will not be increased when compared to existing conditions.
- d) Some project work sites will be located on expansive soil; however, the project will not create substantial risks to life or property. Such an impact will not occur because the project will create no habitations, and the majority of the restoration actions will not create rigid structures that could be damaged by expansive soils. The few rigid structures to be created by the project (such as fish screens) will be engineered to withstand expansive soils, if they are present.
- e) The project will not create any sources of waste water requiring a septic system.

VII. GREENHOUSE GAS EMISSIONS

The project will emit greenhouse gases (GHG) through the use of fuel to operate vehicles and heavy equipment. The work window for restoration activities is generally limited from June 15 to November 1. Construction is limited to at most eighteen weeks during that window, and work must be completed within four years. However, for most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Some action items do not require heavy equipment use at the restoration site, but may use vehicles to transport materials. Furthermore, for an individual restoration action, GHG emissions may fluctuate during the implementation, as vehicles and equipment will be necessary to varying degrees. Watershed restoration projects often require more time to construct (six to twelve weeks) than other action items. Projects may be completed in a single year of construction, or may require several years. Thus, the amount of time it takes to complete a restoration activity and the use of heavy equipment varies greatly among the actions. Although the project construction schedules and details are constrained by permit and grant conditions, the exact details cannot be specifically stated at this time. However, based on the short duration and small scale of the action items, the project will not generate a significant increase in GHG emissions above existing baseline levels because action items are discrete, limited in scope and implemented during a short time period.

- a) Additionally, some action items involve decommissioning of existing paved or dirt roads in forested landscapes. The decommissioned roads are re-planted with native conifer tree species. Additionally, when plants are removed to implement the restoration activity, the replanting ratio is 1:2 (for every plant

removed, two native plants are planted). Once established native habitat restoration requires little to no maintenance and therefore little to no GHG emissions and will increase the presence of native plant species that sequester carbon dioxide.

- b) Due to each action item's short duration, small scale, and minimal on-going maintenance, the project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. The short term impacts to the GHG levels are less than significant. Furthermore, the long term impacts to the GHG levels from re-vegetation actions will aid in decreasing the GHG levels by reforesting areas where roads have been removed and where restoration work has been done.

VIII. HAZARDS AND HAZARDOUS MATERIALS

- a) The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Any potential significant hazard associated with the accidental release of coolant and petroleum products used with equipment during construction will be avoided through implementation of the mitigation measures presented in Appendix B. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- b) The project will not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant. The potential for accidental release will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- c) The project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Such impact is avoided because the project will not create any feature that will emit hazardous substances.
- d) The project worksites are not located on any site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.
- e) No project work site is located within an airport land use plan or within two miles of a public airport or public use airport.
- f) No project work site is located within the vicinity of a private airstrip.
- g) The project will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Except for

the case of road decommissioning, the project has no effect on access. The planned decommissioning of selected unused wild land roads will not have a significant impact on emergency vehicle access.

- h) The project will not expose people or structures to a significant risk of loss, injury, or death involving wild land fires. At work sites requiring the use of heavy equipment, there is a small risk of an accidental spark from equipment igniting a fire. The potential for accidental fire will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

IX. HYDROLOGY AND WATER QUALITY

- a) The project will not violate any water quality standards or waste discharge requirements. There is the potential for minor short-term increase in turbidity during installation of instream structures or culvert removal, however the mitigation measures described in Appendix B Mitigation, Monitoring and Reporting will assure that the project actions are in compliance with water quality standards. As a result, mitigation measures will ensure that any potentially significant short-term impacts are avoided or mitigated to below a level of significance.
- b) The project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Upslope restoration activities will return drainage to historic patterns thereby decreasing surface runoff and increasing infiltration to the ground water.
- c) The project will not substantially alter the existing drainage pattern of the work sites in a manner that would result in substantial erosion or siltation on- or off-site. Such an impact will not occur because the project actions are designed to produce decreased erosion overall. Instream habitat structures, such as boulder weirs or flow deflectors, will produce local redistribution of sediments. These structures will produce a local redistribution of bed load, facilitating the deposition of spawning gravel in riffles, and improving scour to maintain pools for juvenile fish habitat. This local redistribution of bed load will not produce a net increase of erosion.
- d) The project will not substantially alter the existing drainage pattern of the work sites, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The project will decrease the risk of flooding through upslope restoration activities that will return drainage to historic patterns, thereby increasing infiltration and decreasing surface runoff.
- e) The project will not create or contribute runoff water that would exceed the capacity of existing or planned storm-water drainage systems, or provide substantial additional sources of polluted runoff. Such an impact will not

occur because upslope restoration activities will stabilize slopes and return drainage to historic patterns, thereby decreasing surface runoff and decreasing the silt load delivered to streams in the area of the project.

- f) The project will not substantially degrade water quality. During placement of stream habitat structures and culvert replacement, some minor turbidity may be generated. The potential for degradation of water quality will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. Some short-term minor increase in turbidity may also occur as the streambed around instream structures adjusts during the first high stream flow following activity completion. However, this is not expected to produce a significant increase over background turbidity. As a result, mitigation measures will ensure that any potentially significant short-term impacts to water quality are avoided or mitigated to below a level of significance.
- g) The project will not place housing within a 100-year flood hazard area as mapped on any flood hazard delineation map. No housing will be created as part of this project.
- h) The project will not place within a 100-year flood hazard area structures which would significantly impede or redirect flood flows. Culvert removal and replacement to be done as part of the project will remove existing impediments to flood flows. Instream habitat structures, such as boulder weirs, deflectors, and bank armor, are built to change the direction and velocity of stream flow. However, these structures are small (sized to affect conditions in the low flow channel) and will not impede flood flows.
- i) The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Such an impact will be avoided because all instream structures to be created are small and will not significantly impede flood flows.
- j) The project will not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Such an impact will not occur because project actions are designed to improve or stabilize conditions at the work sites. Upslope restoration actions will reduce the chance of mudflow by stabilizing disturbed areas, and restoring natural drainage patterns. Project work sites are not located in areas at risk to inundation by seiche or tsunami.

X. LAND USE AND PLANNING

- a) The project will not physically divide an established community. This impact will not occur because no culvert removal or road decommissioning is proposed in any established community.
- b) The restoration activities that comprise this project do not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction

over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Such an impact will not occur because the project's restoration activities are designed to be compatible with local land use plans and ordinances.

- c) The project will not conflict with any applicable habitat conservation plan or natural community conservation plan. Such an impact will not occur because project actions are designed to improve aquatic habitat conditions without adversely affecting any other species or their habitats.

XI. MINERAL RESOURCES

- a) The project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Such an impact will not occur because project actions are only designed to stabilize and restore habitat and soils within the actions area.
- b) The project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Such an impact will not occur because no mineral resource recovery sites occur at the project work sites.

XII. NOISE

- a) The project will not result in exposure of persons to, or generation of noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies. There may be a minor temporary increase in noise levels at those work sites requiring the use of heavy equipment. While such short-term increase in noise will not produce a significant increase in the noise level in the general environment, there is a potential for equipment noise to affect workers in close proximity to equipment producing noise levels ≥ 85 db, such as chainsaws or backhoes. However, such an impact will not occur because personnel operating noisy equipment will be required to wear hearing protection. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.
- b) The project will not result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels. Such an impact will not occur because only minor amounts of ground-borne vibration or noise will be generated short-term at those work sites requiring the use of heavy equipment.
- c) The project will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because most project structures are passive (i.e., contain no moving parts). The only exceptions are the proposed fish screens, which will contain moving brushes to clean the screens. These

brushes are driven by slow speed (10-15 RPM) water wheels and will not substantially increase ambient noise levels where installed.

- d) The project will not result in a substantial temporary, or periodic, increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because only minor amounts of noise will be generated temporarily at those work sites requiring the use of heavy equipment. At those sites near nesting or breeding sites for listed species, heavy equipment will only be used outside the sensitive periods for nesting or breeding, as described in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.
- e) None of the project work sites are located within two miles of a public airport or public use airport.
- f) None of the project work sites are located within the vicinity of a private airstrip.

XIII. POPULATION AND HOUSING

- a) The project will not induce substantial population growth in an area, either directly or indirectly. Such an impact will not occur because the project will not construct any new homes, businesses, roads, or other human infrastructure.
- b) The project will not displace any existing housing and will not necessitate the construction of replacement housing elsewhere.
- c) The project will not displace any people and will not necessitate the construction of replacement housing elsewhere.

XIV. PUBLIC SERVICES

- a) The project will not have any significant environmental impacts associated with new or physically altered governmental facilities. Issuance of restoration grants to government agencies could, in some cases, lead to minor increases in staffing to complete projects. Such increases will not lead to any significant adverse impacts, because the increases are short term, and no significant construction will be required to accommodate additional staff.

XV. RECREATION

- a) The project would not increase the use of existing neighborhood and regional parks, or other recreational facilities. Such an impact will not occur because the project actions will restore anadromous fish habitat and do not significantly alter human use or facilities at existing parks or recreational

facilities. Overall, the Restoration Program is expected to increase recreation opportunities by assisting in restoring populations of anadromous fish.

- b) The project does not include recreational facilities and does not require the construction or expansion of recreational facilities.

XVI. TRANSPORTATION/TRAFFIC

- a) The project will not conflict with any applicable plans, ordinances or policies that establish measures of effectiveness for the performance of the circulation systems. Such a conflict will not occur because the project will result in only minor temporary increases in traffic to primarily wild land sites during implementation of habitat improvement measures.
- b) The project will not conflict, either individually or cumulatively, with any applicable congestion program established by the county congestion management agency for designated roads or highways. Such an impact will not occur because the habitat improvement actions will not generate a significant amount of traffic at each individual work site and because the work sites are dispersed throughout the coastal counties.
- c) The project will not result in any change in air traffic patterns.
- d) The project will not alter roads in any way that will substantially increase hazards to transportation. The proposed project will reduce hazards to transportation, because the proposed project will correct and reduce landslide and erosion damage on the selected rural roads.
- e) The project will not result in inadequate emergency access. Such an impact will not occur because during replacement of small road crossings, an alternate route for traffic will be provided around the construction.
- f) The project will not significantly affect parking capacity or demand for parking.
- g) The project will not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVII. UTILITIES AND SERVICE SYSTEMS

- a) The project will not produce wastewater.
- b) The project will not require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities. Such an impact will not occur because the project will not produce wastewater.
- c) The project will not cause significant adverse environmental effects associated with the construction of new storm water drainage facilities or expansion of existing facilities.
- d) The project will have sufficient water supplies available to serve the project from existing entitlements and resources.

- e) The project will not produce wastewater.
- f) The project will not generate solid waste requiring disposal in a landfill.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) The project does have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. However, the potential is reduced to less than significant by implementing the mitigation measures in Appendix B: Mitigation Measures, Monitoring and Reporting Program. The project shall be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals, and cultural resources during construction. The project activities are designed to improve and restore stream habitat; thereby providing long-term benefits to both anadromous salmonids and other fish and wildlife.
- b) The project does not have adverse impacts that are individually limited, but cumulatively considerable. Cumulative adverse impacts will not occur because potential adverse impacts of the project are only minor and temporary in nature. It is the goal of the project that the beneficial effects of habitat enhancement actions will be cumulative over time and contribute to the recovery of listed anadromous salmonids.
- c) The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. The habitat enhancement measures implemented as part of this project will contribute to improved water quality, increased soil stability, and the recovery of listed salmonids, all of which will be beneficial to human beings.

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Action Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724582	HI	222	Rowdy Creek Instream Habitat Enhancement	Rural Human Services	Del Norte	R1
724584	FP	224	Yontocket Slough Fish Passage Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)□	Del Norte	R1
724449	HI	037	Lower Mill Creek Instream Restoration Project	Hoopla Valley Tribe	Humboldt	R1
724451	HR	040	Lower Mattole River and Estuary Riparian	Mattole Restoration Council	Humboldt	R1
724452	HU	042	Sullivan Gulch Road Decommissioning and Erosion Prevention Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	R1
724467	HU	065	Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project	Trout Unlimited	Humboldt	R1
724471	HI	071	Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2	Mattole Salmon Group	Humboldt	R1
724481	FP	082	Dinner Creek Fish Passage Barrier Removal Project	County of Humboldt Department of Public Works	Humboldt	R1
724510	HI	124	Ryan Creek Coho Habitat Enhancement Project	Pacific Coast Fish Wildlife and Wetland Restoration Association	Humboldt	R1
724532	WC	158	Mattole Flow Program-Water Storage and Forbearance 2015-2018	Sanctuary Forest, Inc.	Humboldt	R1
724533	HU	160	West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement	Pacific Coast Fish Wildlife and Wetlands Restoration Association	Humboldt	R1
724553	HI	185	Lindsay Creek Coho Habitat Enhancement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	R1
724567	HI	203	Little River Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Humboldt	R1
724569	HI	205	Hall Creek Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Humboldt	R1
724585	HI	225	Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)□	Humboldt	R1
724610	WC	D013	Mattole Flow Program: McKee Creek Water Storage & Forbearance	Sanctuary Forest, Inc.	Humboldt	R1
724613	HI	D016	Supply Creek Restoration Project	Hoopla Valley Tribe	Humboldt	R1
724642	HR	D045	Bobcat Run Riparian Restoration	California Conservation Corps	Humboldt	R1
724577	FP	216	Fish Creek Fish Passage Improvement Project	Trout Unlimited	Humboldt	R1
724524	HI	146	Upper Mattole Coho Habitat Enhancement Phase II	Sanctuary Forest	Humboldt, Mendocino	R1

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724639	PD	D042	Klamath River Tributary Fish Passage Improvement Project (2015-2017)	Salmon River Restoration Council	Humboldt, Siskiyou	R1
724435	HR	011	Redi-mix Concrete Plant Riparian Enhancement	Salmon Protection and Watershed Network	Marin	R3
724539	HI	168	Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I	Marin Municipal Water District	Marin	R3
724540	HU	169	Black Mountain Creek Sediment Reduction and Fish Passage Project	Marin Resource Conservation District	Marin	R3
724615	FP	D018	San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience	County of Marin Public Works	Marin	R3
724446	HI	034	Marble Gulch Instream Coho Habitat Enhancement Project	Trout Unlimited	Mendocino	R1
724459	HI	054	Upper Rancheria Creek Instream Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	R1
724468	HU	067	Hayworth Creek Watershed Restoration and Implementation Project, Phase I	Trout Unlimited	Mendocino	R1
724469	FP	068	Manly Gulch Coho Access and Habitat Restoration	Trout Unlimited	Mendocino	R1
724472	HU	072	Upper Jack of Hearts Creek Coho Habitat Restoration Project	Trout Unlimited	Mendocino	R1
724473	HU	074	Standley Creek Sediment Reduction Project, Phase 6	Trout Unlimited	Mendocino	R1
724477	HU	078	S. Daugherty Creek Sediment Reduction and Instream Habitat	Trout Unlimited	Mendocino	R1
724480	HI	081	Little River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	R1
724482	HI	083	South Branch North Fork Navarro River Coho Stream Habitat Enhancement	California Conservation Corps	Mendocino	R1
724489	HI	097	North Fork Noyo River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	R1
724494	HI	106	Flynn Creek Coho Habitat Enhancement Project	Mendocino County Resource Conservation	Mendocino	R1
724495	HI	107	Redwood Creek Coho Stream Habitat Enhancement	California Conservation Corps	Mendocino	R1
724500	HI	112	Upper Noyo River Large Wood Enhancement Project–Phase III	California Conservation Corps	Mendocino	R1
724501	HI	113	Cahto Creek Coho Salmon Habitat Enhancement	Mendocino County Resource Conservation	Mendocino	R1

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724502	HI	115	South Fork Albion River Coho Stream Habitat Enhancement Project-Phase	California Conservation Corps	Mendocino	R1
724513	HI	127	Hollow Tree Creek Complex Habitat Enhancement Project	Eel River Watershed Improvement Group	Mendocino	R1
724570	HU	206	Graphite Creek Sediment Reduction and Habitat Enhancement Project	The Conservation Fund	Mendocino	R1
724603	HI	F006	John Smith Creek Coho Habitat Enhancement Project	Mendocino County Resource Conservation	Mendocino	R1
724607	HU	F010	James Creek Road Decommissioning and Fish Passage Implementation Project	Mendocino Land Trust	Mendocino	R1
724619	HI	F022	Campbell Creek Instream Coho Salmon Habitat Enhancement Project	Trout Unlimited	Mendocino	R1
724466	FP	062	Big Sur River Fish Passage Restoration Project – Riverside Campground	Trout Unlimited	Monterey	R4
724631	EF	D034	Napa River Dry Season Stream Flow Monitoring	Napa County Resource Conservation District	Napa	R3
724632	PD	D035	Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River	Napa County Resource Conservation District	Napa	R3
724554	HR	186	Chorro Valley Cape Ivy Removal Project	Land Conservancy of San Luis Obispo	San Luis Obispo	R4
724568	HI	204	San Gregorio Creek Habitat Enhancement Project	San Mateo County Resource Conservation	San Mateo	R3
724431	FP	004	Circle G Ranch Fish Passage Restoration	Earth Island Institute/South Coast Habitat Restoration	Santa Barbara	R5
724634	ED	D037	Little Arthur Creek Residential Storage & Forbearance Project	Trout Unlimited	Santa Clara	R3
724620	HI	D023	Lower Scotts Creek Salmonid Habitat Improvement Project	Santa Cruz County Resource Conservation	Santa Cruz	R3
724551	HB	183	Bogus Creek Fish Passage - Implementation Project	Northern California Resource Center	Siskiyou	R1
724572	HI	208	Seiad Creek Coho Habitat Enhancement Project	Mid Klamath Watershed Council	Siskiyou	R1
724623	HB	D026	Fiock Bank Fine Sediment Reduction	Shasta Valley Resources Conservation District	Siskiyou	R1
724602	HU	F005	Scott River Mile 21 Road Crossing Repair	Siskiyou Resource Conservation District	Siskiyou	R1
724507	WC	120	Westminster Woods Water Conservation and Storage Project	North Coast Resource Conservation and Development Council	Sonoma	R3
724517	HI	138	2014 Dutch Bill Creek Coho Habitat Enhancement Project	Gold Ridge Resource Conservation District	Sonoma	R3
724519	HI	140	Porter Creek Instream Habitat Restoration Project,	Sonoma Resource Conservation District	Sonoma	R3

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724520	HI	141	Grape Creek Instream Habitat Improvement Project	Sonoma Resource Conservation District	Sonoma	R3
724555	WC	187	Salmon Creek Dairy Water Conservation Project	North Coast Resource Conservation & Development Council	Sonoma	R3
724531	FP	157	Sharber-Peckham Creek Fish Passage Project	Northwest CA Resource Conservation & Development Council	Trinity	R1
724601	PD	D003	Prospect Creek Road Decommissioning	Trinity County Resource Conservation District	Trinity	R1
724635	HB	D038	12th Street Infiltration Gallery Fish Passage Restoration Project	California Trout	Ventura	R5
724448	HR	036	San Antonio Creek Arundo Removal	California Conservation Corps	Ventura	R5

FP: Fish passage at stream crossings

HB: Instream barrier modification for fish passage

HI: Instream habitat restoration

HR: Riparian restoration

HS: Instream Bank Stabilization

HU: Watershed restoration (upslope)

RE: Cooperative rearing

WC: Water conservation measures

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Non-Physical Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724440	AC	021	Watershed Stewards Program - Year 22	California Conservation Corps - Watershed Stewards Program	All coastal counties	All
724464	TE	039	SRF Fish Passage Design and Engineering Field School	Salmonid Restoration Federation	All coastal counties	All
724535	PL	093	California - Public Access to Fisheries Data for Restoration Planning	Pacific States Marine Fisheries Commission	All coastal counties	All
724518	PL	139	Passage Assessment Database (PAD) 2015-2016	Pacific States Marine Fisheries Commission	All coastal counties	All
724491	MD	099	Mill Creek LCM Station - Juvenile Coho Salmon Outmigrant Trapping	Smith River Alliance	Del Norte	R1
724571	MD	207	Juvenile salmonid winter rearing habitat in the Smith River Plain	Smith River Alliance	Del Norte	R1
724444	MO	027	Salmonid Distribution in the Restored Salt River	Humboldt County Resource Conservation District	Humboldt	R1
724485	PL	091	Mill Creek Watershed Assessment and Erosion Prevention Planning Project	Hoopa Valley Tribe	Humboldt	R1
724486	MD	092	Sproul Creek Life Cycle Monitoring Station	Pacific States Marine Fisheries Commission	Humboldt	R1
724503	PD	116	Mattole Estuary Slough Restoration Plan and Designs	Mattole Salmon Group	Humboldt	R1
724508	PD	121	Mad River Estuary Off-channel Habitat Restoration Design	California Trout	Humboldt	R1
724526	MD	148	Upper Redwood Cr Juvenile Salmonid (Smolt) Abundance Project YR 2015	CDFW Anadromous Fish Restoration and Monitoring Program	Humboldt	R1
724534	PL	161	Road Assessment and Restoration Planning in the Horse Linto Watershed	Redwood Community Action Agency	Humboldt	R1
724544	MD	174	Redwood Creek DIDSON 2015-2017	HSU Sponsored Programs Foundation	Humboldt	R1
724561	MD	194	Adult steelhead trout escapement to the Mad R using DIDSON technology	CDFW Anadromous Fish Restoration and Monitoring Program	Humboldt	R1
724604	PD	D007	Redwood Creek Flow Enhancement Feasibility Study	Salmonid Restoration Federation	Humboldt	R1
724611	TE	D014	Mattole River Water Conservation Technical Assistance Program	Sanctuary Forest, Inc.	Humboldt	R1
724617	ED	D020	Drought Busters Water Conservation & Salmonid Education in a Drought	Redwood Community Action Agency	Humboldt	R1
724478	MD	079	Mattole River Juvenile Coho Salmon Summer Spatial Structure Monitoring	Mattole Salmon Group	Humboldt, Mendocino	R1
724542	EF	172	Redwood Creek, SF Eel River Water Rights and Salmon Protection Project	Salmonid Restoration Federation	Humboldt, Mendocino	R1
724511	PL	125	Coastal Watershed Planning and Assessment Program (2015-2018)	Pacific States Marine Fisheries Commission	Humboldt, Mendocino, Trinity	R1
724562	PL	195	Salmon River Juvenile Coho Rearing Assessment and Restoration Planning	Salmon River Restoration Council	Humboldt, Siskiyou	R1

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724586	PD	226	Aikens Creek and Ti Creek Coho Habitat Enhancement Design Project	Mid Klamath Watershed Council	Humboldt, Siskiyou	R1
724583	PL	223	Trinity Timberlands South Fork Trinity River Road Sediment Source Inventory	Northwest CA Resource Conservation & Development Council	Humboldt, Trinity	R1
724454	MD	044	Steelhead Population Monitoring in the Santa Monica Bay	RCD of the Santa Monica Mountains	Los Angeles	R5
724437	PI	014	Santa Clara River Steelhead Coalition	California Trout, Inc.	Los Angeles, Ventura	R5
724530	PD	156	San Geronimo Creek Floodplain and Instream Habitat Restoration	Salmon Protection and Watershed Network	Marin	R3
724443	PL	026	West Chamberlain Creek Sediment Source Assessment	Mendocino Land Trust	Mendocino	R1
724475	PL	076	Usal Forest Watershed Action Plan for Coho Recovery in Usal Ck Watershed	Trout Unlimited	Mendocino	R1
724490	PD	098	Skunk Train Coho Barrier Improvement Project Design	Trout Unlimited	Mendocino	R1
724527	PD	149	Garcia River Estuary Restoration Design	The Nature Conservancy	Mendocino	R1
724606	WD	D009	Parlin Fork Conservation Camp - South Fork Noyo River Fish Passage Design Project	Mendocino Land Trust	Mendocino	R1
724605	FP	D008	North Coast Water Rights & Water Conservation Project	Salmonid Restoration Federation	Mendocino, Humboldt, Trinity, Del Norte, Siskiyou	R1
724462	MD	057	California Coastal Salmonid Population Monitoring in the Russian River	Sonoma County Water Agency	Mendocino, Sonoma	R1, R3
724638	HB	D041	Instream & Off-channel Rehabilitation in the Merced River	Merced Irrigation District	Merced	R4
724438	PI	015	South Coast Steelhead Coalition	California Trout	Orange, San Diego, Riverside	R5
724461	PD	056	Chorro Creek Ecological Reserve Floodplain Restoration Design Project	The Bay Foundation of Morro Bay (Morro Bay National Estuary Program, MBNEP)	San Luis Obispo	R4
724514	PD	128	Pennington Creek Steelhead Barrier Removal Project Design	Trout Unlimited	San Luis Obispo	R4
724523	PD	145	Lower Uvas Creek Agricultural Wet Ford Alternative Design Project	Trout Unlimited	Santa Clara	R3
724493	PD	102	Red Bank Off-Channel Fisheries and Riparian Habitat Design	Salmon River Restoration Council	Siskiyou	R1
724499	PD	111	Hotelling Gulch Fish Passage and Channel Restoration Design	Salmon River Restoration Council	Siskiyou	R1
724549	PD	181	Scott River Fishery Habitat Enhancement-Location 2 Design	Northern California Resource Center	Siskiyou	R1
724640	PD	D043	Salmon River Watershed Education	Salmon River Restoration Council	Siskiyou	R1
724628	HU	D031	Bodega Water Company Large Storage Tank Design	Gold Ridge Resource Conservation District	Sonoma	R3
724625	PD	D028	Dennett Dam Removal Phase 2: Project Design	Tuolumne River Trust	Stanislaus	R4

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Non-Physical Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724633	WC	D036	Deer Creek Irrigation District Ditch System Master Plan	Trout Unlimited	Tehema	R1

AC: AmeriCorps program only

ED: Public School Watershed and Fishery Conservation Education Projects

HA: Habitat acquisition and conservation easements

MD: monitoring status

MO: Monitoring watershed restoration

OR: Watershed and Regional Organization

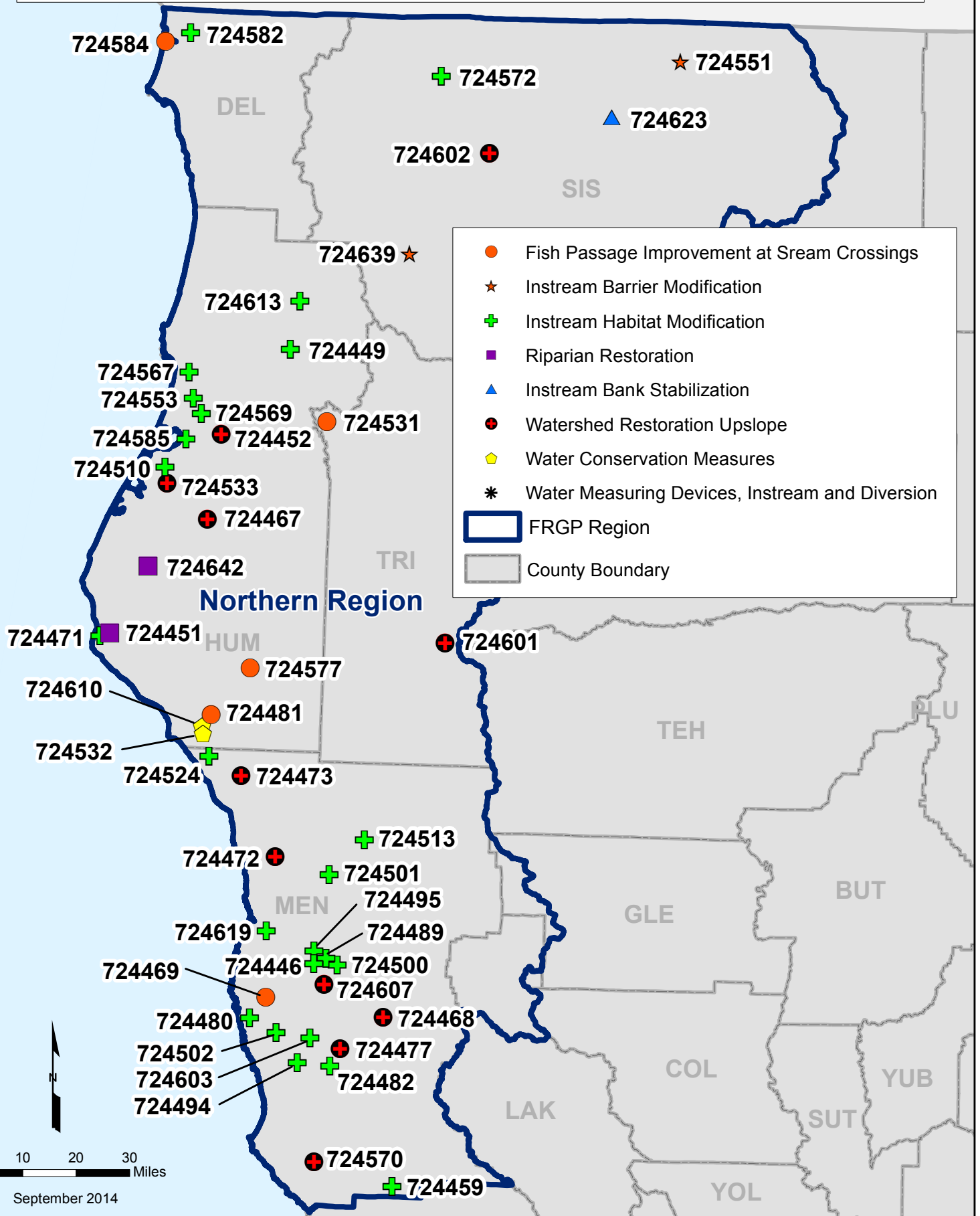
PD: Project design

PI: Public involvement and capacity building

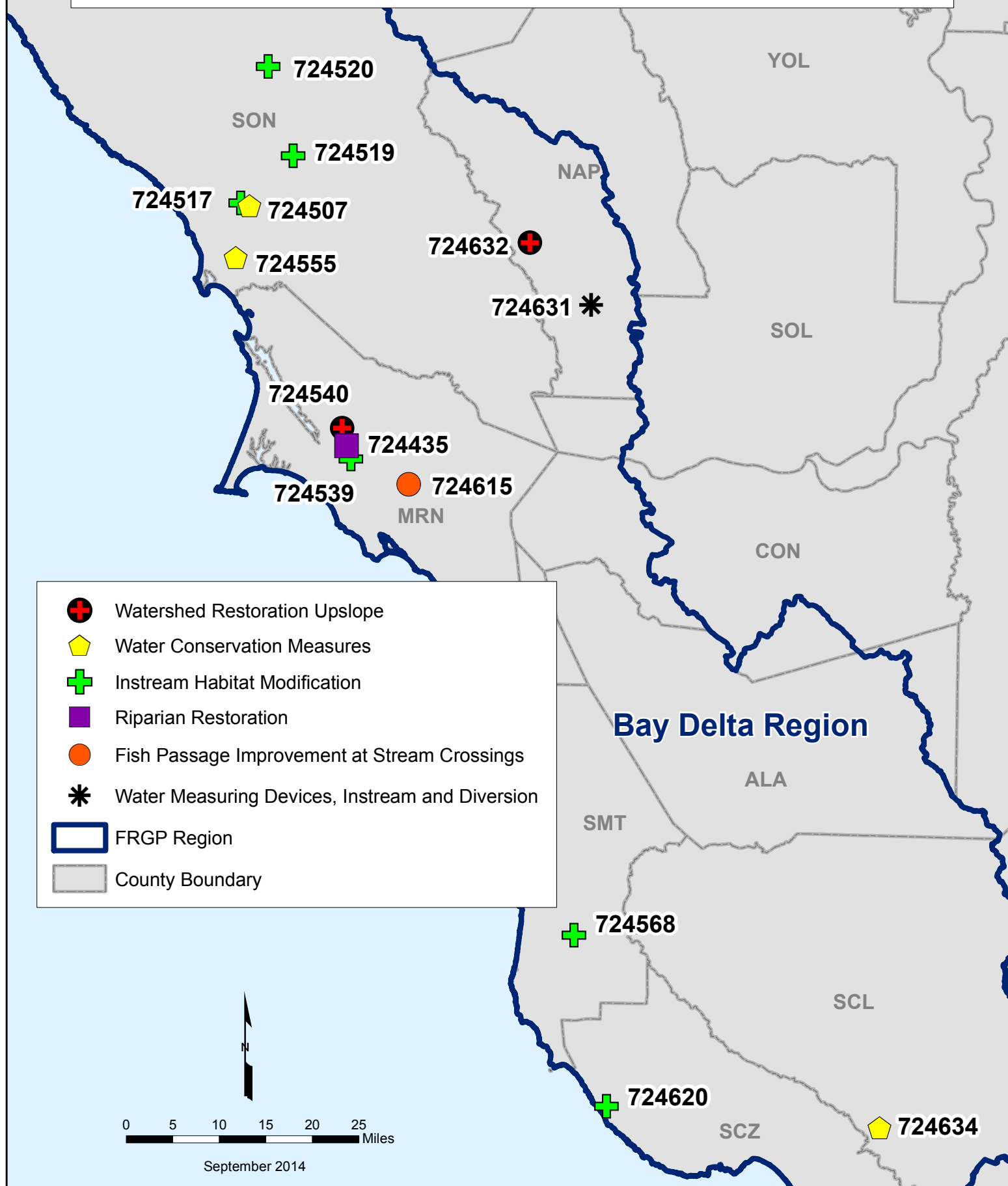
PL: Watershed evaluation, assessment, and planning

TE: Private sector technical training and education





California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration FRGP Region 1 Action Items Location Map

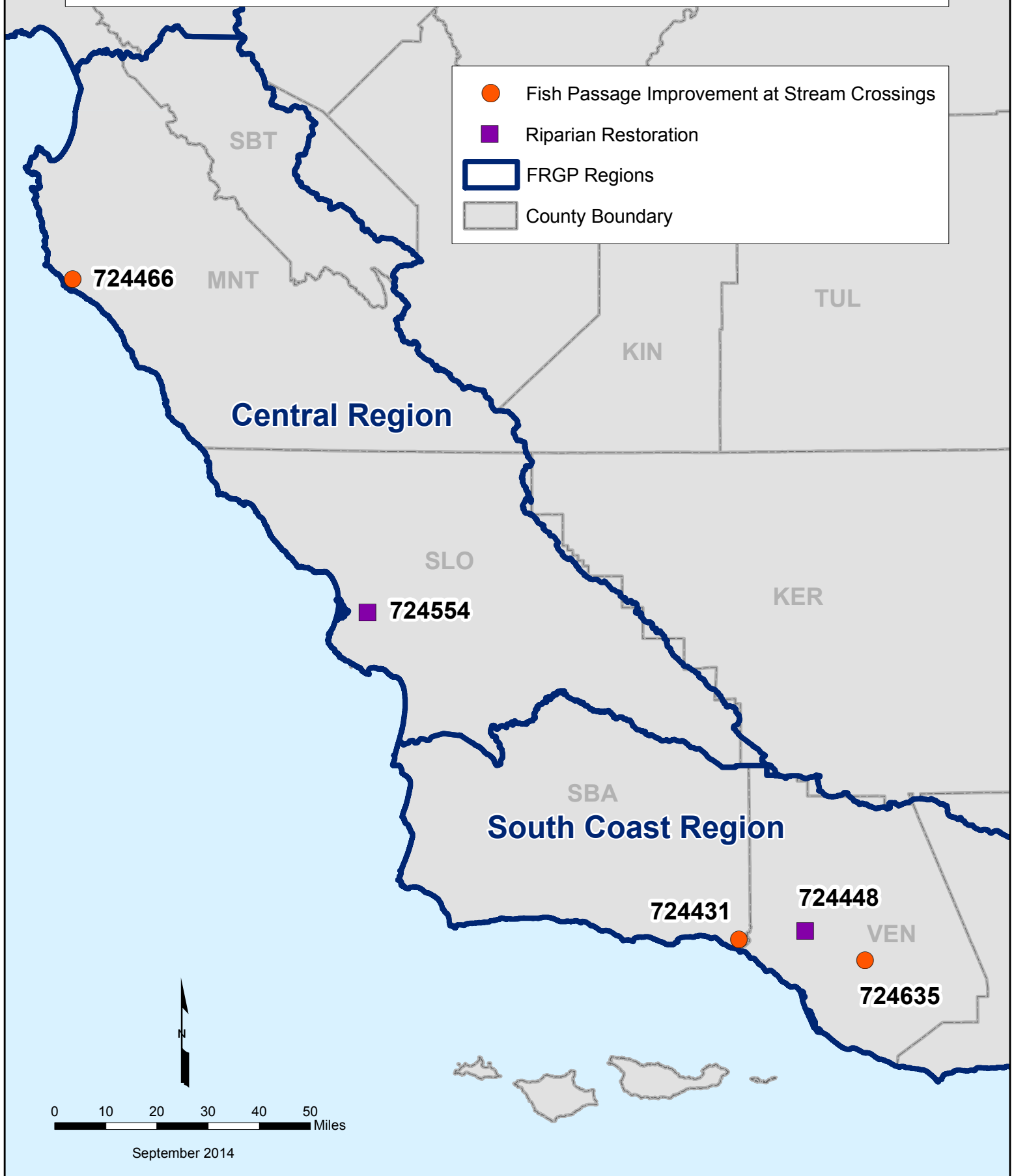


California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration FRGP Region 3 Action Items Location Map



**California Department of Fish and Wildlife, Fisheries Restoration
Grant Program, 2015 Mitigated Negative Declaration FRGP
Regions 4 and 5 Action Items Location Map**

-  Fish Passage Improvement at Stream Crossings
-  Riparian Restoration
-  FRGP Regions
-  County Boundary



California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration State-Wide Action Items Location Map



APPENDIX B

MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR THE 2015 FISHERIES RESTORATION GRANT PROGRAM

SECTION 1: MITIGATION

General mitigation measures are implemented for all action items. Specific mitigation measures are identified for the various species found at or near the project site. A CDFW grant manager is assigned to each action item and is responsible for ensuring the general and specific mitigation measures are implemented.

I. AESTHETICS

No specific mitigation measures are required to protect aesthetics.

II. AGRICULTURE RESOURCES

No specific mitigation measures are required to protect agricultural resources.

III. AIR QUALITY

No specific mitigation measures are required to protect air quality.

IV. BIOLOGICAL RESOURCES

A. General Measures for Protection of Biological Resources

- 1) Timing. To avoid impacts to aquatic habitat the activities carried out in the restoration program typically occur during the summer dry season where flows are low or streams are dry.
 - a) Work around streams is restricted to the period of June 15 through November 1 or the first significant rainfall, which ever comes first. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). This is to take advantage of low stream flow and avoid the spawning and egg/alevin incubation period of salmon and steelhead.
 - b) Upslope work generally occurs during the same period as stream work. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Non jurisdictional upslope projects do not have seasonal restrictions in the Incidental Take

Statement but work may be further restricted at some sites to allow soils to dry out adequately. In some areas equipment access and effectiveness is constrained by wet conditions.

- c) The approved work window for individual work sites will be further constrained as necessary to avoid the nesting or breeding seasons of birds and terrestrial animals. At most sites with potential for raptor (including northern spotted owls) and migratory bird nesting, if work is conditioned to start after July 9, potential impacts will be avoided and no surveys will be required. For work sites that might contain nesting marbled murrelets, the starting date will be September 16 in the absence of surveys. The work window at individual work sites could be advanced if surveys determine that nesting birds will not be impacted.
 - d) For restoration work that may affect swallow nesting habitat (such as removal or modification of bridges, culverts or other structures that show evidence of past swallow nesting activities), construction shall occur after August 31 to avoid the swallow nesting period. Suitable nesting habitat shall be netted prior to the breeding season to prevent nesting. Netting shall be installed before any nesting activity begins, generally prior to March 1. Swallows shall be excluded from areas where construction activities cause nest damage or abandonment.
 - e) All project activities shall be confined to daylight hours.
- 2) Projects shall not disturb or dewater more than 500 feet of contiguous stream reach.
 - 3) During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
 - 4) Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area where it cannot enter the stream channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans. Vehicles will be moved out of the normal high water area of the stream prior to refueling and lubricating. The grantee shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- 5) The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action while minimizing riparian disturbance without affecting less stable areas, which may increase the risk of channel instability. Existing roads shall be used to access work sites as much as practicable.
- 6) The access and work area limits shall be identified with brightly colored flagging or fencing. Flagging and fencing shall be maintained in good repair for the duration of project activities. All areas beyond the identified work area limits shall not be disturbed.
- 7) Any construction debris shall be prevented from falling into the stream channel. Any material that does fall into a stream during construction shall be immediately removed in a manner that has minimal impact to the streambed and water quality.
- 8) Where feasible, the construction shall occur from the bank, or on a temporary pad underlain with filter fabric.
- 9) Any work within the stream channel shall be performed in isolation from the flowing stream and erosion protection measures shall be in place before work begins.
 - a) Prior to dewatering, the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic invertebrates shall be determined.
 - b) If there is any flow when work will be done, the grantee shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam.
 - c) No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
 - d) Cofferdams may be constructed with clean river run gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream. Clean river run gravel may be left in the stream channel, provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.
 - e) Dewatering shall be coordinated with a qualified fisheries biologist to perform fish and amphibian relocation activities.

- f) The length of the dewatered stream channel and the duration of the dewatering shall be kept to a minimum and shall be expected to be less than 300 contiguous feet or 500 total feet per site.
 - g) When bypassing stream flow around work area, stream flow below the construction site shall be maintained similar to the unimpeded flow at all times.
 - h) The work area shall be periodically pumped dry of seepage. Pumps shall be placed in flat areas, away from the stream channel. Pumps shall be secured by tying off to a tree or staked in place to prevent movement by vibration. Pump intakes shall be covered with 0.125 inch mesh to prevent entrainment of fish or amphibians that failed to be removed. Pump intakes shall be periodically checked for impingement of fish or amphibians, and shall be relocated according to the approved measured outlined for each species bellow.
 - i) If necessary, flow shall be diverted around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting CDFW and NOAA criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
 - j) Fish shall be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed net or screen. Mesh shall be no greater than 1/8-inch diameter. The bottom edge of the net or screen shall be completely secured to the channel bed to prevent fish from reentering the work area. Exclusion screening shall be placed in areas of low water velocity to minimize fish impingement. Screens shall be regularly checked and cleaned of debris to permit free flow of water.
- 10) Where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), the action shall be carried out without dewatering and fish relocation. Furthermore, measures shall be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in the stream channel provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.

- 11) Best management practices associated with fish screens and measures to minimize effects to salmonids associated with fish screen construction, maintenance, and repair are presented below:
- a) Screening projects shall only take place on diversions with a capacity of 60 cfs or less. Screening larger diversions shall require separate consultation. Fish screens shall be operated and maintained in compliance with current law, including Fish and Game Code, and CDFW fish screening criteria. CDFW screening criteria may be referenced on the Internet at:
http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_Screen_Criteria.asp.
 - b) Notwithstanding Fish and Game Code section 6027, fish screens and bypass pipes or channels shall be in-place and maintained in working order at all times water is being diverted.
 - c) If a screen site is dewatered for repairs or maintenance when targeted fish species are likely to be present, measures shall be taken to minimize harm and mortality to targeted species resulting from fish relocation and dewatering activities. The responsible party shall notify CDFW before the project site is de-watered and streamflow diverted. The notification shall provide a reasonable time for personnel to supervise the implementation of a water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires site dewatering and fish relocation, the responsible party shall implement the dewatering and relocation measures as described in this document to minimize harm and mortality to listed species.
 - d) If a fish screen is removed for cleaning or repair, measures shall be undertaken to ensure juvenile fish are not passively entrained into the diversion canal. The area shall be isolated, cleared of fish, and dewatered prior to screen maintenance or replacement. If dewatering the work area is infeasible, then the area in front of the screen shall be cleared of fish utilizing a seine net that remains in place until the project is complete. In the case of a damaged screen, a replacement screen shall be installed immediately or the diversion shut down until a screen is in place.
 - e) Fish screens shall be inspected and maintained regularly (not less than two times per week) to ensure that they are functioning as designed and meeting CDFW fish screening criteria. During the diversion season, screens shall be visually inspected while in operation to ensure they are performing properly. Outside the diversion season when the screening structure is dewatered, the screen and associated diversion structure shall be more thoroughly evaluated.

- f) Existing roads shall be used to access screen sites with vehicles and/or equipment whenever possible. If it is necessary to create access to a screen site for repairs or maintenance, access points shall be identified at stable stream bank locations that minimize riparian disturbance.
 - g) Sediment and debris removal at a screen site shall take place as often as needed to ensure that screening criteria are met. Sediment and debris shall be removed and disposed at a location where it will not re-enter the water course.
 - h) Stationary equipment used in performing screen maintenance and repairs, such as motors, pumps, generators, and welders, located within or adjacent to a stream shall be positioned over drip pans.
 - i) Equipment which is used to maintain and/or repair fish screens shall be in good condition and checked and maintained on a daily basis to prevent leaks of materials that could be deleterious to aquatic life, wildlife, or riparian habitat.
 - j) To the extent possible repairs to a fish screen or screen site shall be made during a period of time when the target species of fish are not likely to be present (for example, in a seasonal creek, repair work should be performed when the stream is dry).
 - k) Equipment used to maintain and/or repair fish screens shall not operate in a flowing stream except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
 - l) Turbid water which is generated by screen maintenance or repair activities shall be discharged to an area where it will not re-enter the stream. If the CDFW determines that turbidity/siltation levels resulting from screen maintenance or repair activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW-approved sediment control devices are installed and/or abatement procedures are implemented.
- 12) Any equipment entering the active stream (for example, in the process of installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.
- 13) If any non-special status wildlife are encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site. "Special status wildlife" is defined as any species that meets the definition of "endangered, rare, or threatened species" in section 15380, article 20 in Title 14 of the California Code of Regulations, also known as the "CEQA Guidelines".

- 14) Any red tree vole nests encountered at a work site shall be flagged and avoided during construction.
- 15) For any work sites containing western pond turtles, salamander, foothill yellow-legged frogs, or tailed frogs, the grantee shall provide to the CDFW grant manager for review and approval, a list of the exclusion measures that will be used at their work site to prevent take or injury to any individual pond turtles, salamanders, or frogs that could occur on the site. The grantee shall ensure that the approved exclusion measures are in place prior to construction. Any turtles or frogs found within the exclusion zone shall be moved to a safe location upstream or downstream of the work site, prior to construction.
- 16) All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at:
<http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.
- 17) The grantee shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.
- 18) Installation of bridges, culverts, or other structures shall be done so that water flow is not impaired and upstream and downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade.
- 19) Temporary fill shall be removed in its entirety prior to close of work-window.

B. Specific Measures for Endangered, Rare, or Threatened Species That Could Occur at Specific Work Sites

1) Rare Plants

The work sites for the 2015 grants projects are within the range of a variety of rare plant species. The plant species found on a State or Federal special status list that might be associated with the 2015 grants projects, was determined from a search of CDFW's Natural Diversity Database. Because of the large number of widely scattered work sites proposed, it is not feasible to survey individual work sites in advance and still be able to implement the restoration projects, due to time limits on the availability of restoration funds. Lists of special status plant species that might occur at individual work sites are presented in Appendix A. Past experience with grants projects from previous years has shown that the potential for adverse impacts on rare plants at salmonid restoration work sites is very

low. Few sites surveyed for rare plants between 1999 and 2012 were found to have rare plant colonies; disturbance of rare plants was avoided in all cases. In order to avoid impacts to rare plants during the 2015 grants projects, the following mitigation measures will be implemented:

- a) CDFW or another qualified biological consultant shall survey all work sites for rare plants prior to any ground disturbing activities. Rare plant surveys will be conducted following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" (CDFW, 2009). These guidelines are available in Appendix C or on the web at:
<http://www.dfg.ca.gov/habcon/plant/>.
- b) If any special status plant species are identified at a work site, CDFW shall require one or more of the following protective measures to be implemented before work can proceed:
 - i. Fencing to prevent accidental disturbance of rare plants during construction,
 - ii. On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
 - iii. Redesign of proposed work to avoid disturbance of rare plants.
- c) If it becomes impossible to implement the project at a work site without potentially significant impacts to rare plants, then activity at that work site shall be discontinued.
- d) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.

2) Arroyo toad (*Anaxyrus californicus*)

Of the 66 work sites proposed as part of the 2015 grants program, two sites (724431 Circle G Ranch Passage Restoration and 724448 San Antonio Creek Arundo Removal) shows the Arroyo Toad listed on the corresponding species list in Appendix A. In a recent survey of the project area the Arroyo toad was not found. None of the activities proposed for this site will significantly degrade existing habitat. The following measures will be taken to avoid any potential impact to habitat:

- a) The proponent shall retain a biologist who is familiar with arroyo toads to monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. Prior to the onset of any construction activities, the proponent shall request a formal consultation with the USFWS. The proponent shall meet on-site with staff from the USFWS and the

authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, the proponent, the Service, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads. The goal of this effort is to reduce the level of mortality of arroyo toads during construction. The authorized biologist will be present during all activities immediately adjacent to or within the project site.

- b) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:
 - i. A detailed description of the arroyo toad including color photographs;
 - ii. The protection the arroyo toad receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;
 - iii. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the proposed project; and
 - iv. A point of contact if arroyo toads are observed.
- c) All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day.

3) California freshwater shrimp (*Syncaris pacifica*)

Eleven out of 66 work sites proposed as part of the 2015 grants program, occur within the range of California freshwater shrimp (CFS) (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724631 Napa River Dry Season Stream Flow Monitoring, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724520 Grape Creek Instream Habitat Improvement Project, and 724555 Salmon Creek Dairy Water Conservation Project) (Appendix A). The range of the CFS includes Marin, Napa, and Sonoma counties, excluding the Gualala River watershed. Therefore, the potential for impacts to CFS shall be mitigated by complying

with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service (USFWS), Biological Opinions (file no. 1-1-03-F-273 and 81420-2009-I-0748-1). CDFW proposes to implement the following measures to minimize adverse effects to the CFS and its habitat:

- a) Project activities in potential shrimp habitat shall be restricted to the period between July 1 and November 1.
- b) At least 15 days prior to the onset of activities, CDFW shall submit the name(s) and credentials of biologists who will conduct activities specified in the following measures to the USFWS. The grantee shall implement any additional conservation measures requested by CDFW and/or the USFWS.
- c) CDFW shall be notified at least one week in advance of the date on which work will start in the stream, so that a qualified CDFW biologist can monitor activities at the work site. All work in the stream shall be stopped immediately if it is determined by CDFW that the work has the potential to adversely impact shrimp or its habitat. Work shall not recommence until CDFW is satisfied that there will be no impact on the shrimp.
- d) Where appropriate, a USFWS-approved CDFW biologist will survey each site for shrimp before allowing work to proceed and prior to issuance of a Streambed Alteration Agreement. All overhanging vegetation, undercut banks, and tree roots will be surveyed with a butterfly net or fish net.
- e) Prior to the onset of work at a work site that may contain shrimp, the USFWS-approved CDFW biologist shall conduct a training session for all construction personnel. At a minimum the training shall include a description of the shrimp and its habitat, the importance of the shrimp and its habitat, the general measures that are being implemented to conserve the shrimp as they relate to the work site, and the work site boundaries where construction may occur.
- f) Only USFWS-approved biologists shall participate in the capture, handling, and monitoring of shrimp. CDFW shall report annually on the number of capture, release and injuries/mortality and agrees to modify capture/release strategy with USFWS staff as needed to prevent adverse effects.
- g) In site locations where shrimp are present, CDFW will require the grantee to implement the mitigation measures listed:
 - i. Equipment work shall be performed only in riffle, shallow run, or dry habitats, avoiding low velocity pool and run habitats occupied by shrimp, unless shrimp are relocated according to the protocol described below. "Shallow" run habitat is defined as a run with a

maximum water depth, at any point, less than 12 inches, and without undercut banks or vegetation overhanging into the water.

- ii. Hand placement of logs or rocks shall be permitted in pool or run habitat in stream reaches where shrimp are known to be present, only if the placement will not adversely affect shrimp or their habitat.
 - iii. Care shall be taken during placement or movement of materials in the stream to prevent any damage to undercut stream banks and to minimize damage to any streamside vegetation. Streamside vegetation overhanging into pools or runs shall not be removed, trimmed, or otherwise modified.
 - iv. No log or rock weirs (including vortex rock weirs), or check dams shall be constructed that would span the full width of the low flow stream channel. Vegetation shall be incorporated with any structures involving rocks or logs to enhance migration potential for shrimp.
 - v. No dumping of dead trees, yard waste or brush shall occur in shrimp streams, which may result in oxygen depletion of aquatic systems.
- h) If in the opinion of the USFWS-approved biologist, adverse effects to shrimp would be further minimized by moving shrimp away from the project site, the following procedure shall be used:
- i. A second survey shall be conducted within 24 hours of any construction activity and shrimp shall be relocated to the nearest suitable habitat. Shrimp shall be moved while in the net, or placed in buckets containing stream water. Stress and temperature monitoring of shrimp shall be performed by the USFWS-approved biologist. Numbers of shrimp and any mortalities or injuries shall be identified and recorded. Shrimp habitat is defined as reaches in low elevation (less than 116 m) and low gradient (less than one percent) streams where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris or overhanging vegetation.
 - ii. When no other habitat exists on a landowner's property, the shrimp shall be held in suitable containers with site water and released at the end of the day. Containers shall be placed in the shade.
- i) If moving the shrimp out of the work area cannot be accomplished, and other avoidance measures have been deemed inappropriate, CDFW shall drop activities at the work site from the project.

- j) A USFWS-approved CDFW biologist shall be present at the work site until such time as all removal of shrimp, instruction of workers, and habitat disturbance associated with the restoration project have been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in the loss of any shrimp or its habitat. If work is stopped, the USFWS-approved biologist shall immediately notify CDFW and the USFWS.
 - k) If a work site is temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than 0.2 inch to prevent shrimp from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow with the least disturbance to the substrate.
 - l) A USFWS-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The grantee shall have the responsibility that such removals are done in compliance with the California Department of Fish and Wildlife.
 - m) Invasive non-native vegetation that provides shrimp habitat and is removed as a result of Program activities shall be replaced with native vegetation that provides comparable habitat for the shrimp. Re-vegetated sites shall be irrigated as necessary until vegetation is established. Re-vegetated sites shall be monitored until shading and cover achieves 80% of pre-project shading and cover and for a minimum of 5 years.
- 4) California red-legged frog (*Rana draytonii*)

Of the 66 work sites proposed as part of the 2015 grants program, 26 occur within the range of the California red-legged frog (CRLF). Activities proposed for (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724446 Marble Gulch Instream Coho Habitat Enhancement Project, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724477 S. Daugherty Creek Sediment Reduction and Instream Habitat Enhancement, 724480 Little River Coho Stream Habitat Enhancement Project, 724482 South Branch North Fork Navarro River Coho Stream Habitat Enhancement, 724494 Flynn Creek Coho Habitat Enhancement Project, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, 724603 John Smith Creek Coho Habitat Enhancement Project, 724608 Big River Road M14 Watercourse Restoration & Road to Trail Conversion, 724466 Big

Sur River Fish Passage Restoration Project – Riverside Campground, 724631 Napa River Dry Season Stream Flow Monitoring, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724554 Chorro Valley Cape Ivy Removal Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724431 Circle G Ranch Fish Passage Restoration, 724634 Little Arthur Creek Residential Storage & Forbearance Project, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724555 Salmon Creek Dairy Water Conservation Project, and 724448 San Antonio Creek Arundo Removal) (Appendix A) will not remove or degrade CRLF habitat; however, precautions shall be required at these sites to avoid the potential for take of CRLF while using heavy equipment. The potential for impacts to CRLF will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the USFWS, Biological Opinion (file no. 1-1-03-F-273, 81420-2009-I-0748-1, and 81440-2009-F-0387 for projects within the San Francisco District of the USACE, and file no. 2008-F-0441 for projects within the Los Angeles District of the USACE). CDFW shall implement the following measures to minimize adverse effects to the CRLF and its habitat:

- a) Project activities in potential red-legged frog habitat shall be restricted to the period between July 1 and October 15.
- b) At least 15 days prior to the onset of project activities, CDFW shall submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until CDFW has received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
- c) Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the approved biologist's knowledge.
- d) A USFWS-approved biologist shall survey the project site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologist will allow sufficient time to move them from the site before work activities resume. Only USFWS-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.
- e) Prior to the onset of project activities, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum,

the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

- f) A USFWS-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the USACE and USFWS during review of the proposed action. If work is stopped, the USACE and the USFWS shall be notified immediately by the USFWS-approved biologist or on-site biological monitor.
- g) If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The USFWS-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The USFWS-approved biologist must maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.
- h) A CDFW monitoring plan shall be developed to determine the level of incidental take of the red-legged frog associated with the Restoration Program funded activities in the area. The monitoring plan must include a standardized mechanism to report any observations of dead or injured red-legged frog to the appropriate USACE and USFWS offices.
- i) If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.125 inch to prevent red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction activities and eliminate the possibility of ponded water. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- j) Ponded areas shall be monitored for red-legged frogs that may become entrapped. Any entrapped red-legged frog shall be relocated to a pre-determined receiving area by a USFWS-approved biologist.

- k) A USFWS-approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.
- l) The USFWS-approved biologist(s) who handle red-legged frogs shall ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/DAFTA.pdf) shall be followed at all times.
- m) The CDFW or USACE shall report any observation of the incidental take of red-legged frogs associated with the implementation of the Restoration Program projects in accordance with RGP78. The USFWS and the USACE must review the circumstances surrounding the incident to determine whether any patterns of repeated authorized or unauthorized activities are occurring that may indicate that additional protective measures are required. If, after completion of the review, the USACE and the USFWS agree that additional protective measures are required and can be implemented within the existing scope of the action, the USACE must require the CDFW to implement the agreed-upon measures within a reasonable time frame; if the corrective actions cannot be implemented within the scope of the existing action, the USACE and USFWS will determine whether re-initiation of consultation is appropriate.
- n) Despite term and condition h of this section (above), the USACE must immediately re-initiate formal consultation with the USFWS, pursuant to 7(a) (2) of the Endangered Species Act, if red-legged frogs are taken within the action area at or in excess of the incidental take anticipated in the Incidental Take Statement section of the U.S. Fish and Wildlife biological opinion (file no. 2008-F-0441), whether by project or by year.
- o) If these mitigation measures cannot be implemented or the project activities proposed at a specific work site cannot be modified to prevent or avoid potential impacts to CRLF or its habitat, then project activity at that work site shall be discontinued.

5) California tiger salamander (*Ambystoma californiense*)

Nine of the 66 proposed projects of the 2015 grant program are within the range of the California tiger salamander (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724466 Big

Sur River Fish Passage Restoration Project – Riverside Campground, 724568 San Gregorio Creek Habitat Enhancement Project, 724634 Little Arthur Creek Residential Storage & Forbearance Project, 724507

Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, and 724555 Salmon Creek Dairy Water Conservation Project) (Appendix A), however impacts to the species are highly unlikely as most implementation projects occur in or near the stream and riparian corridor. The species uses ponds and vernal pools for breeding and grassland habitat for estivation, both of which are usually not in proximity to anadromous fish-bearing streams.

6) Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), and coast cutthroat trout (*Oncorhynchus clarki clarki*)

While all of the work proposed under this program will enhance habitat for one or more of these species, all of the work sites proposed as part of the 2015 grants program could involve instream work in their habitat (Appendix A). In order to avoid any potential for negative impacts to these species, the following measures will be implemented:

- a) Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant rainfall, or which ever comes first. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).
- b) Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species and to speed recovery of native vegetation.
- c) Prior to dewatering a construction site, fish and amphibian species shall be captured and relocated by CDFW personnel (or designated agents). The following measures shall be taken to minimize harm and mortality

to listed salmonids resulting from fish relocation and dewatering activities:

- i. Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
- ii. Fish relocation shall be performed by a qualified fisheries biologist, with all necessary State and Federal permits. Rescued fish shall be moved to the nearest appropriate site outside of the work area. A record shall be maintained of all fish rescued and moved. The record shall include the date of capture and relocation, the method of capture, the location of the relocation site in relation to the project site, and the number and species of fish captured and relocated. The record shall be provided to CDFW within two weeks of the completion of the work season or project, whichever comes first.
- iii. Electrofishing shall be conducted by properly trained personnel following NOAA *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act*, June 2000.
- iv. Prior to capturing fish, the most appropriate release location(s) shall be determined. The following shall be determined:
 - i) Temperature: Water temperature shall be similar as the capture location.
 - ii) Habitat: There shall be ample habitat for the captured fish.
 - iii) Exclusions from work site: There shall be a low likelihood for the fish to reenter the work site or become impinged on exclusion net or screen.
- v. The most efficient method for capturing fish shall be determined by the biologist. Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping-down the pool and then seining or dipnetting fish.
- vi. Handling of salmonids shall be minimized. However, when handling is necessary, always wet hands or nets prior to touching fish.
- vii. Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release.
- viii. Air and water temperatures shall be measured periodically. A thermometer shall be placed in holding containers and, if

necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds 18 °C, fish shall be released and rescue operations ceased.

- ix. Overcrowding in containers shall be avoided by having at least two containers and segregating young-of-year (YOY) fish from larger age-classes to avoid predation. Larger amphibians, such as Pacific giant salamanders, shall be placed in the container with larger fish. If fish are abundant, the capturing of fish and amphibians shall cease periodically and shall be released at the predetermined locations.
 - x. Species and year-class of fish shall be visually estimated at time of release. The number of fish captured shall be counted and recorded. Anesthetization or measuring fish shall be avoided.
 - xi. If feasible, initial fish relocation efforts shall be performed several days prior to the start of construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional electrofishing passes immediately prior to construction. In many instances, additional fish will be captured that eluded the previous day's efforts.
 - xii. If mortality during relocation exceeds three percent, capturing efforts shall be stopped and the appropriate agencies shall be contacted immediately.
 - xiii. In regions of California with high summer temperatures, relocation activities shall be performed in the morning when the temperatures are cooler.
 - xiv. CDFW shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
 - xv. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- d) If these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site shall be discontinued.

7) Least Bell's Vireo (*Vireo bellii pusillus*)

Of the 66 projects proposed as part of the 2015 grants program, four (724635 12th Street Infiltration Gallery Fish Passage Restoration Project,

724431 Circle G Ranch Fish Passage Restoration, 724634 Little Arthur Creek Residential Storage & Forbearance Project, and 724448 San Antonio Creek Arundo Removal) are within the range of the least Bell's vireo. None of the activities proposed for these sites will significantly degrade existing vireo habitat, but the potential exists for the noise from heavy equipment work and the harvesting of willow branches for revegetation at these sites to disrupt vireo nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- a) Work shall not begin within one quarter mile of any site with known or potential habitat for the Least Bell's Vireo until after September 15.
- b) Harvest of willow branches at any site with potential habitat for the Least Bell's Vireo will not occur between March 1 and September 15.
- c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- d) The DFG shall ensure that the grantee or responsible party is aware of this site-specific condition, and will inspect the work site before, during, and after completion of the action item.
- e) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to Least Bell's Vireo or their habitat, then activity at that work site will be discontinued

8) Marbled murrelet (*Brachyrampus marmoratus*)

Twelve of the 66 work sites proposed as part of the 2015 grants program are in potentially suitable habitat for the marbled murrelet. Activities proposed for the sites (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724584 Yontocket Slough Fish Passage Project, 724451 Lower Mattole River and Estuary Riparian Enhancement, 724471 Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724613 Supply Creek Restoration Project, 724524 Upper Mattole Coho Habitat Enhancement Phase II, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724501 Cahto Creek Coho Salmon Habitat Enhancement, 724577 Fish Creek Fish Passage Improvement Project, 724607 James Creek Road Decommissioning and Fish Passage Implementation Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, and 724572 Seiad Creek Coho Habitat Enhancement Project)

(Appendix A) will not remove, degrade, or downgrade suitable marbled murrelet habitat. As a result, direct injury or mortality of murrelets is not an issue. The potential exists for noise from heavy equipment work at these sites to disrupt marbled murrelet nesting. To avoid this potential impact, the following mitigation measures shall be implemented:

- a) Restoration work in areas considered by the Arcata and Ventura USFWS offices shall not be conducted within 0.25 mile of occupied or un-surveyed suitable marbled murrelet habitat between March 24 and September 15. Restoration work in areas considered by the Sacramento USFWS Office shall not be conducted within 0.25 mile of any occupied or un-surveyed suitable marbled murrelet habitat between November 1 and September 15.
- b) The work window at individual work sites near suitable habitat may be modified, if protocol surveys determine that habitat quality is low and occupancy is very unlikely.
- c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential adverse effects to marbled murrelet or their habitat, then activity at that work site shall be discontinued.
- d) For projects contained in streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

9) Northern spotted owl (*Strix occidentalis caurina*)

Of the 66 work sites proposed as part of the 2015 grants program, 38 are in potentially suitable habitat for the northern spotted owl (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724451 Lower Mattole River and Estuary Riparian Enhancement, 724452 Sullivan Gulch Road Decommissioning and Erosion Prevention Project, 724467 Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project, 724471 Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2, 724532 Mattole Flow Program-Water Storage and Forbearance 2015-2018, 724533 West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724642 Bobcat Run Riparian Restoration, 724524 Upper Mattole Coho Habitat Enhancement Phase II, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724446 Marble Gulch Instream Coho Habitat Enhancement Project, 724468 Hayworth Creek Watershed Restoration and Implementation

Project, Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724473 Standley Creek Sediment Reduction Project, Phase 6, 724477 S. Daugherty Creek Sediment Reduction and Instream Habitat Enhancement, 724489 North Fork Noyo River Coho Stream Habitat Enhancement Project, 724494 Flynn Creek Coho Habitat Enhancement Project, 724495 Redwood Creek Coho Stream Habitat Enhancement Project, 724500 Upper Noyo River Large Wood Enhancement Project–Phase III, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project–Phase II, 724577 Fish Creek Fish Passage Improvement Project, 724603 John Smith Creek Coho Habitat Enhancement Project, 724619 Campbell Creek Instream Coho Salmon Habitat Enhancement Project, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724555 Salmon Creek Dairy Water Conservation Project, 724601 Trinity County Resource Conservation District, and 724531 Sharber-Peckham Creek Fish Passage Project) (Appendix A). None of the activities will remove, degrade, or downgrade northern spotted owl habitat. As a result, direct injury or mortality of owls is not likely. The potential exists for heavy equipment work at these sites to disturb spotted owl nesting. To avoid this potential effect, the following mitigation measures will be implemented:

- a) Work with heavy equipment at any site within 0.25 miles of suitable habitat for the northern spotted owl shall not occur from November 1 to July 31 for projects in areas under the jurisdiction of the Sacramento USFWS Office and from November 1 to July 9 for projects in areas under the jurisdiction of the Arcata USFWS Office.
- b) The work window at individual work sites may be advanced prior to July 9 or July 31 (corresponding to the different time constraints of the Sacramento and Arcata USFWS office), if protocol surveys determine that suitable habitat is unoccupied.
- c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to northern spotted owls or their habitat, then activity at that work site shall be discontinued and CDFW must reinitiate consultation with USFWS.
- d) For projects contained within streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

10) Point Arena mountain beaver (*Aplodontia rufa nigra*)

Of the 66 projects proposed as part of the 2015 grants program, five (724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724494 Flynn Creek Coho Habitat Enhancement Project, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, and 724603 John Smith Creek Coho Habitat Enhancement Project) (Appendix A). If PAMB or PAMB habitats are encountered during implementation of any projects, to avoid potential impacts to PAMB the following mitigation measures will be implemented:

- a) Qualified DFW personnel will survey each work site for PAMB. Qualification of surveyors, survey protocols, and reporting will conform to USFWS's *Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver*. Per the *Guidelines*, if the activity status of a burrow is in doubt, or if there is un-surveyed potential habitat, PAMB active presence will be assumed.
- b) For work sites where PAMB active presence is confirmed or assumed, all protective measures prescribed by USFWS's *Draft Point Arena Mountain Beaver Standard Protection Measures for No-Take Determinations* will be followed, through issuance of a Streambed Alteration Agreement and/or directives to the grantee by the DFW Contract Manager. The protective measures most pertinent to DFW salmonid habitat improvement projects include:
 - i. No operation of noise generating equipment (e.g. chainsaws) within 100 feet of active burrows during the breeding season (December 15 – June 30).
 - ii. No operation of mechanical equipment (e.g. backhoes, excavators) within 100 feet of active burrows during the breeding season (December 15 – June 30), and within 50 feet the remainder of the year.
 - iii. No ground disturbance (e.g. dumping of boulders) within 500 feet of active burrows during breeding season, and within 100 feet the remainder of the year. No severe ground disturbance (e.g. driving of bridge piles, blasting) within 500 feet of active burrows at any time.
 - iv. No habitat modification (e.g. vegetation removal) within 400 feet of active burrows.
 - v. No vegetation modification or removal, or construction of permanent barriers (e.g. fences) at any location or time that may disrupt dispersal or movement of PAMB.

- vi. No vehicular or foot traffic within 25 feet of active burrows, and no alteration of water drainage or hydrology in active burrow areas.
- c) DFW will require that the Contract Manager must be notified at least one week in advance of the date on which work will start, so that a qualified DFW biologist can monitor activities at the work site. If the necessary protective measures cannot be implemented at a work site, then no work at the site will occur.

11) San Francisco Garter snake (*Thamnophis sirtalis tetrataenia*)

Of the 66 projects proposed in the 2015 grants program, two (724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724568 San Gregorio Creek Habitat Enhancement Project) (Appendix A) is located within the range of the San Francisco garter snake. The activities proposed for this site will not significantly degrade existing habitat. To avoid potential impact, the following mitigation measures will be implemented:

- a) Prior to the onset of any construction activities, the proponent shall request a formal consultation with the USFWS and obtain all required permits. The proponent shall meet on-site with staff from the USFWS and the authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the San Francisco garter snake and the actions taken to reduce impacts to this species. Because San Francisco garter snakes may occur in various locations during different seasons of the year, the proponent, the USFWS, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on San Francisco garter snake. The goal of this effort is to reduce the level of mortality of San Francisco garter snake during construction.
- b) The proponent shall retain a biologist who is familiar with the San Francisco garter snake and will monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter in this document. The authorized biologist will be present during all activities immediately adjacent to or within the project site.
- c) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:
 - i. A detailed description of the San Francisco garter snake including color photographs;

- ii. The protection the San Francisco garter snake receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;
 - iii. The protective measures being implemented to conserve the San Francisco garter snake and other species during construction activities associated with the proposed project; and
 - iv. A point of contact if San Francisco garter snakes are observed.
- d) All trash that may attract predators of the San Francisco garter snake will be removed from work sites or completely secured at the end of each work day.

12) Southwestern Willow flycatcher (*Empidonax traillii extimus*)

Of the 66 work sites proposed as part of the 2015 grants program, three are in potentially suitable habitat for the southwestern willow flycatcher (724431 Circle G Ranch Fish Passage Restoration, 724635 12th Street Infiltration Gallery Fish Passage Restoration Project, 724448 San Antonio Creek Arundo Removal) (Appendix A). None of the activities proposed for these sites will significantly degrade existing southwestern willow flycatcher habitat; however, the potential exists for the noise from heavy equipment work or harvesting of re-vegetation material at these sites to disrupt southwestern willow flycatcher nesting. To avoid this potential impact, the following mitigation measures shall be implemented:

- a) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the southwestern willow flycatcher until after September 15.
- b) Prior to any work in areas where riparian habitat is present, a qualified biologist shall do a habitat assessment and determine whether the area within 500 feet of the project site is suitable for nesting by southwestern willow flycatchers. If not, work may proceed without further surveys. If the biologist determines that the area is suitable, a qualified biologist must monitor before and during the project to determine the status of the southwestern willow flycatchers within 500 feet of the project site.
- c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- d) Harvest of willow branches at any site with potential habitat for the southwestern willow flycatcher shall not occur between May 1 and September 15.
- e) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

- f) If any southwestern willow flycatchers are observed nesting within 500 feet of the project activities, work shall cease temporarily until it is determined that either the birds are not nesting or young have fledged.
- g) DFG shall ensure that the grantee or responsible party is aware of this site-specific condition, and shall inspect the work site before, during, and after completion of the action item.
- h) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site shall be discontinued.

13) Tidewater goby (*Eucyclogobius newberryi*)

Twenty-seven of the 66 work sites proposed as part of the 2015 grants program sites show the tidewater goby listed on the corresponding species lists in Appendix A (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724452 Sullivan Gulch Road Decommissioning and Erosion Prevention Project, 724467 Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project, 724510 Ryan Creek Coho Habitat Enhancement Project, 724553 Lindsay Creek Coho Habitat Enhancement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724585 Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project, 724635 12th Street Infiltration Gallery Fish Passage Restoration Project, 724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724468 Hayworth Creek Watershed Restoration and Implementation Project, Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724489 North Fork Noyo River Coho Stream Habitat Enhancement Project, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, 724607 James Creek Road Decommissioning and Fish Passage Implementation Project, 724619 Campbell Creek Instream Coho Salmon Habitat Enhancement Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724431 Circle G Ranch Fish Passage Restoration, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724555 Salmon Creek Dairy Water Conservation Project, and 724448 San Antonio Creek Arundo Removal) (Appendix A). Actual work sites are not within the tidal zone and as such will not affect suitable habitat for the tidewater goby.

14) Willow flycatcher (*Empidonax traillii*)

Of the 66 work sites proposed as part of the 2015 grants program, 15 (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724584 Yontocket Slough Fish Passage Project, 724449 Lower Mill Creek Instream Restoration Project, 724510 Ryan Creek Coho Habitat Enhancement Project, 724553 Lindsay Creek Coho Habitat Enhancement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724585 Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project, 724610 Mattole Flow Program: McKee Creek Water Storage & Forbearance, 724613 Supply Creek Restoration Project, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724551 Bogus Creek Fish Passage - Implementation Project, 724602 Scott River Mile 21 Road Crossing Repair, 724623 Fioc Bank Fine Sediment Reduction, and 724531 Sharber-Peckham Creek Fish Passage Project) are in potentially suitable habitat for the Willow flycatcher (Appendix A). None of the activities proposed for these sites will significantly degrade existing willow flycatcher habitat, but the potential exists for the noise from heavy equipment work or harvesting of revegetation material at these sites to disrupt willow flycatcher nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- a) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the willow flycatcher until after August 31.
- b) Harvest of willow branches at any site with potential habitat for the willow flycatcher will not occur between May 1 and August 31.
- c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- d) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.
- e) DFW shall ensure that the grantee or responsible party is aware of this site specific condition, and will inspect the work site before, during, and after completion of the action item.
- f) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site will be discontinued.

C. Riparian and re-vegetation

- 1) Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.
- 2) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.
- 3) Disturbed and compacted areas shall be re-vegetated with native plant species. The species shall be comprised of a diverse community structure that mimics the native riparian corridor. Planting ratio shall be 2:1 (two plants to every one removed).
- 4) Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.
- 5) To ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible, equipment shall be cleaned of all dirt, mud, and plant material prior to entering a work site. When possible, invasive exotic plants at the work site shall be removed. Areas disturbed by project activities will be restored and planted with native plants.
- 6) Mulching and seeding shall be done on all exposed soil which may deliver sediment to a stream. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.
- 7) If erosion control mats are used in re-vegetation, they shall be made of material that decomposes. Erosion control mats made of nylon plastic, or other non-decomposing material shall not be used.

- 8) CDFW shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush to minimize impacts to the riparian corridor.
- 9) If riparian vegetation is to be removed with chainsaws, the grantee shall use saws that operate with vegetable-based bar oil when possible.
- 10) Disturbed and decompacted areas shall be re-vegetated with native species specific to the project location that comprise a diverse community of woody and herbaceous species.

V. CULTURAL RESOURCES

Ground-disturbance will be required to implement the project at certain locations that, despite efforts to identify cultural resources, have the potential to affect these resources. The procedure for a programmatic evaluation of archeological resources is provided in Appendix E. Potential for inadvertent impacts will be avoided through implementation of the following mitigation measures:

- 1) CDFW shall contract with an archaeologist(s) or other historic preservation professional that meets The Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61, and 48 FR 44716) to complete cultural resource surveys at any sites with the potential to be impacted prior to any ground disturbing activities. This work may be augmented with the aid of a Native American cultural resources specialist that is culturally affiliated with the project area. Cultural and paleontological resource surveys shall be conducted using standard protocols to meet CEQA Guideline requirements. Paleontological survey protocols are listed in Appendix D.
- 2) If cultural and/or paleontological resource sites are identified at a project location, CDFW will require one or more of the following protective measures to be implemented before work can proceed: a) fencing to prevent accidental disturbance of cultural resources during construction, b) on-site monitoring by cultural and/or paleontological resource professionals during construction to assure that cultural resources are not disturbed, c) redesign of proposed work to avoid disturbance of cultural resources.
- 3) CDFW shall report any previously unknown historic, archeological, and paleontological remains discovered at a project location to the USACE as required in the RGP.

- 4) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.
- 5) Inadvertent Discovery of Cultural Resources - If cultural resources, such as lithic debitage, ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, per the requirements of CEQA (January 1999 Revised Guidelines, Title 14 CCR 15064.5 (f)). Work near the archaeological finds shall not resume until an archaeologist that meets the Secretary of the Interior's Standards and Guidelines suited to the discovery, has evaluated the materials and offered recommendations for further action. Cultural materials not associated with human interments shall be documented and curated in place.
- 6) Inadvertent Discovery of Human Remains - If human remains are discovered during project construction, work shall stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains (Public Resources Code, Section 7050.5). The county coroner shall be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American heritage Commission (NAHC) (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work shall not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.
- 7) Procedures for treatment of an inadvertent discovery of human remains:
 - a) Immediately following discovery of known or potential human remains all ground-disturbing activities at the point of discovery shall be halted.
 - b) No material remains shall be removed from the discovery site, a reasonable exclusion zone shall be cordoned off.
 - c) The CDFW Grant Manager and property owner shall be notified and the CDFW Grant Manager shall contact the county coroner.
 - d) CDFW shall retain the services of a professional archaeologist to immediately examine the find and assist the process.
 - e) All ground-disturbing construction activities in the discovery site exclusion area shall be suspended.

- f) The discovery site shall be secured to protect the remains from desecration or disturbance, with 24-hour surveillance, if prudent.
 - g) Discovery of Native American remains is a very sensitive issue, and all project personnel shall hold any information about such a discovery in confidence and divulge it only on a need-to-know basis, as determined by the CDFW.
 - h) The coroner has two working days to examine the remains after being notified. If the remains are Native American, the coroner has 24 hours to notify the NAHC in Sacramento (telephone 916/653-4082).
 - i) The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American.
 - j) The MLD may, with the permission of the landowner, or their representative, inspect the site of the discovered Native American remains and may recommend to the landowner and CDFW Grant Manager means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment with 48 hours of being granted access to the site (Public Resource Code, Section 5097.98(a)). The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials.
 - k) Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner or his/her authorized representative rejects the recommendation of the MLD and mediation between the parties by the NAHC fails to provide measures acceptable to the landowner, the landowner or his/her authorized representatives shall re-inter the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance in accordance with Public Resource Code, Section 5097.98(e).
 - l) Following final treatment measures, the CDFW shall ensure that a report is prepared that describes the circumstances, nature and location of the discovery, its treatment, including results of analysis (if permitted), and final disposition, including a confidential map showing the reburial location. Appended to the report shall be a formal record about the discovery site prepared to current California standards on DPR 523 form(s). CDFW shall ensure that report copies are distributed to the appropriate California Historic Information Center, NAHC, and MLD.
- 8) Pursuant to RGP78 and in accordance to 36 C.F.R. Section 800.13, in the event of any discovery during construction of human remains, archeological deposits, or any other type of historic property, the CDFW shall notify the

USACE archeological staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861) within 24 hours. Construction work shall be suspended immediately and shall not resume until USACE re-authorizes project construction.

- 9) If it becomes impossible to implement the project at a work site without disturbing cultural or paleontological resources, then activity at that work site shall be discontinued.

VI. GEOLOGY AND SOILS

There is no potential for a significant adverse impact to geology and soils; implementation of the restoration project will contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

- 1) CDFW will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:
 - a) All stream crossing replacement or modification designs, involving fish passage, shall be reviewed and approved by NOAA (or CDFW) engineers prior to onset of work.
 - b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.
- 2) CDFW shall implement the following measures to minimize harm to listed salmonids resulting from road decommissioning activities:
 - a) Woody debris will be concentrated on finished slopes of decommissioned roads adjacent to stream crossings to reduce surface erosion; contribute to amounts of organic debris in the soil; encourage fungi; provide immediate cover for small terrestrial species; and to speed recovery of native forest vegetation.

- b) Work sites shall be winterized at the end of each day to minimize the eroding of unfinished excavations when significant rains are forecasted. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leaves the work site.
- 3) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain shall not begin until all temporary erosion controls (i.e., straw bales or silt fences that are effectively keyed-in) are in place down slope or down stream of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.
- 4) An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained onsite to facilitate a quick response to unanticipated storm events or emergencies.
- 5) Use erosion controls that protect and stabilize stockpiles and exposed soils to prevent movement of materials. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soils.
- 6) When needed, instream grade control structures shall be utilized to control channel scour, sediment routing, and headwall cutting.
- 7) Temporary stockpiling of excavated material shall be minimized. However, excavated material shall be stockpiled in areas where it cannot enter the stream channel. Available sites at or near the project location shall be determined prior to the start of construction. If feasible, topsoil shall be conserved for reuse at project location or use in other areas.
- 8) For projects located within the USACE San Francisco District, an annual limit on the number of sediment-producing projects per HUC 10 watershed shall be implemented to ensure that potential sediment impacts will remain spatially isolated, thus minimizing cumulative turbidity effects. Sediment

producing projects include instream habitat improvement, instream barrier removal, stream bank stabilization, fish passage improvement, upslope road work, and fish screen construction (unless the screen is located in a diversion ditch and is disconnected from the waterway). The limit of projects shall be as follows:

Square mile of HUC 10 watershed	Maximum number of instream and upslope projects per year
<50	2
51-100	3
101-150	4
151-250	5
251-350	6
351-500	9
>500	12

Projects funded by the FRGP that are not authorized under the RGP (i.e., they have undergone separate consultation) or have already been authorized by the RGP in previous years(s) do not count toward the limits described above.

- 9) Each year, all instream projects shall be separated both upstream and downstream from other proposed instream projects by at least 1500 linear feet in fish bearing stream reaches. In non-fish bearing reaches, the distance separating sediment- producing projects will be 500 feet.
- 10) Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.
- 11) Soil compaction shall be minimized by using equipment with a greater reach or that exerts less pressure per square inch on the ground, resulting in less overall area disturbed and less compaction of disturbed areas.
- 12) Disturbed soils shall be decompacted at project completion as heavy equipment exits the construction area.

- 13) At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

VII. GREENHOUSE GAS EMISSIONS

No specific mitigation measures are required. Re-vegetation practices will help offset the short term, less than significant, greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS

The project will not create a significant hazard to the public or the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant, or of an accidental spark from equipment igniting a fire. The potential for these impacts will be reduced to a less than significant level through implementation of the following mitigation measures:

- 1) Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.
- 2) When operating vehicles in wetted portions of the stream channel, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, the responsible party shall, at a minimum, do the following:
 - a) check and maintain on a daily basis any vehicles to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat;
 - b) take precautions to minimize the number of passes through the stream and to avoid increasing the turbidity of the water to a level that is deleterious to aquatic life; and
 - c) allow the work area to “rest” to allow the water to clear after each individual pass of the vehicle that causes a plume of turbidity above background levels, resuming work only after the stream has reached the original background turbidity levels.
- 3) All equipment operators shall be trained in the procedures to be taken should an accident occur. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a Spill Prevention/Response plan to help avoid spills and allow a prompt and effective response should an accidental spill occur. All workers shall be informed of the importance of preventing spills. Operators shall have spill clean-up supplies on site and be knowledgeable in their proper deployment.

- 4) All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill. In an event of a spill, work shall cease immediately. Clean-up of all spills shall begin immediately. The responsible party shall notify the State Office of Emergency Services at 1-800-852-7550 and the CDFW immediately after any spill occurs, and shall consult with the CDFW regarding clean-up procedures.
- 5) All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 65 feet from any riparian habitat or water body and place fuel absorbent mats under pump while fueling. The USACE and the CDFW will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the CDFW will ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 6) Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed, and disposed of throughout the project.
- 7) Petroleum products, fresh cement, and other deleterious materials shall not enter the stream channel.
- 8) Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.
- 9) No debris, soil, silt, sand, bark, slash, spoils, sawdust, rubbish, cement, concrete or washings thereof, asphalt, paint, or other coating material; oil or petroleum products; or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state. When operations are completed, any excess materials or debris shall be removed from the work area and disposed of in a lawful manner.
- 10) All internal combustion engines shall be fitted with spark arrestors.

- 11) The grantee shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.
- 12) Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.
- 13) The grantee shall follow any additional rules the landowner has for fire prevention.
- 14) The potential for mercury contamination is largely predicted by the presence of historic hydraulic gold mines and mercury (cinnabar) mines (California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State, DOC 2000). Therefore, only a few limited areas within the geographic scope of this grant program have any potential for gravels contaminated with elemental mercury, they are: Middle Klamath River, Salmon River, Scott River, and the Lower Middle and Upper Trinity River. (Though studies by the USGS failed to find significant levels of methyl mercury near these mines.)
 - a) Given the limited geographical potential for encountering mercury contamination (from historic mining) within the geographic scope, and the limited number of projects within these areas that will either disturb the channel bottom or import gravels for instream restoration; the following avoidance and mitigation measure will be adhered to: any gravel imported from offsite shall be from a source known to not contain historic hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings.

IX. HYDROLOGY AND WATER QUALITY

- 1) Instream work shall be conducted during the period of lowest flow.
- 2) Before work is allowed to proceed at a site, CDFW shall inspect the site to assure that turbidity control measures are in place.
- 3) The waste water from construction area shall be discharged to an upland location where it will not drain sediment-laden water back to stream channel.
- 4) For projects within the USACE San Francisco District, if instream work liberates a sediment wedge, 80% of the wedge shall be removed before the sediment is liberated. The required amount can be modified if NOAA or CDFW hydrologists or hydraulic engineers agree that removing a smaller amount will better protect and enhance fish habitat in the area of the project (e.g., leaving some sediment to replenish areas downstream that lack suitable substrate volume or quality).

- 5) To control erosion during and after project implementation, CDFW shall implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
- 6) Sediment-laden water caused by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
- 7) If CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.
- 8) Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter flowing stream. Commercial sealants shall be applied to the poured concrete surface where concrete cannot be excluded from the stream flow for two weeks. If sealant is used, water shall be excluded from the site until the sealant is dry.
- 9) If the CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.
- 10) Prior to use, all equipment shall be cleaned to remove external oil, grease, dirt, or mud. Wash sites shall be located in upland locations so that dirty wash water does not flow into the stream channel or adjacent wetlands.
- 11) Water conservation projects that include water storage tanks and a Forbearance Agreement, for the purpose of storing winter water for summer use, require registration of water use pursuant to the Water Code §1228.3, and require consultation with CDFW and compliance with all lawful conditions required by CDFW. Diversions to fill storage facilities during the winter and spring months shall be made pursuant to a Small Domestic Use Appropriation (SDU) filed with the State Water Resources Control Board (SWRCB). CDFW will review the appropriation of water to ensure fish and wildlife resources are protected. The following conditions shall then be applied:

- a) Seasonal Restriction: No pumping is allowed when stream flow drops below 0.7 cubic feet per second (cfs) except as permitted by CDFW in the event of an emergency.
- b) Bypass Flows: Pumping withdrawal rates shall not exceed 5% of stream flow. If CDFW determines that the streamflow monitoring data indicate that fisheries are not adequately protected, then the bypass flows are subject to revision by CDFW.
- c) Cumulative Impacts: Pumping days shall be assigned to participating landowner(s) when streamflows drop below 1.0 cfs to prevent cumulative impacts from multiple pumps operating simultaneously.
- d) Pump Intake Screens: Pump intake screens shall comply with the "2000 California Department of Fish and Game Screening Criteria"* for California streams that provide habitat for juvenile coho salmon, Chinook salmon and steelhead. The landowner shall be responsible for annual inspection and maintenance of screens. Additionally, the landowner shall be responsible for cleaning screens as needed to keep them free of debris and ensure that screen function complies with the criteria specifications.
- e) These conditions do not authorize incidental take of any species, removal of riparian vegetation, or bed, bank, or channel alteration.
- f) CDFW shall be granted access to inspect the pump system. Access is limited to the portion of the landowner's real property where the pump is located and those additional portions of the real property which must be traversed to gain access to the pump site. Landowners shall be given reasonable notice and any necessary arrangements will be made prior to requested access including a mutually-agreed-upon time and date. Notice may be given by mail or by telephone with the landowner or an authorized representative of the landowner. The landowner shall agree to cooperate in good faith to accommodate CDFW access.

* Fish Screening Criteria are from "State of California Resources Agency Department of Fish and Game Fish Screening Criteria, June 19, 2000." The "approach velocity" shall be calculated according to Section 2C "Screens which are not Self Cleaning." These screening criteria are available at <http://iep.water.ca.gov/cvffrt/DFGCriteria2.htm>.

X. LAND USE AND PLANNING

No specific mitigation measures are required for land use and planning.

XI. MINERAL RESOURCES

No specific mitigation measures are required for mineral resources.

XII. NOISE

Personnel shall wear hearing protection while operating or working near noisy equipment (producing noise levels ≥ 85 db, including chain saws, excavators, and back hoes). No other specific mitigation measures are required for noise.

XIII. POPULATION AND HOUSING

No specific mitigation measures are required for population and housing.

XIV. PUBLIC SERVICES

No specific mitigation measures are required for public services.

XV. RECREATION

No specific mitigation measures are required for recreation.

XVI. TRANSPORTATION/TRAFFIC

The project will not affect transportation/traffic, because erosion control and culvert replacement projects will occur in wildland/rural sites with very little use. There is a potential that culvert replacement at some work sites could temporarily interfere with emergency access. This potential impact will be avoided through implementation of the following mitigation measure at any sites where emergency access might be necessary:

- 1) During excavation for culvert replacement, the grantee shall provide a route for traffic around or through the construction site.

XVII. UTILITIES AND SERVICE SYSTEMS

No specific mitigation measures are required for utilities and service systems.

SECTION 2: MONITORING AND REPORTING

CDFW shall implement the following measures to ensure that individual restoration projects authorized annually through the RGP (RGP12 and

RGP78) will minimize take of listed salmonids, monitor and report take of listed salmonids, and to obtain specific information to account for the effects and benefits of salmonid restoration projects authorized through the RGP.

- 1) CDFW shall provide USACE, NOAA, and USFWS notification of projects that are authorized through the RGP. The notification shall be submitted at least 90 days prior to project implementation and must contain specific project information including; name of project, type of project, location of project including hydrologic unit code (HUC), creek, watershed, city or town, and county.
- 2) CDFW Grant Manager shall inspect the work site before, during, and after completion of the action item, to ensure that all necessary mitigation measures to avoid impacts are properly implemented.
- 3) CDFW shall perform implementation monitoring immediately after the restoration activity is completed to ensure that projects are completed as designed.
- 4) CDFW shall perform effectiveness/validation monitoring on at least 10 percent of restoration projects funded annually. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring will be performed within three years following project completion.
- 5) Current monitoring forms and instructions used by CDFW for the implementation monitoring and effectiveness monitoring are available online at: http://ftp.dfg.ca.gov/Public/FRGP/Qualitative_Monitoring_Forms/. CDFW shall submit a copy of the annual report, no later than March 1 annually to NOAA.
- 6) The CDFW annual report to NOAA shall include a summary of all restoration action items completed during the previous year. The annual report shall include a summary of the specific type and location of each project, stratified by individual project, 5th field HUC and affected species and evolutionary significant unit (ESU)/Distinct Population Segment (DPS). The report shall include the following project-specific summaries, stratified at the individual project, 5th field HUC, and ESU level:
 - a) A summary detailing fish relocation activities; including the number and species of fish relocated and the number and species injured or killed. Any capture, injury, or mortality of adult salmonids or half-pounder steelhead shall be noted in the monitoring data and report. Any injuries or mortality from a fish relocation site that exceeds 3.0% of the affected listed species shall have an explanation describing why.

- b) The number and type of instream structures implemented within the stream channel.
 - c) The length of stream bank (feet) stabilized or planted with riparian species.
 - d) The number of culverts replaced or repaired, including the number of miles of restored access to unoccupied salmonid habitat.
 - e) The distance (miles) of road decommissioned.
 - f) The distance (feet) of aquatic habitat disturbed at each project site.
- 7) CDFW shall incorporate project data into a format compatible with the CDFW/NOAA/Pacific Fisheries Management Council Geographic Information System (GIS) database, allowing scanned project-specific reports and documents to be linked graphically within the GIS database.
- 8) For Marin, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, and Sonoma Counties, CDFW shall submit an annual report due by January 31 (RGP12) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2800 Cottage Way, Sacramento, California 95825. The report must include:
- a) A table documenting the number of California freshwater shrimp or California red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.
 - b) A summary of how the terms and conditions of the biological opinions (file no. 81420-2009-I-0748-1 and 1-103-F-273) and the protective measures by the USACE and CDFW worked.
 - c) Any suggestions of how the protective measures could be revised to improve conservation of this species while facilitating compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).
- 9) For Los Angeles, Santa Barbara, San Luis Obispo, and Ventura Counties, CDFW shall submit an annual report due by January 31 (RGP12) and February 28 (RGP78) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2493 Portola Road, Suite B, Ventura, California 93003. The report must include:
- a) A table documenting the number of red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.
 - b) A summary of how the terms and conditions of the biological opinions (file no. 81440-2009-F-0387 and 2008-F-0441) and the protective measures by the USACE and CDFW worked.

- c) Any suggestions of how these protective measures could be revised to improve conservation of this species while facilitating compliance with the Act.
- 10) CDFW shall submit annual reports on July 1 of each year to the 401 Program Managers of the State Water Resources Control Board and the appropriate Regional Water Quality Control Boards documenting work undertaken during the preceding year and identifying for all such work:
- a) Project name and grant number;
 - b) Project purpose and summary work description;
 - c) Name(s) of affected water body(ies);
 - d) Latitude/longitude in decimal degrees to at least four decimals;
 - e) For projects completed during the year:
 - i. The type(s) of receiving (affected) water body(ies) (e.g. at minimum: river/streambed, lake/reservoir, ocean/estuary/bay, riparian area, or wetland type); and
 - ii. The total quantity in acres of each type of receiving water body temporarily impacted, and permanently impacted;
 - f) For each water body type affected, the quantity of waters of the U.S. temporarily and permanently impacted. Fill/excavation discharges shall be reported in acres and fill/excavations discharges for channels, shorelines, riparian corridors, and other linear habitat shall also be reported in linear feet;
 - g) Actual construction start and end-dates;
 - h) Whether the project is on-going or completed.
 - i) Copies of reports documenting the following monitoring activities:
 - i. Post-project monitoring immediately after the activity is completed to ensure that projects are completed as designed; and
 - ii. Effectiveness monitoring on a random subset of 10% of the projects, within one to three years after project completion.
- 11) CDFW shall report any previously unknown historic archeological and paleontological remains discovered at a site to the USACE as required in the RGP. This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.
- 12) Pursuant to RGP78, CDFW shall monitor and maintain the structures or work conducted at a given site for at least three years after construction to

ensure the integrity of the structure and successful growth of the planted vegetation.

- 13) CDFW shall allow representatives of USACE to inspect the authorized activities at any time deemed necessary to ensure that they are being or have been accomplished with the terms and conditions of the RGP.
- 14) Pursuant to RGP78, CDFW shall notify the USACE annually of the year's projects. If the USACE has not issued a Notice to Proceed (NTP) or identified any issues (verbal or written) within 60 days of receive the notifications, CDFW can proceed with project. The NTP may include site specific special conditions to avoid and minimize adverse impacts to waters of the U.S and shall be valid for the duration of the RGP78 unless there is a change in the project's scope of work.

Appendix C

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities

State of California
CALIFORNIA NATURAL RESOURCES AGENCY
California Department of Fish and Wildlife
November 24, 2009¹

INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to the survey and assessment of special status native plants and natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. They may also help those who prepare and review environmental documents determine when a botanical survey is needed, how field surveys may be conducted, what information to include in a survey report, and what qualifications to consider for surveyors. The protocols may help avoid delays caused when inadequate biological information is provided during the environmental review process; assist lead, trustee and responsible reviewing agencies to make an informed decision regarding the direct, indirect, and cumulative effects of a proposed development, activity, or action on special status native plants and natural communities; meet California Environmental Quality Act (CEQA)² requirements for adequate disclosure of potential impacts; and conserve public trust resources.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE TRUSTEE AND RESPONSIBLE AGENCY MISSION

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish and Game Code §1802). CDFW, as trustee agency under CEQA §15386, provides expertise in reviewing and commenting on environmental documents and makes protocols regarding

¹ This document replaces the CDFW document entitled "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities."

² <http://ceres.ca.gov/ceqa/>

potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) provides additional protections for such species, including take prohibitions (Fish and Game Code §2050 *et seq.*). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and, the take would not jeopardize the continued existence of the species (Fish and Game Code §2081). Surveys are one of the preliminary steps to detect a listed or special status plant species or natural community that may be impacted significantly by a project.

DEFINITIONS

Botanical surveys provide information used to determine the potential environmental effects of proposed projects on all special status plants and natural communities as required by law (i.e., CEQA, CESA, and Federal Endangered Species Act (ESA)). Some key terms in this document appear in **bold font** for assistance in use of the document.

For the purposes of this document, **special status plants** include all plant species that meet one or more of the following criteria³:

- Listed or proposed for listing as threatened or endangered under ESA or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).
- Listed⁴ or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).

³ Adapted from the East Alameda County Conservation Strategy available at http://www.fws.gov/sacramento/EACCS/Documents/080228_Species_Evaluation_EACCS.pdf

⁴ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq.*). A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).
- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
 - Species considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (Lists 1A, 1B and 2);
 - Species that may warrant consideration on the basis of local significance or recent biological information⁵;
 - Some species included on the California Natural Diversity Database’s (CNDDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2008)⁶.
- Considered a **locally significant species**, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Special status natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status species or their habitat. The most current version of the Department’s *List of California Terrestrial Natural Communities*⁷ indicates which natural communities are of special status given the current state of the California classification.

Most types of wetlands and riparian communities are considered special status natural communities due to their limited distribution in California. These natural

⁵ In general, CNPS List 3 plants (plants about which more information is needed) and List 4 plants (plants of limited distribution) may not warrant consideration under CEQA §15380. These plants may be included on special status plant lists such as those developed by counties where they would be addressed under CEQA §15380. List 3 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a List 4 plant are significant even if individual project impacts are not. List 3 and 4 plants are also included in the California Natural Diversity Database’s (CNDDDB) *Special Plants, Bryophytes, and Lichens List*. [Refer to the current online published list available at: <http://www.dfg.ca.gov/biogeodata>.] Data on Lists 3 and 4 plants should be submitted to CNDDDB. Such data aids in determining or revising priority ranking.

⁶ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

⁷ <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>. The rare natural communities are asterisked on this list.

communities often contain special status plants such as those described above. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands⁸ or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants⁹.

BOTANICAL SURVEYS

Conduct botanical surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs on the site, and it is unknown if special status plant species or natural communities occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
- Special status plants or natural communities have historically been identified on the project site; or
- Special status plants or natural communities occur on sites with similar physical and biological properties as the project site.

SURVEY OBJECTIVES

Conduct field surveys in a manner which maximizes the likelihood of locating special status plant species or special status natural communities that may be present. Surveys should be **floristic in nature**, meaning that every plant taxon that occurs on site is identified to the taxonomic level necessary to determine rarity and listing status. “Focused surveys” that are limited to habitats known to support special status species or are restricted to lists of likely potential species are not considered floristic in nature and are not adequate to identify all plant taxa on site to the level necessary to determine rarity and listing status. Include a list of plants and natural communities detected on the site for each botanical survey conducted. More than one field visit may be necessary to adequately capture the floristic diversity of a site. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the species and communities on the site is also useful to assess the significance of a particular population.

⁸ <http://www.wetlands.com/regs/tpge02e.htm>

⁹ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

SURVEY PREPARATION

Before field surveys are conducted, compile relevant botanical information in the general project area to provide a regional context for the investigators. Consult the CNDDDB¹⁰ and BIOS¹¹ for known occurrences of special status plants and natural communities in the project area prior to field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties of the site and surrounding ecoregion¹², unless a larger assessment area is appropriate. Then, develop a list of special status plants with the potential to occur within these vegetation types. This list can serve as a tool for the investigators and facilitate the use of reference sites; however, special status plants on site might not be limited to those on the list. Field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on this list. Include in the survey report the list of potential special status species and natural communities, and the list of references used to compile the background botanical information for the site.

SURVEY EXTENT

Surveys should be comprehensive over the entire site, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects, such as those from fuel modification or herbicide application, could potentially extend offsite. Pre-project surveys restricted to known CNDDDB rare plant locations may not identify all special status plants and communities present and do not provide a sufficient level of information to determine potential impacts.

FIELD SURVEY METHOD

Conduct surveys using **systematic field techniques** in all habitats of the site to ensure thorough coverage of potential impact areas. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct surveys by walking over the entire site to ensure thorough coverage, noting all plant taxa observed. The level of effort should be sufficient to provide comprehensive reporting. For example, one person-hour per eight acres per survey date is needed for a comprehensive field survey in grassland with medium diversity and moderate terrain¹³, with additional time allocated for species identification.

¹⁰ Available at <http://www.dfg.ca.gov/biogeodata/cnddb>

¹¹ <http://www.bios.dfg.ca.gov/>

¹² Ecological Subregions of California, available at <http://www.fs.fed.us/r5/projects/ecoregions/toc.htm>

¹³ Adapted from U.S. Fish and Wildlife Service kit fox survey guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

TIMING AND NUMBER OF VISITS

Conduct surveys in the field at the time of year when species are both evident and identifiable. Usually this is during flowering or fruiting. Space visits throughout the growing season to accurately determine what plants exist on site. Many times this may involve multiple visits to the same site (e.g. in early, mid, and late-season for flowering plants) to capture the floristic diversity at a level necessary to determine if special status plants are present¹⁴. The timing and number of visits are determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which the surveys are conducted.

REFERENCE SITES

When special status plants are known to occur in the type(s) of habitat present in the project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those species are identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural community.

USE OF EXISTING SURVEYS

For some sites, floristic inventories or special status plant surveys may already exist. Additional surveys may be necessary for the following reasons:

- Surveys are not current¹⁵; or
- Surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems); or
- Surveys are not comprehensive in nature; or fire history, land use, physical conditions of the site, or climatic conditions have changed since the last survey was conducted¹⁶; or
- Surveys were conducted in natural systems where special status plants may not be observed if an annual above ground phase is not visible (e.g. flowers from a bulb); or

¹⁴ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

¹⁵ Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at <https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949>

¹⁶ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

- Changes in vegetation or species distribution may have occurred since the last survey was conducted, due to habitat alteration, fluctuations in species abundance and/or seed bank dynamics.

NEGATIVE SURVEYS

Adverse conditions may prevent investigators from determining the presence of, or accurately identifying, some species in potential habitat of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any given year. Discuss such conditions in the report.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that this plant occurrence no longer exists at this location, particularly if adverse conditions are present. For example, surveys over a number of years may be necessary if the species is an annual plant having a persistent, long-lived seed bank and is known not to germinate every year. Visits to the site in more than one year increase the likelihood of detection of a special status plant especially if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may ensure that the timing of the survey was appropriate.

REPORTING AND DATA COLLECTION

Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities¹⁷ and will guide the development of minimization and mitigation measures. The next section describes necessary information to assess impacts. For comprehensive, systematic surveys where no special status species or natural communities were found, reporting and data collection responsibilities for investigators remain as described below, excluding specific occurrence information.

SPECIAL STATUS PLANT OR NATURAL COMMUNITY OBSERVATIONS

Record the following information for locations of each special status plant or natural community detected during a field survey of a project site.

¹⁷ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>. For Timber Harvest Plans (THPs) please refer to the "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at <https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949>

- A detailed map (1:24,000 or larger) showing locations and boundaries of each special status species occurrence or natural community found as related to the proposed project. Mark occurrences and boundaries as accurately as possible. Locations documented by use of global positioning system (GPS) coordinates must include the datum¹⁸ in which they were collected;
- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If the species is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;
- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);
- If applicable, information about the percentage of individuals in each life stage such as seedlings vs. reproductive individuals;
- The number of individuals of the species per unit area, identifying areas of relatively high, medium and low density of the species over the project site; and
- Digital images of the target species and representative habitats to support information and descriptions.

FIELD SURVEY FORMS

When a special status plant or natural community is located, complete and submit to the CNDDDB a California Native Species (or Community) Field Survey Form¹⁹ or equivalent written report, accompanied by a copy of the relevant portion of a 7.5 minute topographic map with the occurrence mapped. Present locations documented by use of GPS coordinates in map and digital form. Data submitted in digital form must include the datum²⁰ in which it was collected. If a potentially undescribed special status natural community is found on the site, document it with a Rapid Assessment or Relevé form²¹ and submit it with the CNDDDB form.

¹⁸ NAD83, NAD27 or WGS84

¹⁹ <http://www.dfg.ca.gov/biogeodata>

²⁰ NAD83, NAD27 or WGS84

²¹ http://www.dfg.ca.gov/biogeodata/vegcamp/veg_publications_protocols.asp

VOUCHER COLLECTION

Voucher specimens provide verifiable documentation of species presence and identification as well as a public record of conditions. This information is vital to all conservation efforts. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and is in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special status species (or suspected special status species) should be made only when such actions would not jeopardize the continued existence of the population or species.

Deposit voucher specimens with an indexed regional herbarium²² no later than 60 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant permittee names and permit numbers on specimen labels. A collecting permit is required prior to the collection of State-listed plant species²³.

BOTANICAL SURVEY REPORTS

Include reports of botanical field surveys containing the following information with project environmental documents:

- **Project and site description**
 - A description of the proposed project;
 - A detailed map of the project location and study area that identifies topographic and landscape features and includes a north arrow and bar scale; and,
 - A written description of the biological setting, including vegetation²⁴ and structure of the vegetation; geological and hydrological characteristics; and land use or management history.

²² For a complete list of indexed herbaria, see: Holmgren, P., N. Holmgren and L. Barnett. 1990. Index Herbariorum, Part 1: Herbaria of the World. New York Botanic Garden, Bronx, New York. 693 pp. Or: <http://www.nybg.org/bsci/ih/ih.html>

²³ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

²⁴ A vegetation map that uses the National Vegetation Classification System (<http://biology.usgs.gov/npsveg/nvcs.html>), for example *A Manual of California Vegetation*, and highlights any special status natural communities. If another vegetation classification system is used, the report should reference the system, provide the reason for its use, and provide a crosswalk to the National Vegetation Classification System.

- **Detailed description of survey methodology and results**

- Dates of field surveys (indicating which areas were surveyed on which dates), name of field investigator(s), and total person-hours spent on field surveys;
- A discussion of how the timing of the surveys affects the comprehensiveness of the survey;
- A list of potential special status species or natural communities;
- A description of the area surveyed relative to the project area;
- References cited, persons contacted, and herbaria visited;
- Description of reference site(s), if visited, and phenological development of special status plant(s);
- A list of all taxa occurring on the project site. Identify plants to the taxonomic level necessary to determine whether or not they are a special status species;
- Any use of existing surveys and a discussion of applicability to this project;
- A discussion of the potential for a false negative survey;
- Provide detailed data and maps for all special plants detected. Information specified above under the headings "Special Status Plant or Natural Community Observations," and "Field Survey Forms," should be provided for locations of each special status plant detected;
- Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms should be sent to the CNDDDB and included in the environmental document as an Appendix. It is not necessary to submit entire environmental documents to the CNDDDB; and,
- The location of voucher specimens, if collected.

- **Assessment of potential impacts**

- A discussion of the significance of special status plant populations in the project area considering nearby populations and total species distribution;
- A discussion of the significance of special status natural communities in the project area considering nearby occurrences and natural community distribution;

- A discussion of direct, indirect, and cumulative impacts to the plants and natural communities;
- A discussion of threats, including those from invasive species, to the plants and natural communities;
- A discussion of the degree of impact, if any, of the proposed project on unoccupied, potential habitat of the species;
- A discussion of the immediacy of potential impacts; and,
- Recommended measures to avoid, minimize, or mitigate impacts.

QUALIFICATIONS

Botanical consultants should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with the plants of the area, including special status species;
- Familiarity with natural communities of the area, including special status natural communities;
- Experience conducting floristic field surveys or experience with floristic surveys conducted under the direction of an experienced surveyor;
- Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
- Experience with analyzing impacts of development on native plant species and natural communities.

SUGGESTED REFERENCES

Barbour, M., T. Keeler-Wolf, and A. A. Schoenherr (eds.). 2007. Terrestrial vegetation of California (3rd Edition). University of California Press.

Bonham, C.D. 1988. Measurements for terrestrial vegetation. John Wiley and Sons, Inc., New York, NY.

California Native Plant Society. Most recent version. Inventory of rare and endangered plants (online edition). California Native Plant Society, Sacramento, CA. Online URL <http://www.cnps.org/inventory>.

- California Natural Diversity Database. Most recent version. Special vascular plants, bryophytes and lichens list. Updated quarterly. Available at www.dfg.ca.gov.
- Elzinga, C.L., D.W. Salzer, and J. Willoughby. 1998. Measuring and monitoring plant populations. BLM Technical Reference 1730-1. U.S. Dept. of the Interior, Bureau of Land Management, Denver, Colorado.
- Leppig, G. and J.W. White. 2006. Conservation of peripheral plant populations in California. *Madroño* 53:264-274.
- Mueller-Dombois, D. and H. Ellenberg. 1974. Aims and methods of vegetation ecology. John Wiley and Sons, Inc., New York, NY.
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- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento, CA.
- Van der Maarel, E. 2005. Vegetation Ecology. Blackwell Science Ltd., Malden, MA.

APPENDIX D

Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program

There shall be three phases to the process of investigating paleontological resources:

1) project initiation where basic data will be compiled, reviewed and sorted to determine the next steps that need to be taken on any given project; 2) evaluation of individual projects that may encounter paleontological resources; and 3) mitigation planning to develop mitigation strategies for projects that have identified paleontological resources. The three phases are summarized below.

Project Initiation

The logistics and time needs for conducting paleontological evaluations shall be assessed in the project initiation phase. The guidelines outlined below will facilitate rapid evaluation of individual projects and ensure cooperation among evaluators, pertinent agencies, and landowners. Landowner cooperation is through property access and local area information. The evaluation procedure generally follows standards implemented by other agencies conducting ground disturbance activities such as CalTrans.

Evaluation of the likelihood of encountering paleontological resources and land management issues shall be assessed by adhering to the following guidelines and the corresponding actions:

1. If the project does not involve ground disturbing work, then a negative declaration report shall be prepared.
2. If the project involves ground disturbing work and there is no likelihood of encountering paleontological resources, then a negative declaration report shall be prepared. However, if there is a likelihood of encountering paleontological resources at the project site, then the evaluator schedules a field investigation by contacting the CDFW grant manager and having them arrange landowner access for the paleontological resource field staff; and if necessary, arrange a meeting with the landowners and the paleontological resources investigation field staff.
3. If the project involves land administered by the US Forest Service, the Bureau of Land Management, the National Park Service, the US Army Corps of Engineers, the Native American tribal lands, or the California Department of Parks and Recreation, then the paleontology report containing site forms, site significance, and mitigation measures shall be coordinated with the involved entities. However, if those agencies are not involved, then the paleontology report with all pertinent information (site forms, site significance, mitigation measures or negative declarations) will be provided to the CDFW and to the CDFW grant manager

Individual Project Evaluation

The appropriate regional archaeological information center shall be contacted for a record search and the Native American Heritage Commission shall also be contacted for a Sacred Lands File Check. If paleontological resources are likely to be present, then qualified staff shall evaluate the paleontological resources in coordination with any affected agencies including any affected Native American tribe. If paleontological resources are present, then the evaluator will (1) delineate the extent and type of resources present, (2) discuss any issues with pertinent agencies, Native American tribes, project managers, and local experts with regards to potential mitigation planning, and (3) develop a mitigation plan designed to protect sensitive paleontological resources. However, if no resources are present, then a negative declaration report shall be prepared.

Mitigation Planning

Mitigation plans shall be developed to avoid or lessen impacts to the resource if paleontological resources are discovered at any project site. These mitigation plans shall be consistent with current mitigation strategies employed by other entities conducting CEQA investigations. The initial investigation report, along with mitigation recommendations, shall be compiled and delivered to the appropriate CDFW grant/contract manager and the project manager of the proposed project in question. Minimum report elements shall include:

- 1) Project description and location.
- 2) Results of the investigation.
- 3) Mitigation recommendations and plans.
- 4) Maps depicting project location and paleontological resource locations.

APPENDIX E

Procedure for the Programmatic Evaluation of Archeological Resources for the Fisheries Restoration Grant Program

Cultural resource investigations are used to identify archaeological resources in the California Department of Fish and Wildlife (CDFW) Fisheries Restoration Grant Program (FRGP) funded project areas. When archaeological resources are found, measures are implemented to protect these resources. The purpose of the investigations described below are to: 1) locate and record cultural resources within the project area; 2) evaluate the significance of cultural resources in the study area; 3) assess potential impacts to cultural resources resulting from implementation of the project and; 4) recommend appropriate mitigation measures when necessary.

Investigative Methods

Background research for each project shall include an examination of historical maps, aerial photographs, archaeological site records and a survey at the appropriate regional information center of the Historical Resources Information System. The background research shall also include a review of pertinent ethnographic literature. For all projects an intensive archaeological field survey that covers the entire project area will be completed.

The California Office of Historical Preservation has established regional information centers as local repositories for all archaeological reports that are prepared under cultural resource management regulations. For each of the projects funded by the FRGP a background literature search shall be conducted at the appropriate regional information center as required by state guidelines and current professional standards. Following completion of the archeological studies a report shall be prepared summarizing the findings of the research. A copy of the report shall be deposited with the California Office of Historical Preservation. The literature review will determine if there are any previously recorded archeological resources or historic structures within the project area, and whether the area has been included within any previous archaeological research or reconnaissance project.

Project notification letters shall be sent to the Native American Heritage Commission along with a request for a Sacred Lands File search of the project areas and appropriate Native American contacts for the projects as soon as funding and contracts are fully routed. In addition, letters shall be sent to local Native American tribes stating that archaeological surveys are being conducted in areas that may be of interest to them. The letters shall request any additional information and shall ask specifically if the tribe(s) have any concerns regarding the project.

In addition to a records search at the Northwest Information Center, pertinent published ethnographic literature and various inventories shall be reviewed including but not limited to: 1) California Athabascan Groups (Baumhoff 1958); 2) California Inventory of Historic Resources; 3) California Historic Property Inventory and; 4) Government Land Office Land Plot Map.

Intensive surveys are conducted instream and along the bank of the areas included in the project area. All locations of exposed soil along road cuts, skid trails and creek banks are

inspected. In areas where mineral soil is visibly obscured, a geology pick shall be used to scrape the surface vegetation and expose the mineral soil to inspect for cultural resources.

- 1) Any archaeological sites identified during an investigation shall be recorded in a manner consistent with the Office of Historic Preservations Manual titled Instructions for Recording Historic Resources 1955. The CDFW shall report any previously unknown historic, archeological and paleontological remains discovered at a site to the US Army Corps of Engineers as required in the Regional General Permit (RGP). This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.
- 2) An accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the process stated in Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 shall be followed.

In the event of a discovery of archeological or historic resource within the jurisdiction of the California State Lands Commission (CSLC), grantees will be responsible for reporting and submitting any required information to the CSLC.

2014122048

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
 For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: The 2015 Fisheries Restoration Grant Program Mitigated Negative Declaration

Lead Agency: Department of Fish and Wildlife

Contact Person: Melissa Mandrup

Mailing Address: 830 S Street

Phone: 916-327-8658

City: Sacramento

Zip: 95811

County: Sacramento

Project Location: County: Various coastal counties City/Nearest Community: Various coastal communities

Cross Streets: Zip Code:

Longitude/Latitude (degrees, minutes and seconds): ° ' " N / ° ' " W Total Acres:

Assessor's Parcel No.: Section: Twp.: Range: Base:

Within 2 Miles: State Hwy #: Waterways:

Airports: Railways: Schools:

Document Type:

CEQA: ☐ NOP ☐ Draft EIR ☐ NEPA: ☐ NOI ☐ Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ☐ Draft EIS ☐ Other:
☒ Mit Neg Dec ☐ FONSI

STATE CLEARING HOUSE

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ Other: Restoration

Development Type:

☐ Residential: Units _____ Acres _____ ☐ Transportation: Type _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____ ☐ Mining: Mineral _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____ ☐ Power: Type _____ MW _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____ ☐ Waste Treatment: Type _____ MGD _____
☐ Educational: _____ ☐ Hazardous Waste: Type _____
☐ Recreational: _____ ☒ Other: Watershed Restoration
☐ Water Facilities: Type _____ MGD _____

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☐ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☐ Water Quality
☐ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☐ Water Supply/Groundwater
☐ Archeological/Historical ☐ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☐ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☐ Noise ☐ Solid Waste ☐ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☐ Public Services/Facilities ☐ Traffic/Circulation ☒ Other: Watershed

Present Land Use/Zoning/General Plan Designation:**Project Description:** (please use a separate page if necessary)

This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal streams and watersheds.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

☐ Air Resources Board
☐ Boating & Waterways, Department of
☐ California Emergency Management Agency
☐ California Highway Patrol
☒ Caltrans District # _____
☐ Caltrans Division of Aeronautics
☐ Caltrans Planning
☐ Central Valley Flood Protection Board
☐ Coachella Valley Mtns. Conservancy
☒ Coastal Commission
☐ Colorado River Board
☐ Conservation, Department of
☐ Corrections, Department of
☐ Delta Protection Commission
☐ Education, Department of
☐ Energy Commission
☐ Fish & Game Region # _____
☐ Food & Agriculture, Department of
☒ Forestry and Fire Protection, Department of
☐ General Services, Department of
☐ Health Services, Department of
☐ Housing & Community Development
☐ Native American Heritage Commission

☐ Office of Historic Preservation
☐ Office of Public School Construction
☒ Parks & Recreation, Department of
☐ Pesticide Regulation, Department of
☐ Public Utilities Commission
☒ Regional WQCB #1,2,3
☐ Resources Agency
☐ Resources Recycling and Recovery, Department of
☐ S.F. Bay Conservation & Development Comm.
☐ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
☐ San Joaquin River Conservancy
☐ Santa Monica Mtns. Conservancy
☐ State Lands Commission
☐ SWRCB: Clean Water Grants
☒ SWRCB: Water Quality
☐ SWRCB: Water Rights
☐ Tahoe Regional Planning Agency
☐ Toxic Substances Control, Department of
☐ Water Resources, Department of

Other: _____
Other: _____

Local Public Review Period (to be filled in by lead agency)

Starting Date Dec 19, 2014 Ending Date Jan 20, 2015

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: Department of Fish and Wildlife
Address: 830 S Street
City/State/Zip: Sacramento, CA 95811
Phone: 916-327-8658

Signature of Lead Agency Representative: *Putty Foster*

Date: 12-18-14

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Notice of Determination**Appendix D****To:**☒ Office of Planning and Research

U.S. Mail:

Street Address:

P.O. Box 3044

1400 Tenth St., Rm 113

Sacramento, CA 95812-3044 Sacramento, CA 95814

☐ County Clerk

County of: _____

Address: _____

From:

Public Agency: Department of Fish and Wildlife

Address: 830 S Street

Sacramento, CA 95811

Contact: Melissa Mandrup

Phone: 916-327-8658

Lead Agency (if different from above): _____

Address: _____

Contact: _____

Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.State Clearinghouse Number (if submitted to State Clearinghouse): 2014122048Project Title: The 2015 Fisheries Restoration Grant Program Mitigated Negative DeclarationProject Applicant: California Department of Fish and WildlifeProject Location (include county): Various coastal counties**Project Description:**

This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal and central valley streams and watersheds.

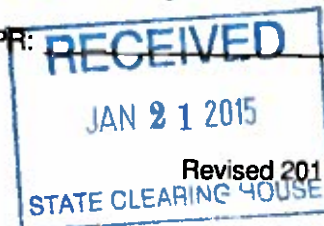
This is to advise that the California Department of Fish and Wildlife has approved the above
(☒ Lead Agency or ☐ Responsible Agency)described project on _____ and has made the following determinations regarding the above
(date) described project.

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

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

830 S Street, Sacramento, CA 95811Signature (Public Agency): [Signature]Title: Chief - FisheriesDate: 1/21/15

Date Received for filing at OPR: _____



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



Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

January 21, 2015

Melissa Mandrup
California Department of Fish and Wildlife, Region 2
830 S Street
Sacramento, CA 95811

Subject: The 2015 Fisheries Restoration Grant Program
SCH#: 2014122048

Dear Melissa Mandrup:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on January 20, 2015, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

RECEIVED

JAN 27 2015

OFFICE OF PLANNING AND RESEARCH

**Document Details Report
State Clearinghouse Data Base**

SCH# 2014122048
Project Title The 2015 Fisheries Restoration Grant Program
Lead Agency Fish & Wildlife #2

Type MND Mitigated Negative Declaration
Description This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal streams and watersheds.

Lead Agency Contact

Name Melissa Mandrup
Agency California Department of Fish and Wildlife, Region 2
Phone 916 327 8658 **Fax**
email
Address 830 S Street
City Sacramento **State** CA **Zip** 95811

Project Location

County Sacramento
City
Region
Lat / Long
Cross Streets
Parcel No.

Township	Range	Section	Base
-----------------	--------------	----------------	-------------

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Other Issues

Reviewing Agencies Resources Agency; California Coastal Commission; Delta Protection Commission; Office of Historic Preservation; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Caltrans, Division of Transportation Planning; Air Resources Board; State Water Resources Control Board, Division of Water Quality; Native American Heritage Commission; State Lands Commission; Delta Stewardship Council

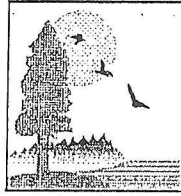
Date Received 12/19/2014 **Start of Review** 12/19/2014 **End of Review** 01/20/2015

STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

CLEAR
1-20-15
E

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

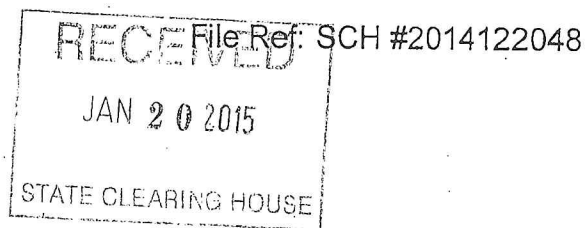


Established in 1938

JENNIFER LUCCHESI, Executive Officer
(916) 574-1800 Fax (916) 574-1810
California Relay Service TDD Phone 1-800-735-2929
from Voice Phone 1-800-735-2922

Contact Phone: (916) 574-1890
Contact FAX: (916) 574-1885

January 20, 2015



Melissa Mandrup
California Department of Fish and Wildlife
830 S Street
Sacramento, CA 95811

Subject: Mitigated Negative Declaration (MND) for the 2015 Fisheries Restoration Grant Program (FRGP) in Del Norte, Humboldt, Marin, Mendocino, Monterey, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura Counties and Required Agreement Regarding Proposed Stream or Lake Alteration

Dear Ms. Mandrup:

The California State Lands Commission (CSLC) staff has reviewed the subject MND for the 2015 Fisheries Restoration Grant Program (FRGP), which is being prepared by the California Department of Fish and Wildlife (CDFW). The CDFW, as the agency funding, in whole or in part, activities selected for the Project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses. Additionally, if the Project involves work on sovereign lands, the CSLC will act as a responsible agency.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of

all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low water mark and a Public Trust easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Individual projects under the FRGP may involve sovereign land under the jurisdiction of the CSLC. Based on the information submitted in the MND, the CSLC staff is currently unable to determine the extent or location of any sovereign ownership interests of the State in the Project areas. We request that, as individual projects are funded and implemented, that CDFW advise project proponents to contact our office to determine whether the project or any of its components requires a lease or permit. We additionally request to be placed on any future distribution mailing list for the Project.

Project Description

The CDFW proposes to award grants for the implementation of restoration activities to meet its objective to enhance the capability of streams to produce wild anadromous salmonids by maintaining, restoring, and improving stream habitat essential to salmonid production, while not causing a significant adverse effect on the environment, or reducing the number or restricting the range of an endangered, threatened, or rare species.

From the Project Description, CSLC staff understands that the restoration activities covered by the MND may include, but are not limited to:

- Revegetation and riparian planting;
- Removal of barriers to fish passage;
- Bank stabilization and other bank protection structures;
- Decommissioning of roads and improving drainage systems on existing roads;
- Placement of instream structures such as boulder clusters, wing deflectors, and log cover;
- Replacement of road crossings with bridges or culverts with natural stream bottoms allowing fish to access additional stream reaches; and
- Installation of fish screens to prevent entrainment of juvenile salmon and steelhead.

Environmental Review

CSLC staff has previously provided comments on FRGP environmental documents (e.g., SCH#2010122088, 2012122042, and 2013122050). Responses provided by Stafford Lehr, Chief of the Fisheries Branch, in January 2014 to CSLC staff's comments on SCH#2013122050 adequately addressed staff concerns, and at this time CSLC staff

January 20, 2015

has no further comments on the MND or FRGP. As stated above, however, we encourage CDFW staff to request that individual project proponents check whether a CSLC lease is needed.

Thank you for the opportunity to comment on the MND for the Project. As a trustee agency, and potential responsible agency, the CSLC will need to rely on the Final MND for the issuance of any new lease as specified above and, therefore, we request that you consider our comments prior to the adoption of the MND.

Please send copies of future Project-related documents, including electronic copies of the Final MND, Mitigation Monitoring and Reporting Program (MMRP), and Notice of Determination (NOD) when they become available, and refer questions concerning environmental review to Kelly Keen, Environmental Scientist, at (916) 574-1938 or via e-mail at Kelly.Keen@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Ninette Lee, Public Land Manager, at (916) 574-1869, or via email at Ninette.Lee@slc.ca.gov.

Sincerely,



Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
N. Lee, CSLC
K. Keen, CSLC
P. Griggs, CSLC

APPENDIX A2
2016 CEQA Document

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
MITIGATED NEGATIVE DECLARATION

FOR

THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD
REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND
ANADROMOUS RESTORATION PROJECTS
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA
BARBARA, SISKIYOU, AND SONOMA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE
ALTERATION

Prepared By:

Karen Carpio
Environmental Scientist
Fisheries Restoration Grant Program

This Report Has Been Prepared Pursuant to the
California Environmental Quality Act of 1970
State of California
The Resources Agency
California Department of Fish and Wildlife

INITIAL STUDY
AND
MITIGATED NEGATIVE DECLARATION
FOR
THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD
REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND
ANADROMOUS RESTORATION PROJECTS
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA
BARBARA, SISKIYOU, AND SONOMA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE
ALTERATION

The Project: This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal and central valley streams and watersheds. Years of poor land management within California's watersheds which combined with natural events has altered native habitats. This has limited the ability of fish to survive and successfully reproduce in coastal and central valley streams that historically produced large populations of salmon and steelhead. This proposed project is designed to increase populations of wild anadromous fish in coastal and central valley streams by restoring their habitat.

The project objective is to improve spawning success for adult salmon and steelhead as well as to increase survival for eggs, embryos, and rearing juvenile salmonids. Bank erosion and riparian enhancement treatments improve spawning conditions and embryo survival by reducing sediment yield to streams. Upslope road decommissioning or upgrading also help address these widespread problems. The replacement of migration barriers at stream crossings with bridges or natural stream bottom culverts allow adult and juvenile salmonids access to additional spawning and rearing habitats. The installation of instream habitat improvement structures recruit and sort spawning gravel for adult salmon and steelhead, and create summer rearing pool and over-wintering habitat for juveniles.

The Finding: Although the project may have the potential to cause minor short-term impacts on soil, vegetation, wildlife, water quality, and aquatic life, the measures that shall be incorporated into the project will lessen such impacts to a level that is less than significant (see initial study and environmental checklist).

Basis for the Finding: Based on the initial study, it was determined there would be no significant adverse environmental effects resulting from implementing the proposed project. In addition, the project is expected to achieve a net benefit to

the environment by enhancing and maintaining quality salmonid spawning and rearing habitat in the eight-county project area.

The California Department of Fish and Wildlife (CDFW) finds that implementing the proposed project will have no significant environmental impact.

Therefore, this mitigated negative declaration is filed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code § 21080 (c2). This proposed mitigated negative declaration consists of all of the following:

- **Introduction - Project Description and Background Information**
- **Initial Study Environmental Checklist Form**
- **Explanation of Response to Initial Study Environmental Checklist Form**
- **Appendix A.**
 - **Non-physical Items**
 - **Action Items**
 - **State-wide Action Items Location Maps**
- **Appendix B. Mitigation Measures, Monitoring and Reporting Program For the 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous Restoration projects**
- **Appendix C. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**
- **Appendix D. Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program**
- **Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fisheries Restoration Grant Program**

DETAILED PROJECT DESCRIPTION AND BACKGROUND INFORMATION
FOR
THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD
REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND
ANADROMOUS RESTORATION PROJECTS
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA
BARBARA, SISKIYOU, AND SONOMA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE
ALTERATION

INTRODUCTION

The 2016 Fisheries Restoration Grant Program (FRGP), which also includes the FRGP drought projects, the Steelhead Report and Restoration Card Program projects, and the Forest Land Anadromous Restoration projects in Del Norte, Humboldt, Marin, Mendocino, San Mateo, Santa Barbara, Siskiyou, and Sonoma counties is a “project” subject to review under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The FRGP involves funding, in whole or in part, of 87 habitat restoration items. These 87 restoration items are divided into 34 action items and 53 non-physical items.

The 34 action items, which are discussed in detail in the environmental analysis that follows (listed in Appendix A, Action Items) are the principal focus of the environmental analysis set forth below.

The 53 non-physical activities are implemented within various counties of the CDFW FRGP region. These action items involve grants for projects such as watershed evaluation, assessment, project planning, technical training, monitoring, and public involvement. Each of these action items are identified in Appendix A, Non-Physical Items. If reviewed individually, these projects would likely fall under categorical exemptions such as CEQA Guidelines § 15262 (Feasibility and Planning Studies), § 15306 (Information Collection), and § 15313 (Acquisition of Lands for Wildlife Conservation Purposes). However, as part of the FRGP project, these activities are included within the analysis of this Initial Study and mitigated negative declaration (MND). Because these activities are limited to non-physical activities that would not be anticipated to result in any environmental impacts or result in significant impacts due to unusual circumstances, they would not incrementally add to any potentially significant impacts that may result from the Action Items. Therefore, these activities are not discussed further in the analysis.

This Initial Study and MND describe and analyze the potential significant impacts of all 87 action items and non-physical items. These 87 items represent all funding applications that have been received in response to the Proposal Solicitation

Notice and received initial review by CDFW. At the time this document is being prepared, CDFW has not made final funding decisions on these items. Therefore, some of the items described in this document may not receive funding from the FRGP. This analysis includes all potential items in order to disclose the greatest possible potential impacts that could result from CDFW's implementation of the FRGP.

This Initial Study and the MND analyze the environmental impacts that might result from implementation of the proposed FRGP. The initial study and MND also serve to address potential environmental impacts that may occur to the extent an individual restoration activity requires a Streambed Alteration Agreement (SAA) from the CDFW (See Fish and Game Code, § 1600 et seq.). Construction of all or a portion of some of the individual restoration activities may actually occur in subsequent years, depending on the terms for each respective individual grant provided by the CDFW.

PROJECT GOAL AND OBJECTIVES

The primary goal of this restoration program is to maintain and restore natural watershed processes that create habitat characteristics favorable to salmonids.

The objectives of the restoration program action items are to enhance the capability of streams to produce wild anadromous salmonids by maintaining, restoring, and improving stream habitat essential to salmonid production.

Finally, it is the CDFW's objective to implement this project while not causing a significant adverse effect on the environment, or reducing the number or restricting the range of an endangered, threatened or rare species.

BACKGROUND

The CDFW may grant funds for habitat restoration to public and nonprofit organizations, and Native American tribes. Sections 1501 and 1501.5 of the Fish and Game Code and Public Resource Code 6217.1 pertain to activities funded by the CDFW.

The FRGP was established in 1981 and is administered by the CDFW. This program was initiated by the precipitous drop in the population of fish in coastal streams, mainly salmon and steelhead. This program was developed as a mechanism to administer grant funds designated for the restoration of fish populations. Through the past several decades to the present time, funds allocated by the California Legislature have been used in this grant program in an effort to rebuild fish populations (see Fish and Game Code § 6900 et seq.). Initially, grants were awarded in three categories: stream restoration, fish rearing, and education. Since 1997, a more holistic restoration approach has been emphasized that facilitates habitat enhancement throughout the watershed.

There are many factors responsible for the decline of California salmon and steelhead stocks. One important factor is the degradation of stream habitats. Activities in watersheds including logging, mining, road building, livestock grazing, water diversions, and dam construction have seriously impacted the ability of fish to survive and reproduce. For example, excessive fine-sediment has reduced egg and fry survival, removal of riparian vegetation has contributed to increased water temperatures, habitats have been impaired by water diversions, and culverts and dams have blocked fish passage. Habitat destruction has been instrumental in drastically reducing native anadromous fish populations. Natural events such as wildfire, drought, and floods have exacerbated these problems and accelerated the alteration of habitat further. The resulting decline in fish populations has caused extreme financial hardship to a once thriving commercial fishery and drastically reduced, or in some cases eliminated, a very popular sport fishery. Poor ocean conditions resulting in the collapse of the marine food chain along with the various factors stated above has culminated in the population crash of the Central Valley Chinook salmon in 2008 and 2009. This event prompted the closure of recreational and commercial ocean salmon season in 2008 and 2009. Most stocks have been reduced to the point where listing under the Federal and State Endangered Species Acts has become necessary.

The FRGP was instituted because the critical need to restore salmon and steelhead habitat was recognized. Guided by the *California Salmonid Stream Habitat Restoration Manual* 4th Edition (Flosi et al., 2010), hundreds of habitat restoration actions funded by the FRGP have been completed by government agencies, Indian Tribes and nonprofit groups. Activities have included revegetation with livestock exclusion fencing, riparian planting, removal of barriers to fish passage, bank stabilization and other bank protection structures, decommissioning of roads, and improving drainage systems on existing roads. Instream structures such as boulder clusters, wing deflectors, and log cover have also been used. Road crossings that have impeded fish migration have been replaced with bridges or culverts with natural stream bottoms allowing fish to access additional stream reaches. Finally, other watershed improvement activities include installation of fish screens to prevent entrainment of juvenile salmon and steelhead. These actions create spawning and nursery habitat, provide escape cover and prevent fine sediments from entering streams. Project monitoring has shown significant habitat improvements in streams where this work has taken place. A gradual rebuilding of salmon and steelhead populations is expected as this program continues.

Special funds will also be awarded for projects focusing on restoring anadromous salmonid habitat impacted by the 2015 drought. These projects have a designated Proposal ID prefix of D (Attachment A).

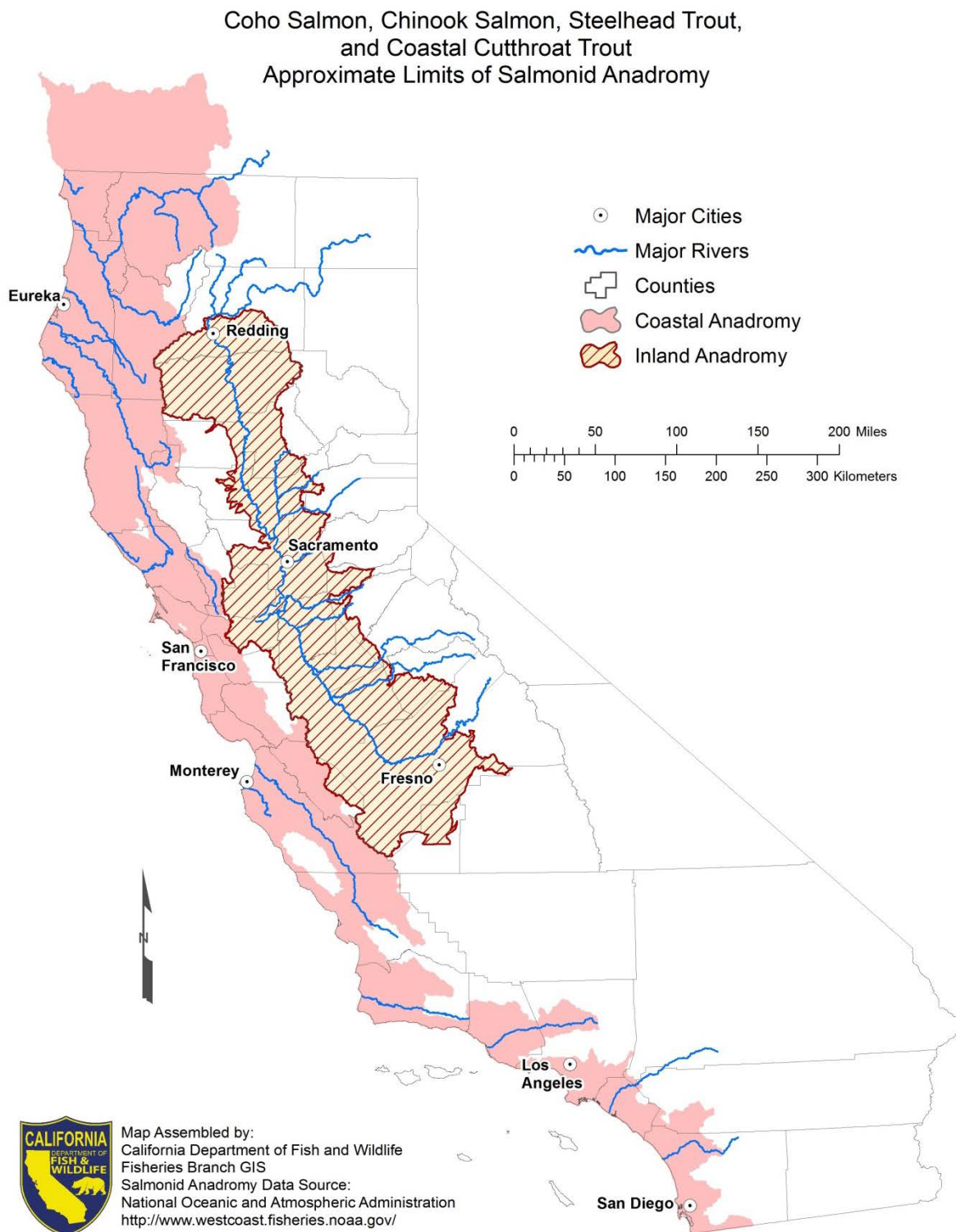
PROJECT LOCATION

Activities performed in the FRGP typically occur in watersheds that have been subjected to significant levels of logging, road building, mining, grazing, and other activities that have reduced the quality and quantity of stream habitat available for native anadromous fish.

Coastal watersheds previously dominated by mature redwood and Douglas fir forests, contain extensive road and skid trail systems from tractor logging. These previous mature, forested areas can now be found in various seral stages of vegetative recovery and are predominate in the coastal FRGP region. Action items are implemented within the stream course to improve fish habitat. Upslope restoration actions improve fish habitat by reducing the input of fine sediment to the stream environment.

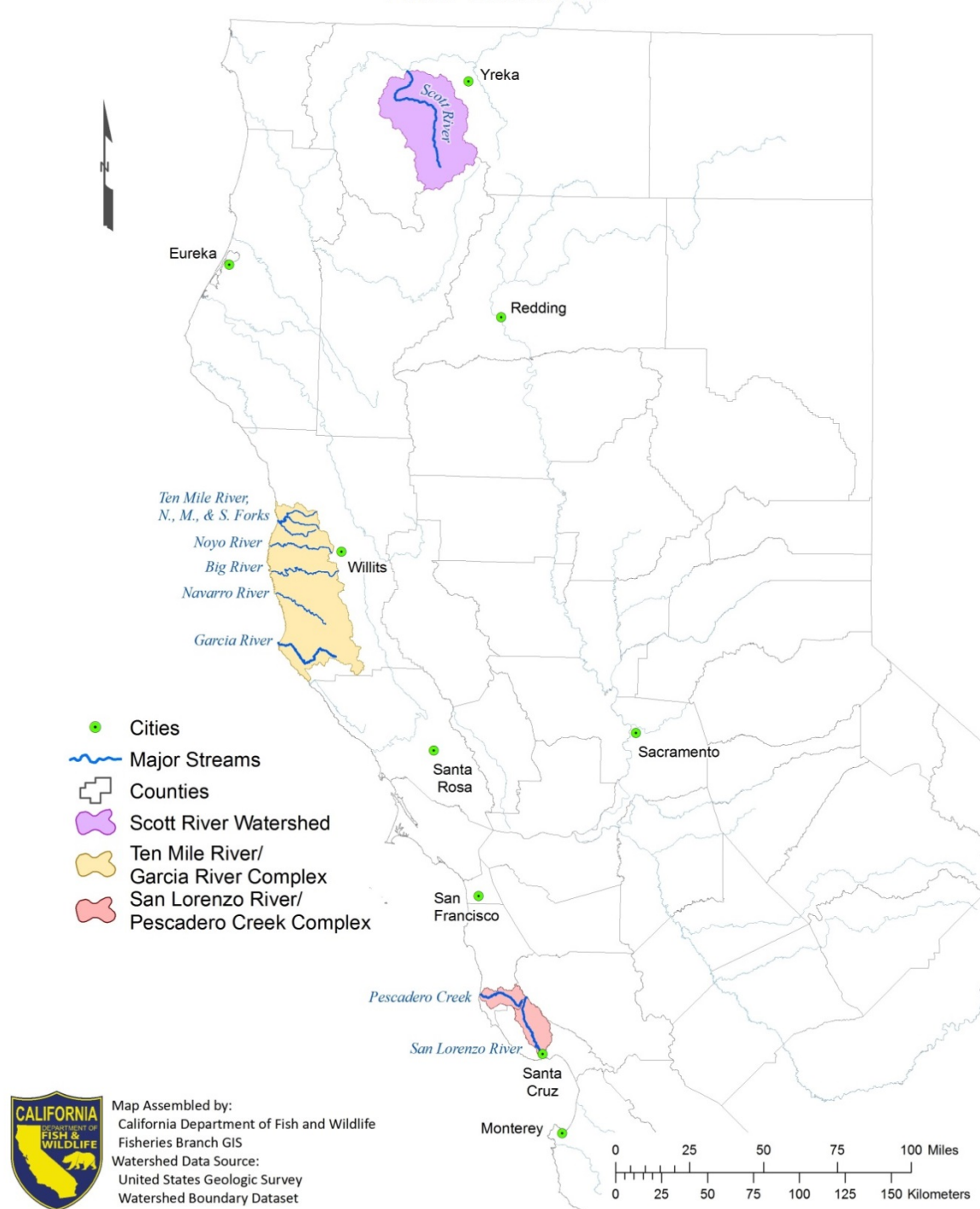
Inland locations are usually in watersheds dominated by pine and fir forests, often with steep unstable terrain; some inland locations are in valley areas in agricultural use. Most restoration activities are intended to reduce sediment delivery to streams, and provide spawning and rearing habitat in the streams. Streams flowing through valley areas will be treated to stabilize stream banks and increase riparian vegetation.

Projects focused on restoring coho salmon, Chinook salmon, steelhead trout, or coastal cutthroat trout habitats impacted by the 2015 drought are located within the limits of anadromy as depicted in Map 1. Projects focused on restoring habitat impacted by forest management are located on private and nonfederal public forests within the San Lorenzo River/Pescadero Creek complex, the Ten Mile/Garcia Rivers complex, and the Scott River as depicted in Map 2.



Map 1: Area covered by Drought Focus (excluding Oregon)

Forest Land Anadromous Restoration Focus Watersheds



Map 2: Area covered by Forest Land Anadromous Restoration Focus

SCHEDULE

The activities carried out in the FRGP typically occur during the annual period of dry weather. Stream work is normally confined to the period of June 15 through November 1 or the first significant fall rainfall, whichever comes first. This is to take advantage of low stream flows and is outside the spawning and egg/alevin incubation period of salmon and steelhead.

Generally, upslope work occurs during the same approximate period. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Equipment access on dirt roads and the ability of equipment to move soil is inhibited by wet conditions. The scheduling of upslope work may also be affected by the avoidance of nesting or breeding seasons of birds and terrestrial animals.

Some activities may continue after November 1, but the extent of such activities is limited through grant conditions and compliance with any required permit. Post-November 1 activities are generally limited to hand planting of tree seedlings, which typically does not begin until December 1 and may continue until the end of March. Planting during the wet season is necessary to ensure the best survival of seedlings.

PROJECT DESCRIPTION

The CDFW releases an annual Proposal Solicitation Notice (Solicitation) for proposals that cover fishery restoration, watershed assessment, and planning work throughout California. In addition to the annual Solicitation, the CDFW also released the 2015 Drought Solicitation Notice which solicited projects that focused on restoring anadromous salmonid habitat impacted by the 2015 drought as well as projects that proposed to enhance habitat that showed resiliency during the drought and projects that utilized education, planning, and design to better prepare for future droughts.

Following initial review by the CDFW Technical Review Team (TRT), proposals are sent to appropriate fishery staff for field review, comment, and scoring, using standardized evaluation criteria. The evaluation process requires consideration of benefits to the fishery resources, the benefit for targeted species, project costs, and positive or negative impacts to the environment. The need for work in particular drainages or sites is evaluated and reviewed by the TRT utilizing the watershed assessment and planning work funded through the program, and from other CDFW and agency programs at work in California. The proposals, technical scores, and comments are forwarded to the California Coastal Salmonid Restoration Grants Peer Review Committee (PRC). The PRC also evaluates and scores each proposal, and makes recommendations for funding priorities. After CEQA review is completed the Director of the CDFW reviews the recommendations of the TRT and PRC, and makes the final funding decision. Grants are written for the approved action items.

The FRGP operates under two Regional General Permits (RGP) issued by the U.S. Army Corps of Engineers (USACE). RGP12 (file number: 2003-27922N) was issued in 2010 by the USACE San Francisco District and covers action items implemented within the regulatory boundaries of the San Francisco District. RGP12 is currently in the process of being renewed and is expected to be in effect June 2016. RGP78 (file number: SPL-2003-01123-BAH) was issued in 2009 and re-issued in 2014 by the USACE Los Angeles District and covers action items implemented within the regulatory boundaries of the Los Angeles District. The RGPs allow the CDFW, grantees, and other individuals and groups to conduct fishery habitat restoration activities using methods described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2010) that have been evaluated by CDFW biologists. The National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS) have issued biological opinions, which are incorporated into the corresponding RGPs. The biological opinions address the impacts of the CDFW's FRGP and stipulate the mitigations that shall be implemented to avoid and/or minimize impacts to listed species.

The FRGP shall submit an annual application for a programmatic Section 401 Water Quality Certificate to the State Water Resources Control Board. A description of project work and methods to prevent impacts on water quality shall be provided annually to the State Water Resources Control Board and to the appropriate regional boards.

The CDFW's lake and streambed alteration agreement process (Fish and Game Code § 1600 et seq.) is an integral part of stream restoration planning and implementation. An agreement is developed for each action item which defines required measures to minimize disturbance to the stream environment. Procedures to accomplish this task are contained in the CDFW Lake and Streambed Alteration Program (1600) webpage <https://www.wildlife.ca.gov/Conservation/LSA>. Activities such as installing replacement culverts to provide fish passage, operating equipment in or near streams, and installing bank stabilizing structures are all discussed in the context of minimizing impacts, and all required measures for species protection discussed in this document are incorporated into the agreement for each project.

All features of this project requiring CEQA review are being provided in sufficient detail to facilitate public review and clearly define the environmental evaluation. In order to achieve this goal, the FRGP action items are considered to fall into two categories corresponding to similar activities and requirements for CEQA review. These two categories of action items are as follows.

Public Involvement, Planning, Research, Monitoring, and Habitat Acquisition – Non-physical Action Items

Non-physical action items (non-physical items) in this category include watershed evaluation, assessment, planning, habitat acquisition, and monitoring projects. The names of 53 non-physical items in this category are presented in a list in Appendix A, Non-physical Items. These non-physical items all qualify as either statutory or categorical exemptions under CEQA Guidelines § 15262 (Feasibility and

Planning Studies), § 15306 (Information Collection), § 15313 (Acquisition of Lands for Wildlife Conservation Purposes), and § 15321 (Enforcement Actions by Regulatory Agencies). These non-physical items will not have a significant effect on physical conditions including land, air, water, minerals, plants, animals, ambient noise, historic sites, or aesthetics. Based on these facts, these types of non-physical action items will not be discussed further in this document.

Restoration Element - Major Action Items

There is a notable difference in the level of activity found under this category. The names of the 34 major action items (action items) in this category are presented in a list in Appendix A, Action Items. The location of each action item is illustrated on a state-wide and on CDFW regional level maps in Appendix A. A detailed description of each action item in this element is also located in Appendix A, sorted by county.

Stream bank stabilization may include the use of boulder and cobble armoring of eroding banks, log cribbing, willow mattresses, or willow siltation baffles. Revegetation of riparian habitat normally involves the use of willow sprigs or willow or alder seedlings or transplants to stabilize banks and slopes, promote long-term shade and channel stability, and enhance large-wood recruitment. Indigenous stocks (when available) shall be used for all planting projects. Upslope earthmoving and culvert replacement require large size material and increased volumes to be moved by heavy equipment and, in so doing, involve certain limited construction activities. The techniques that are used for these action items have proven successful on many coastal streams and are detailed in the current version of the *California Salmonid Stream Habitat Restoration Manual* 4th edition. This manual describes in detail how the work shall be performed in the field.

Typically, these stream habitat restoration activities use dump trucks to deliver logs, root wads, or quarry rock to staging areas, and front-end loaders to deliver material to restoration sites. Existing stream crossings are used to access the stream in most cases. If stream crossings do not exist, the least damaging access points are selected based upon the size, type, and density of riparian vegetation. Where use of such access points is necessary, riparian vegetation can be affected, particularly the upper part of plants may be damaged, with the roots and lower parts receiving minimal damage. Plants damaged in this way usually re-sprout and recover. Access to restoration activity sites are identified before implementation of the action item and shall not create bank erosion or cause the removal of riparian trees. Staging areas at the activity sites are set up on dry stream banks where there is a minimum, and less than significant, impact to vegetation. Disturbed or bare mineral soils resulting from work activities, which are subject to surface erosion, are seeded and straw mulched.

Hydraulic excavators or backhoes may be used to excavate trenches or keyways in stream banks to anchor logs or boulder structures. Excavators are used to place materials, construct instream structures, and stabilize stream banks with boulders and logs. Willow cuttings are usually placed into the keyway trenches around the logs or boulders and then the trench is backfilled with cobble and native soil. This procedure anchors the structure into the stream bank, accelerates the

establishment of willows around the structure, and prevents the stream from scouring around the newly placed structure.

Action items that stabilize stream banks or small stream-side landslides shall armor and buttress the landslide or stream bank using boulders, logs, root wads, and loose rock revetment. Revetments are designed with logs, root wads, and boulders that extend into the stream to provide instream cover and velocity breaks for salmonids. Smooth riprap, however, which accelerates water velocities along the stream bank, is not permitted under this program. When practical, the bank will be sloped back to a minimum 1.5 to 1 slope. A toe trench will be excavated at the toe of the landslide or eroding bank. The excavated trench shall be backfilled with boulders and will extend up to the high-water mark. Rock from the toe trench, up to the high-water mark, shall be of a size that will withstand normal high flows. Revetment shall extend upstream and downstream of the unstable reach and shall be keyed into the stable banks.

Runoff from above the slide or eroding banks shall be diverted away from the area being stabilized. The slide face shall be re-vegetated using indigenous plants. Willow cuttings shall be placed in the toe trenches. Browse protectors shall be used on seedlings to prevent predation by browsing animals.

All work, except for the revegetation, shall take place during the summer and fall (low flow period) and shall be completed by November 1 or before the first significant seasonal rainfall, whichever comes first. Planting of seedlings takes place after December 1, or when sufficient rainfall has occurred, to ensure the best chance of survival of the seedlings, but in no case later than April 15. All habitat improvements shall be done in accordance with techniques described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Upslope action items upgrade or decommission roads by implementing all or part of the following tasks: road ripping or decompacting; installing or maintaining rolling dips (critical dips); installing or maintaining waterbars and crossroad drains; replacing, maintaining or cleaning culverts; outsloping roadbeds; re-vegetating work sites; and excavating stream crossings with spoils stored on site or end-hauled.

Sites which are expected to erode and deliver sediment to the stream are the only locations where work shall be authorized under this category. Work shall not be authorized to improve aesthetic values only.

Removal of road and skid trails shall include retrieving unstable material sidecast during original road construction and excavation of stream crossings and other watercourse fill. Stream crossings shall be excavated to original width, depth, and slope to expose natural channel morphology and armor. Side slopes will generally match original contours above and below the road. Culverts that are replaced in fish bearing reaches of streams shall be done in a manner to allow for unimpeded upstream and downstream fish passage.

When fill material is placed on road benches for permanent storage, the road bench shall be ripped or decompacted first. The fill shall then be placed against the cutbank and shaped to blend with the surrounding topography that existed prior to road construction. Outsloping of the roadbed will occur as needed, to reduce

potential sediment delivery to the stream where there is insufficient fill available to recontour the site, or where there is evidence that the overall long-term stability of the site does not justify a full recontour treatment. Where practical, fill shall be compacted to the top of the filled cut to reduce the potential for fill cut failure. Spoil material shall be stored in stable locations where it will not erode. If stable spoils storage sites are not available within the project area, they will be end-hauled to a stable storage site outside of the project area. Areas chosen for this purpose shall be devoid of tree and shrub vegetation. Upon completion of each site, woody debris shall be scattered over the surface of the restored area as mulch.

Road crossing removal may involve some removal of vegetation that has grown in sediment that has been deposited upslope of road prisms. Most of this vegetation shall be used as coarse wood mulch on bare soils to reduce surface erosion. Some of the material shall be transplanted on-site as one component of the restoration action items. In all cases, disruption of existing vegetation shall be minimized.

Culvert replacement requires diverting stream flow around the project site and excavating the existing culvert with heavy equipment. Normally concrete footings are constructed to support a new bottomless culvert or bridge. If appropriate, grade control structures are incorporated into the project area to prevent excessive down-cutting of the stream. All work concerning culvert replacement shall be consistent with current CDFW and NOAA criteria concerning fish passage. Current NOAA fish passage guidelines can be found on the web at:

http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html. CDFW fish passage guidelines can be found in Part IX of the *California Salmonid Stream Habitat Restoration Manual* 4th edition, available at <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

Fish screens are constructed within existing irrigation diversions to prevent entrainment of juvenile salmon and steelhead. Fish screens are often composed of a concrete foundation and walls. A steel framework supports perforated screen panels with a mechanical cleaning system. A stream flow bypass carries the fish back to the stream. Current NOAA and CDFW fish screen criteria can be found in Appendix S of the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Appendix A contains a list of major action item titles, locations, and descriptions of work that shall be implemented at each site. The action item designs are reviewed by the CDFW and are implemented by grantees utilizing heavy equipment and some hand labor crews. During a pre-project inspection, the grantee and the CDFW will tour the entire activity area and identify the sites and techniques necessary to carry out the recommendations. The site-specific recommendations shall be listed in an inspection report which will be acknowledged by the grantee's signature, as a required element of the activity. The CDFW shall continue to inspect the work site during and after completion of the action item. All road upgrading or decommissioning shall be done in accordance with techniques described in Part X of the *California Salmonid Stream Habitat Restoration Manual* 4th edition, available at <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>. All culvert replacement

projects shall be done in accordance with techniques and criteria consistent with current CDFW and NOAA guidelines concerning fish passage. Implementation of each major action item shall be conditioned and controlled to prevent any potentially significant impacts under CEQA.

Complete site plans and prescriptions for action and non-physical items located in Del Norte, Humboldt, Lake, Mendocino, Siskiyou, Tehama, and Trinity counties are available for review at the California Department of Fish and Wildlife, Northern Regional Office at 1455 Sandy Prairie Court, Suite J, Fortuna, California 95540. For an appointment to view this information, contact Senior Environmental Scientist, Trevor Tollefson at (707) 725-1072, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Alameda, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties are available for review at the California Department of Fish and Wildlife, Bay Delta Region, office of Senior Environmental Scientist, Gail Seymour, 5355 B Skylane Dr., Santa Rosa, California 95403. Appointments may be made by telephoning (707) 576-2813, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Merced, Monterey, and San Luis Obispo counties are available for review at the California Department of Fish and Wildlife, Central Region, office of Senior Environmental Scientist, Margaret Paul, 20 Lower Ragsdale Dr. Ste. 100, Monterey, California 93940. Appointments may be made by telephoning (831) 649-2882, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items in Los Angeles, Orange, San Diego, Santa Barbara, Riverside, and Ventura counties are available for review at the California Department of Fish and Wildlife, South Coast Region, office of Senior Environmental Scientist, Mary Larson, 4665 Lampson Ave, Suite C, Los Alamitos, California 90720 and 1933 Cliff Drive, Suite 9, Santa Barbara, CA 93109. Appointments may be made by telephoning (562) 342-7186, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for the non-physical item in Sacramento County are available for review at the California Department of Fish and Wildlife, Fisheries Restoration Grant Program headquarters, office of Permit/Regulatory Coordinator, Karen Carpio, 830 S St, Sacramento, California, 95811. Appointments may be made by telephoning (916) 327-8658, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Environmental Assessment of Each Major Action Item

Each action item is assigned to the appropriate category using the established criteria for each category. The work to be completed for each action item is carefully evaluated to make this determination. Once this evaluation process is completed, the action items described under the Restoration Element - Major Action Items section, are subjected to a systematic environmental analysis. This analysis ultimately

prescribes site-specific conditions which must be applied in order to avoid potentially significant negative effects on the environment, including such effects on endangered, rare, or threatened species and their habitat.

First, all major action items listed in Appendix A shall comply with CDFW policies to protect rare, endangered, and listed animal species. A review of the CDFW's CNDDDB for the entire eight-county project location indicated which animal species found on a State or Federal special status list may be present at the work sites. This site specific information is also attached to each statement of work in Appendix A. Mitigation measures to avoid impacts to these species are presented along with other mitigation measures in Appendix B; Mitigation Measures, Monitoring and Reporting Program. In the absence of site-specific information, species identified as having potential to be affected at a work site shall be assumed present at the work site and mitigation measures to avoid impact to that species shall be implemented. Any site-specific surveys to confirm the presence, or absence, of a listed animal species at a work site will be performed by qualified biologists according to protocols described in Appendix B. Streambed Alteration Agreements and grants for each site shall be conditioned to avoid impacts to any special status species that could potentially be affected at that site. The CDFW shall ensure that the grantee or responsible party is aware of all specific conditions that apply to their work site. Also, the CDFW shall inspect the work site before, during, and after completion of the action item to ensure compliance with mitigation measures to avoid potential impacts to endangered, rare, or threatened species. Any violation of the specific recommendations shall be immediately rectified. Failure or inability to rectify a particular recommendation will cause all work to cease at that site until a remediation plan is developed.

Second, all major action items listed in Appendix A shall comply with CDFW policies to conduct rare plant surveys. A qualified botanist shall be contracted to complete the surveys using standard protocols. Rare plant surveys shall be conducted following the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife, 2009), Appendix C. A review of the CDFW's current California Natural Diversity Data Base (CNDDDB) for each project located in the entire eight-county programmatic project area is attached to the statement of work for each major action item listed in Appendix A and indicates which plant species found on a State or Federal special status list that could potentially be affected at the work sites. Rare plant surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a CDFW biologist, or other qualified biological consultant, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action

item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Third, all major action items listed in Appendix A shall comply with CDFW policies to conduct cultural resource surveys, including archaeological or paleontological surveys (if necessary). A qualified cultural resource specialist(s) shall be contracted to complete the surveys using standard protocols. Research shall be done on available cultural data repositories and a review of cultural resources with regional experts to identify possible areas of importance within the eight-county programmatic project area will occur. Site specific detailed research shall be done for projects sites deemed likely to encounter cultural resources (Appendix C & D). Review of cultural surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a qualified cultural specialist, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Through careful design, scheduling, and monitoring, any and all potentially significant impacts associated with the action items shall be avoided or mitigated to below a level of significance under CEQA. To ensure that each action item adheres to avoidance and mitigation measures, a CDFW grant manager is assigned to each action item. Additional details regarding implementation of action items, including required mitigation measures, are detailed in the environmental checklist section below.

Monitoring

Project monitoring is considered an important element in the activity development and implementation process. The monitoring process provides performance control during the activity and also helps provide a measure of the benefits, insight, and guidance for future projects.

Activity during implementation is overseen by a CDFW grant manager and is geared to ensure that all regulatory environmental issues are strictly addressed including air, water, and avoiding impacts to sensitive plant and animal species. During implementation, activities are carefully monitored to make sure plans are followed and that the correct materials and techniques are used so that the objectives of the activities are met while protecting the environment.

Post-activity monitoring begins with information collected immediately after the activity is completed and documents whether the project was completed as designed and according to grant specifications. This information includes documenting the exact location where the activity has occurred with reference points and survey marks. Final project reports should contain "as-built" descriptions with design drawings and photographs (both before and after the activity) are collected. A complete activity description including the objectives of the activity must be retained.

The next phase of post-activity monitoring is designed to assess the efficacy of the project and shall occur within one to three years after an action item is complete. The CDFW shall randomly select ten percent of the action items within each project work type for effectiveness/validation monitoring. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. This evaluation shall be recorded on standard project evaluation forms. Effectiveness monitoring addresses the physical response associated with an activity, while validation monitoring evaluates fish response to the project. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring shall be performed within three years following project completion.

Complete monitoring specifications can be found in Part VIII of the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2010) (<http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>). Additional details on monitoring and reporting requirements are presented in Appendix B.

REFERENCES

- California Department of Fish and Game. Lake and Streambed Alteration Program (1600) webpage <https://www.wildlife.ca.gov/Conservation/LSA>
- California Department of Fish and Game. 2000. Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. The Resources Agency, State of California, Sacramento, CA.
- Flosi, G, S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins. 1998, 2009, 2010. *California Salmonid Stream Habitat Restoration Manual*. Fourth Edition. Calif. Fish and Game. The most current version of the manual is available at: <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.
- Flosi, G, S. Downie, M. Bird, R. Coey, and B. Collins. 2003, 2006, 2009, 2010. *California Salmonid Stream Habitat Restoration Manual*. Volume II, Fourth Edition. Calif. Fish and Game. The most current version of the manual is available at: <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.
- Hagans and Weaver. 1994. Handbook for Forest and Ranch Roads. 161 p. Prepared by William E. Weaver, Ph.D. and Danny K. Hagans, Pacific Watershed Associates for the Mendocino County Resource Conservation District, 405 Orchard Ave., Ukiah, CA 95482.

ENVIRONMENTAL CHECKLIST FORM

1. Project Title: **The 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous projects in Del Norte, Humboldt, Marin, Mendocino, San Mateo, Santa Barbara, Siskiyou, and Sonoma Counties.**

2. Lead Agency Name and Address:

California Department of Fish and Wildlife
Watershed Restoration Grant Branch
830 S Street
Sacramento, CA 95811

3. Contact People and Phone Numbers:

Karen Carpio
(916) 327-8658
Fisheries Restoration Grant
Program
830 S Street
Sacramento, CA 95811

Trevor Tollefson
(707) 725-1072
Northern Region
1455 Sandy Prairie Ct.
Suite J
Fortuna, CA 95540

Gail Seymour
(707) 576-2813
Bay Delta Region
5355 B Skylane Dr.
Santa Rosa, CA
95403

Margaret Paul
(831) 649-2882
Central Region
20 Lower Ragsdale Dr.
Ste. 100
Monterey, CA 93940

Mary Larson
(562) 342-7186
South Coast Region
4665 Lampson Ave.
Los Alamitos, CA
90720

4. Project Location: Various sites in Del Norte, Humboldt, Marin, Mendocino, San Mateo, Santa Barbara, Siskiyou, and Sonoma Counties (Appendix A).
5. Project Sponsor's Name and Address:
- California Department of Fish and Wildlife
Fisheries Restoration Grant Program Headquarters
830 S Street
Sacramento, CA 95811
6. General Plan Designation: Various
7. Zoning: Various

8. Description of Project: Implementation of 34 action items for restoration of anadromous salmonid habitat (Appendix A). These action items include measures to improve anadromous fish passage, reduce erosion and sedimentation, enhance instream habitat, improve water quality and improve juvenile survival.
9. Surrounding Land Uses and Setting: Briefly describe the project's surroundings: Action items will be surrounded by lands consisting of agriculture, private holdings, forests used for timber production as well as national, state, and county parks.
10. Other Public Agencies Whose Approval Is Required: U.S Army Corps of Engineers, North Coast Regional Water Quality Control Board, San Francisco Bay Regional Water Quality Control Board, and Central Coast Regional Water Quality Control Board, Los Angeles Regional Water Quality Control Board, and Central Valley Regional Water Quality Control Board.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance

This project will not have a "Potential Significant Impact" on any of the environmental factors listed above; therefore, no boxes are checked.

DETERMINATION:

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required

Helen Birss

Helen Birss, Chief,
Watershed Restoration Grant Branch

12/16/15

Date

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

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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II. AGRICULTURE AND FOREST

RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. GREENHOUSE GAS EMISSIONS:

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. HYDROLOGY AND WATER

QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XIII. POPULATION AND HOUSING:

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- | | | | | |
|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XV. RECREATION:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVI. TRANSPORTATION/TRAFFIC:

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. UTILITIES AND SERVICE

SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

EXPLANATION OF RESPONSES TO INITIAL STUDY ENVIRONMENTAL CHECKLIST

I. AESTHETICS

- a) The project will not have an adverse effect on a scenic vista. Such an impact will not occur because the project will stabilize, restore, and revegetate damaged and eroded sites to produce a more natural and esthetically pleasing appearance.
- b) The project will not damage scenic resources such as trees, rock outcroppings, and historic buildings. Such an impact will not occur because the project will not disturb large trees or other scenic features in the process of restoring damaged sites.
- c) The project will not substantially degrade the existing visual character or quality of the work sites and their surroundings. Such an impact will not occur because in most cases the restoration project will restore the natural character of disturbed sites. Where non-natural structures (such as fish screens) are constructed, they will be of small size and compatible with the appearance of their surroundings.
- d) The project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area of the worksites. Such an impact will not occur because none of the restoration project action items require installation of artificial lighting.

II. AGRICULTURE AND FOREST RESOURCES

- a) The project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use. Such an impact will not occur because most project worksites are located away from FMMP designated farmland. Project actions associated with farmland (such as fish screens) are designed to allow continued use of farmland with reduced impacts to anadromous salmonids.
- b) The project will not conflict with existing zoning for agricultural use or a Williamson Act contract. Fish habitat restoration actions will not change existing land use.
- c) The project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timber zoned Timberland Production. Fish habitat restoration actions will not change existing land use.
- d) There will be no loss of forest land and the project will not result in the conversion of forest land to non-forest use. Road decommissioning projects in forest land will reduce fine sediment delivery to the streams while restoring forest land by planting with native vegetation.
- e) The project will not involve other changes in the existing environment, which due to their location or nature, could not result in conversion of farmland to non-agricultural use. Fish habitat restoration actions are either away from, or are compatible with, existing agricultural uses.

III. AIR QUALITY

- a) The project will not conflict with or obstruct implementation of the applicable air quality plan. Such an impact will not occur because implementation of the project does not create any features that would be a source of air pollution.

The work window for restoration activities is generally limited from June 15 to November 1. Under a worst-case scenario, the most work that a project can have in a single field season is eighteen weeks and the most number of years a project has to be completed is four years. Based on the worst-case scenario, the CDFW finds that each restoration activity will not likely adversely affect air quality plans through the use of vehicle and heavy equipment because of the short duration of each restoration activity. For most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Also, projects do not need to be implemented in consecutive years. Thus, the amount of time it takes to complete a restoration activity varies. Additionally, not all projects require the use of heavy equipment (although heavy equipment may be used to transport materials to the work site) and not all projects occur simultaneously. Calculating the emissions from a single restoration activity to use as an example would not be representative of the other restoration activities in Appendix A for the reasons listed above.

- b) The project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Such an impact will not occur because of the limited scope of construction activities and the fact that work sites are located in rural areas that are in overall attainment of air quality standards.
- c) The project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Such an impact will not occur because the project involves no ongoing sources of air pollution.
- d) The project will not expose sensitive receptors to substantial pollutant concentrations. Such an impact will not occur because the project will not significantly increase pollutant concentrations.
- e) The project will not create objectionable odors affecting a substantial number of people. Project actions are designed to restore natural habitat conditions for salmonids, and will not create any stagnant water that might produce objectionable odors.

IV. BIOLOGICAL RESOURCES

- a) The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW), National Oceanic and Atmospheric

Administration (NOAA) or U. S. Fish and Wildlife Service (USFWS). Such an impact will not occur because project activities are designed to improve and restore stream habitat, to provide a long-term benefit to both anadromous salmonids and other fish and wildlife. The project will be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals and cultural resources during construction; the mitigation measures that will be implemented to avoid short-term impacts to rare plants and animals and cultural resources are described in Appendices B, C, D, and E. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance. In addition,

Species Impacts for the following species include (mitigation measures are included in Appendix B):

i. Arroyo toad (*Anaxyrus californicus*)

The arroyo toad was federally listed as endangered in 1994. Typically found in coastal areas, the toad ranges from Salinas River Basin in Monterey and San Luis Obispo Counties south to Arroyo San Simón in northern Baja California, México. The preferred habitat for arroyo toad during breeding season (February–July) includes low gradient sections of slow moving streams which have adjacent stream terraces, sandbars, and shallow pools. In non-breeding months, this species can be found in a variety of upland habitats such as coastal sage scrub, chaparral, sycamore-cottonwood woodlands, oak, woodlands and grasslands.

During the implementation of a project, activities such as (but not limited to) channel dewatering, unscreened pumping, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into streams may have the potential to impact arroyo toad—this does not result in habitat removal and/or degradation. All impacts that occur are temporary and can be minimized to avoid take of the species. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

ii. California freshwater shrimp (*Syncaris pacifica*)

In 1998, the US Fish and Wildlife Service listed California freshwater shrimp (CAFS) as endangered. The distribution of CAFS is limited to four drainage units in the California counties of Marin, Sonoma, and Napa: 1) tributary streams of the lower Russian River drainage, that flow westward to the Pacific Ocean, 2) coastal streams flowing westward directly into the Pacific Ocean, 3) streams draining into Tomales Bay, and 4) streams flowing southward into San Pablo Bay. California freshwater shrimp depend on the availability of slow moving perennial water adjacent to continuous, stable, well vegetated stream banks, or deep stable undercuts banks during winter high flows.

Salmonid restoration projects typically enhance or create habitat that is also suitable for CAFS. Although project activities in wetted stream habitats may directly impact individuals when present, project activities in dry stream habitats will not have a direct impact on individuals. Mitigation measures are implemented to avoid directly impacting individuals when present however, some short term direct and indirect impacts can occur.

iii. California red-legged frog (*Rana draytonii*)

The California red-legged frog (CRLF) was listed as threatened in the Federal Registry in 1996. This species is the largest native frog in the western United States and is primarily found in streams and drainages along the California coast, ranging from southern Mendocino County south to northwestern Baja California. An eastern extension of this population can be found in the Sierra Nevada foothills, though a majority of the species is found in Monterey, San Louis Obispo, and Santa Barbara counties. Individuals found in coastal areas are active year round and those found farther inland are less active during the colder months. Breeding season is typically November through March, slightly earlier in southern regions. This species of frog prefers permanent quiet bodies of water but can be found in damp thickets and forest as well as along riparian corridors.

Impacts to the CRLF have the potential to occur during project implementation activities such as (but not limited to) channel dewatering, degradation of water quality, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into stream. All impacts that occur are temporary and can be minimized to avoid take of the species and does not result in habitat removal and/or degradation. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

iv. California tiger salamander (*Ambystoma californiense*)

The central California population of California tiger salamander was federally listed as threatened in 2004 but had been endangered in Santa Barbara County since 2000 and in Sonoma County since 2002. The state of California listed the entire population as threatened in 2010. The salamander can be found coastally from Sonoma to Santa Barbara counties as well as in the Central Valley and surrounding foothills—primarily in grassland or open woodland areas from Alameda County south to Monterey County and east to Merced and Madera counties. This nocturnal salamander breeds during the rainy season (November – May) depositing egg masses in standing water. Outside of estivation, the California tiger salamander spends a majority of its time underground finding refuge in animal burrows.

Impacts to the species are highly unlikely as most implementation projects occur in or near the stream and riparian corridor. Upslope projects are typically limited to road upgrading and decommissioning in areas that are steep, eroding, and often in areas vegetated with trees and shrubs. The species uses

ponds and vernal pools for breeding and grassland habitat for estivation, both of which are usually not in proximity to anadromous fish-bearing streams.

- v. Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), and coastal cutthroat trout (*Oncorhynchus clarki clarki*)

Winter-run chinook has been listed as endangered by the state since 1989 and federally since 1994. Spring-run chinook was listed in 1999 as threatened by both the state of California and USFWS. Depending on the evolutionary significant unit (ESU) of the coho salmon, the species is listed either as threatened or endangered; federally since 1996 and by the state since 2005. In 1997, USFWS listed the distinct population segment (DPS) of the southern California steelhead as endangered. The four other DPS of steelhead (south central, central, Central Valley, and northern) have been federally listed as threatened as early as 1997. Although, coastal cutthroat trout is not listed as threaten or endangered, it is listed as a species of special concern.

Salmonids can be found throughout the coastal and inland river systems of north and central California. The salmonid lifecycle involves adults maturing in the ocean, migrating back to their home streams and spawning, embryos incubating, fry emerging, juveniles growing , and smolts migrating to the estuary to acclimate to saltwater and moving out into the ocean.

Habitat loss and modification are believed to be the major factors determining the current status of salmonid populations. Conservation and recovery of salmonid depend on having diverse habitats with connections among those habitats. While all of the work proposed under this program will enhance habitat for one or more of these species, impacts to the species have the potential to occur during project implementation activities such as, but not limited to, channel dewatering, disturbance of banks, and fish relocation. All impacts are temporary and can be minimized to avoid take of the species.

- vi. Least Bell's vireo (*Vireo bellii pusillus*)

The least Bell's vireo was listed as endangered federally in 1986 and by the state in 1980. The breeding season distribution of these small, monogamous, territorial birds range from coastal southern California east to the foothill Central Valley with the majority of the population found in San Diego County (March – September). In colder, non-breeding months, the least Bell's vireo migrates south into Baja California. Many return to their same lowland riparian territory to breed, with some building nests in the same scrub used the previous year.

Impacts to the species have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at

restoration sites has the potential to degrade existing vireo habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

vii. Marbled murrelet (*Brachyramphus marmoratus*)

In 1992, the marbled murrelet was federally listed as threatened and as endangered by the State. As coastal birds that range from Alaska to Santa Barbara County, CA, they can be found nesting and brooding along the California coastline in old-growth or mature forests from April to September and possibly using the same nest in successive years. In the winter, they can be found using the same habitat for roosting and courtship.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Limiting such work (e.g. culvert removal or placement of large woody debris) to the fall and winter months will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

viii. Northern spotted owl (*Strix occidentalis caurina*)

The Northern spotted owl has been federally listed threatened since 1990 and has recently (2013) been listed as a threatened species candidate by the state of California. Old growth and mature forests of northwestern California and Pacific Northwest are the preferred habitat for these monogamous, territorial, medium-sized birds of prey. A pair of owls can occupy up to a 40 sq. km territory, nesting in hollow trees and cliff crevices from February to June.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Preventing such work (e.g. culvert removal or placement of large woody debris) from occurring during February to July will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

ix. Point Arena mountain beaver (*Aplodontia rufa nigra*)

In 1991, the US Fish and Wildlife listed the Point Arena mountain beaver (PAMB) as an endangered species. This beaver is a burrowing rodent found in coastal Mendocino County, in an area of approximately 24 square miles (from about 2 miles north of Bridgeport Landing south to about 5 miles south of the town of Point Arena, and from the coast to about 5 miles inland). Mountain beaver inhabit underground burrow systems, associated with moist areas with well drained soils and lush herbaceous vegetation. Populations of PAMB are typically found in riparian, coastal scrub, or dune scrub habitats; however, they may occur in any habitat with brushy or herbaceous cover. The presence of PAMB is evaluated by surveying for burrows of characteristic size and shape, with signs of recent activity.

Potential impacts to PAMB from salmonid habitat improvement projects include disruption of nesting or other activities due to equipment noise; collapse or

damage to burrows from heavy equipment, riparian planting, or foot traffic; and removal of vegetation (such removal is usually temporary, but may nonetheless impact PAMB).

x. San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

The San Francisco garter snake was federally listed as endangered in 1967 and by the State in 1970. Endemic to California, this multi-colored garter snake is only found from southern San Francisco County south to San Mateo County in grasslands or wetlands near ponds, marshes, and sloughs. Breeding season starts in spring. Females bare live young from June to September. Typically found in densely vegetative ponds nears hills however, the San Francisco garter snake will find animal burrows when ponds dry up in the summer months and will go into a dormant state.

The potential for impacts to the San Francisco garter snake will be mitigated by consulting with the USFWS prior to the implementation of the projects.

xi. Southwestern Willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher (a sub species of the Willow flycatcher, *Empidonax traillii*) was placed on the federal species list in 1995 as endangered. Extirpated from most of its California range, this small migratory bird has been reported to return to various river systems in southern California during breeding season. Breeding season is from May to September, with a majority of breeders returning to the same sites in areas of dense mature riparian woodlands along streams and rivers. Native vegetation is preferable for nesting, but this bird will also nest in thickets of non-native species (e.g. tamarisk and Russian olive).

Impacts to the southwestern willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically, removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing southwestern Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

xii. Tidewater goby (*Eucyclogobius newberryi*)

The tidewater goby was listed by the state of California for protection in 1987, and federally listed in 1994. The species, which is endemic to California, is typically found in coastal lagoons, estuaries, and marshes with relatively low salinities. Tidewater gobies can withstand a range of habitat conditions: they have been documented in waters with salinity levels from 0 to 42 parts per thousands, temperatures from 8 to 25° C, depths from 25 to 200 cm, and dissolved oxygen levels of less than one milligram per liter. Reproduction

occurs from late April or May to July and as late as November or December, depending on the seasonal temperature and rainfall.

Measures to reduce impacts to tidewater goby habitat will include adjusting the timing of projects to avoid disruption to breeding activities, the use of silt fencing to reduce sediment loads and as barricades around project sites, and installing coffer dams above and below project sites. Additional measures include, moving individual tidewater gobies found within the enclosures prior to dewatering, minimizing project areas, and requiring qualified biologists to oversee project activities.

xiii. Willow flycatcher (*Empidonax traillii*)

The Willow flycatcher was listed as endangered by the State of California in 1991. This small migratory bird can be seen during their summer migration throughout a majority of northern and western US. In California, the Willow flycatcher can be found primarily in dense moist willow thickets and riparian woodlands in northern California and along the western side of the Sierras. During spring (May to June), adults can be seen in north central California counties during the spring migration to their breeding sites farther north. Fall migration occurs primarily in August as the travel to the winter habitats in Central and South America.

Impacts to the Willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

- b) The project will not have a substantial adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies and regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service. Such an impact will not occur because the project actions are designed to correct past habitat degradation and restore and enhance riparian habitat and associated upland habitats. In accordance with the Regional General Permits 12, 78, and the § 401 Water Quality Certification, construction of action items is allowed during the summer dry season (generally June 15-November 1) to avoid impacts to aquatic habitats. Work that is permitted after November 1 is limited to hand planting of seedlings. Planting of seedlings generally occurs after December 1, or when there is sufficient rainfall to ensure the best survival chance of the seedlings. Mitigation measures to avoid impacts to riparian habitat are found in Appendix B: Mitigation measures, monitoring, and reporting program for the 2016 Fisheries Restoration Grant Program (§ IV subsection C).

Furthermore, the CDFW LSAAs include project-specific terms and conditions that set out reasonable measures determined by CDFW to be necessary to protect fish and wildlife resources that may be affected by the project.

- c) The project will not have a substantial adverse effect on federally protected wetlands as defined by § 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The project actions will have either no effect on wetlands or will be beneficial to wetlands.
- d) The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The project will enhance the movement of anadromous fish by the replacement or removal of culverts and bridges that are barriers to fish migration.
- e) The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Such an impact will not occur because project actions are designed to restore and enhance biological resources. Some minor disturbance of grasses and shrubs will occur where stream structures are keyed into the stream banks. Care will be taken not to disturb any mature trees. Riparian vegetation will be reestablished where construction activities disturb existing plants, and additional native plants will be planted to enhance the riparian vegetation.
- f) The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Such a conflict will not occur because the project restoration actions will not have a significant adverse impact on any species or habitat. Project actions are designed to restore the natural character of the fish and wildlife habitat at the project work sites. The project specifically supports the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act (Fish and Game Code § 6900 et. seq.)

V. CULTURAL RESOURCES

- a) The project will not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect historical resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program and Appendix E, Procedure for the Programmatic Evaluation of Archaeological Resources for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

- b) The project will not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect archaeological resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- c) The project will not directly or indirectly destroy any unique paleontological resources or sites, or unique geologic features. While ground disturbance to implement the project at some work sites has the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program and Appendix D, Procedure for the Programmatic Evaluation of Paleontological Resources for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- d) The project will not disturb any human remains, including those interred outside of formal cemeteries. While ground disturbance will be required to implement the project at some work sites that have the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

VI. GEOLOGY AND SOILS

- a) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault. Such an impact will not occur because the project does not create any structures for human habitation.
 - i. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Such an impact will not occur because the project does not create any structures for human habitation.
 - ii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving

seismic-related ground failure, including liquefaction. Such an impact will not occur because the project does not create any structures for human habitation.

- iii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Such an impact will not occur because the project does not create any structures for human habitation.
- b) The project will not result in substantial soil erosion or the loss of topsoil. Such an impact will not occur because implementation of the restoration project is designed to contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. The potential for substantial soil loss associated with road improvement and decommissioning will be avoided through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- c) Some project worksites are on unstable soils; however, the project will not increase the risk of landslides, lateral spreading, subsidence, liquefaction, or collapse. The project actions are designed to stabilize conditions at these sites in order to reduce sediment delivery to salmonid habitat. Actions implemented to stabilize sites may not be successful in all cases, but site instability will not be increased when compared to existing conditions.
- d) Some project work sites will be located on expansive soil; however, the project will not create substantial risks to life or property. Such an impact will not occur because the project will create no habitations, and the majority of the restoration actions will not create rigid structures that could be damaged by expansive soils. The few rigid structures to be created by the project (such as fish screens) will be engineered to withstand expansive soils, if they are present.
- e) The project will not create any sources of waste water requiring a septic system.

VII. GREENHOUSE GAS EMISSIONS

The project will emit greenhouse gases (GHG) through the use of fuel to operate vehicles and heavy equipment. The work window for restoration activities is generally limited from June 15 to November 1. Construction is limited to at most eighteen weeks during that window, and work must be completed within four years. However, for most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Some action items do not require heavy equipment use at the restoration site, but may use vehicles to transport

materials. Furthermore, for an individual restoration action, GHG emissions may fluctuate during the implementation, as vehicles and equipment will be necessary to varying degrees. Watershed restoration projects often require more time to construct (six to twelve weeks) than other action items. Projects may be completed in a single year of construction, or may require several years. Thus, the amount of time it takes to complete a restoration activity and the use of heavy equipment varies greatly among the actions. Although the project construction schedules and details are constrained by permit and grant conditions, the exact details cannot be specifically stated at this time. However, based on the short duration and small scale of the action items, the project will not generate a significant increase in GHG emissions above existing baseline levels because action items are discrete, limited in scope and implemented during a short time period.

- a) Additionally, some action items involve decommissioning of existing paved or dirt roads in forested landscapes. The decommissioned roads are re-planted with native conifer tree species. Additionally, when plants are removed to implement the restoration activity, the replanting ratio is 1:2 (for every plant removed, two native plants are planted). Once established native habitat restoration requires little to no maintenance and therefore little to no GHG emissions and will increase the presence of native plant species that sequester carbon dioxide.
- b) Due to each action item's short duration, small scale, and minimal on-going maintenance, the project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. The short term impacts to the GHG levels are less than significant. Furthermore, the long term impacts to the GHG levels from re-vegetation actions will aid in decreasing the GHG levels by reforesting areas where roads have been removed and where restoration work has been done.

VIII. HAZARDS AND HAZARDOUS MATERIALS

- a) The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Any potential significant hazard associated with the accidental release of coolant and petroleum products used with equipment during construction will be avoided through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.
- b) The project will not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant. The potential for accidental release will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result,

mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

- c) The project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Such impact is avoided because the project will not create any feature that will emit hazardous substances.
- d) The project worksites are not located on any site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.
- e) No project work site is located within an airport land use plan or within two miles of a public airport or public use airport.
- f) No project work site is located within the vicinity of a private airstrip.
- g) The project will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Except for the case of road decommissioning, the project has no effect on access. The planned decommissioning of selected unused wild land roads will not have a significant impact on emergency vehicle access.
- h) The project will not expose people or structures to a significant risk of loss, injury, or death involving wild land fires. At work sites requiring the use of heavy equipment, there is a small risk of an accidental spark from equipment igniting a fire. The potential for accidental fire will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

IX. HYDROLOGY AND WATER QUALITY

- a) The project will not violate any water quality standards or waste discharge requirements. There is the potential for minor short-term increase in turbidity during installation of instream structures or culvert removal, however the mitigation measures described in Appendix B Mitigation, Monitoring and Reporting will assure that the project actions are in compliance with water quality standards. As a result, mitigation measures will ensure that any potentially significant short-term impacts are avoided or mitigated to below a level of significance.
- b) The project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Upslope restoration activities will return drainage to historic patterns thereby decreasing surface runoff and increasing infiltration to the ground water.
- c) The project will not substantially alter the existing drainage pattern of the work sites in a manner that would result in substantial erosion or siltation on- or off-site. Such an impact will not occur because the project actions are designed to produce decreased erosion overall. Instream habitat structures, such as boulder weirs or flow

deflectors, will produce local redistribution of sediments. These structures will produce a local redistribution of bed load, facilitating the deposition of spawning gravel in riffles, and improving scour to maintain pools for juvenile fish habitat. This local redistribution of bed load will not produce a net increase of erosion.

- d) The project will not substantially alter the existing drainage pattern of the work sites, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The project will decrease the risk of flooding through upslope restoration activities that will return drainage to historic patterns, thereby increasing infiltration and decreasing surface runoff.
- e) The project will not create or contribute runoff water that would exceed the capacity of existing or planned storm-water drainage systems, or provide substantial additional sources of polluted runoff. Such an impact will not occur because upslope restoration activities will stabilize slopes and return drainage to historic patterns, thereby decreasing surface runoff and decreasing the silt load delivered to streams in the area of the project.
- f) The project will not substantially degrade water quality. During placement of stream habitat structures and culvert replacement, some minor turbidity may be generated. The potential for degradation of water quality will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. Some short-term minor increase in turbidity may also occur as the streambed around instream structures adjusts during the first high stream flow following activity completion. However, this is not expected to produce a significant increase over background turbidity. As a result, mitigation measures will ensure that any potentially significant short-term impacts to water quality are avoided or mitigated to below a level of significance.
- g) The project will not place housing within a 100-year flood hazard area as mapped on any flood hazard delineation map. No housing will be created as part of this project.
- h) The project will not place within a 100-year flood hazard area structures which would significantly impede or redirect flood flows. Culvert removal and replacement to be done as part of the project will remove existing impediments to flood flows. Instream habitat structures, such as boulder weirs, deflectors, and bank armor, are built to change the direction and velocity of stream flow. However, these structures are small (sized to affect conditions in the low flow channel) and will not impede flood flows.
- i) The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Such an impact will be avoided because all instream structures to be created are small and will not significantly impede flood flows.
- j) The project will not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Such an impact will not occur because project actions are designed to improve or stabilize conditions at the work sites. Upslope restoration

actions will reduce the chance of mudflow by stabilizing disturbed areas, and restoring natural drainage patterns. Project work sites are not located in areas at risk to inundation by seiche or tsunami.

X. LAND USE AND PLANNING

- a) The project will not physically divide an established community. This impact will not occur because no culvert removal or road decommissioning is proposed in any established community.
- b) The restoration activities that comprise this project do not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Such an impact will not occur because the project's restoration activities are designed to be compatible with local land use plans and ordinances.
- c) The project will not conflict with any applicable habitat conservation plan or natural community conservation plan. Such an impact will not occur because project actions are designed to improve aquatic habitat conditions without adversely affecting any other species or their habitats.

XI. MINERAL RESOURCES

- a) The project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Such an impact will not occur because project actions are only designed to stabilize and restore habitat and soils within the actions area.
- b) The project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Such an impact will not occur because no mineral resource recovery sites occur at the project work sites.

XII. NOISE

- a) The project will not result in exposure of persons to, or generation of noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies. There may be a minor temporary increase in noise levels at those work sites requiring the use of heavy equipment. While such short-term increase in noise will not produce a significant increase in the noise level in the general environment, there is a potential for equipment noise to affect workers in close proximity to equipment producing noise levels ≥ 85 db, such as chainsaws or backhoes. However, such an impact will not occur because personnel operating noisy equipment will be required to wear hearing protection. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.

- b) The project will not result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels. Such an impact will not occur because only minor amounts of ground-borne vibration or noise will be generated short-term at those work sites requiring the use of heavy equipment.
- c) The project will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because most project structures are passive (i.e., contain no moving parts). The only exceptions are the proposed fish screens, which will contain moving brushes to clean the screens. These brushes are driven by slow speed (10-15 RPM) water wheels and will not substantially increase ambient noise levels where installed.
- d) The project will not result in a substantial temporary, or periodic, increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because only minor amounts of noise will be generated temporarily at those work sites requiring the use of heavy equipment. At those sites near nesting or breeding sites for listed species, heavy equipment will only be used outside the sensitive periods for nesting or breeding, as described in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.
- e) None of the project work sites are located within two miles of a public airport or public use airport.
- f) None of the project work sites are located within the vicinity of a private airstrip.

XIII. POPULATION AND HOUSING

- a) The project will not induce substantial population growth in an area, either directly or indirectly. Such an impact will not occur because the project will not construct any new homes, businesses, roads, or other human infrastructure.
- b) The project will not displace any existing housing and will not necessitate the construction of replacement housing elsewhere.
- c) The project will not displace any people and will not necessitate the construction of replacement housing elsewhere.

XIV. PUBLIC SERVICES

- a) The project will not have any significant environmental impacts associated with new or physically altered governmental facilities. Issuance of restoration grants to government agencies could, in some cases, lead to minor increases in staffing to complete projects. Such increases will not lead to any significant adverse impacts, because the increases are short term, and no significant construction will be required to accommodate additional staff.

XV. RECREATION

- a) The project would not increase the use of existing neighborhood and regional parks, or other recreational facilities. Such an impact will not occur because the project actions will restore anadromous fish habitat and do not significantly alter human use or facilities at existing parks or recreational facilities. Overall, the Restoration Program is expected to increase recreation opportunities by assisting in restoring populations of anadromous fish.
- b) The project does not include recreational facilities and does not require the construction or expansion of recreational facilities.

XVI. TRANSPORTATION/TRAFFIC

- a) The project will not conflict with any applicable plans, ordinances or policies that establish measures of effectiveness for the performance of the circulation systems. Such a conflict will not occur because the project will result in only minor temporary increases in traffic to primarily wild land sites during implementation of habitat improvement measures.
- b) The project will not conflict, either individually or cumulatively, with any applicable congestion program established by the county congestion management agency for designated roads or highways. Such an impact will not occur because the habitat improvement actions will not generate a significant amount of traffic at each individual work site and because the work sites are dispersed throughout the coastal counties.
- c) The project will not result in any change in air traffic patterns.
- d) The project will not alter roads in any way that will substantially increase hazards to transportation. The proposed project will reduce hazards to transportation, because the proposed project will correct and reduce landslide and erosion damage on the selected rural roads.
- e) The project will not result in inadequate emergency access. Such an impact will not occur because during replacement of small road crossings, an alternate route for traffic will be provided around the construction.
- f) The project will not significantly affect parking capacity or demand for parking.
- g) The project will not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVII. UTILITIES AND SERVICE SYSTEMS

- a) The project will not produce wastewater.
- b) The project will not require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities. Such an impact will not occur because the project will not produce wastewater.

- c) The project will not cause significant adverse environmental effects associated with the construction of new storm water drainage facilities or expansion of existing facilities.
- d) The project will have sufficient water supplies available to serve the project from existing entitlements and resources.
- e) The project will not produce wastewater.
- f) The project will not generate solid waste requiring disposal in a landfill.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) The project does have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. However, the potential is reduced to less than significant by implementing the mitigation measures in Appendix B: Mitigation Measures, Monitoring and Reporting Program. The project shall be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals, and cultural resources during construction. The project activities are designed to improve and restore stream habitat; thereby providing long-term benefits to both anadromous salmonids and other fish and wildlife.
- b) The project does not have adverse impacts that are individually limited, but cumulatively considerable. Cumulative adverse impacts will not occur because potential adverse impacts of the project are only minor and temporary in nature. It is the goal of the project that the beneficial effects of habitat enhancement actions will be cumulative over time and contribute to the recovery of listed anadromous salmonids.
- c) The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. The habitat enhancement measures implemented as part of this project will contribute to improved water quality, increased soil stability, and the recovery of listed salmonids, all of which will be beneficial to human beings.

Appendix A

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724765	AC	169	Watershed Stewards Program - Year 23	California Conservation Corps- Watershed Stewards Program	All coastal counties	1, 3, 4, 5	FRGP
724711	PL	100	Passage Assessment Database (PAD) 2016-2018	Pacific States Marine Fisheries Commission	All counties	1, 2, 3, 4, 5	FRGP
725044	PL	267	Smith River Fisheries Management Plan	Northern CA Council International Fed. Of Fly Fishers	Del Norte	1	SHRRC
724700	MO	83	Monitoring and Evaluation of Salmonid Habitat Restoration 2015	Pacific States Marine Fisheries Commission	Del Norte, Humboldt, Marin, Mendocino, Napa, Siskiyou, Sonoma, Trinity	1, 3	FRGP
724707	PD	091	Fish Passage Improvement Project at 12th Street	City of Fortuna	Humboldt	1	FRGP
724719	PD	111	Cummings Creek Coho Salmon Barrier Removal Project	Trout Unlimited, Inc.	Humboldt	1	FRGP
724752	PL	155	Pine Creek Watershed Assessment and Erosion Prevention Planning Project	Hoopa Valley Tribe	Humboldt	1	FRGP
724758	PD	162	Strawberry Creek Wetland Coho Habitat Restoration Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724763	PL	167	Marshall Ranch Action Plan for Coho Recovery in the South Fork Eel River	Eel River Watershed Improvement Group	Humboldt	1	FRGP

Appendix A

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724788	PL	203	Canon Creek Watershed Assessment and Erosion Prevention Planning Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724791	PD	206	Panther Creek Barrier Removal Design Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724796	PD	211	Blue Lake Off Channel Coho Habitat Improvement Design Project	Blue Lake Rancheria	Humboldt	1	FRGP
725039	PD	259	North Mad River Fish Passage Project	Pac Coast Fish, Wildlife, and Wetlands Restoration Ass.	Humboldt	1	SHRRC
724678	MD	047	South Fork Eel River Adult Salmonid Abundance Monitoring Project	Pacific States Marine Fisheries Commission	Humboldt, Mendocino	1	FRGP
724715	MD	107	Mattole River Adult Coho Salmon Abundance Monitoring	Mattole Salmon Group	Humboldt, Mendocino	1	FRGP
724721	MD	113	Mattole River Juvenile Coho Salmon Summer Spatial Structure Monitoring	Mattole Salmon Group	Humboldt, Mendocino	1	FRGP
724808	ED	D231	The Klamath Youth Climate Change Mitigation Project	Mid Klamath Watershed Council	Humboldt, Siskiyou	1	Drought
725035	MD	266	Genetic Structure of Mad River Steelhead: Hatchery Genetic Monitoring and Evaluaiton of Summer Run Status	HSU Sponsored Programs Foundation	Humboldt, Trinity	1	SHRRC
724688	MD	061	Monitoring Steelhead in Topanga Creek	RCD of the Santa Monica Mountains	Los Angeles	5	FRGP
725043	PL	252	Millerton Creek Restoration Phase 1: Limiting Factors Analysis	North Bay Trout Unlimited	Marin	3	SHRRC

Appendix A

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724770	MD	179	Lagunitas Creek CMP Salmon Lifecycle Monitoring – Phase II	Marin Municipal Water District	Marin, Sonoma	3	FRGP
724663	MD	020	Coastal Mendocino County Salmonid Life Cycle and Regional Monitoring	Pacific States Marine Fisheries Commission	Mendocino	1	FRGP
724669	PD	031	Neefus Gulch Coho Salmon Barrier Removal Project Design	Trout Unlimited	Mendocino	1	FRGP
724725	OR	117	Fish Habitat Assistant	California Conservation Corps	Mendocino	1	FRGP
724743	PD	144	Gulch C Coho Salmon Barrier Removal Project Design	Trout Unlimited, Inc.	Mendocino	1	FRGP
724778	PL	190	Upper North Indian Creek Watershed Coho Recovery Action Plan	Mattole Salmon Group	Mendocino	1	FRGP
725040	PD	260	Little Mill Creek Fish Barrier Removal	Mendocino RCD	Mendocino	1	SHRRC
725037	PD	254	Woodman Creek (Eel River) Railroad Crossing Barrier Removal Project - 100% Designs	CalTrout inc.	Mendocino	1	SHRRC
724648	MD	224	Steelhead Population Monitoring For the Gualala River Watershed	Gualala River Watershed Council (GRWC)	Mendocino, Sonoma	1,3	SHRRC
724722	PD	114	Cachuaga Creek Concrete Ford Alternative Design Project	Trout Unlimited, Inc.	Monterey	3	FRGP
724807	PD	D232	San Clemente Creek Concrete Ford Alternative Design Project	Trout Unlimited, Inc.	Monterey	4	Drought
724809	ED	D230	Salmon and Water Conservation in Sacramento Schools	South Yuba River Citizens League	Sacramento	2	Drought
724723	PD	115	Santa Margarita River Fish Passage Design - Sandia Creek	Trout Unlimited - South Coast Chapter	San Diego	5	FRGP

Appendix A

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724821	TE	D244	Upper San Luis Rey River Groundwater Recharge and Habitat Protection	San Luis Rey Watershed Council	San Diego	5	Drought
724822	PD	D243	Peters Creek Water Storage / Creek Diversion Forbearance Design Project – Portola Redwoods State Park	Trout Unlimited	San Mateo	3	Drought
724686	MD	059	Big Basin and Coastal San Mateo County Salmonid Monitoring Program	Pacific States Marine Fisheries Commission	San Mateo, Santa Cruz	3	FRGP
724768	MD	177	Southern California DIDSON and Spatial Distribution Monitoring	Pacific States Marine Fisheries Commission	Santa Barbara, Ventura	5	FRGP
724671	PD	038	Lower Uvas-Carnadero Creek Agricultural Ford Alternative Design Project	Trout Unlimited, Inc.	Santa Clara	3	FRGP
724661	MD	016	Scott Creek Life Cycle Monitoring Station	Regents of the University of California	Santa Cruz	3	FRGP
724652	PD	223	Little Springs Creek Culvert Project at Louie Road Project Design	Northwest CA Resource Conservation & Development Council: Five Counties	Siskiyou	1	FRGP
724667	PD	027	2015 Horse Creek Wood Loading & Floodplain Relief Project, Design Phase	Mid Klamath Watershed Council	Siskiyou	1	FRGP
724751	PL	154	Salmon River Floodplain Restoration and Mine-Tailing Remediation Plan	Salmon River Restoration Council	Siskiyou	1	FRGP
724802	PL	217	Mid-Klamath Floodplain Assessment and Mine Tailing Remediation Plan	Mid Klamath Watershed Council	Siskiyou	1	FRGP
725041	PD	262	Hotelling Gulch Fish Passage and Channel Restoration Design	Salmon River Restoration Council	Siskiyou	1	SHRRC

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Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724729	PL	122	Delineation of Potential Winter Rearing Habitat Using LiDAR	Pepperwood Foundation	Sonoma	3	FRGP
724806	PL	D233	Drought Mitigation Planning Project for the Buckeye Forest (BF)	The Conservation Fund	Sonoma	3	Drought
725036	PD	251	Atascadero Reserve Off Channel Habitat Design Project	Gold Ridge RCD	Sonoma	3	SHRRC
724818	PD	D235	Los Molinos Mutual Water Company Northside Water Use Efficiency Improvement Masterplan	Los Molinos Mutual Water Company	Tehama	1	Drought
724819	PL	D246	South Fork Battle Creek Erosion Prevention Planning Project	Resource Conservation District of Tehama County (RCDTC)	Tehama	1	Drought
725042	PD	265	Paynes Creek Fish Passage Assessment and Restoration Project, Bend Irrigation Diversion	Trout Unlimited	Tehama	1	SHRRC
724760	MD	164	Ventura River Basin Population Abundance Surveys and PIT Tag Program	Pacific States Marine Fisheries Commission	Ventura	5	FRGP
724804	PD	220	Sisar Creek Arizona Crossing Replacement Design Alternatives Analysis	Friends of the Santa Clara River	Ventura	5	FRGP
724811	PD	D228	Sisar Creek Arizona Crossing Replacement Design Alternatives Analysis	Friends of the Santa Clara River	Ventura	5	Drought

AC: AmeriCorps program only

ED: Public School Watershed and Fishery Conservation Education Projects

MD: monitoring status

MO: Monitoring watershed restoration

OR: Watershed and Regional Organization

PD: Project design

PL: Watershed evaluation, assessment, and planning

TE: Private sector technical training and education

Appendix A

Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724776	HI	186	Rowdy Creek Instream Habitat Enhancement Project Reach IV	Rural Human Services	Del Norte	1	FRGP
724735	WC	133	Mattole Flow Program - Tributary Water Storage and Forbearance	Sanctuary Forest	Humboldt	1	FRGP
724738	FP	136	Fish Passage Improvements at South Fortuna Boulevard	City of Fortuna	Humboldt	1	FRGP
724742	HI	143	McKee Creek Instream Habitat Restoration	Sanctuary Forest	Humboldt	1	FRGP
724766	HI	174	Morrison Gulch Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724784	HI	198	Redwood Creek Instream Habitat Improvement Project - Jakubal	Eel River Watershed Improvement Group (ERWIG)	Humboldt	1	FRGP
724785	HI	199	Lower Mill Creek Instream Restoration Project, Phase 2	Hoopa Valley Tribe	Humboldt	1	FRGP
724789	HI	204	Redwood Creek Instream Habitat Improvement Project-Schroeder	Eel River Watershed Improvement Group	Humboldt	1	FRGP
724794	HU	209	East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724782	HR	196	Greater Eel River Arundo Eradication Phase III	Eel River Watershed Improvement Group	Humboldt, Mendocino	1	FRGP
724702	HI	085	Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II	Marin Municipal Water District	Marin	3	FRGP
724655	HI	004	South Fork Noyo River Instream Habitat Enhancement Project	Mendocino Land Trust	Mendocino	1	FRGP
724684	HI	055	East Branch Little North Fork LWD and Instream Barrier Modification	The Conservation Fund	Mendocino	1	FRGP

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Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724685	HR	057	Baechtel Creek Riparian and Coho Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	1	FRGP
724694	HI	070	Little North Fork Navarro River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	1	FRGP
724696	HU	075	Grubb Creek Upslope Sediment Reduction Project	Mendocino County Resource Conservation District	Mendocino	1	FLAR
724697	HR	076	Big Rock Creek Riparian and Coho Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	1	FRGP
724705	HI	089	Noyo Headwaters Instream Habitat Enhancement Project	Mendocino Land Trust	Mendocino	1	FRGP
724706	HB	090	James Creek Fish Barrier Modification Project	Mendocino Land Trust	Mendocino	1	FRGP
724741	FP	139	Kenny Creek Fish Passage Improvement Project	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724744	HU	145	Anderson Creek Sediment Reduction and Coho Recovery Project	Trout Unlimited	Mendocino	1	FLAR
724745	HI	146	Olds Creek Instream Coho Salmon Habitat Enhancement Project	Trout Unlimited, Inc.	Mendocino	1	FLAR
724764	HI	168	Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724781	HI	195	Hollow Tree Tributary Complex Instream Restoration Project Phase II	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724797	HU	212	Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement	Mendocino County Resource Conservation District	Mendocino	1	FLAR

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Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
725030	HI	253	String Creek Steelhead Instream Habitat Enhancement Project	Trout Unlimited	Mendocino	1	SHRRC
725029	HB	256	Horsethief Canyon Instream Barrier Modification	The Conservation Fund	Mendocino	1, 3	SHRRC
724673	HI	041	San Gregorio Creek Habitat Enhancement Project - Phase 2	San Mateo County Resource Conservation District	San Mateo	3	FRGP
724654	FP	001	Fish Passage Improvement at Crossing 4, Quiota Creek	Cachuma Operation and Maintenance Board	Santa Barbara	5	FRGP
724714	HI	106	South Fork Salmon River Tributary Salmonid Habitat Enhancement Project	Salmon River Restoration Council	Siskiyou	1	FRGP
724773	HI	182	Scott River Instream Habitat Restoration project	California Trout, Inc.	Siskiyou	1	FLAR
724656	FP	006	Upper Green Valley Creek Fish Passage Implementation Project	Gold Ridge Resource Conservation District	Sonoma	3	FRGP
724717	HI	109	Felta Creek Stream Habitat Enhancement Project	Sonoma Resource Conservation District	Sonoma	3	FRGP
724746	HB	148	Mill Creek Dam Fish Passage Project	Trout Unlimited, Inc.	Sonoma	3	FRGP

FP: Fish passage at stream crossings

HB: Instream barrier modification for fish passage

HI: Instream habitat restoration

HR: Riparian restoration

HU: Watershed restoration (upslope)

WC: Water conservation measures

Focus

FRGP: Fisheries Restoration Grant Program

Drought: FRGP drought focus

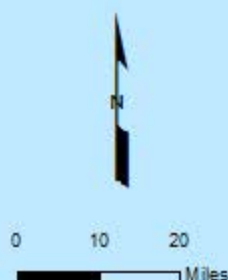
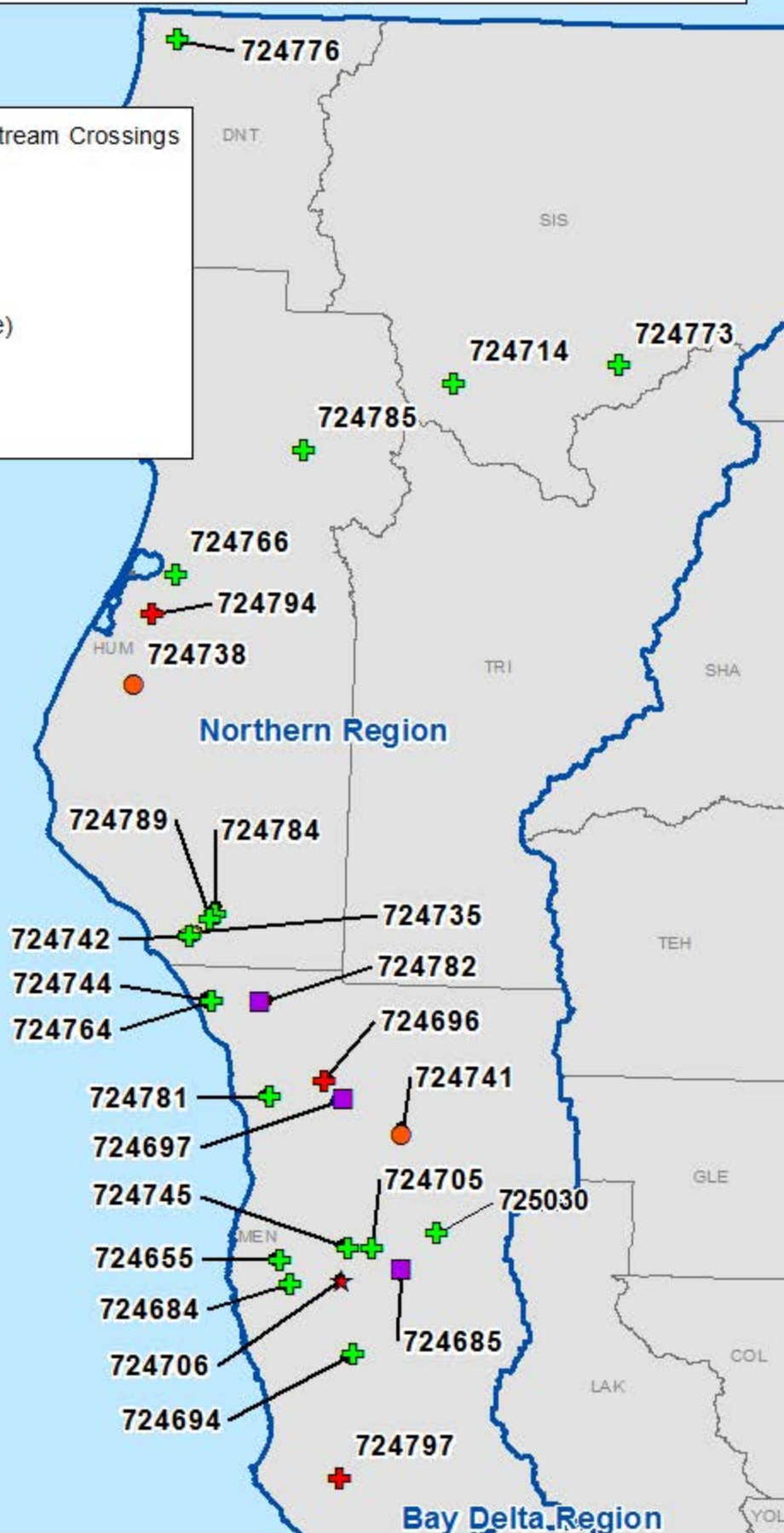
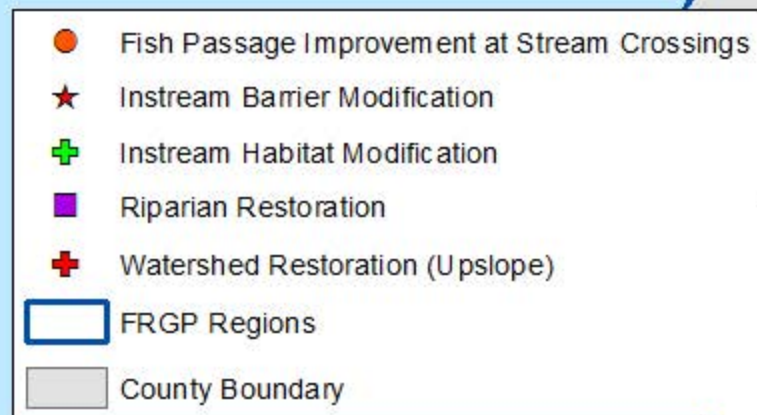
SHRRC: Steelhead Report and Restoration Card

FLAR: Forest Land Anadromous Restoration

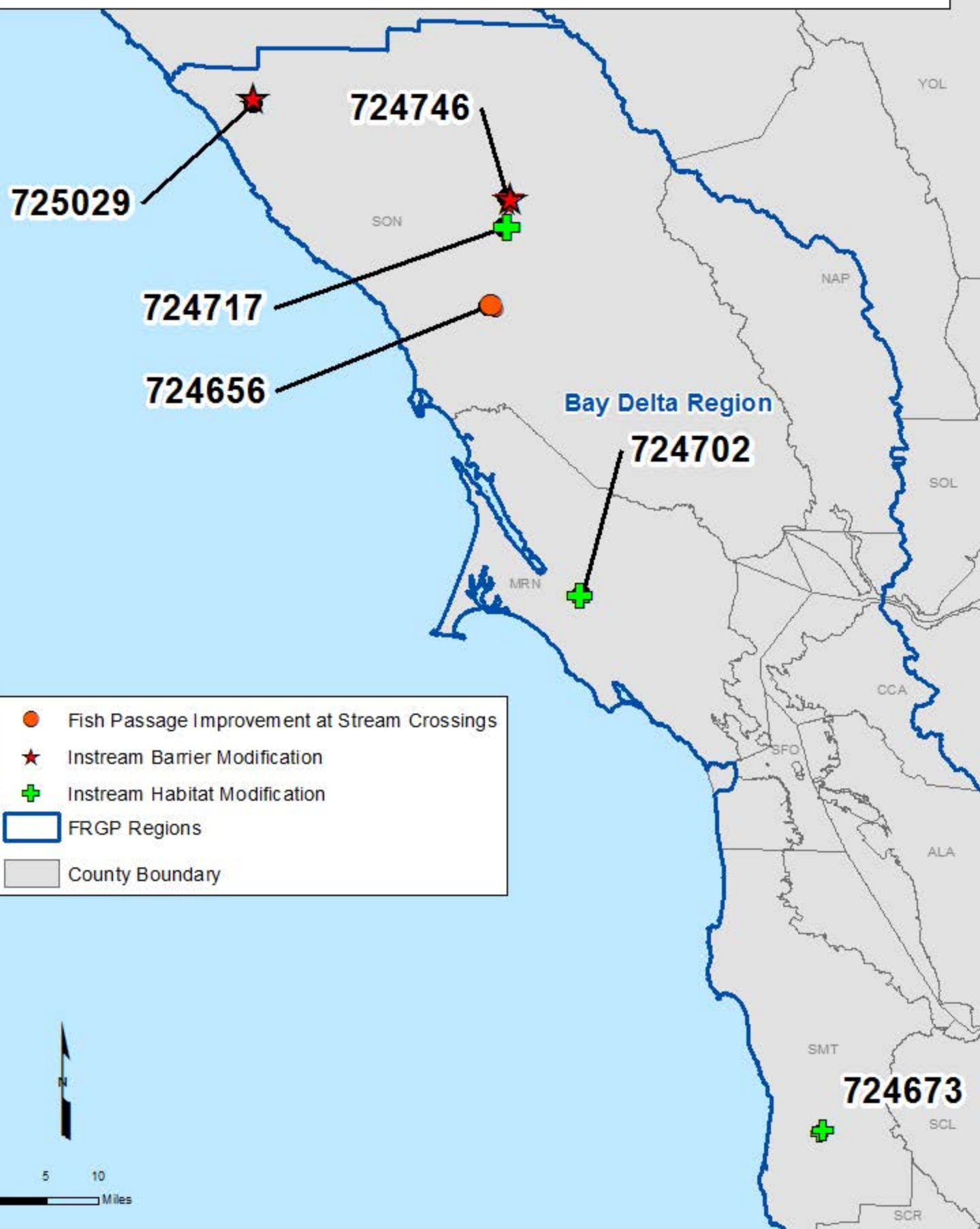
**California Department of Fish and Wildlife,
Fisheries Restoration Grant Program,
2016 Mitigated Negative Declaration
State-Wide Action Items Location Map**



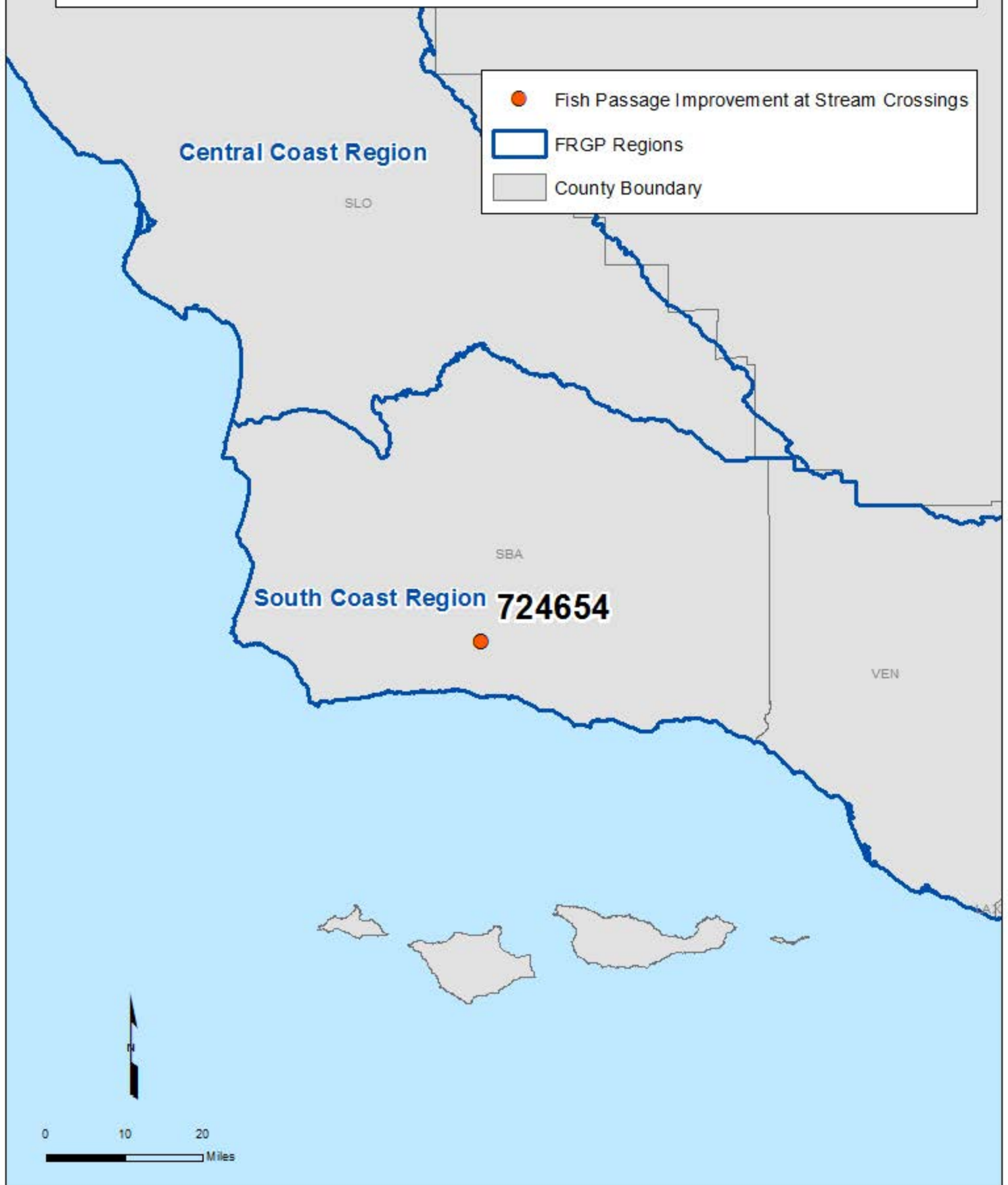
California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2016 Mitigated Negative Declaration FRGP Region 1 Action Items Location Map



California Department of Fish and Wildlife, Fisheries Restoration
Grant Program, 2016 Mitigated Negative Declaration FRGP
Region 3 Action Items Location Map



**California Department of Fish and Wildlife, Fisheries Restoration
Grant Program, 2016 Mitigated Negative Declaration FRGP
Region 5 Action Items Location Map**



APPENDIX B

MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND ANADROMOUS RESTORATION PROJECTS

SECTION 1: MITIGATION

General mitigation measures are implemented for all action items. Specific mitigation measures are identified for the various species found at or near the project site. A CDFW grant manager is assigned to each action item and is responsible for ensuring the general and specific mitigation measures are implemented.

I. AESTHETICS

No specific mitigation measures are required to protect aesthetics.

II. AGRICULTURE RESOURCES

No specific mitigation measures are required to protect agricultural resources.

III. AIR QUALITY

No specific mitigation measures are required to protect air quality.

IV. BIOLOGICAL RESOURCES

A. General Measures for Protection of Biological Resources

- 1) Timing. To avoid impacts to aquatic habitat the activities carried out in the restoration program typically occur during the summer dry season where flows are low or streams are dry.
 - a) Work around streams is restricted to the period of June 15 through November 1 or the first significant rainfall, which ever comes first. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). This is to take advantage of low stream flow and avoid the spawning and egg/alevin incubation period of salmon and steelhead.
 - b) Upslope work generally occurs during the same period as stream work. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Non jurisdictional upslope projects do

not have seasonal restrictions in the Incidental Take Statement but work may be further restricted at some sites to allow soils to dry out adequately. In some areas equipment access and effectiveness is constrained by wet conditions.

- c) The approved work window for individual work sites will be further constrained as necessary to avoid the nesting or breeding seasons of birds and terrestrial animals. At most sites with potential for raptor (including northern spotted owls) and migratory bird nesting, if work is conditioned to start after July 9, potential impacts will be avoided and no surveys will be required. For work sites that might contain nesting marbled murrelets, the starting date will be September 16 in the absence of surveys. The work window at individual work sites could be advanced if surveys determine that nesting birds will not be impacted.
 - d) For restoration work that may affect swallow nesting habitat (such as removal or modification of bridges, culverts or other structures that show evidence of past swallow nesting activities), construction shall occur after August 31 to avoid the swallow nesting period. Suitable nesting habitat shall be netted prior to the breeding season to prevent nesting. Netting shall be installed before any nesting activity begins, generally prior to March 1. Swallows shall be excluded from areas where construction activities cause nest damage or abandonment.
 - e) All project activities shall be confined to daylight hours.
- 2) Projects shall not disturb or dewater more than 500 feet of contiguous stream reach.
 - 3) During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
 - 4) Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area where it cannot enter the stream channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans. Vehicles will be moved out of the normal high water area of the stream prior to refueling and lubricating. The grantee shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- 5) The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action while minimizing riparian disturbance without affecting less stable areas, which may increase the risk of channel instability. Existing roads shall be used to access work sites as much as practicable.
- 6) The access and work area limits shall be identified with brightly colored flagging or fencing. Flagging and fencing shall be maintained in good repair for the duration of project activities. All areas beyond the identified work area limits shall not be disturbed.
- 7) Any construction debris shall be prevented from falling into the stream channel. Any material that does fall into a stream during construction shall be immediately removed in a manner that has minimal impact to the streambed and water quality.
- 8) Where feasible, the construction shall occur from the bank, or on a temporary pad underlain with filter fabric.
- 9) Any work within the stream channel shall be performed in isolation from the flowing stream and erosion protection measures shall be in place before work begins.
 - a) Prior to dewatering, the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic invertebrates shall be determined.
 - b) If there is any flow when work will be done, the grantee shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam.
 - c) No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
 - d) Cofferdams may be constructed with clean river run gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream. Clean river run gravel may be left in the stream channel, provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.
 - e) Dewatering shall be coordinated with a qualified fisheries biologist to perform fish and wildlife relocation activities.
 - f) The length of the dewatered stream channel and the duration of the dewatering shall be kept to a minimum and shall be expected to be less than 300 contiguous feet or 500 total feet per site.

- g) When bypassing stream flow around work area, stream flow below the construction site shall be maintained similar to the unimpeded flow at all times.
 - h) The work area shall be periodically pumped dry of seepage. Pumps shall be placed in flat areas, away from the stream channel. Pumps shall be secured by tying off to a tree or staked in place to prevent movement by vibration. Pump intakes shall be covered with 0.125 inch mesh to prevent entrainment of fish or amphibians that failed to be removed. Pump intakes shall be periodically checked for impingement of fish or amphibians, and shall be relocated according to the approved measured outlined for each species bellow.
 - i) If necessary, flow shall be diverted around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting CDFW and NOAA criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
 - j) Fish shall be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed net or screen. Mesh shall be no greater than 1/8-inch diameter. The bottom edge of the net or screen shall be completely secured to the channel bed to prevent fish from reentering the work area. Exclusion screening shall be placed in areas of low water velocity to minimize fish impingement. Screens shall be regularly checked and cleaned of debris to permit free flow of water.
- 10) Where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), the action shall be carried out without dewatering and fish relocation. Furthermore, measures shall be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in the stream channel provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.
- 11) Best management practices associated with fish screens and measures to minimize effects to salmonids associated with fish screen construction, maintenance, and repair are presented below:
- a) Screening projects shall only take place on diversions with a capacity of 60 cfs or less. Screening larger diversions shall require separate consultation. Fish screens shall be operated and maintained in compliance with current law, including Fish and Game Code, and CDFW

fish screening criteria. CDFW screening criteria may be referenced on the Internet at:

http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenCriteria.asp.

- b) Notwithstanding Fish and Game Code section 6027, fish screens and bypass pipes or channels shall be in-place and maintained in working order at all times water is being diverted.
- c) If a screen site is dewatered for repairs or maintenance when targeted fish species are likely to be present, measures shall be taken to minimize harm and mortality to targeted species resulting from fish relocation and dewatering activities. The responsible party shall notify CDFW before the project site is de-watered and streamflow diverted. The notification shall provide a reasonable time for personnel to supervise the implementation of a water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires site dewatering and fish relocation, the responsible party shall implement the dewatering and relocation measures as described in this document to minimize harm and mortality to listed species.
- d) If a fish screen is removed for cleaning or repair, measures shall be undertaken to ensure juvenile fish are not passively entrained into the diversion canal. The area shall be isolated, cleared of fish, and dewatered prior to screen maintenance or replacement. If dewatering the work area is infeasible, then the area in front of the screen shall be cleared of fish utilizing a seine net that remains in place until the project is complete. In the case of a damaged screen, a replacement screen shall be installed immediately or the diversion shut down until a screen is in place.
- e) Fish screens shall be inspected and maintained regularly (not less than two times per week) to ensure that they are functioning as designed and meeting CDFW fish screening criteria. During the diversion season, screens shall be visually inspected while in operation to ensure they are performing properly. Outside the diversion season when the screening structure is dewatered, the screen and associated diversion structure shall be more thoroughly evaluated.
- f) Existing roads shall be used to access screen sites with vehicles and/or equipment whenever possible. If it is necessary to create access to a screen site for repairs or maintenance, access points shall be identified at stable stream bank locations that minimize riparian disturbance.
- g) Sediment and debris removal at a screen site shall take place as often as needed to ensure that screening criteria are met. Sediment and debris shall be removed and disposed at a location where it will not re-enter the water course.
- h) Stationary equipment used in performing screen maintenance and repairs,

such as motors, pumps, generators, and welders, located within or adjacent to a stream shall be positioned over drip pans.

- i) Equipment which is used to maintain and/or repair fish screens shall be in good condition and checked and maintained on a daily basis to prevent leaks of materials that could be deleterious to aquatic life, wildlife, or riparian habitat.
 - j) To the extent possible repairs to a fish screen or screen site shall be made during a period of time when the target species of fish are not likely to be present (for example, in a seasonal creek, repair work should be performed when the stream is dry).
 - k) Equipment used to maintain and/or repair fish screens shall not operate in a flowing stream except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
 - l) Turbid water which is generated by screen maintenance or repair activities shall be discharged to an area where it will not re-enter the stream. If the CDFW determines that turbidity/siltation levels resulting from screen maintenance or repair activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW-approved sediment control devices are installed and/or abatement procedures are implemented.
- 12) Any equipment entering the active stream (for example, in the process of installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.
- 13) If any non-special status wildlife are encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site. "Special status wildlife" is defined as any species that meets the definition of "endangered, rare, or threatened species" in section 15380, article 20 in Title 14 of the California Code of Regulations, also known as the "CEQA Guidelines".
- 14) Any red tree vole nests encountered at a work site shall be flagged and avoided during construction.
- 15) For any work sites containing western pond turtles, salamander, foothill yellow-legged frogs, or tailed frogs, the grantee shall provide to the CDFW grant manager for review and approval, a list of the exclusion measures that will be used at their work site to prevent take or injury to any individual pond turtles, salamanders, or frogs that could occur on the site. The grantee shall ensure that the approved exclusion measures are in place prior to construction. Any turtles or frogs found within the exclusion zone shall be moved to a safe location upstream or downstream of the work site, prior to construction.

- 16) All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at:
<http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.
- 17) The grantee shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.
- 18) Installation of bridges, culverts, or other structures shall be done so that water flow is not impaired and upstream and downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade.
- 19) Temporary fill shall be removed in its entirety prior to close of work-window.

B. Specific Measures for Endangered, Rare, or Threatened Species That Could Occur at Specific Work Sites

1) Rare Plants

The work sites for the 2016 grants projects are within the range of a variety of rare plant species. The plant species found on a State or Federal special status list that might be associated with the 2016 grants projects, was determined from a search of CDFW's Natural Diversity Database. Because of the large number of widely scattered work sites proposed, it is not feasible to survey individual work sites in advance and still be able to implement the restoration projects, due to time limits on the availability of restoration funds. Lists of special status plant species that might occur at individual work sites are presented in Appendix A. Past experience with grants projects from previous years has shown that the potential for adverse impacts on rare plants at salmonid restoration work sites is very low. Few sites surveyed for rare plants between 1999 and 2012 were found to have rare plant colonies; disturbance of rare plants was avoided in all cases. In order to avoid impacts to rare plants during the 2016 grants projects, the following mitigation measures will be implemented:

- a) CDFW or another qualified biological consultant shall survey all work sites for rare plants prior to any ground disturbing activities. Rare plant surveys will be conducted following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" (CDFW, 2009). These guidelines are available in Appendix C or on the web at: <http://www.dfg.ca.gov/habcon/plant/>.
- b) If any special status plant species are identified at a work site, CDFW shall require one or more of the following protective measures to be implemented before work can proceed:

- i. Fencing to prevent accidental disturbance of rare plants during construction,
 - ii. On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
 - iii. Redesign of proposed work to avoid disturbance of rare plants.
- c) If it becomes impossible to implement the project at a work site without potentially significant impacts to rare plants, then activity at that work site shall be discontinued.
 - d) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.

2) Arroyo toad (*Anaxyrus californicus*)

Of the 34 work sites proposed as part of the 2016 grants program, none of the sites shows the Arroyo Toad listed on the corresponding species list in Appendix A.

3) California freshwater shrimp (*Syncaris pacifica*)

One of the 34 work sites proposed as part of the 2016 grants program occurs within the range of California freshwater shrimp (CFS) (724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II) (Appendix A). The range of the CFS includes Marin, Napa, and Sonoma counties, excluding the Gualala River watershed. Therefore, the potential for impacts to CFS shall be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service (USFWS), Biological Opinions (file no. 1-1-03-F-273 and 81420-2009-I-0748-1). CDFW proposes to implement the following measures to minimize adverse effects to the CFS and its habitat:

- a) Project activities in potential shrimp habitat shall be restricted to the period between July 1 and November 1.
- b) At least 15 days prior to the onset of activities, CDFW shall submit the name(s) and credentials of biologists who will conduct activities specified in the following measures to the USFWS. The grantee shall implement any additional conservation measures requested by CDFW and/or the USFWS.
- c) CDFW shall be notified at least one week in advance of the date on which work will start in the stream, so that a qualified CDFW biologist can monitor activities at the work site. All work in the stream shall be stopped immediately if it is determined by CDFW that the work has the potential to adversely impact shrimp or its habitat. Work shall not recommence until CDFW is satisfied that there will be no impact on the shrimp.

- d) Where appropriate, a USFWS-approved CDFW biologist will survey each site for shrimp before allowing work to proceed and prior to issuance of a Streambed Alteration Agreement. All overhanging vegetation, undercut banks, and tree roots will be surveyed with a butterfly net or fish net.
- e) Prior to the onset of work at a work site that may contain shrimp, the USFWS-approved CDFW biologist shall conduct a training session for all construction personnel. At a minimum the training shall include a description of the shrimp and its habitat, the importance of the shrimp and its habitat, the general measures that are being implemented to conserve the shrimp as they relate to the work site, and the work site boundaries where construction may occur.
- f) Only USFWS-approved biologists shall participate in the capture, handling, and monitoring of shrimp. CDFW shall report annually on the number of capture, release and injuries/mortality and agrees to modify capture/release strategy with USFWS staff as needed to prevent adverse effects.
- g) In site locations where shrimp are present, CDFW will require the grantee to implement the mitigation measures listed:
 - i. Equipment work shall be performed only in riffle, shallow run, or dry habitats, avoiding low velocity pool and run habitats occupied by shrimp, unless shrimp are relocated according to the protocol described below. "Shallow" run habitat is defined as a run with a maximum water depth, at any point, less than 12 inches, and without undercut banks or vegetation overhanging into the water.
 - ii. Hand placement of logs or rocks shall be permitted in pool or run habitat in stream reaches where shrimp are known to be present, only if the placement will not adversely affect shrimp or their habitat.
 - iii. Care shall be taken during placement or movement of materials in the stream to prevent any damage to undercut stream banks and to minimize damage to any streamside vegetation. Streamside vegetation overhanging into pools or runs shall not be removed, trimmed, or otherwise modified.
 - iv. No log or rock weirs (including vortex rock weirs), or check dams shall be constructed that would span the full width of the low flow stream channel. Vegetation shall be incorporated with any structures involving rocks or logs to enhance migration potential for shrimp.
 - v. No dumping of dead trees, yard waste or brush shall occur in shrimp streams, which may result in oxygen depletion of aquatic systems.
- h) If in the opinion of the USFWS-approved biologist, adverse effects to shrimp would be further minimized by moving shrimp away from the project site, the following procedure shall be used:

- i. A second survey shall be conducted within 24 hours of any construction activity and shrimp shall be relocated to the nearest suitable habitat. Shrimp shall be moved while in the net, or placed in buckets containing stream water. Stress and temperature monitoring of shrimp shall be performed by the USFWS-approved biologist. Numbers of shrimp and any mortalities or injuries shall be identified and recorded. Shrimp habitat is defined as reaches in low elevation (less than 116 m) and low gradient (less than one percent) streams where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris or overhanging vegetation.
 - ii. When no other habitat exists on a landowner's property, the shrimp shall be held in suitable containers with site water and released at the end of the day. Containers shall be placed in the shade.
- i) If moving the shrimp out of the work area cannot be accomplished, and other avoidance measures have been deemed inappropriate, CDFW shall drop activities at the work site from the project.
- j) A USFWS-approved CDFW biologist shall be present at the work site until such time as all removal of shrimp, instruction of workers, and habitat disturbance associated with the restoration project have been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in the loss of any shrimp or its habitat. If work is stopped, the USFWS-approved biologist shall immediately notify CDFW and the USFWS.
- k) If a work site is temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than 0.2 inch to prevent shrimp from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow with the least disturbance to the substrate.
- l) A USFWS-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The grantee shall have the responsibility that such removals are done in compliance with the California Department of Fish and Wildlife.
- m) Invasive non-native vegetation that provides shrimp habitat and is removed as a result of Program activities shall be replaced with native vegetation that provides comparable habitat for the shrimp. Re-vegetated sites shall be irrigated as necessary until vegetation is established. Re-vegetated sites shall be monitored until shading and cover achieves 80% of pre-project shading and cover and for a minimum of 5 years.

4) California red-legged frog (*Rana draytonii*)

Of the 34 work sites proposed as part of the 2016 grants program, eight occur within the range of the California red-legged frog (CRLF). Activities proposed for (724797 Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement, 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II, 724673 San Gregorio Creek Habitat Enhancement Project - Phase 2, 724656 Upper Green Valley Creek Fish Passage Implementation Project, 724717 Felta Creek Stream Habitat Enhancement Project, 724746 Mill Creek Dam Fish Passage Project, 725029 Horesethief Canyon Instream Barrier Modification, and 724654 Fish Passage Improvement at Crossing 4, Quiota Creek) (Appendix A) will not remove or degrade CRLF habitat; however, precautions shall be required at these sites to avoid the potential for take of CRLF while using heavy equipment. The potential for impacts to CRLF will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the USFWS, Biological Opinion (file no. 1-1-03-F-273, 81420-2009-I-0748-1, and 81440-2009-F-0387 for projects within the San Francisco District of the USACE, and file no. 2008-F-0441 for projects within the Los Angeles District of the USACE). CDFW shall implement the following measures to minimize adverse effects to the CRLF and its habitat:

- a) Project activities in potential red-legged frog habitat shall be restricted to the period between July 1 and October 15.
- b) At least 15 days prior to the onset of project activities, CDFW shall submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until CDFW has received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
- c) USFWS-approved biologist(s) who handle red-legged frogs shall ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (<http://www.fws.gov/ventura/docs/species/protocols/DAFTA.pdf>) shall be followed at all times.
- d) A CDFW monitoring plan shall be developed to determine the level of incidental take of the red-legged frog associated with the Restoration Program funded activities in the area. The monitoring plan must include a standardized mechanism to report any observations of dead or injured red-legged frog to the appropriate USACE and USFWS offices.
- e) A USFWS-approved biologist shall survey the project site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologist will allow sufficient time to move them from the site

before work activities resume. Only USFWS-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.

- f) Before any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the approved biologist's knowledge.
- g) Prior to the onset of project activities, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- h) A USFWS-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the USACE and USFWS during review of the proposed action. If work is stopped, the USACE and the USFWS shall be notified immediately by the USFWS-approved biologist or on-site biological monitor.
- i) If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The USFWS-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The USFWS-approved biologist must maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.
- j) If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.125 inch to prevent red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain down stream flows during construction activities and eliminate the possibility of ponded water. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

- k) Ponded areas shall be monitored for red-legged frogs that may become entrapped. Any entrapped red-legged frog shall be relocated to a pre-determined receiving area by a USFWS-approved biologist.
- l) A USFWS-approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.
- m) The CDFW or USACE shall report any observation of the incidental take of red-legged frogs associated with the implementation of the Restoration Program projects in accordance with RGP78. The USFWS and the USACE must review the circumstances surrounding the incident to determine whether any patterns of repeated authorized or unauthorized activities are occurring that may indicate that additional protective measures are required. If, after completion of the review, the USACE and the USFWS agree that additional protective measures are required and can be implemented within the existing scope of the action, the USACE must require the CDFW to implement the agreed-upon measures within a reasonable time frame; if the corrective actions cannot be implemented within the scope of the existing action, the USACE and USFWS will determine whether re-initiation of consultation is appropriate.
- n) Despite term and condition i of this section (above), the USACE must immediately re-initiate formal consultation with the USFWS, pursuant to 7(a) (2) of the Endangered Species Act, if red-legged frogs are taken within the action area at or in excess of the incidental take anticipated in the Incidental Take Statement section of the U.S. Fish and Wildlife biological opinion (file no. 2008-F-0441), whether by project or by year.
- o) If these mitigation measures cannot be implemented or the project activities proposed at a specific work site cannot be modified to prevent or avoid potential impacts to CRLF or its habitat, then project activity at that work site shall be discontinued.

5) California tiger salamander (*Ambystoma californiense*)

Of the 34 proposed projects in the 2016 grant program, none are within the range of the California tiger salamander.

6) Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), and coast cutthroat trout (*Oncorhynchus clarki clarki*)

While all of the work proposed under this program will enhance habitat for one or more of these species, all of the work sites proposed as part of the 2016 grants program could involve instream work in their habitat (Appendix A). In order to avoid any potential for negative impacts to these species, the following measures will be implemented:

- a) Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant rainfall, or whichever comes first. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).
- b) Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species and to speed recovery of native vegetation.
- c) Prior to dewatering a construction site, fish and amphibian species shall be captured and relocated by CDFW personnel (or designated agents). The following measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:
 - i. Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
 - ii. Fish relocation shall be performed by a qualified fisheries biologist, with all necessary State and Federal permits. Captured fish shall be moved to the nearest appropriate site outside of the work area. A record shall be maintained of all fish rescued and moved. The record shall include the date of capture and relocation, the method of capture, the location of the relocation site in relation to the project site, and the number and species of fish captured and relocated. The record shall be provided to CDFW within two weeks of the completion of the work season or project, whichever comes first.

- iii. Electrofishing shall be conducted by properly trained personnel following NOAA *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act*, June 2000.
- iv. Prior to capturing fish, the most appropriate release location(s) shall be determined. The following shall be determined:
 - i) Temperature: Water temperature shall be similar as the capture location.
 - ii) Habitat: There shall be ample habitat for the captured fish.
 - iii) Exclusions from work site: There shall be a low likelihood for the fish to reenter the work site or become impinged on exclusion net or screen.
- v. The most efficient method for capturing fish shall be determined by the biologist. Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping-down the pool and then seining or dipnetting fish.
- vi. Handling of salmonids shall be minimized. However, when handling is necessary, always wet hands or nets prior to touching fish.
- vii. Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release.
- viii. Air and water temperatures shall be measured periodically. A thermometer shall be placed in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds 18 °C, fish shall be released and rescue operations ceased.
- ix. Overcrowding in containers shall be avoided by having at least two containers and segregating young-of-year (YOY) fish from larger age-classes to avoid predation. Larger amphibians, such as Pacific giant salamanders, shall be placed in the container with larger fish. If fish are abundant, the capturing of fish and amphibians shall cease periodically and shall be released at the predetermined locations.
- x. Species and year-class of fish shall be visually estimated at time of release. The number of fish captured shall be counted and recorded. Anesthetization or measuring fish shall be avoided.
- xi. If feasible, initial fish relocation efforts shall be performed several days prior to the start of construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional electrofishing passes immediately prior to construction. In many

instances, additional fish will be captured that eluded the previous day's efforts.

- xii. If mortality during relocation exceeds three percent, capturing efforts shall be stopped and the appropriate agencies shall be contacted immediately.
 - xiii. In regions of California with high summer temperatures, relocation activities shall be performed in the morning when the temperatures are cooler.
 - xiv. CDFW shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
 - xv. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- d) If these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site shall be discontinued.

7) Least Bell's Vireo (*Vireo bellii pusillus*)

Of the 34 projects proposed as part of the 2016 grants program, none are within the range of the least Bell's vireo.

8) Marbled murrelet (*Brachyrampus marmoratus*)

Six of the 34 work sites proposed as part of the 2016 grants program are in potentially suitable habitat for the marbled murrelet. Activities proposed for the sites (724785 Lower Mill Creek Instream Restoration Project, Phase 2, 724782 Greater Eel River Arundo Eradication Phase III, 724655 South Fork Noyo River Instream Habitat Enhancement Project, 724684 East Branch Little North Fork LWD and Instream Barrier Modification, 724706 James Creek Fish Barrier Modification Project, and 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II) (Appendix A) will not remove, degrade, or downgrade suitable marbled murrelet habitat. As a result, direct injury or mortality of murrelets is not an issue. The potential exists for noise from heavy equipment work at these sites to disrupt marbled murrelet nesting. To avoid this potential impact, the following mitigation measures shall be implemented:

- a) Restoration work in areas considered by the Arcata and Ventura USFWS offices shall not be conducted within 0.25 mile of occupied or un-surveyed suitable marbled murrelet habitat between March 24 and September 15. Restoration work in areas considered by the Sacramento USFWS Office shall

not be conducted within 0.25 mile of any occupied or un-surveyed suitable marbled murrelet habitat between November 1 and September 15.

- b) The work window at individual work sites near suitable habitat may be modified, if protocol surveys determine that habitat quality is low and occupancy is very unlikely.
- c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential adverse effects to marbled murrelet or their habitat, then activity at that work site shall be discontinued.
- d) For projects contained in streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

9) Northern spotted owl (*Strix occidentalis caurina*)

Of the 34 work sites proposed as part of the 2016 grants program, 19 are in potentially suitable habitat for the northern spotted owl (724794 East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project, 724782 Greater Eel River Arundo Eradication Phase III, 724655 South Fork Noyo River Instream Habitat Enhancement Project, 724684 East Branch Little North Fork LWD and Instream Barrier Modification, 724694 Little North Fork Navarro River Coho Stream Habitat Enhancement Project, 724705 Noyo Headwaters Instream Habitat Enhancement Project, 724706 James Creek Fish Barrier Modification Project, 724744 Anderson Creek Sediment Reduction and Coho Recovery Project, 724745 Olds Creek Instream Coho Salmon Habitat Enhancement Project, 724764 Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II, 724781 Hollow Tree Tributary Complex Instream Restoration Project Phase II, 724797 Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement, 724714 South Fork Salmon River Tributary Salmonid Habitat Enhancement Project, 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II, 724656 Upper Green Valley Creek Fish Passage Implementation Project, 724717 Felta Creek Stream Habitat Enhancement Project, 724746 Mill Creek Dam Fish Passage Project, 725030 String Creek Steelhead Instream Habitat Enhancement Project, and 725029 Horesethief Canyon Instream Barrier Modification) (Appendix A). None of the activities will remove, degrade, or downgrade northern spotted owl habitat. As a result, direct injury or mortality of owls is not likely. The potential exists for heavy equipment work at these sites to disturb spotted owl nesting. To avoid this potential effect, the following mitigation measures will be implemented:

- a) Work with heavy equipment at any site within 0.25 miles of suitable habitat for the northern spotted owl shall not occur from November 1 to July 31 for projects in areas under the jurisdiction of the Sacramento USFWS Office and from November 1 to July 9 for projects in areas under the jurisdiction of the Arcata USFWS Office.

- b) The work window at individual work sites may be advanced prior to July 9 or July 31 (corresponding to the different time constraints of the Sacramento and Arcata USFWS office), if protocol surveys determine that suitable habitat is unoccupied.
- c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to northern spotted owls or their habitat, then activity at that work site shall be discontinued and CDFW must reinitiate consultation with USFWS.
- d) For projects contained within streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

10) Point Arena mountain beaver (*Aplodontia rufa nigra*)

Of the 34 projects proposed 2016 grants program, none are within the range of the Point Arena mountain beaver.

11) San Francisco Garter snake (*Thamnophis sirtalis tetrataenia*)

Of the 34 projects proposed in the 2016 grants program, one (724673 San Gregorio Creek Habitat Enhancement Project - Phase 2) (Appendix A) is located within the range of the San Francisco garter snake. The activities proposed for this site will not significantly degrade existing habitat. To avoid potential impact, the following mitigation measures will be implemented:

- a) The proponent shall retain a biologist who is familiar with the San Francisco garter snake and will monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter in this document. The authorized biologist will be present during all activities immediately adjacent to or within the project site.
- b) Prior to the onset of any construction activities, the proponent shall request a formal consultation with the USFWS and obtain all required permits. The proponent shall meet on-site with staff from the USFWS and the authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the San Francisco garter snake and the actions taken to reduce impacts to this species. Because the San Francisco garter snakes may occur in various locations during different seasons of the year, the proponent, the USFWS, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on San Francisco garter snake. The goal of this effort is to reduce the level of mortality of San Francisco garter snake during construction.

- c) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:
 - i. A detailed description of the San Francisco garter snake including color photographs;
 - ii. The protection the San Francisco garter snake receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;
 - iii. The protective measures being implemented to conserve the San Francisco garter snake and other species during construction activities associated with the proposed project; and
 - iv. A point of contact if San Francisco garter snakes are observed.
- d) All trash that may attract predators of the San Francisco garter snake will be removed from work sites or completely secured at the end of each work day.

12) Southwestern Willow flycatcher (*Empidonax traillii extimus*)

Of the 34 work sites proposed as part of the 2016 grants program, none are in potentially suitable habitat for the southwestern willow flycatcher.

13) Tidewater goby (*Eucyclogobius newberryi*)

Of the 34 work sites proposed as part of the 2016 grants program, none are in potentially suitable habitat for the tidewater goby.

14) Willow flycatcher (*Empidonax traillii*)

Of the 34 work sites proposed as part of the 2016 grants program, four (724776 Rowdy Creek Instream Habitat Enhancement Project Reach IV, 724738 Fish Passage Improvements at South Fortuna Boulevard, 724785 Lower Mill Creek Instream Restoration Project, Phase 2, and 724782 Greater Eel River Arundo Eradication Phase III) (Appendix A) are in potentially suitable habitat for the Willow flycatcher. None of the activities proposed for these sites will significantly degrade existing willow flycatcher habitat, but the potential exists for the noise from heavy equipment work or harvesting of revegetation material at these sites to disrupt willow flycatcher nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- a) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the willow flycatcher until after August 31.
- b) Harvest of willow branches at any site with potential habitat for the willow flycatcher will not occur between May 1 and August 31.

- c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- d) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.
- e) DFW shall ensure that the grantee or responsible party is aware of this site specific condition, and will inspect the work site before, during, and after completion of the action item.
- f) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site will be discontinued.

C. Riparian and re-vegetation

- 1) Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.
- 2) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.
- 3) Disturbed and compacted areas shall be re-vegetated with native plant species. The species shall be comprised of a diverse community structure that mimics the native riparian corridor. Planting ratio shall be 2:1 (two plants to every one removed).
- 4) Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.
- 5) To ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible, equipment shall be cleaned of all dirt, mud, and plant material prior to entering a work site. When possible, invasive exotic plants at the work site shall be removed. Areas disturbed by project activities will be restored and planted with native plants.
- 6) Mulching and seeding shall be done on all exposed soil which may deliver sediment to a stream. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all

mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.

- 7) If erosion control mats are used in re-vegetation, they shall be made of material that decomposes. Erosion control mats made of nylon plastic, or other non-decomposing material shall not be used.
- 8) CDFW shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush to minimize impacts to the riparian corridor.
- 9) If riparian vegetation is to be removed with chainsaws, the grantee shall use saws that operate with vegetable-based bar oil when possible.
- 10) Disturbed and decompacted areas shall be re-vegetated with native species specific to the project location that comprise a diverse community of woody and herbaceous species.

V. CULTURAL RESOURCES

Ground-disturbance will be required to implement the project at certain locations that, despite efforts to identify cultural resources, have the potential to affect these resources. The procedure for a programmatic evaluation of archeological resources is provided in Appendix E. Potential for inadvertent impacts will be avoided through implementation of the following mitigation measures:

- 1) CDFW shall contract with an archaeologist(s) or other historic preservation professional that meets The Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61, and 48 FR 44716) to complete cultural resource surveys at any sites with the potential to be impacted prior to any ground disturbing activities. This work may be augmented with the aid of a Native American cultural resources specialist that is culturally affiliated with the project area. Cultural and paleontological resource surveys shall be conducted using standard protocols to meet CEQA Guideline requirements. Paleontological survey protocols are listed in Appendix D.
- 2) If cultural and/or paleontological resource sites are identified at a project location, CDFW will require one or more of the following protective measures to be implemented before work can proceed: a) fencing to prevent accidental disturbance of cultural resources during construction, b) on-site monitoring by cultural and/or paleontological resource professionals during construction to

assure that cultural resources are not disturbed, c) redesign of proposed work to avoid disturbance of cultural resources.

- 3) CDFW shall report any previously unknown historic, archeological, and paleontological remains discovered at a project location to the USACE as required in the RGP.
- 4) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.
- 5) Inadvertent Discovery of Cultural Resources - If cultural resources, such as lithic debitage, ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, per the requirements of CEQA (January 1999 Revised Guidelines, Title 14 CCR 15064.5 (f)). Work near the archaeological finds shall not resume until an archaeologist that meets the Secretary of the Interior's Standards and Guidelines suited to the discovery, has evaluated the materials and offered recommendations for further action. Cultural materials not associated with human interments shall be documented and curated in place.
- 6) Inadvertent Discovery of Human Remains - If human remains are discovered during project construction, work shall stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains (Public Resources Code, Section 7050.5). The county coroner shall be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American heritage Commission (NAHC) (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work shall not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.
- 7) Procedures for treatment of an inadvertent discovery of human remains:
 - a) Immediately following discovery of known or potential human remains all ground-disturbing activities at the point of discovery shall be halted.
 - b) No material remains shall be removed from the discovery site, a reasonable exclusion zone shall be cordoned off.
 - c) The CDFW Grant Manager and property owner shall be notified and the CDFW Grant Manager shall contact the county coroner.

- d) CDFW shall retain the services of a professional archaeologist to immediately examine the find and assist the process.
- e) All ground-disturbing construction activities in the discovery site exclusion area shall be suspended.
- f) The discovery site shall be secured to protect the remains from desecration or disturbance, with 24-hour surveillance, if prudent.
- g) Discovery of Native American remains is a very sensitive issue, and all project personnel shall hold any information about such a discovery in confidence and divulge it only on a need-to-know basis, as determined by the CDFW.
- h) The coroner has two working days to examine the remains after being notified. If the remains are Native American, the coroner has 24 hours to notify the NAHC in Sacramento (telephone 916/653-4082).
- i) The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American.
- j) The MLD may, with the permission of the landowner, or their representative, inspect the site of the discovered Native American remains and may recommend to the landowner and CDFW Grant Manager means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site (Public Resource Code, Section 5097.98(a)). The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials.
- k) Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner or his/her authorized representative rejects the recommendation of the MLD and mediation between the parties by the NAHC fails to provide measures acceptable to the landowner, the landowner or his/her authorized representatives shall re-inter the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance in accordance with Public Resource Code, Section 5097.98(e).
- l) Following final treatment measures, the CDFW shall ensure that a report is prepared that describes the circumstances, nature and location of the discovery, its treatment, including results of analysis (if permitted), and final disposition, including a confidential map showing the reburial location. Appended to the report shall be a formal record about the discovery site prepared to current California standards on DPR 523 form(s). CDFW shall ensure that report copies are distributed to the appropriate California Historic Information Center, NAHC, and MLD.

- 8) Pursuant to RGP78 and in accordance to 36 C.F.R. Section 800.13, in the event of any discovery during construction of human remains, archeological deposits, or any other type of historic property, the CDFW shall notify the USACE archeological staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861) within 24 hours. Construction work shall be suspended immediately and shall not resume until USACE re-authorizes project construction.
- 9) If it becomes impossible to implement the project at a work site without disturbing cultural or paleontological resources, then activity at that work site shall be discontinued.

VI. GEOLOGY AND SOILS

There is no potential for a significant adverse impact to geology and soils; implementation of the restoration project will contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

- 1) CDFW will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:
 - a) All stream crossing replacement or modification designs, involving fish passage, shall be reviewed and approved by NOAA (or CDFW) engineers prior to onset of work.
 - b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.
- 2) CDFW shall implement the following measures to minimize harm to listed salmonids resulting from road decommissioning activities:
 - a) Woody debris will be concentrated on finished slopes of decommissioned roads adjacent to stream crossings to reduce surface erosion; contribute to amounts of organic debris in the soil; encourage fungi; provide immediate cover for small terrestrial species; and to speed recovery of native forest vegetation.

- b) Work sites shall be winterized at the end of each day to minimize the eroding of unfinished excavations when significant rains are forecasted. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leaves the work site.
- 3) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain shall not begin until all temporary erosion controls (i.e., straw bales or silt fences that are effectively keyed-in) are in place down slope or down stream of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.
- 4) An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained onsite to facilitate a quick response to unanticipated storm events or emergencies.
- 5) Use erosion controls that protect and stabilize stockpiles and exposed soils to prevent movement of materials. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soils.
- 6) When needed, instream grade control structures shall be utilized to control channel scour, sediment routing, and headwall cutting.
- 7) Temporary stockpiling of excavated material shall be minimized. However, excavated material shall be stockpiled in areas where it cannot enter the stream channel. Available sites at or near the project location shall be determined prior to the start of construction. If feasible, topsoil shall be conserved for reuse at project location or use in other areas.
- 8) For projects located within the USACE San Francisco District, an annual limit on the number of sediment-producing projects per HUC 10 watershed shall be implemented to ensure that potential sediment impacts will remain spatially isolated, thus minimizing cumulative turbidity effects. Sediment producing projects include instream habitat improvement, instream barrier removal, stream bank stabilization, fish passage improvement, upslope road work, and fish screen

construction (unless the screen is located in a diversion ditch and is disconnected from the waterway). The limit of projects shall be as follows:

Square mile of HUC 10 watershed	Maximum number of instream and upslope projects per year
<50	2
51-100	3
101-150	4
151-250	5
251-350	6
351-500	9
>500	12

Projects funded by the FRGP that are not authorized under the RGP (i.e., they have undergone separate consultation) or have already been authorized by the RGP in previous years(s) do not count toward the limits described above.

- 9) Each year, all instream projects shall be separated both upstream and downstream from other proposed instream projects by at least 1500 linear feet in fish bearing stream reaches. In non-fish bearing reaches, the distance separating sediment- producing projects will be 500 feet.
- 10) Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.
- 11) Soil compaction shall be minimized by using equipment with a greater reach or that exerts less pressure per square inch on the ground, resulting in less overall area disturbed and less compaction of disturbed areas.
- 12) Disturbed soils shall be decompacted at project completion as heavy equipment exits the construction area.
- 13) At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

VII. GREENHOUSE GAS EMISSIONS

No specific mitigation measures are required. Re-vegetation practices will help offset the short term, less than significant, greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS

The project will not create a significant hazard to the public or the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant, or of an accidental spark from equipment igniting a fire. The potential for these impacts will be reduced to a less than significant level through implementation of the following mitigation measures:

- 1) Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.
- 2) When operating vehicles in wetted portions of the stream channel, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, the responsible party shall, at a minimum, do the following:
 - a) check and maintain on a daily basis any vehicles to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat;
 - b) take precautions to minimize the number of passes through the stream and to avoid increasing the turbidity of the water to a level that is deleterious to aquatic life; and
 - c) allow the work area to “rest” to allow the water to clear after each individual pass of the vehicle that causes a plume of turbidity above background levels, resuming work only after the stream has reached the original background turbidity levels.
- 3) All equipment operators shall be trained in the procedures to be taken should an accident occur. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a Spill Prevention/Response plan to help avoid spills and allow a prompt and effective response should an accidental spill occur. All workers shall be informed of the importance of preventing spills. Operators shall have spill clean-up supplies on site and be knowledgeable in their proper deployment.
- 4) All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill. In an event of a spill, work shall cease immediately. Clean-up of all spills shall begin immediately. The responsible party shall notify the State

Office of Emergency Services at 1-800-852-7550 and the CDFW immediately after any spill occurs, and shall consult with the CDFW regarding clean-up procedures.

- 5) All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 65 feet from any riparian habitat or water body and place fuel absorbent mats under pump while fueling. The USACE and the CDFW will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the CDFW will ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 6) Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed, and disposed of throughout the project.
- 7) Petroleum products, fresh cement, and other deleterious materials shall not enter the stream channel.
- 8) Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.
- 9) No debris, soil, silt, sand, bark, slash, spoils, sawdust, rubbish, cement, concrete or washings thereof, asphalt, paint, or other coating material; oil or petroleum products; or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state. When operations are completed, any excess materials or debris shall be removed from the work area and disposed of in a lawful manner.
- 10) All internal combustion engines shall be fitted with spark arrestors.
- 11) The grantee shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.
- 12) Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.
- 13) The grantee shall follow any additional rules the landowner has for fire prevention.

- 14) The potential for mercury contamination is largely predicted by the presence of historic hydraulic gold mines and mercury (cinnabar) mines (California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State, DOC 2000). Therefore, only a few limited areas within the geographic scope of this grant program have any potential for gravels contaminated with elemental mercury, they are: Middle Klamath River, Salmon River, Scott River, and the Lower Middle and Upper Trinity River. (Though studies by the USGS failed to find significant levels of methyl mercury near these mines.)
 - a) Given the limited geographical potential for encountering mercury contamination (from historic mining) within the geographic scope, and the limited number of projects within these areas that will either disturb the channel bottom or import gravels for instream restoration; the following avoidance and mitigation measure will be adhered to: any gravel imported from offsite shall be from a source known to not contain historic hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings.

IX. HYDROLOGY AND WATER QUALITY

- 1) Instream work shall be conducted during the period of lowest flow.
- 2) Before work is allowed to proceed at a site, CDFW shall inspect the site to assure that turbidity control measures are in place.
- 3) The waste water from construction area shall be discharged to an upland location where it will not drain sediment-laden water back to stream channel.
- 4) For projects within the USACE San Francisco District, if instream work liberates a sediment wedge, 80% of the wedge shall be removed before the sediment is liberated. The required amount can be modified if NOAA or CDFW hydrologists or hydraulic engineers agree that removing a smaller amount will better protect and enhance fish habitat in the area of the project (e.g., leaving some sediment to replenish areas downstream that lack suitable substrate volume or quality).
- 5) To control erosion during and after project implementation, CDFW shall implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
- 6) Sediment-laden water caused by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
- 7) If CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.

- 8) Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter flowing stream. Commercial sealants shall be applied to the poured concrete surface where concrete cannot be excluded from the stream flow for two weeks. If sealant is used, water shall be excluded from the site until the sealant is dry.
- 9) If the CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.
- 10) Prior to use, all equipment shall be cleaned to remove external oil, grease, dirt, or mud. Wash sites shall be located in upland locations so that dirty wash water does not flow into the stream channel or adjacent wetlands.
- 11) Water conservation projects that include water storage tanks and a Forbearance Agreement, for the purpose of storing winter water for summer use, require registration of water use pursuant to the Water Code §1228.3, and require consultation with CDFW and compliance with all lawful conditions required by CDFW. Diversions to fill storage facilities during the winter and spring months shall be made pursuant to a Small Domestic Use Appropriation (SDU) filed with the State Water Resources Control Board (SWRCB). CDFW will review the appropriation of water to ensure fish and wildlife resources are protected. The following conditions shall then be applied:
 - a) Seasonal Restriction: No pumping is allowed when stream flow drops below 0.7 cubic feet per second (cfs) except as permitted by CDFW in the event of an emergency.
 - b) Bypass Flows: Pumping withdrawal rates shall not exceed 5% of stream flow. If CDFW determines that the streamflow monitoring data indicate that fisheries are not adequately protected, then the bypass flows are subject to revision by CDFW.
 - c) Cumulative Impacts: Pumping days shall be assigned to participating landowner(s) when streamflows drop below 1.0 cfs to prevent cumulative impacts from multiple pumps operating simultaneously.
 - d) Pump Intake Screens: Pump intake screens shall comply with the "2000 California Department of Fish and Game Screening Criteria"* for California streams that provide habitat for juvenile coho salmon, Chinook salmon and steelhead. The landowner shall be responsible for annual inspection and maintenance of screens. Additionally, the landowner shall be responsible for

cleaning screens as needed to keep them free of debris and ensure that screen function complies with the criteria specifications.

- e) These conditions do not authorize incidental take of any species, removal of riparian vegetation, or bed, bank, or channel alteration.
- f) CDFW shall be granted access to inspect the pump system. Access is limited to the portion of the landowner's real property where the pump is located and those additional portions of the real property which must be traversed to gain access to the pump site. Landowners shall be given reasonable notice and any necessary arrangements will be made prior to requested access including a mutually-agreed-upon time and date. Notice may be given by mail or by telephone with the landowner or an authorized representative of the landowner. The landowner shall agree to cooperate in good faith to accommodate CDFW access.

* Fish Screening Criteria are from "State of California Resources Agency Department of Fish and Game Fish Screening Criteria, June 19, 2000." The "approach velocity" shall be calculated according to Section 2C "Screens which are not Self Cleaning." These screening criteria are available at <http://iep.water.ca.gov/cvffrt/DFGCriteria2.htm>.

X. LAND USE AND PLANNING

No specific mitigation measures are required for land use and planning.

XI. MINERAL RESOURCES

No specific mitigation measures are required for mineral resources.

XII. NOISE

Personnel shall wear hearing protection while operating or working near noisy equipment (producing noise levels ≥ 85 db, including chain saws, excavators, and back hoes). No other specific mitigation measures are required for noise.

XIII. POPULATION AND HOUSING

No specific mitigation measures are required for population and housing.

XIV. PUBLIC SERVICES

No specific mitigation measures are required for public services.

XV. RECREATION

No specific mitigation measures are required for recreation.

XVI. TRANSPORTATION/TRAFFIC

The project will not affect transportation/traffic, because erosion control and culvert replacement projects will occur in wildland/rural sites with very little use. There is a potential that culvert replacement at some work sites could temporarily interfere with emergency access. This potential impact will be avoided through implementation of the following mitigation measure at any sites where emergency access might be necessary:

- 1) During excavation for culvert replacement, the grantee shall provide a route for traffic around or through the construction site.

XVII. UTILITIES AND SERVICE SYSTEMS

No specific mitigation measures are required for utilities and service systems.

SECTION 2: MONITORING AND REPORTING

CDFW shall implement the following measures to ensure that individual restoration projects authorized annually through the RGP (RGP12 and RGP78) will minimize take of listed salmonids, monitor and report take of listed salmonids, and to obtain specific information to account for the effects and benefits of salmonid restoration projects authorized through the RGP.

- 1) CDFW shall provide USACE, NOAA, and USFWS notification of projects that are authorized through the RGP. The notification shall be submitted at least 90 days prior to project implementation and must contain specific project information including; name of project, type of project, location of project including hydrologic unit code (HUC), creek, watershed, city or town, and county.
- 2) CDFW Grant Manager shall inspect the work site before, during, and after completion of the action item, to ensure that all necessary mitigation measures to avoid impacts are properly implemented.
- 3) CDFW shall perform implementation monitoring immediately after the restoration activity is completed to ensure that projects are completed as designed.
- 4) CDFW shall perform effectiveness/validation monitoring on at least 10 percent of restoration projects funded annually. A random sample, stratified by project type

and region, shall be chosen from the pool of new restoration projects approved for funding each year. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring will be performed within three years following project completion.

- 5) Current monitoring forms and instructions used by CDFW for the implementation monitoring and effectiveness monitoring are available online at: http://ftp.dfg.ca.gov/Public/FRGP/Qualitative_Monitoring_Forms/. CDFW shall submit a copy of the annual report, no later than March 1 annually to NOAA.
- 6) The CDFW annual report to NOAA shall include a summary of all restoration action items completed during the previous year. The annual report shall include a summary of the specific type and location of each project, stratified by individual project, 5th field HUC and affected species and evolutionary significant unit (ESU)/Distinct Population Segment (DPS). The report shall include the following project-specific summaries, stratified at the individual project, 5th field HUC, and ESU level:
 - a) A summary detailing fish relocation activities; including the number and species of fish relocated and the number and species injured or killed. Any capture, injury, or mortality of adult salmonids or half-pounder steelhead shall be noted in the monitoring data and report. Any injuries or mortality from a fish relocation site that exceeds 3.0% of the affected listed species shall have an explanation describing why.
 - b) The number and type of instream structures implemented within the stream channel.
 - c) The length of stream bank (feet) stabilized or planted with riparian species.
 - d) The number of culverts replaced or repaired, including the number of miles of restored access to unoccupied salmonid habitat.
 - e) The distance (miles) of road decommissioned.
 - f) The distance (feet) of aquatic habitat disturbed at each project site.
- 7) CDFW shall incorporate project data into a format compatible with the CDFW/NOAA/Pacific Fisheries Management Council Geographic Information System (GIS) database, allowing scanned project-specific reports and documents to be linked graphically within the GIS database.
- 8) For Marin, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, and Sonoma Counties, CDFW shall submit an annual report due by January 31 (RGP12) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2800 Cottage Way, Sacramento, California 95825. The report must include:
 - a) A table documenting the number of California freshwater shrimp or California red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.

- b) A summary of how the terms and conditions of the biological opinions (file no. 81420-2009-I-0748-1 and 1-103-F-273) and the protective measures by the USACE and CDFW worked.
 - c) Any suggestions of how the protective measures could be revised to improve conservation of this species while facilitating compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).
- 9) For Los Angeles, Santa Barbara, San Luis Obispo, and Ventura Counties, CDFW shall submit an annual report due by January 31 (RGP12) and February 28 (RGP78) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2493 Portola Road, Suite B, Ventura, California 93003. The report must include:
 - a) A table documenting the number of red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.
 - b) A summary of how the terms and conditions of the biological opinions (file no. 81440-2009-F-0387 and 2008-F-0441) and the protective measures by the USACE and CDFW worked.
 - c) Any suggestions of how these protective measures could be revised to improve conservation of this species while facilitating compliance with the Act.
- 10) CDFW shall submit annual reports on July 1 of each year to the 401 Program Managers of the State Water Resources Control Board and the appropriate Regional Water Quality Control Boards documenting work undertaken during the preceding year and identifying for all such work:
 - a) Project name and grant number;
 - b) Project purpose and summary work description;
 - c) Name(s) of affected water body(ies);
 - d) Latitude/longitude in decimal degrees to at least four decimals;
 - e) For projects completed during the year:
 - i. The type(s) of receiving (affected) water body(ies) (e.g. at minimum: river/streambed, lake/reservoir, ocean/estuary/bay, riparian area, or wetland type); and
 - ii. The total quantity in acres of each type of receiving water body temporarily impacted, and permanently impacted;
 - f) For each water body type affected, the quantity of waters of the U.S. temporarily and permanently impacted. Fill/excavation discharges shall be reported in acres and fill/excavations discharges for channels, shorelines, riparian corridors, and other linear habitat shall also be reported in linear feet;
 - g) Actual construction start and end-dates;

- h) Whether the project is on-going or completed.
- i) Copies of reports documenting the following monitoring activities:
 - i. Post-project monitoring immediately after the activity is completed to ensure that projects are completed as designed; and
 - ii. Effectiveness monitoring on a random subset of 10% of the projects, within one to three years after project completion.
- 11) CDFW shall report any previously unknown historic archeological and paleontological remains discovered at a site to the USACE as required in the RGP. This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.
- 12) Pursuant to RGP78, CDFW shall monitor and maintain the structures or work conducted at a given site for at least three years after construction to ensure the integrity of the structure and successful growth of the planted vegetation.
- 13) CDFW shall allow representatives of USACE to inspect the authorized activities at any time deemed necessary to ensure that they are being or have been accomplished with the terms and conditions of the RGP.
- 14) Pursuant to RGP78, CDFW shall notify the USACE annually of the year's projects. If the USACE has not issued a Notice to Proceed (NTP) or identified any issues (verbal or written) within 60 days of receive the notifications, CDFW can proceed with project. The NTP may include site specific special conditions to avoid and minimize adverse impacts to waters of the U.S and shall be valid for the duration of the RGP78 unless there is a change in the project's scope of work.

Appendix C

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities

State of California
CALIFORNIA NATURAL RESOURCES AGENCY
California Department of Fish and Wildlife
November 24, 2009¹

INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to the survey and assessment of special status native plants and natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. They may also help those who prepare and review environmental documents determine when a botanical survey is needed, how field surveys may be conducted, what information to include in a survey report, and what qualifications to consider for surveyors. The protocols may help avoid delays caused when inadequate biological information is provided during the environmental review process; assist lead, trustee and responsible reviewing agencies to make an informed decision regarding the direct, indirect, and cumulative effects of a proposed development, activity, or action on special status native plants and natural communities; meet California Environmental Quality Act (CEQA)² requirements for adequate disclosure of potential impacts; and conserve public trust resources.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE TRUSTEE AND RESPONSIBLE AGENCY MISSION

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish and Game Code §1802). CDFW, as trustee agency under CEQA §15386, provides expertise in reviewing and commenting on environmental documents and makes protocols regarding

¹ This document replaces the CDFW document entitled "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities."

² <http://ceres.ca.gov/ceqa/>

potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) provides additional protections for such species, including take prohibitions (Fish and Game Code §2050 *et seq.*). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and, the take would not jeopardize the continued existence of the species (Fish and Game Code §2081). Surveys are one of the preliminary steps to detect a listed or special status plant species or natural community that may be impacted significantly by a project.

DEFINITIONS

Botanical surveys provide information used to determine the potential environmental effects of proposed projects on all special status plants and natural communities as required by law (i.e., CEQA, CESA, and Federal Endangered Species Act (ESA)). Some key terms in this document appear in **bold font** for assistance in use of the document.

For the purposes of this document, **special status plants** include all plant species that meet one or more of the following criteria³:

- Listed or proposed for listing as threatened or endangered under ESA or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).
- Listed⁴ or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).

³ Adapted from the East Alameda County Conservation Strategy available at http://www.fws.gov/sacramento/EACCS/Documents/080228_Species_Evaluation_EACCS.pdf

⁴ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq.*). A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).
- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
 - Species considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (Lists 1A, 1B and 2);
 - Species that may warrant consideration on the basis of local significance or recent biological information⁵;
 - Some species included on the California Natural Diversity Database’s (CNDDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2008)⁶.
- Considered a **locally significant species**, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Special status natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status species or their habitat. The most current version of the Department’s *List of California Terrestrial Natural Communities*⁷ indicates which natural communities are of special status given the current state of the California classification.

Most types of wetlands and riparian communities are considered special status natural communities due to their limited distribution in California. These natural

⁵ In general, CNPS List 3 plants (plants about which more information is needed) and List 4 plants (plants of limited distribution) may not warrant consideration under CEQA §15380. These plants may be included on special status plant lists such as those developed by counties where they would be addressed under CEQA §15380. List 3 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a List 4 plant are significant even if individual project impacts are not. List 3 and 4 plants are also included in the California Natural Diversity Database’s (CNDDDB) *Special Plants, Bryophytes, and Lichens List*. [Refer to the current online published list available at: <http://www.dfg.ca.gov/biogeodata>.] Data on Lists 3 and 4 plants should be submitted to CNDDDB. Such data aids in determining or revising priority ranking.

⁶ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

⁷ <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>. The rare natural communities are asterisked on this list.

communities often contain special status plants such as those described above. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands⁸ or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants⁹.

BOTANICAL SURVEYS

Conduct botanical surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs on the site, and it is unknown if special status plant species or natural communities occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
- Special status plants or natural communities have historically been identified on the project site; or
- Special status plants or natural communities occur on sites with similar physical and biological properties as the project site.

SURVEY OBJECTIVES

Conduct field surveys in a manner which maximizes the likelihood of locating special status plant species or special status natural communities that may be present. Surveys should be **floristic in nature**, meaning that every plant taxon that occurs on site is identified to the taxonomic level necessary to determine rarity and listing status. “Focused surveys” that are limited to habitats known to support special status species or are restricted to lists of likely potential species are not considered floristic in nature and are not adequate to identify all plant taxa on site to the level necessary to determine rarity and listing status. Include a list of plants and natural communities detected on the site for each botanical survey conducted. More than one field visit may be necessary to adequately capture the floristic diversity of a site. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the species and communities on the site is also useful to assess the significance of a particular population.

⁸ <http://www.wetlands.com/regs/tpge02e.htm>

⁹ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

SURVEY PREPARATION

Before field surveys are conducted, compile relevant botanical information in the general project area to provide a regional context for the investigators. Consult the CNDDDB¹⁰ and BIOS¹¹ for known occurrences of special status plants and natural communities in the project area prior to field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties of the site and surrounding ecoregion¹², unless a larger assessment area is appropriate. Then, develop a list of special status plants with the potential to occur within these vegetation types. This list can serve as a tool for the investigators and facilitate the use of reference sites; however, special status plants on site might not be limited to those on the list. Field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on this list. Include in the survey report the list of potential special status species and natural communities, and the list of references used to compile the background botanical information for the site.

SURVEY EXTENT

Surveys should be comprehensive over the entire site, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects, such as those from fuel modification or herbicide application, could potentially extend offsite. Pre-project surveys restricted to known CNDDDB rare plant locations may not identify all special status plants and communities present and do not provide a sufficient level of information to determine potential impacts.

FIELD SURVEY METHOD

Conduct surveys using **systematic field techniques** in all habitats of the site to ensure thorough coverage of potential impact areas. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct surveys by walking over the entire site to ensure thorough coverage, noting all plant taxa observed. The level of effort should be sufficient to provide comprehensive reporting. For example, one person-hour per eight acres per survey date is needed for a comprehensive field survey in grassland with medium diversity and moderate terrain¹³, with additional time allocated for species identification.

¹⁰ Available at <http://www.dfg.ca.gov/biogeodata/cnddb>

¹¹ <http://www.bios.dfg.ca.gov/>

¹² Ecological Subregions of California, available at <http://www.fs.fed.us/r5/projects/ecoregions/toc.htm>

¹³ Adapted from U.S. Fish and Wildlife Service kit fox survey guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

TIMING AND NUMBER OF VISITS

Conduct field surveys at the time of year when species are both evident and identifiable, typically during flowering or fruiting season. Space visits throughout the growing season to accurately determine what plants exist on site. To capture the floristic diversity at a level necessary to determine if special status plants are present¹⁴, this may involve multiple visits to the same site (e.g. in early, mid, and late-season for flowering plants). The timing and number of visits are determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which the surveys are conducted.

REFERENCE SITES

Nearby reference populations (or accessible occurrences of the plants) should be visited whenever possible to determine if known special status plant populations are evident and identifiable at the time of the survey, to obtain a visual image of the target species, and to determine associated habitat and natural community. Reference populations may be particularly important during drought years to ensure that the timing of surveys is appropriate and to help substantiate negative findings in adverse conditions caused by drought. A drought and other adverse conditions may mean some annual, short-live perennial plant taxa, and plants with persistent long-lived seed banks that are known not to germinate every year may not be identifiable or evident. The failure to locate a plant during the floristic surveys of one field season does not constitute evidence that the plant is absent from the surveyed location. Multiple visits to a reference site should be made (e.g. in early, mid, and late-season) to accurately survey the floristic diversity of the site and detect the presence of all special status plant taxa that are evident and identifiable.

USE OF EXISTING SURVEYS

For some sites, floristic inventories or special status plant surveys may already exist. Additional surveys may be necessary for the following reasons:

- Surveys are not current¹⁵; or

¹⁴ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

¹⁵ Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at <https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949>

- Surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems); or
- Surveys are not comprehensive in nature; or fire history, land use, physical conditions of the site, or climatic conditions have changed since the last survey was conducted¹⁶; or
- Surveys were conducted in natural systems where special status plants may not be observed if an annual above ground phase is not visible (e.g. flowers from a bulb); or
- Changes in vegetation or species distribution may have occurred since the last survey was conducted, due to habitat alteration, fluctuations in species abundance and/or seed bank dynamics.

NEGATIVE SURVEYS

Adverse conditions may prevent investigators from determining the presence of, or accurately identifying, some species in potential habitat of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any given year. Discuss such conditions in the report.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that this plant occurrence no longer exists at this location, particularly if adverse conditions are present. For example, surveys over a number of years may be necessary if the species is an annual plant having a persistent, long-lived seed bank and is known not to germinate every year. Visits to the site in more than one year increase the likelihood of detection of a special status plant especially if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may ensure that the timing of the survey was appropriate.

REPORTING AND DATA COLLECTION

Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities¹⁷ and will guide the development of minimization and mitigation

¹⁶ U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

¹⁷ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>. For Timber Harvest Plans (THPs) please refer to the "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest

measures. The next section describes necessary information to assess impacts. For comprehensive, systematic surveys where no special status species or natural communities were found, reporting and data collection responsibilities for investigators remain as described below, excluding specific occurrence information.

SPECIAL STATUS PLANT OR NATURAL COMMUNITY OBSERVATIONS

Record the following information for locations of each special status plant or natural community detected during a field survey of a project site.

- A detailed map (1:24,000 or larger) showing locations and boundaries of each special status species occurrence or natural community found as related to the proposed project. Mark occurrences and boundaries as accurately as possible. Locations documented by use of global positioning system (GPS) coordinates must include the datum¹⁸ in which they were collected;
- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If the species is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;
- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);
- If applicable, information about the percentage of individuals in each life stage such as seedlings vs. reproductive individuals;
- The number of individuals of the species per unit area, identifying areas of relatively high, medium and low density of the species over the project site; and
- Digital images of the target species and representative habitats to support information and descriptions.

FIELD SURVEY FORMS

When a special status plant or natural community is located, complete and submit to the CNDDDB a California Native Species (or Community) Field

Review Process and During Timber Harvesting Operations", available at <https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949>

¹⁸ NAD83, NAD27 or WGS84

Survey Form¹⁹ or equivalent written report, accompanied by a copy of the relevant portion of a 7.5 minute topographic map with the occurrence mapped. Present locations documented by use of GPS coordinates in map and digital form. Data submitted in digital form must include the datum²⁰ in which it was collected. If a potentially undescribed special status natural community is found on the site, document it with a Rapid Assessment or Relevé form²¹ and submit it with the CNDDDB form.

VOUCHER COLLECTION

Voucher specimens provide verifiable documentation of species presence and identification as well as a public record of conditions. This information is vital to all conservation efforts. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and is in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special status species (or suspected special status species) should be made only when such actions would not jeopardize the continued existence of the population or species.

Deposit voucher specimens with an indexed regional herbarium²² no later than 60 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant permittee names and permit numbers on specimen labels. A collecting permit is required prior to the collection of State-listed plant species²³.

BOTANICAL SURVEY REPORTS

Include reports of botanical field surveys containing the following information with project environmental documents:

- **Project and site description**
 - A description of the proposed project;
 - A detailed map of the project location and study area that identifies topographic and landscape features and includes a north arrow and bar scale; and,

¹⁹ <http://www.dfg.ca.gov/biogeodata>

²⁰ NAD83, NAD27 or WGS84

²¹ http://www.dfg.ca.gov/biogeodata/vegcamp/veg_publications_protocols.asp

²² For a complete list of indexed herbaria, see: Holmgren, P., N. Holmgren and L. Barnett. 1990. Index Herbariorum, Part 1: Herbaria of the World. New York Botanic Garden, Bronx, New York. 693 pp. Or: <http://www.nybg.org/bsci/ih/ih.html>

²³ Refer to current online published lists available at: <http://www.dfg.ca.gov/biogeodata>.

- A written description of the biological setting, including vegetation²⁴ and structure of the vegetation; geological and hydrological characteristics; and land use or management history.

- **Detailed description of survey methodology and results**

- Dates of field surveys (indicating which areas were surveyed on which dates), name of field investigator(s), and total person-hours spent on field surveys;
- A discussion of how the timing of the surveys and adverse conditions affects the comprehensiveness of the survey;
- A list of potential special status species or natural communities;
- A description of the area surveyed relative to the project area;
- References cited, persons contacted, and herbaria visited;
- Description of reference site(s), if visited, and size, condition, and phenological development of special status plant(s);
- A list of all taxa occurring on the project site. Identify plants to the taxonomic level necessary to determine whether or not they are a special status species;
- Any use of existing surveys and a discussion of applicability to this project;
- A discussion of the potential for a false negative survey;
- Provide detailed data and maps for all special plants detected. Information specified above under the headings “Special Status Plant or Natural Community Observations,” and “Field Survey Forms,” should be provided for locations of each special status plant detected;
- Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms should be sent to the CNDDDB and included in the environmental document as an Appendix. It is not necessary to submit entire environmental documents to the CNDDDB; and,

²⁴ A vegetation map that uses the National Vegetation Classification System (<http://biology.usgs.gov/npsveg/nvcs.html>), for example *A Manual of California Vegetation*, and highlights any special status natural communities. If another vegetation classification system is used, the report should reference the system, provide the reason for its use, and provide a crosswalk to the National Vegetation Classification System.

- The location of voucher specimens, if collected.

- **Assessment of potential impacts**

- A discussion of the significance of special status plant populations in the project area considering nearby populations and total species distribution;
- A discussion of the significance of special status natural communities in the project area considering nearby occurrences and natural community distribution;
- A discussion of direct, indirect, and cumulative impacts to the plants and natural communities;
- A discussion of threats, including those from invasive species, to the plants and natural communities;
- A discussion of the degree of impact, if any, of the proposed project on unoccupied, potential habitat of the species;
- A discussion of the immediacy of potential impacts; and,
- Recommended measures to avoid, minimize, or mitigate impacts.

QUALIFICATIONS

Botanical consultants should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with the plants of the area, including special status species;
- Familiarity with natural communities of the area, including special status natural communities;
- Experience conducting floristic field surveys or experience with floristic surveys conducted under the direction of an experienced surveyor;
- Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
- Experience with analyzing impacts of development on native plant species and natural communities.

SUGGESTED REFERENCES

- Barbour, M., T. Keeler-Wolf, and A. A. Schoenherr (eds.). 2007. Terrestrial vegetation of California (3rd Edition). University of California Press.
- Bonham, C.D. 1988. Measurements for terrestrial vegetation. John Wiley and Sons, Inc., New York, NY.
- California Native Plant Society. Most recent version. Inventory of rare and endangered plants (online edition). California Native Plant Society, Sacramento, CA. Online URL <http://www.cnps.org/inventory>.
- California Natural Diversity Database. Most recent version. Special vascular plants, bryophytes and lichens list. Updated quarterly. Available at <http://www.dfg.ca.gov/biogeodata/cnddb/>.
- Elzinga, C.L., D.W. Salzer, and J. Willoughby. 1998. Measuring and monitoring plant populations. BLM Technical Reference 1730-1. U.S. Dept. of the Interior, Bureau of Land Management, Denver, Colorado.
- Leppig, G. and J.W. White. 2006. Conservation of peripheral plant populations in California. *Madroño* 53:264-274.
- Mueller-Dombois, D. and H. Ellenberg. 1974. Aims and methods of vegetation ecology. John Wiley and Sons, Inc., New York, NY.
- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed plants on the Santa Rosa Plain. Sacramento, CA.
- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento, CA.
- Van der Maarel, E. 2005. Vegetation Ecology. Blackwell Science Ltd., Malden, MA.

APPENDIX D

Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program

There shall be three phases to the process of investigating paleontological resources:

1) project initiation where basic data will be compiled, reviewed and sorted to determine the next steps that need to be taken on any given project; 2) evaluation of individual projects that may encounter paleontological resources; and 3) mitigation planning to develop mitigation strategies for projects that have identified paleontological resources. The three phases are summarized below.

Project Initiation

The logistics and time needs for conducting paleontological evaluations shall be assessed in the project initiation phase. The guidelines outlined below will facilitate rapid evaluation of individual projects and ensure cooperation among evaluators, pertinent agencies, and landowners. Landowner cooperation is through property access and local area information. The evaluation procedure generally follows standards implemented by other agencies conducting ground disturbance activities such as CalTrans.

Evaluation of the likelihood of encountering paleontological resources and land management issues shall be assessed by adhering to the following guidelines and the corresponding actions:

1. If the project does not involve ground disturbing work, then a negative declaration report shall be prepared.
2. If the project involves ground disturbing work and there is no likelihood of encountering paleontological resources, then a negative declaration report shall be prepared. However, if there is a likelihood of encountering paleontological resources at the project site, then the evaluator schedules a field investigation by contacting the CDFW grant manager and having them arrange landowner access for the paleontological resource field staff; and if necessary, arrange a meeting with the landowners and the paleontological resources investigation field staff.
3. If the project involves land administered by the US Forest Service, the Bureau of Land Management, the National Park Service, the US Army Corps of Engineers, the Native American tribal lands, or the California Department of Parks and Recreation, then the paleontology report containing site forms, site significance, and mitigation measures shall be coordinated with the involved entities. However, if those agencies are not involved, then the paleontology report with all pertinent information (site forms, site significance, mitigation measures or negative declarations) will be provided to the CDFW and to the CDFW grant manager

Individual Project Evaluation

The appropriate regional archaeological information center shall be contacted for a record search and the Native American Heritage Commission shall also be contacted for a Sacred Lands File Check. If paleontological resources are likely to be present, then qualified staff shall evaluate the paleontological resources in coordination with any affected agencies including any affected Native American tribe. If paleontological resources are present, then the evaluator will (1) delineate the extent and type of resources present, (2) discuss any issues with pertinent agencies, Native American tribes, project managers, and local experts with regards to potential mitigation planning, and (3) develop a mitigation plan designed to protect sensitive paleontological resources. However, if no resources are present, then a negative declaration report shall be prepared.

Mitigation Planning

Mitigation plans shall be developed to avoid or lessen impacts to the resource if paleontological resources are discovered at any project site. These mitigation plans shall be consistent with current mitigation strategies employed by other entities conducting CEQA investigations. The initial investigation report, along with mitigation recommendations, shall be compiled and delivered to the appropriate CDFW grant/contract manager and the project manager of the proposed project in question. Minimum report elements shall include:

- 1) Project description and location.
- 2) Results of the investigation.
- 3) Mitigation recommendations and plans.
- 4) Maps depicting project location and paleontological resource locations.

APPENDIX E

Procedure for the Programmatic Evaluation of Archaeological Resources for the Fisheries Restoration Grant Program

Cultural resource investigations are used to identify archaeological resources in the California Department of Fish and Wildlife (CDFW) Fisheries Restoration Grant Program (FRGP) funded project areas. When archaeological resources are found, measures are implemented to protect these resources. The purpose of the investigations described below are to: 1) locate and record cultural resources within the project area; 2) evaluate the significance of cultural resources in the study area; 3) assess potential impacts to cultural resources resulting from implementation of the project and; 4) recommend appropriate mitigation measures when necessary.

Investigative Methods

Background research for each project shall include an examination of historical maps, aerial photographs, archaeological site records and a survey at the appropriate regional information center of the Historical Resources Information System. The background research shall also include a review of pertinent ethnographic literature. For all projects, an intensive archaeological field survey that covers the entire project area will be completed.

The California Office of Historic Preservation has established regional information centers as local repositories for all archaeological reports that are prepared under cultural resource management regulations. For each of the projects funded by the FRGP a background literature search shall be conducted at the appropriate regional information center as required by state guidelines and current professional standards. Following completion of the archeological studies, a report shall be prepared summarizing the findings of the research. A copy of the report shall be deposited with the California Office of Historical Preservation. The literature review will determine if there are any previously recorded archeological resources or historic structures within the project area, and whether the area has been included within any previous archaeological research or reconnaissance project.

Project notification letters shall be sent to the Native American Heritage Commission along with a request for a Sacred Lands File search of the project areas and appropriate Native American contacts for the projects as soon as funding and contracts are fully routed. In addition, letters shall be sent to local Native American tribes stating that archaeological surveys are being conducted in areas that may be of interest to them. The letters shall request any additional information and shall ask specifically if the tribe(s) have any concerns regarding the project.

In addition to a records search at the Northwest Information Center, pertinent published ethnographic literature and various inventories shall be reviewed including but not limited to: 1) California Athabascan Groups (Baumhoff 1958); 2) California Inventory of Historic Resources; 3) California Historic Property Inventory and; 4) Government Land Office Land Plot Map.

Intensive surveys are conducted instream and along the bank of the areas included in the project area. All locations of exposed soil along road cuts, skid trails and creek banks are

inspected. In areas where mineral soil is visibly obscured, a geology pick shall be used to scrape the surface vegetation and expose the mineral soil to inspect for cultural resources.

- 1) Any archaeological sites identified during an investigation shall be recorded in a manner consistent with the Office of Historic Preservations Manual titled Instructions for Recording Historic Resources 1955. The CDFW shall report any previously unknown historic, archeological and paleontological remains discovered at a site to the US Army Corps of Engineers as required in the Regional General Permit (RGP). This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.
- 2) An accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the process stated in Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 shall be followed.

In the event of a discovery of archeological or historic resource within the jurisdiction of the California State Lands Commission (CSLC), grantees will be responsible for reporting and submitting any required information to the CSLC.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613

For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

2015122055
SCH #**Project Title:** Mitigated Negative Declaration for the 2016 Fisheries Restoration Grant Program, the Steelhead Report and Re

Lead Agency: Department of Fish and Wildlife

Contact Person: Karen Carpio

Mailing Address: 830 S Street

Phone: 916-327-8658

City: Sacramento

Zip: 95811

County: Sacramento

Project Location: County: Various coastal counties City/Nearest Community: Various coastal communities

Cross Streets: Zip Code:

Longitude/Latitude (degrees, minutes and seconds): ° ' " N / ° ' " W Total Acres:

Assessor's Parcel No.: Section: Twp.: Range: Base:

Within 2 Miles: State Hwy #: Waterways:

Airports: Railways: Schools:

Document Type:

CEQA: ☐ NOP ☐ Draft EIR NEPA: ☐ NOI Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ☐ Draft EIS ☐ Other:
☒ Mit Neg Dec Other: FONSI

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Use ☒ Other: Restoration

Development Type:

☐ Residential: Units Acres ☐ Transportation: Type
☐ Office: Sq.ft. Acres Employees ☐ Mining: Mineral
☐ Commercial: Sq.ft. Acres Employees ☐ Power: Type MW
☐ Industrial: Sq.ft. Acres Employees ☐ Waste Treatment: Type MGD
☐ Educational: ☐ Hazardous Waste: Type
☐ Recreational: ☒ Other: Watershed Restoration
☐ Water Facilities: Type MGD

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☐ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☐ Water Quality
☐ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☐ Water Supply/Groundwater
☐ Archeological/Historical ☐ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☐ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☐ Noise ☐ Solid Waste ☐ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☐ Public Services/Facilities ☐ Traffic/Circulation ☒ Other: Watershed

Present Land Use/Zoning/General Plan Designation:**Project Description:** (please use a separate page if necessary)

This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

<input type="checkbox"/> Air Resources Board	<input type="checkbox"/> Office of Historic Preservation
<input type="checkbox"/> Boating & Waterways, Department of	<input type="checkbox"/> Office of Public School Construction
<input type="checkbox"/> California Emergency Management Agency	<input checked="" type="checkbox"/> Parks & Recreation, Department of
<input type="checkbox"/> California Highway Patrol	<input type="checkbox"/> Pesticide Regulation, Department of
<input checked="" type="checkbox"/> Caltrans District # 1245	<input type="checkbox"/> Public Utilities Commission
<input type="checkbox"/> Caltrans Division of Aeronautics	<input checked="" type="checkbox"/> Regional WQCB # 1,2,3
<input type="checkbox"/> Caltrans Planning	<input type="checkbox"/> Resources Agency
<input type="checkbox"/> Central Valley Flood Protection Board	<input type="checkbox"/> Resources Recycling and Recovery, Department of
<input type="checkbox"/> Coachella Valley Mtns. Conservancy	<input type="checkbox"/> S.F. Bay Conservation & Development Comm.
<input checked="" type="checkbox"/> Coastal Commission	<input type="checkbox"/> San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
<input type="checkbox"/> Colorado River Board	<input type="checkbox"/> San Joaquin River Conservancy
<input type="checkbox"/> Conservation, Department of	<input type="checkbox"/> Santa Monica Mtns. Conservancy
<input type="checkbox"/> Corrections, Department of	<input type="checkbox"/> State Lands Commission
<input type="checkbox"/> Delta Protection Commission	<input type="checkbox"/> SWRCB: Clean Water Grants
<input type="checkbox"/> Education, Department of	<input checked="" type="checkbox"/> SWRCB: Water Quality
<input type="checkbox"/> Energy Commission	<input type="checkbox"/> SWRCB: Water Rights
<input type="checkbox"/> Fish & Game Region # _____	<input type="checkbox"/> Tahoe Regional Planning Agency
<input type="checkbox"/> Food & Agriculture, Department of	<input type="checkbox"/> Toxic Substances Control, Department of
<input checked="" type="checkbox"/> Forestry and Fire Protection, Department of	<input type="checkbox"/> Water Resources, Department of
<input type="checkbox"/> General Services, Department of	
<input type="checkbox"/> Health Services, Department of	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Housing & Community Development	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Native American Heritage Commission	

Local Public Review Period (to be filled in by lead agency)

Starting Date December 22, 2015 Ending Date January 20, 2016

Lead Agency (Complete if applicable):

Consulting Firm: _____	Applicant: <u>Department of Fish and Wildlife</u>
Address: _____	Address: <u>830 S Street</u>
City/State/Zip: _____	City/State/Zip: <u>Sacramento, CA 95811</u>
Contact: _____	Phone: <u>916-327-8658</u>
Phone: _____	

Signature of Lead Agency Representative: _____

Date: 12/21/2015

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research
U.S. Mail: Street Address:
P.O. Box 3044 1400 Tenth St., Rm 113
Sacramento, CA 95812-3044 Sacramento, CA 95814

☐ County Clerk

County of: _____
Address: _____

From:

Public Agency: Department of Fish and Wildlife
Address: 830 S Street
Sacramento, CA 95811
Contact: Karen Carpio
Phone: 916-327-8658

Lead Agency (if different from above):

Address: _____

Contact: _____

Phone: _____

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

State Clearinghouse Number (if submitted to State Clearinghouse): 2015122055

Project Title: Mitigated Negative Declaration for the 2016 Fisheries Restoration Grant Program, the Steelhead Repc

Project Applicant: California Department of Fish and Wildlife

Project Location (include county): Various coastal counties

Project Description:

This is to advise that the California Department of Fish and Wildlife has approved the above
(☒ Lead Agency or ☐ Responsible Agency)

described project on 1-21-2016 and has made the following determinations regarding the above
(date)
described project.

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

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

830 S Street, Sacramento, CA 95811

Signature (Public Agency): Helen Brin Title: Brandhief

Date: 1/21/16 Date Received for filing at OPR: Governor's Office of Planning & Research

JAN 21 2016

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

STATE CLEARINGHOUSE

Revised 2011



EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX
DIRECTOR

January 21, 2016

Karen Carpio
California Department of Fish and Wildlife, Region 2
930 S Street
Sacramento, CA 95811

Subject: 2016 Fisheries Restoration Grant Program, the Steelhead Report
SCH#: 2015122055

Dear Karen Carpio:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on January 20, 2016, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

RECEIVED

RECEIVED

JAN 29 2016

Fisheries Branch
CA Dept. of Fish and Wildlife

**Document Details Report
State Clearinghouse Data Base**

SCH# 2015122055
Project Title 2016 Fisheries Restoration Grant Program, the Steelhead Report
Lead Agency Fish & Wildlife #2

Type **MND** Mitigated Negative Declaration
Description This project uses grant funds approved by the CA Legislature to initiate activities that are designed to restore salmon and steelhead habitat.

Lead Agency Contact

Name Karen Carpio
Agency California Department of Fish and Wildlife, Region 2
Phone 916-327-8658 **Fax**
email
Address 930 S Street
City Sacramento **State** CA **Zip** 95811

Project Location

County
City
Region
Lat / Long
Cross Streets
Parcel No.

Township	Range	Section	Base
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Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Other Issues

Reviewing Agencies Resources Agency; California Coastal Commission; Department of Conservation; Delta Protection Commission; Cal Fire; Department of Parks and Recreation; Central Valley Flood Protection Board; Department of Water Resources; Caltrans, Division of Transportation Planning; Air Resources Board; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; State Lands Commission

Date Received 12/22/2015 **Start of Review** 12/22/2015 **End of Review** 01/20/2016

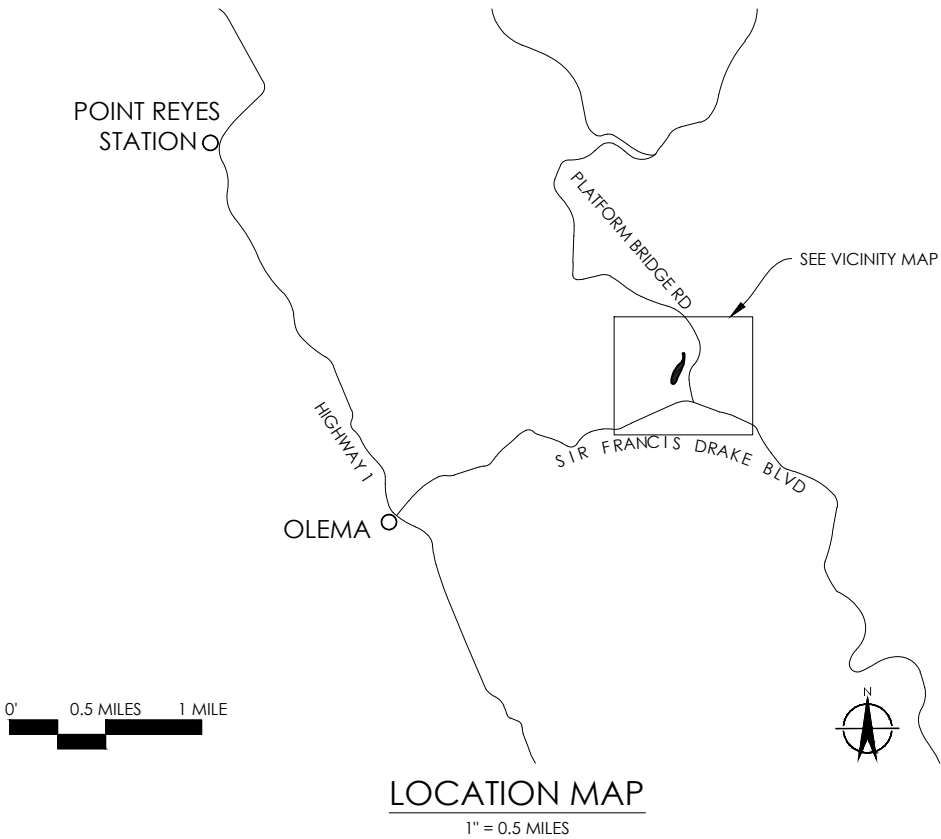
APPENDIX B1

*Tocaloma Floodplain Enhancement Site Plans –
Project Site 10*

TOCALOMA FLOODPLAIN ENHANCEMENT

LAGUNITAS CREEK AT TOCALOMA

MARIN COUNTY, CALIFORNIA



SHEET INDEX

SHEET C-1	COVER SHEET
SHEET C-2	SITE PREPARATION PLAN
SHEET C-3	GRADING PLAN
SHEET C-4	PROFILE
SHEET C-5	CROSS-SECTIONS
SHEET C-6	LOG PLACEMENT DETAILS
SHEET C-7	EROSION CONTROL PLAN

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE DRAWINGS, THE CONSTRUCTION SPECIFICATIONS, OR AS SPECIFIED BY THE MARIN MUNICIPAL WATER DISTRICT (DISTRICT) OR THE DISTRICT'S REPRESENTATIVE (ENGINEER). NO CHANGES ARE TO BE MADE TO THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES. SPECIAL SAFETY PRECAUTIONS ARE TO BE TAKEN WHEN WORKING IN THE VICINITY OF GAS, OIL, OR ELECTRICAL LINES. CALL UNDERGROUND SERVICE ALERT (CA, USA) AT (811) 227-2600 PRIOR TO CONSTRUCTION.
- CAL/OSHA SAFETY REQUIREMENTS SHALL BE IN EFFECT DURING ALL CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FUEL AND HAZARDOUS SPILLS. CONTRACTOR SHALL CLEAN UP ALL SPILLS AS DESCRIBED BY CALIFORNIA STATE LAW AND AS DIRECTED BY THE ENGINEER.
- EXISTING TOPOGRAPHY GENERATED FROM TWO DIFFERENT SITE SURVEYS. TOPOGRAPHY TO THE SOUTH WAS GENERATED USING SURVEYED SPOT ELEVATIONS TAKEN SPRING 2012 AND PROVIDED BY USFWS. TOPOGRAPHY TO THE NORTH WAS GENERATED THROUGH THE USE OF GROUND BASED LIDAR. THIS SURVEY WAS PERFORMED JANUARY 2011 BY NOBLE CONSULTANTS. THE BOUNDARY BETWEEN THESE TWO DATA SETS DOES NOT PROVIDE A SMOOTH TRANSITION IN ALL CASES. THIS BOUNDARY IS SHOWN ON BOTH THE SITE PREPARATION SHEET AND THE GRADING SHEET. CONTRACTOR SHALL COORDINATE WITH ENGINEER TO ESTABLISH SURVEY CONTROL PRIOR TO CONSTRUCTION AND CONFIRM THAT EXISTING TOPOGRAPHY SHOWN ON PLANS IS SUFFICIENT FOR USE IN CONSTRUCTION.

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
E RIEDNER	20170227	ER	ISSUED FOR REVIEW
DRAWN BY			
D JEPSEN			
CHECKED BY			
E BALLMAN			
IN CHARGE			
S CHARTAND			
DATE	20170227		

COVER SHEET

TOCALOMA FLOODPLAIN ENHANCEMENT

MARIN COUNTY, CALIFORNIA

PROJECT NUMBER

210151

SCALE

AS NOTED

SHEET

C-1

OF 7

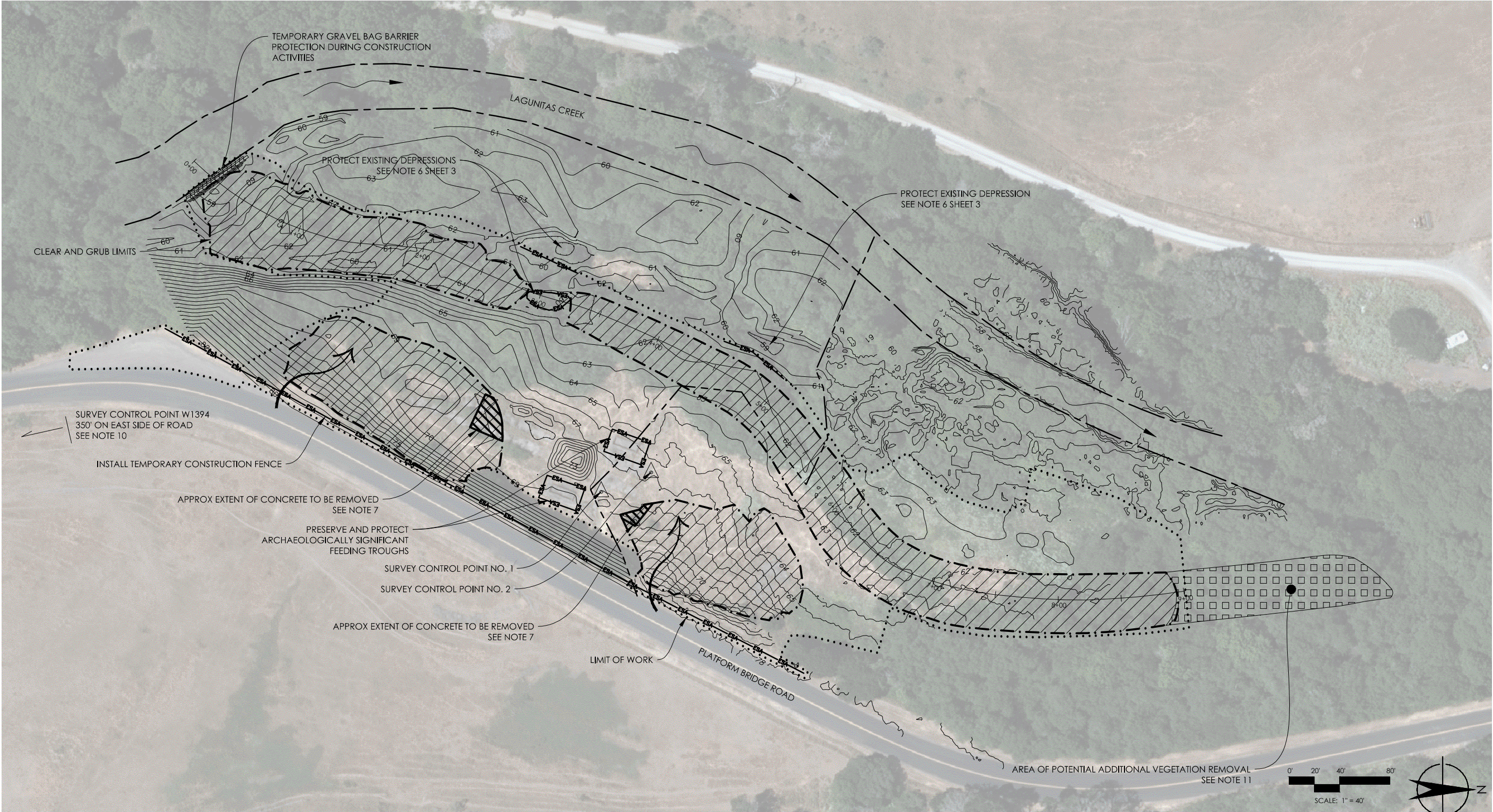
- LEGEND:
- GRAVEL BAG BARRIER
 - CLEAR AND GRUB LIMITS (SEE NOTE 5)
 - APPROX LIMITS OF CONCRETE REMOVAL (SEE NOTE 7)
 - LIMITS OF WORK (SEE NOTE 4)
 - LIMITS OF CLEARING (SEE NOTE 3)
 - ACCESS (SEE NOTES 5 & 6)
 - SURVEY MATCH LINE SEE NOTE 5 SHEET C-1
 - EDGE OF WATER AT TIME OF SURVEY

- SURVEY CONTROL POINT
- FLOODPLAIN STATIONING LINE
- CONSTRUCTION FENCING (TYPE ESA)

CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
CP NO. 1	2,213,596.84	5,911,172.22	67.75
CP NO. 2	2,213,636.34	5,911,156.93	66.66
W1394 -SEE NOTE 10	2,212,836.85	5,911,208.09	85.03

- NOTES:
- SEE NOTES ON SHEET C-1.
 - THE CONTRACTOR IS RESPONSIBLE FOR PREPARING A DEWATERING PLAN FOR USE AS NEEDED. SEE SPECIFICATIONS. IN NO CASE SHALL THERE BE DISCHARGE INTO LAGUNITAS CREEK.
 - THE LIMITS OF CLEARING SHOWN ACCOMMODATE THE GRADING LIMITS SHOWN ON SHEET C-3 AND ACCOUNT FOR ACCESS ALONG THE EAST SIDE OF THE GRADING LIMITS. PRECISE LIMITS SHALL BE SET AND STAKED IN THE FIELD. SEE NOTES 2 AND 3 ON SHEET C-3.
 - STAGE EQUIPMENT AND MATERIALS WITHIN LIMITS OF WORK SHOWN ON THIS SHEET. DO NOT REMOVE TREES FROM AREAS OUTSIDE OF LIMITS OF GRADING WITHOUT PRIOR APPROVAL OF ENGINEER.
 - LIMITS OF CLEARING AND GRUBBING ADJACENT TO PLATFORM BRIDGE ROAD ARE THE APPROXIMATE LIMITS OF EMBANKMENT FILL AREAS. NOTE THAT BOTH ACCESS ROUTES IDENTIFIED ON THIS SHEET PASS THROUGH THESE AREAS OF FILL. DO NOT GRUB MORE AR
 - PLACE AND MAINTAIN MINIMUM 6 INCHES OF STRAW ON ALL SITE ACCESS ROUTES. SEE SPECIFICATIONS FOR ALTERNATE TEMPORARY EROSION CONTROL MEASURES ALONG ACCESS ROUTES.
 - REMOVE ANY CONCRETE WITHIN THE LIMITS OF CLEARING AND GRUBBING. DISPOSE OF OFFSITE IN A LEGAL MANNER. ESTIMATED QUANTITIES: 750 SQ FT, 28 CY. CONCRETE MAY OR MAY NOT BE REINFORCED.
 - SALVAGE SUFFICIENT WILLOW TREES AND WILLOW POLES TO ACCOMPLISH THE PLANTING PLANS AS SHOWN ON SHEET C-3. STOCKPILE FOR USE ONSITE ALL OTHER

- ORGANIC MATERIAL GENERATED DURING CLEARING AND GRUBBING OPERATIONS. SEE SPECIFICATIONS.
- INSTALL TEMPORARY CONSTRUCTION FENCE ADJACENT TO PLATFORM BRIDGE ROAD AS SHOWN. INSTALL GATES AS NEEDED. SEE SPECIFICATIONS.
 - CONTROL POINTS NOS. 1 AND 2 WERE ESTABLISHED DURING JANUARY 2011 SURVEY. SEE NOTE 5 SHEET C-1. POINT W1394 WAS USED TO ESTABLISH THESE ONSITE CONTROLS. W1394 IS A STAINLESS STEEL ROD, APPROXIMATELY 350 FEET SOUTH OF THE LINE SHOWN ON THIS SHEET.
 - DISTRICT STAFF SHALL DETERMINE IN THE FIELD IF ADDITIONAL VEGETATION REMOVAL IS REQUIRED BETWEEN THE LIMIT OF GRADING AND LAGUNITAS CREEK. SEE SPECIFICATIONS.



Balance Hydrologics, Inc.

800 Bancroft Way - Suite 101

Berkeley, CA 94710

tel/(510) 704-1000 - fax (510) 704-1001

www.balancehydro.com

DESIGNED BY
E RIEDNER

DRAWN BY
D JEPSEN

CHECKED BY
E BALLMAN

IN CHARGE
S CHARTAND

DATE
20170227

DATE
20170227

BY
ER

DATE
20170227

BY
ER

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DRAFT PLAN SET
NOT FOR
CONSTRUCTION

SITE PREPARATION PLAN

TOTALOMA FLOODPLAIN ENHANCEMENT

MARIN COUNTY, CALIFORNIA

PROJECT NUMBER
210151

SCALE
1" = 40'

SHEET
C-2

OF 7

W:\CAD\PROJECTS\210151 TOTALOMA\210151_CD_DRAWINGS\210151 SHEET\210151_2 PREP.DWG

- | | |
|--|--|
| | EXISTING CONTOUR |
| | FINISH MINOR CONTOUR |
| | FINISH INDEX CONTOUR |
| | LIMIT OF GRADING |
| | LIMIT OF WORK |
| | ESA FENCING |
| | SURVEY MATCHLINE
SEE NOTE 5 SHEET C-1 |

WILLOW PLANTING
SEE NOTE 7

LOG WITH ROOTWAD
SEE NOTE 8

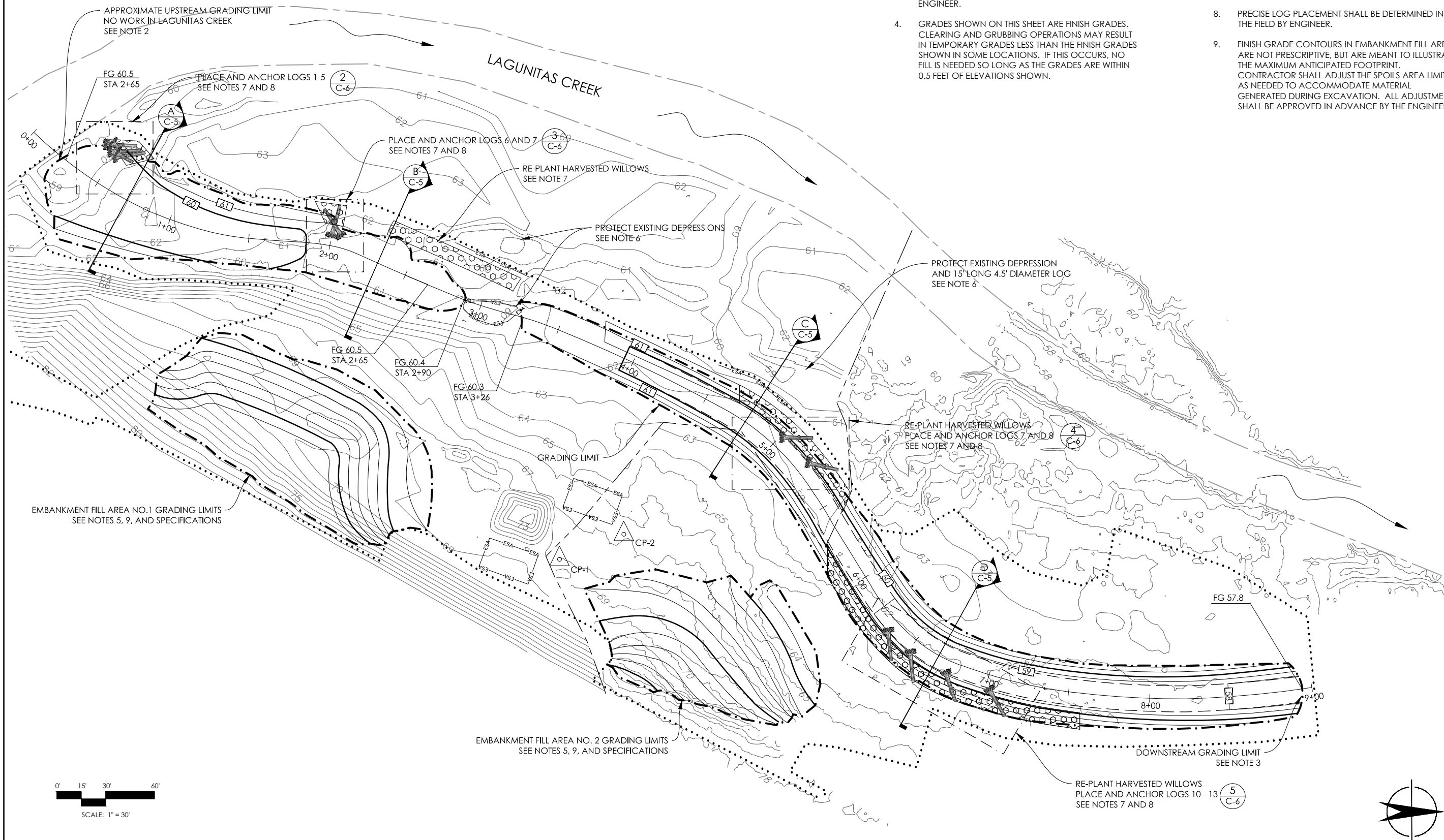
CONTROL POINT
SEE SHEET C-2

FLOODPLAIN STATIONING LINE

1. SEE NOTES ON SHEET C-1.

2. PRECISE GRADING LIMITS ADJACENT TO LAGUNITAS CREEK TO BE DETERMINED IN THE FIELD. THESE LIMITS SHALL ACCOMMODATE A MINIMUM 4 FOOT WIDE GRAVEL BAG BARRIER BETWEEN GRADING OPERATIONS AND THE CREEK. SEE SHEET C-2 FOR MORE INFORMATION.
3. THE GRADING LIMITS SHOWN ON THIS SHEET ARE BEYOND THE LIMITS OF AVAILABLE TOPOGRAPHY AT THE DOWNSTREAM END. THESE LIMITS HAVE BEEN SET BASED ON FIELD OBSERVATIONS BY DISTRICT STAFF. PRECISE LIMITS AT THE DOWNSTREAM END SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF ENGINEER.
4. GRADES SHOWN ON THIS SHEET ARE FINISH GRADES. CLEARING AND GRUBBING OPERATIONS MAY RESULT IN TEMPORARY GRADES LESS THAN THE FINISH GRADES SHOWN IN SOME LOCATIONS. IF THIS OCCURS, NO FILL IS NEEDED SO LONG AS THE GRADES ARE WITHIN 0.5 FEET OF ELEVATIONS SHOWN.

5. THE MAXIMUM SLOPE OF ANY CUT OR FILL SLOPE SHALL BE 3:1 EXCEPT WHERE FILL PAD AREAS CONFORM TO EXISTING SLOPES STEEPER THAN 3:1.
6. EXISTING DEPRESSIONS SHALL BE PROTECTED DURING GRADING ACTIVITIES. SEE SHEET C-2 FOR MORE INFORMATION.
7. REPLANT SALVAGED WILLOWS IN AREAS SHOWN ON PLANS. ENGINEER WILL MARK PRECISE LOCATIONS IN THE FIELD. THERE SHALL BE 50 TRANSPLANTED WILLOW TREES IN TOTAL, SPREAD AMONG THE 5 AREAS SHOWN ON THIS SHEET. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. PRECISE LOG PLACEMENT SHALL BE DETERMINED IN THE FIELD BY ENGINEER.
9. FINISH GRADE CONTOURS IN EMBANKMENT FILL AREAS ARE NOT PRESCRIPTIVE, BUT ARE MEANT TO ILLUSTRATE THE MAXIMUM ANTICIPATED FOOTPRINT. CONTRACTOR SHALL ADJUST THE SPOILS AREA LIMITS AS NEEDED TO ACCOMMODATE MATERIAL GENERATED DURING EXCAVATION. ALL ADJUSTMENTS SHALL BE APPROVED IN ADVANCE BY THE ENGINEER.



DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
E RIEDNER	2017/02/27	ER	ISSUED FOR REVIEW
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CHECKED BY E BALLMAN			
IN CHARGE S CHARTAND			
DATE			
2017/02/27			

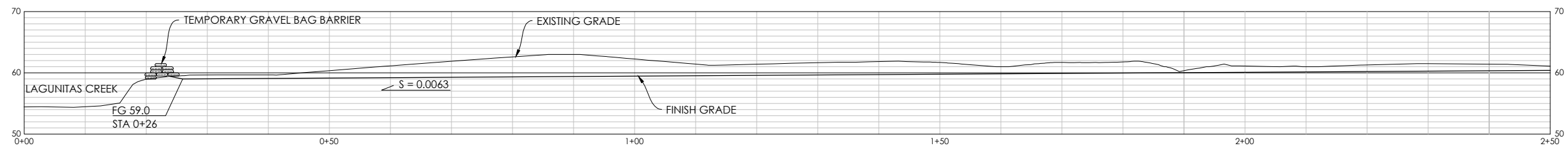
DRAFT PLAN SET
NOT FOR
CONSTRUCTION

GRADING PLAN

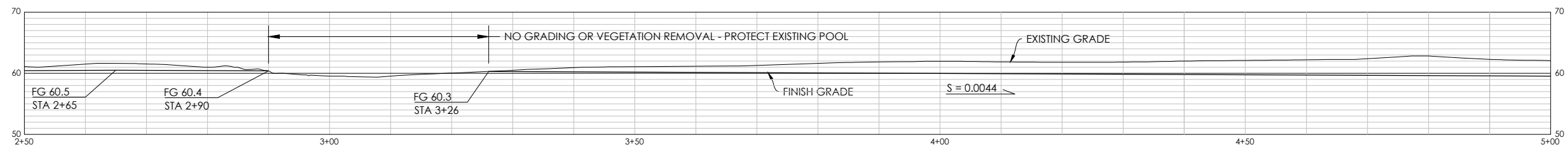
TOTALOMA FLOODPLAIN ENHANCEMENT

MARIN COUNTY, CALIFORNIA

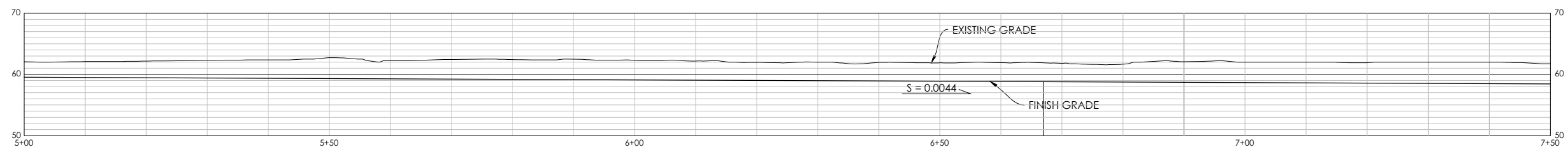
PROJECT NUMBER 210151
SCALE 1" = 30'
SHEET C-3 OF 7



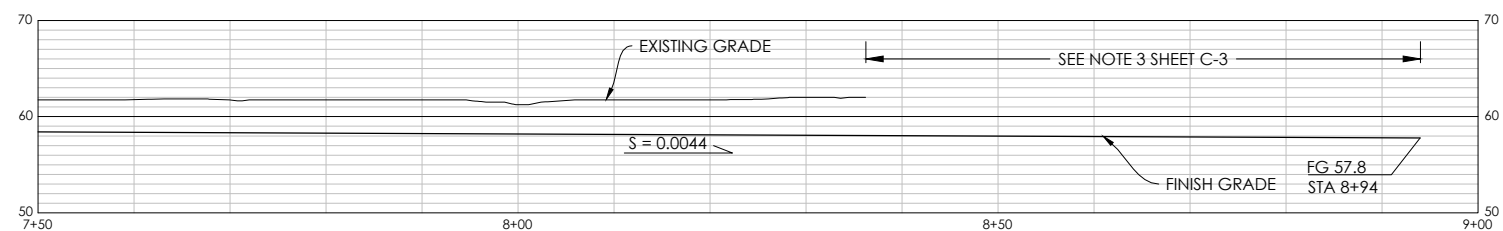
C-3  PROFILE STA 0+00 TO 2+50
SCALE: 1" = 10'



C-3  PROFILE STA 2+50 TO 5+00
SCALE: 1" = 10'



C-3  PROFILE STA 5+00 TO 7+50
SCALE: 1" = 10'



C-3  PROFILE STA 7+50 TO 9+00
SCALE: 1" = 10'

LAYOUT POINTS			
STATION	NORTHING	EASTING	FG ELEVATION
0+00	2,213,273.89	5,910,909.83	N/A
0+26	2213293.502	5,910,926.89	59.0
0+50	2,213,313.03	5,910,940.83	59.2
1+00	2,213,357.55	5,910,963.32	59.5
1+50	2,213,406.01	5,910,974.97	59.8
2+00	2,213,455.79	5,910,979.36	60.1
2+50	2,213,502.16	5,910,997.70	60.4
2+65	2,213,515.96	5,911,003.58	60.5
2+90	2,213,539.08	5,911,013.08	60.4
3+00	2,213,548.55	5,911,016.30	N/A
3+26	2,213,573.58	5,911,023.30	60.3
3+50	2,213,596.21	5,911,031.24	60.2
4+00	2,213,642.05	5,911,051.21	60.0
4+50	2,213,686.69	5,911,073.70	59.8
5+00	2,213,728.09	5,911,101.43	59.5
5+50	2,213,758.96	5,911,140.56	59.3
6+00	2,213,785.04	5,911,183.21	59.1
6+50	2,213,816.16	5,911,221.99	58.9
7+00	2,213,860.97	5,911,243.31	58.7
7+50	2,213,909.80	5,911,253.83	58.4
8+00	2,213,959.62	5,911,257.82	58.2
8+50	2,214,009.58	5,911,256.74	58.0
8+94	2,214,053.32	5,911,252.05	57.8
9+00	2,214,059.25	5,911,251.17	N/A

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E RIEDNER	20170227	ER	ISSUED FOR REVIEW
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D JEPSEN			
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E BALLMAN			
IN CHARGE			
S CHARTAND			
DATE			
20170227			

DRAFT PLAN SET
NOT FOR
CONSTRUCTION

PROFILE

TOCALOMA FLOODPLAIN ENHANCEMENT

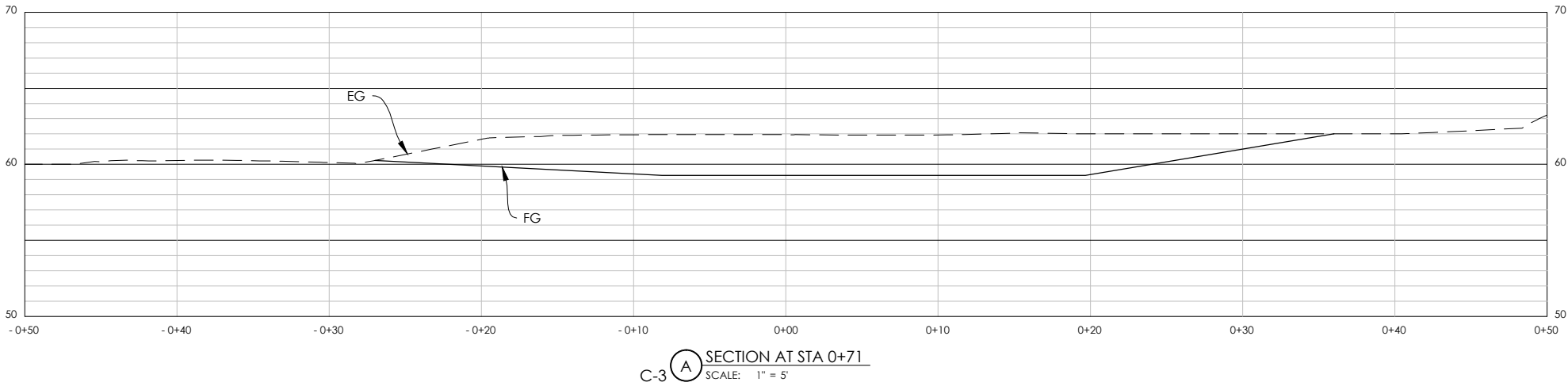
MARIN COUNTY, CALIFORNIA

PROJECT NUMBER
210151

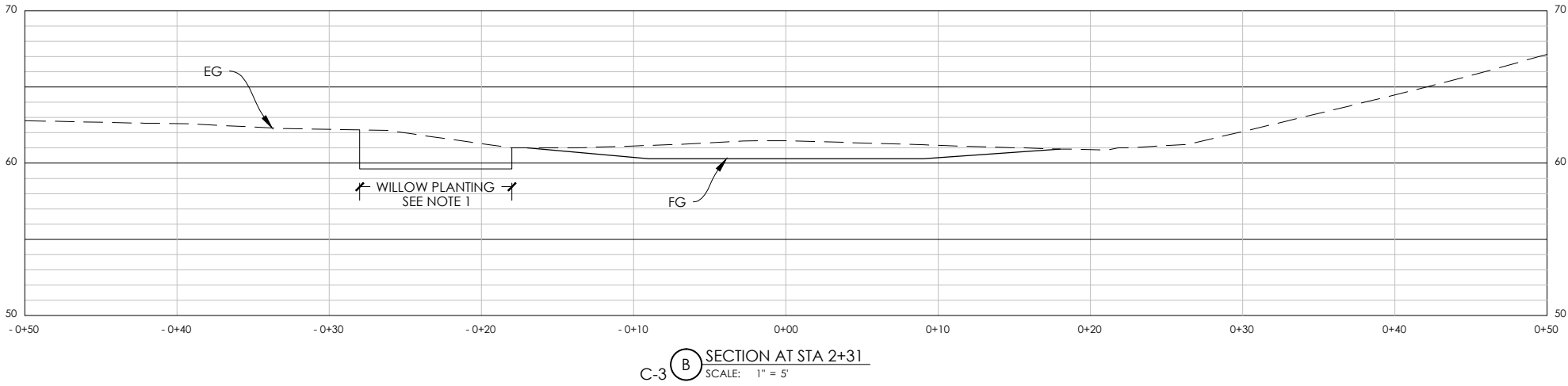
SCALE
AS NOTED
SHEET

C-4

OF 7



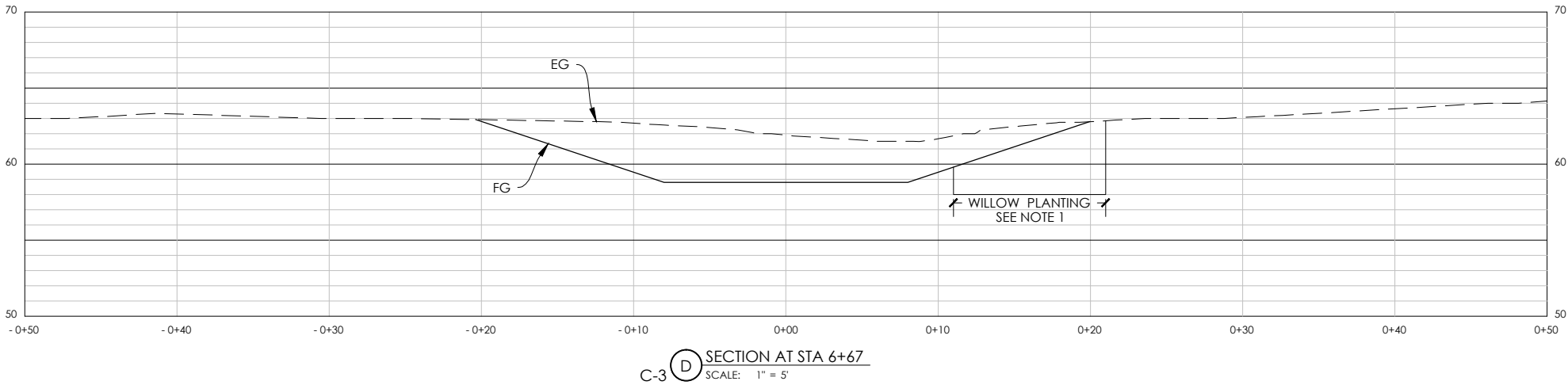
C-3 (A) SECTION AT STA 0+71
SCALE: 1" = 5'



C-3 (B) SECTION AT STA 2+31
SCALE: 1" = 5'



C-3 (C) SECTION AT STA 4+78
SCALE: 1" = 5'



C-3 (D) SECTION AT STA 6+67
SCALE: 1" = 5'

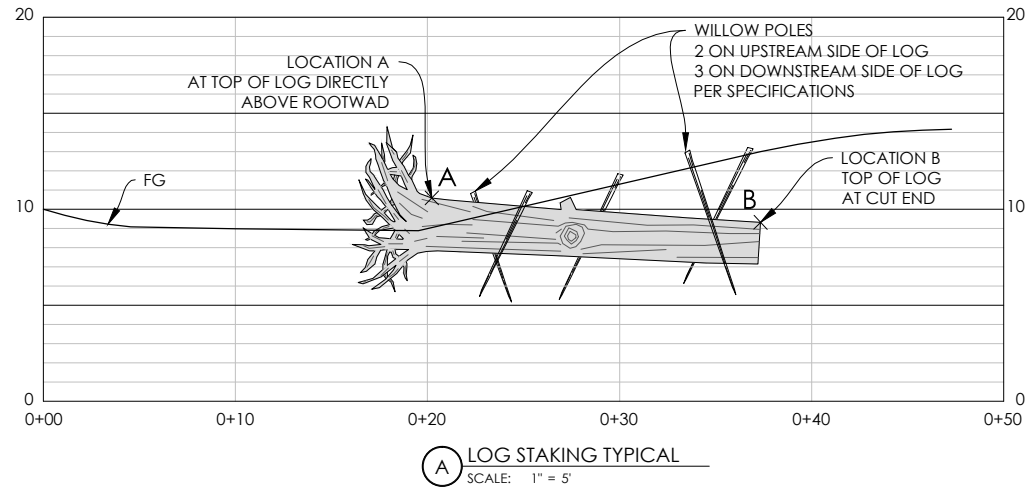
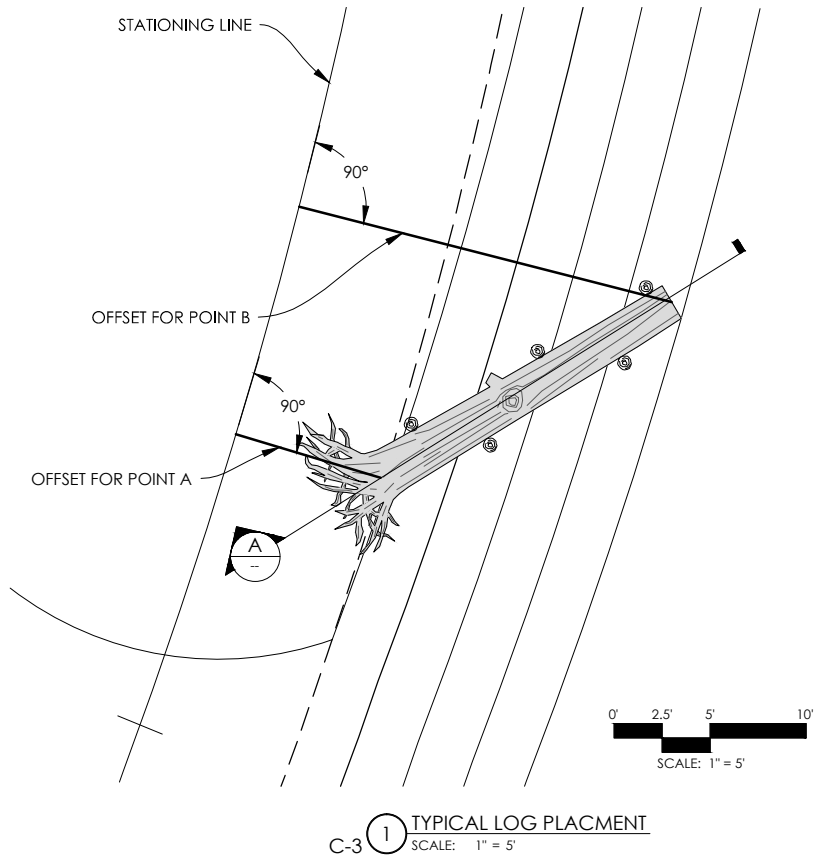
NOTES:

1. PLANT SALVAGED WILLOWS IN AREAS INDICATED ON SHEET C-3. SPACING WILL BE APPROXIMATELY EVERY 10-FEET, MEASURING PARALLEL TO STATIONING LINE. ENGINEER SHALL DIRECT THE PRECISE PLACEMENT OF TRANSPLANTED WILLOWS.

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
E RIEDNER	20170227	ER	ISSUED FOR REVIEW
D JEPSEN			
CHECKED BY			
E BALLMAN			
IN CHARGE			
S CHARTAND			
DATE	20170227		



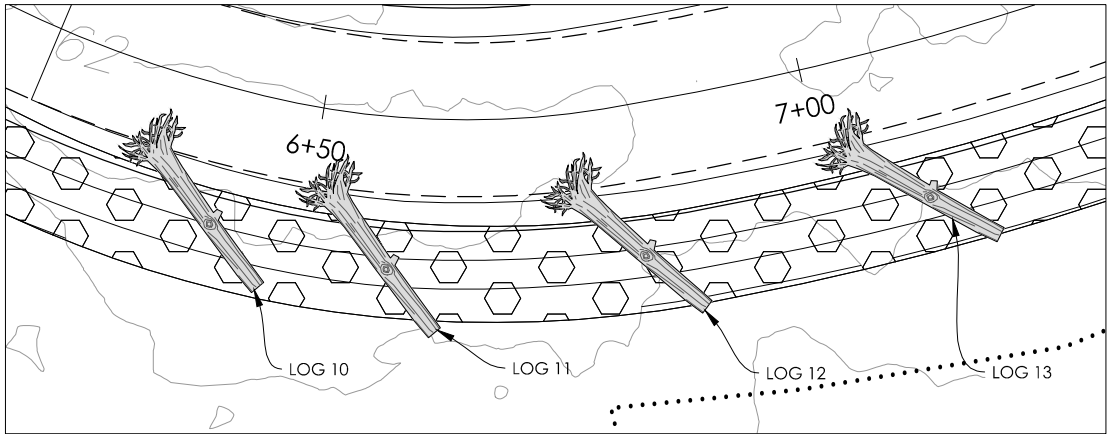
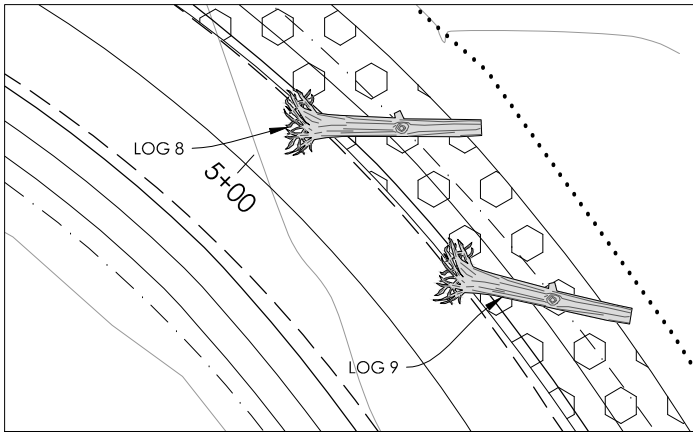
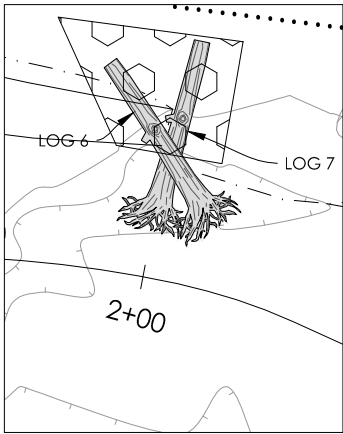
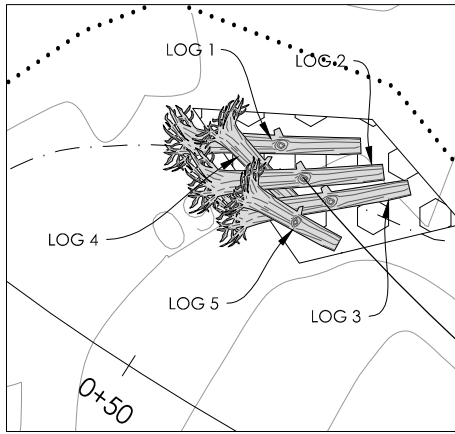
CROSS-SECTIONS
TOTALOMA FLOODPLAIN ENHANCEMENT
MARIN COUNTY, CALIFORNIA



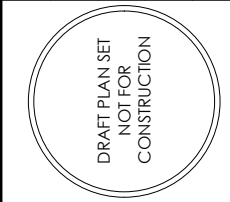
- NOTES:
- SEE SHEET 3 FOR LOG LOCATIONS IN PLAN.
 - SEE SHEETS 3 AND 4 FOR STATIONING LINE LAYOUT INFORMATION.
 - ELEVATION AND OFFSET DATA PROVIDED IN TABLE ASSUMES LOGS TO BE 24" IN DIAMETER AND 17' IN LENGTH WITH THE EXCEPTION OF LOGS 4 AND 5 WHICH ARE ASSUMED TO BE 12' IN LENGTH. DISTRICT STAFF SHALL ADJUST STATION LOCATION, OFFSETS, AND ELEVATIONS IN THE FIELD TO ACCOMMODATE ACTUAL DIMENSIONS OF LOGS USED. SEE TABLES THIS SHEET.
 - NOTE THAT PLACEMENT OF LOGS WILL REQUIRE EXCAVATIONS GREATER THAN 5 FEET IN DEPTH.
 - BACKFILL LOG PLACEMENT TRENCHES WITH FLOODPLAIN BACKFILL AND COMPACT PER SPECIFICATIONS.

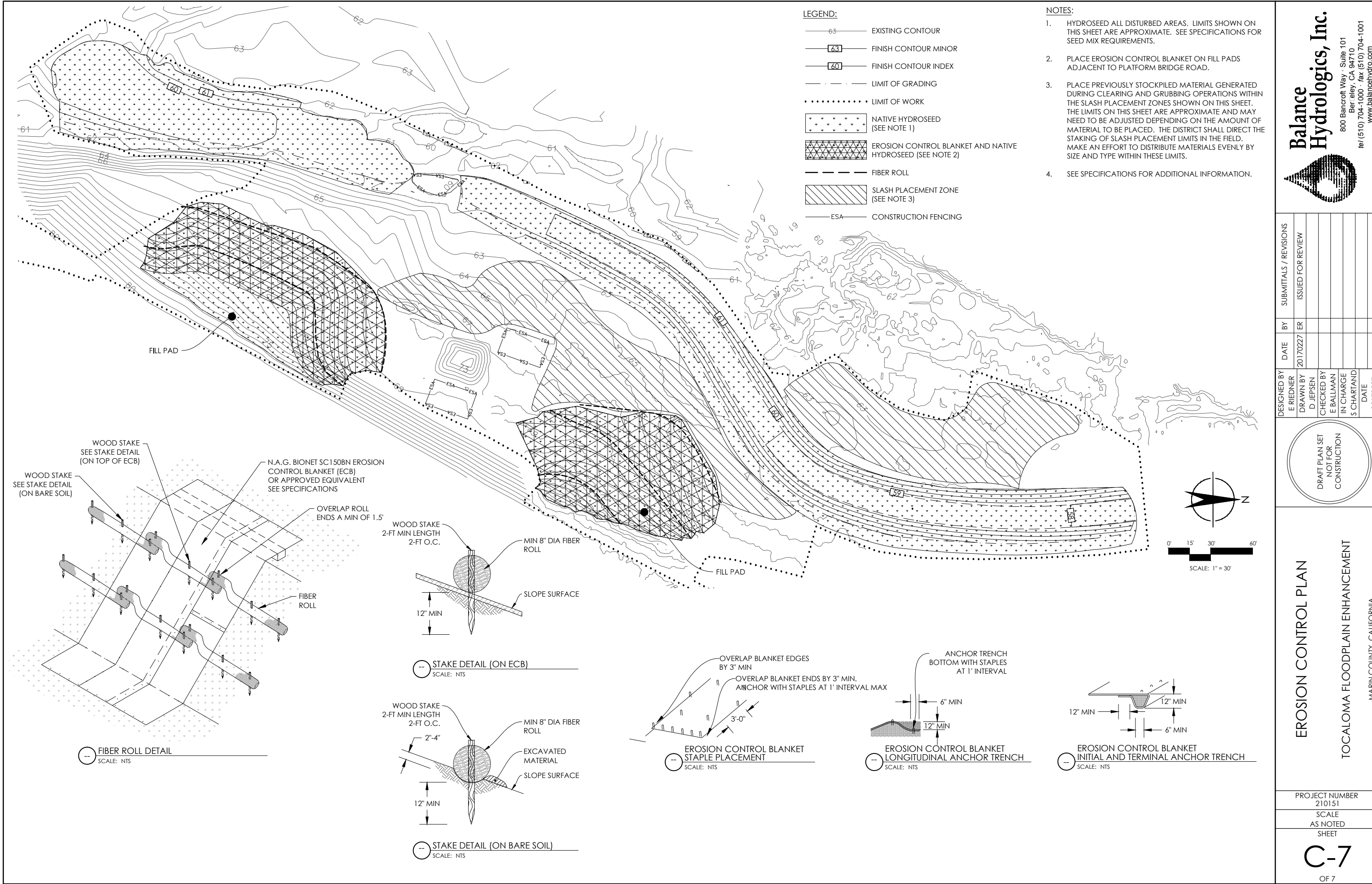
LOG LAYOUT TABLE						
LOG NO.	POINT A			POINT B		
	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET
1	61.0'	0+43	23' LT	57.0'	0+59	32' LT
2	61.0'	0+48	21' LT	57.0'	0+63	31' LT
3	61.0'	0+52	20' LT	57.0'	0+66	31' LT
4	64.0'	0+45	26' LT	56.0'	0+56	24' LT
5	64.0'	0+51	22' LT	56.0'	0 +62	22' LT
6	63.0'	2+04	9' LT	59.0'	1+94	21' LT
7	62.0'	2+00	8' LT	55.0'	2+01	25' LT
8	61.5'	5+03	8' LT	58.5'	5+14	20' LT
9	61.5'	5+24	9' LT	58.5'	5+36	20' LT
10	61.5'	6+35	9' RT	58.5'	6+46	20' RT
11	61.5'	6+52	9' RT	58.5'	6+62	22' RT
12	61.0'	6+76	9' RT	58.0'	6+86	22' RT
13	60.5'	7+04	10' RT	57.5'	7+15	22' RT

LOG DIMENSIONS		
LOG NO.	LENGTH	DIAMETER
1	16' - 18'	MIN 18"
2	16' - 18'	MIN 18"
3	16' - 18'	MIN 18"
4	10' - 14'	MIN 18"
5	10' - 14'	MIN 18"
6	16' - 18'	MIN 18"
7	16' - 18'	MIN 18"
8	16' - 18'	MIN 18"
9	16' - 18'	MIN 18"
10	16' - 18'	MIN 18"
11	16' - 18'	MIN 18"
12	16' - 18'	MIN 18"
13	16' - 18'	MIN 18"



DESIGNED BY	DRAWN BY	CHECKED BY	IN CHARGE	S CHARTAND	DATE
E RIEDNER	D JEPSEN	E BALLMAN			20170227
DATE	BY	SUBMITTALS / REVISIONS			
20170227	ER	ISSUED FOR REVIEW			





LEGEND:

- 63 EXISTING CONTOUR
- 63 FINISH CONTOUR MINOR
- 60 FINISH CONTOUR INDEX
- LIMIT OF GRADING
- LIMIT OF WORK
- [Stippled Box] NATIVE HYDROSEED (SEE NOTE 1)
- [Cross-hatched Box] EROSION CONTROL BLANKET AND NATIVE HYDROSEED (SEE NOTE 2)
- FIBER ROLL
- [Diagonal Lines Box] SLASH PLACEMENT ZONE (SEE NOTE 3)
- ESA CONSTRUCTION FENCING

NOTES:

- HYDROSEED ALL DISTURBED AREAS. LIMITS SHOWN ON THIS SHEET ARE APPROXIMATE. SEE SPECIFICATIONS FOR SEED MIX REQUIREMENTS.
- PLACE EROSION CONTROL BLANKET ON FILL PADS ADJACENT TO PLATFORM BRIDGE ROAD.
- PLACE PREVIOUSLY STOCKPILED MATERIAL GENERATED DURING CLEARING AND GRUBBING OPERATIONS WITHIN THE SLASH PLACEMENT ZONES SHOWN ON THIS SHEET. THE LIMITS ON THIS SHEET ARE APPROXIMATE AND MAY NEED TO BE ADJUSTED DEPENDING ON THE AMOUNT OF MATERIAL TO BE PLACED. THE DISTRICT SHALL DIRECT THE STAKING OF SLASH PLACEMENT LIMITS IN THE FIELD. MAKE AN EFFORT TO DISTRIBUTE MATERIALS EVENLY BY SIZE AND TYPE WITHIN THESE LIMITS.
- SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

Balance Hydrologics, Inc.

800 Bancroft Way - Suite 101
Berkeley, CA 94710
Tel: (510) 704-1000 • Fax: (510) 704-1001
www.balancehydro.com

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D JEPSEN			
CHECKED BY			
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DRAFT PLAN SET
NOT FOR
CONSTRUCTION

EROSION CONTROL PLAN

TOTALOMA FLOODPLAIN ENHANCEMENT

MARIN COUNTY, CALIFORNIA

PROJECT NUMBER
210151

SCALE
AS NOTED

SHEET

C-7

OF 7

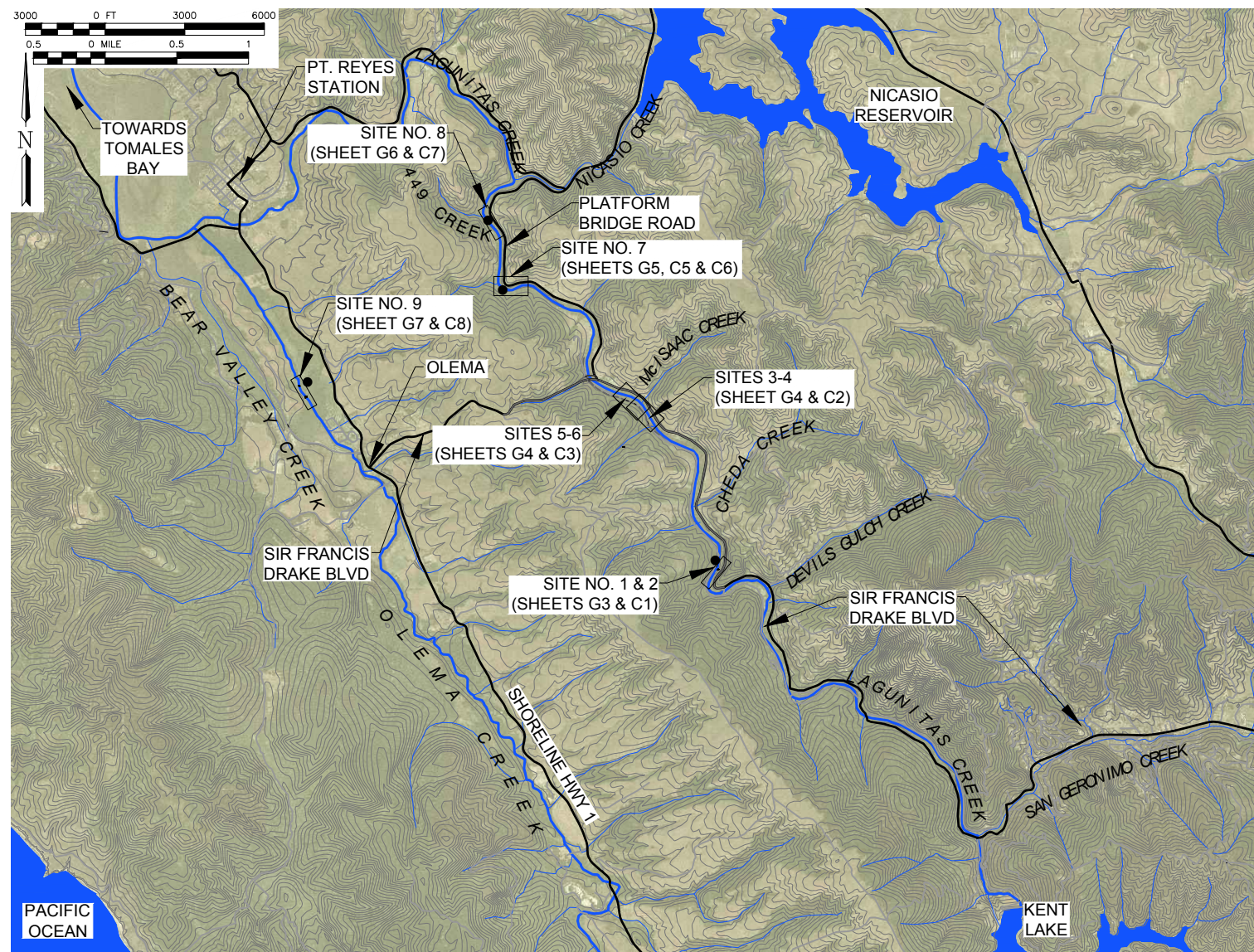
APPENDIX B2

Lagunitas Creek Salmonid Winter Habitat Enhancement Plans – Project Sites 1–9

LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS

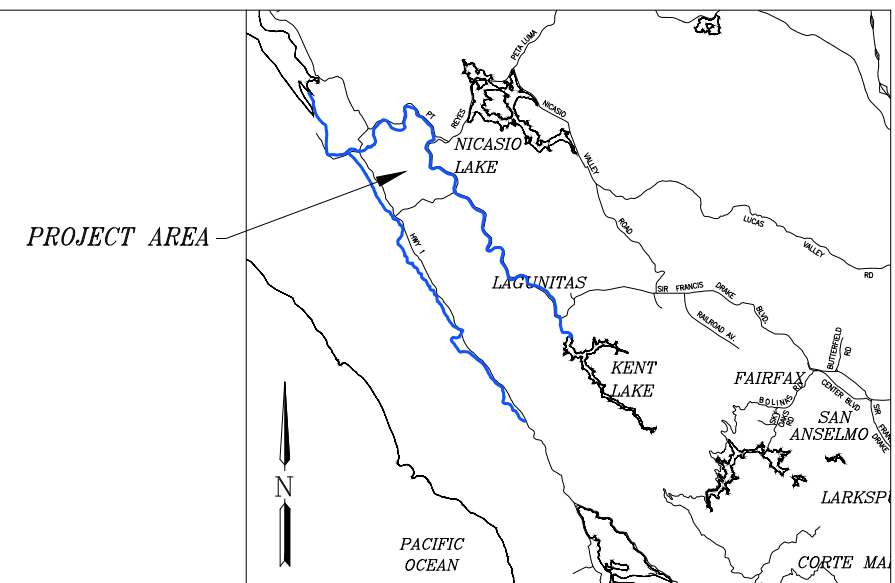
MARIN COUNTY, CALIFORNIA

PROJECT SITES 1 - 9



LOCATION MAP

NOTE: NUMBERS REFER TO PROJECT SITES - SEE TABLE THIS SHEET



VICINITY MAP
SCALE: N.T.S.

INDEX TO DRAWINGS

SHEET NO.	SHEET COUNT	TITLE
GENERAL		
G1	1	INDEX TO DRAWINGS, VICINITY MAP & LOCATION MAP
G2	2	GENERAL NOTES, ABBREVIATIONS, SYMBOLS & REFERENCES
G3	3	SITE ACCESS AND STAGING BIG BEND, SITES NO. 1 & 2
G4	4	SITE ACCESS AND STAGING McISAAC, SITES NO. 3, 4, 5 & 6
G5	5	SITE ACCESS AND STAGING FERN ROCK, SITE NO. 7
G6	6	SITE ACCESS AND STAGING 499 CREEK, SITE NO. 8
G7	7	SITE ACCESS AND STAGING OLEMA CREEK, SITE NO. 9
G8	8	CLEAR WATER DIVERSION RECOMMENDATIONS, SITES 2 & 3
G9	9	CLEAR WATER DIVERSION RECOMMENDATIONS, SITES 6 & 8
CIVIL		
C1	10	BIG BEND PLAN AND PROFILE
C2	11	McISAAC PLAN UPSTREAM
C3	12	McISAAC PLAN DOWNSTREAM
C4	13	McISAAC PROFILES
C5	14	FERN ROCK PLAN
C6	15	FERN ROCK PROFILE
C7	16	499 CREEK PLAN AND PROFILE
C8	17	OLEMA PLAN AND PROFILE
C9	18	BAR APEX JAM DETAILS, SITES 2 & 3
C10	19	BAR APEX JAM DETAILS, SITES 6 & 8
C11	20	BAR APEX JAM ASSEMBLY SEQUENCE
C12	21	LOG JAM PLAN AND PROFILES, SITES 4, 5, 7 & 8
C13	22	LOG JAM PLAN AND PROFILES, SITE 9
C14	23	LOG JAM DETAILS
C15	24	DETAILS
C16	25	DETAILS

PROJECT SITES

1	BIG BEND DEFLECTOR VANES (4)	7b	FERN ROCK DEBRIS JAM 2
2	BIG BEND BAR APEX JAM	7c	FERN ROCK DEBRIS JAM 3
3	McISAAC UPSTREAM BAR APEX JAM	7d	FERN ROCK DEBRIS JAM 4
4	McISAAC UPSTREAM DEBRIS JAM	8a	449 CREEK DEBRIS JAM
5	McISAAC UPSTREAM DEBRIS JAM	8b	449 CREEK BAR APEX JAM
6	McISAAC DOWNSTREAM BAR APEX JAM	9a	OLEMA CREEK CROSS VANE
7a	FERN ROCK DEBRIS JAM 1	9b	OLEMA CREEK DEBRIS JAMS (6)



KAMMAN HYDROLOGY
& ENGINEERING, INC.



MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
INDEX TO DRAWINGS, VICINITY MAP
& LOCATION MAP

G1
1 25

SHEET NO.
JOB NO.

DRAFT 100% SUBMITTAL

NO	REVISION	CLH	GRK	RZK	3/10/17
		DRAWN	CHKD	APPRVD	DATE

ENGINEERING SEAL

CONSULTANT

GENERAL MANAGER

GENERAL NOTES CONTINUED

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE DISTRICT'S MOST RECENT VERSION OF STANDARD SPECIFICATIONS AND REVISIONS THERETO. DISTRICT WILL PROVIDE CONTRACTOR WITH MOST RECENT VERSION OF SPECIFICATIONS.
2. DATA AND INFORMATION PROVIDED BY THE DISTRICT ARE FOR THE CONTRACTOR'S INFORMATION ONLY. ANY INTERPRETATIONS OR CONCLUSIONS DRAWN BY THE CONTRACTOR FROM THEM SHALL BE CONTRACTOR'S RESPONSIBILITY.
3. CHANNEL IMPROVEMENTS INDICATED ON DRAWINGS SHALL NOT BE MODIFIED WITHOUT PRIOR AUTHORIZATION OF THE CONSTRUCTION MANAGER.
4. PRIOR TO INSTALLATION, THE LOCATIONS OF NEW CHANNEL IMPROVEMENTS SHALL BE MARKED IN THE FIELD BY THE DISTRICT OR APPROPRIATE PARTY.
5. WHEN AN AREA IS DISTURBED, THE CONTRACTOR SHALL RESTORE IT AS NEARLY AS POSSIBLE TO MATCH EXISTING CONDITIONS AS DETERMINED BY THE DISTRICT REPRESENTATIVE.
6. NO SURVEY MONUMENTS ARE TO BE REMOVED OR DISTURBED. SEE PROJECT PLANS FOR KNOWN SURVEY CONTROL ESTABLISHED IN 2013. IF SURVEY CONTROL IS MISSING OR DISTURBED, CONTACT CONSTRUCTION MANAGER PRIOR TO ANY INSTALLATIONS.
7. UNLESS OTHERWISE INDICATED, ALL CHANNEL IMPROVEMENTS SHALL BE INSTALLED AS SHOWN ON THE STANDARD DETAIL SHEETS OF THIS SET OF PLANS.
8. THE CONTRACTOR SHALL EXERCISE CARE WHEN WORKING NEAR EXISTING ROCK SLOPE PROTECTION (RSP) AND SHALL BE RESPONSIBLE FOR RESTORING ANY RSP DISTURBED DURING EXCAVATION.
9. THE LOCATION FOR UTILITIES SHOWN ON THESE PLANS ARE UNKNOWN OR APPROXIMATE AS INDICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATION AND DEPTH IF NECESSARY. THIS VERIFICATION SHALL BE COORDINATED BY THE CONTRACTOR WITH THE APPROPRIATE UTILITY COMPANY. THE CONTRACTOR SHALL EXERCISE CARE WHEN WORKING NEAR EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE, BREAKS AND/OR LEAKS. CONTRACTOR SHALL CALL U.S.A. (UNDERGROUND SERVICE ALERT) AT LEAST 48 HOURS IN ADVANCE OF ANY PLANNED EXCAVATION. PHONE 1-800-642-2444.
10. CONTRACTOR TO PROVIDE A 72 HOUR NOTICE TO CONSTRUCTION MANAGER PRIOR TO COMMENCING CONSTRUCTION WORK. DISTRICT SHALL NOTIFY PROPERTY OWNERS AND RESIDENTS.
11. DISTRICT SHALL OBTAIN SPECIAL USE PERMIT FROM NATIONAL PARK SERVICE. DISTRICT WILL ALSO OBTAIN ANY TRAFFIC PERMITS FROM COUNTY. CONTRACTOR TO ADHERE TO ALL CONDITIONS SET FORTH IN ALL PERMITS. DISTRICT WILL PROVIDE CONTRACTOR WITH COPIES OF PERMITS.

SITE SURVEY CONTROL MONUMENTS

BENCHMARK DESCRIPTION:
VERTICAL DATUM IS REFERENCED TO NAVD88 (FEET). NORTHINGS AND EASTINGS ARE REFERENCED TO CALIFORNIA STATE PLANE - ZONE 3 (NAD83) FEET).


1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MINIMIZE EROSION AND PREVENT THE TRANSPORT OF SEDIMENT TO THE ADJACENT STREAM AND SENSITIVE AREAS. SEE SPECIFICATIONS FOR DETAILS.
2. AT A MINIMUM, THE CONTRACTOR SHALL EMPLOY BEST MANAGEMENT PRACTICES (BMPs) IN THE PROJECT SWPPP AND THE CURRENT CALTRANS STORM WATER QUALITY HANDBOOK AS NEEDED.
3. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIX ANY DEFICIENCIES INDICATED BY THE DISTRICT OR THE DISTRICT'S REPRESENTATIVE.
4. PRIOR TO FINAL ACCEPTANCE, ALL AREAS OF THE SITE WILL BE PERMANENTLY STABILIZED AND ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED.
5. ALL DISTURBED EARTH AREAS SHALL BE TREATED WITH EROSION CONTROL MEASURES OUTLINED IN SWPPP.


Diagram illustrating the sheet numbering system:

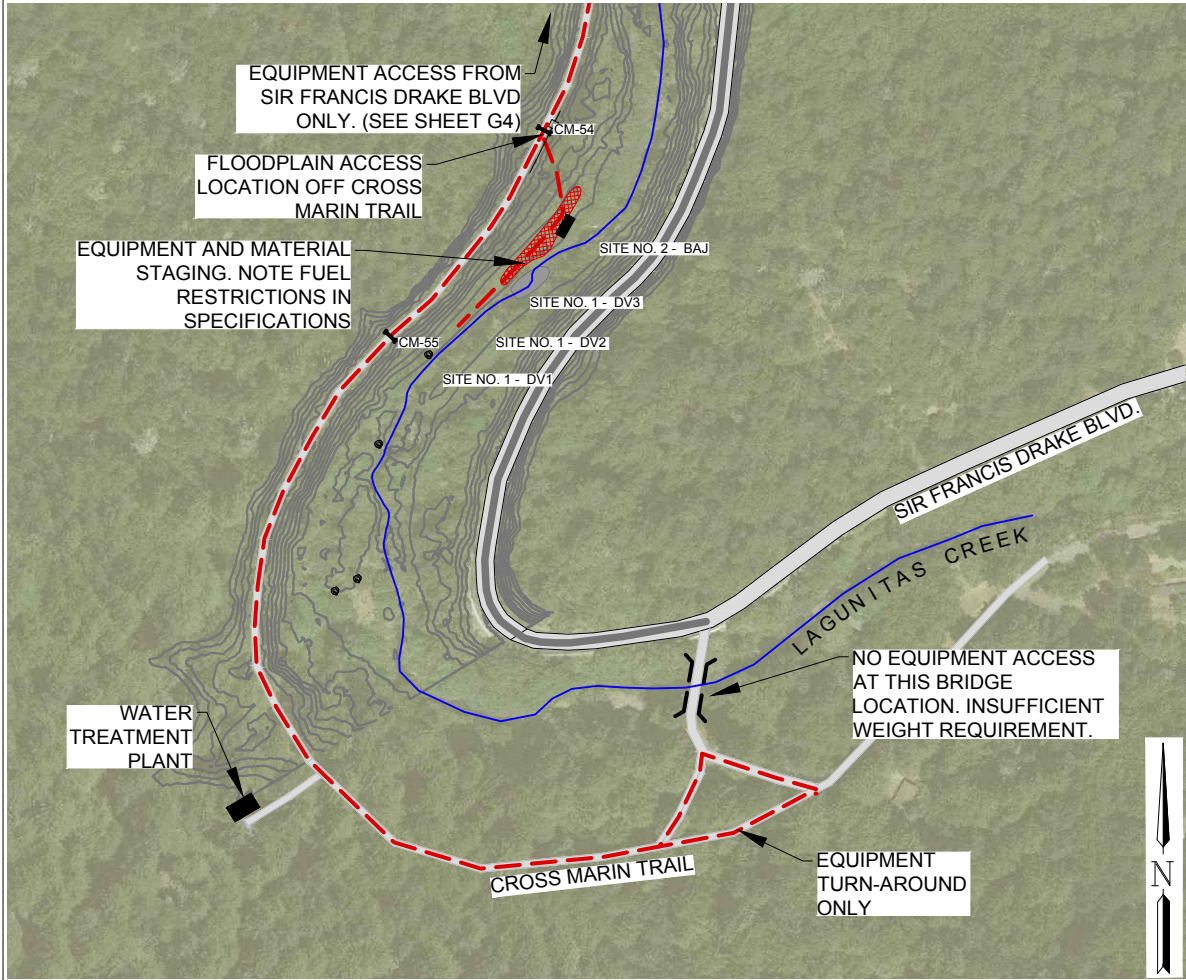
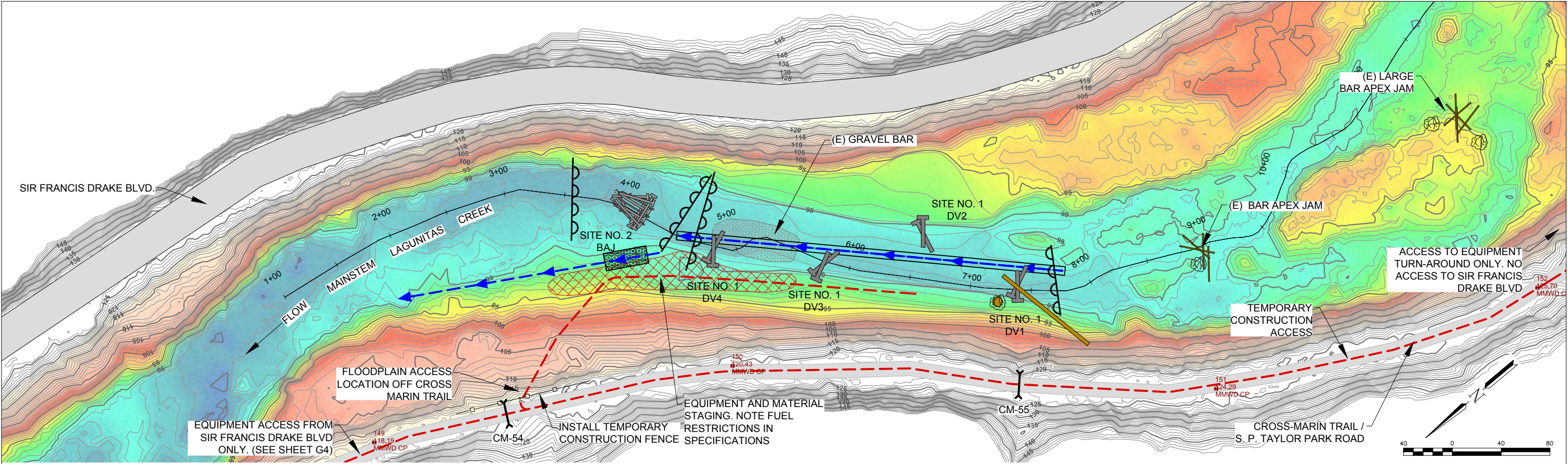
- G1**: DISCIPLINE LETTER AND SHEET NO IN SERIES
- 10**: TOTAL SHEET COUNT IN PROJECT SET
- 2**: SHEET NUMBER IN PROJECT SET

(N) LOG DIVERSION VANE
 (N) LOG BAR APEX JAM
 (N) LOG DEBRIS RETENTION JAM
 (N) LOG CROSS VANE
 (E) LOG JAM
 (E) TREE
 TEMPORARY WORK PLATFORM
 COFFER DAM
 TEMP. STREAM CROSSING

IMPROVED HIGH FLOW PATHWAY
 MAINTAIN (E) LOW FLOW CHANNEL
 ROAD OR TRAIL
 TEMPORARY CONSTRUCTION ACCESS
 OVERHEAD ELECTRICAL LINE
 POINT NUMBER
 ELEVATION
 DESCRIPTION
 (E) SURVEY CONTROL MONUMENT
 EQUIPMENT/MATERIAL STAGING AREAS
 TEMPORARY CONSTRUCTION FENCE
 (E) CULVERT



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		CONTRACT NO.		CHECKED BY
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		SIGN DATE		_____
		CONST COM DATE		PRINCIPAL ENGR.
ENGINEERING SEAL	CONSULTANT	APPROVED CHIEF ENGR. _____		

REVIEW	PLANNING	<div> MARIN MUNICIPAL WATER DISTRICT 220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455</div> <div><i>LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PROJECT GENERAL NOTES, ABBREVIATIONS, SYMBOLS & REFERENCES</i></div>	<div><div><div>G2</div><div>2 25</div></div><div>SHEET NO. JOB NO.</div></div>
	CIVIL DESIGN		
	OPERATIONS		
	CORROSION		
	M&E/CNTRLS		
	FAC/WTR MGT		
	ENGR SERV		
	INSPECTION		
	WTR QUALITY		
	RECORDS/SUBD.		



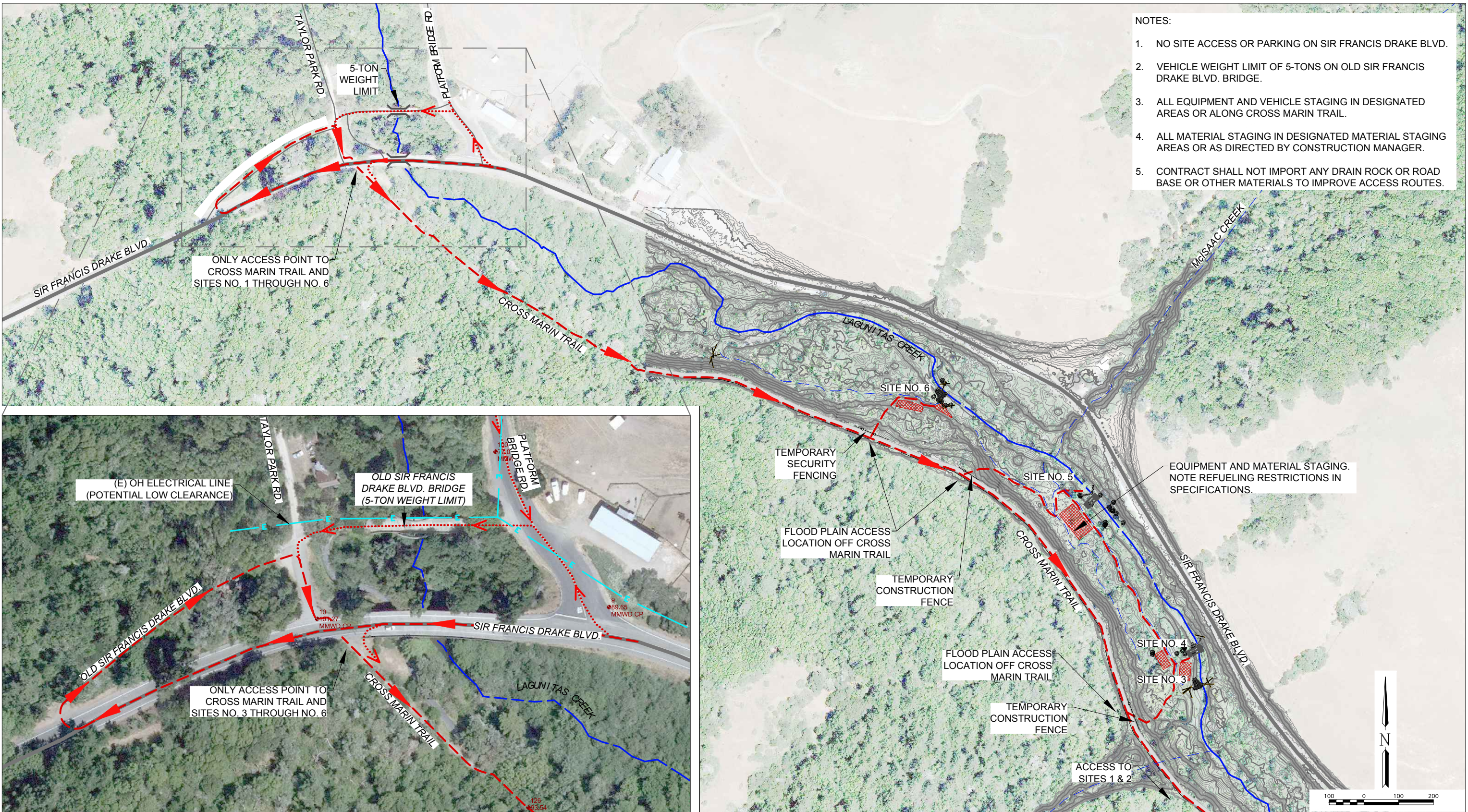
- NOTES:
1. CLEAR VEGETATION AND RACK MATERIAL FROM (E) HIGH FLOW CHANNEL ALONG IMPROVED HIGH FLOW PATHWAYS. NO GRUBBING REQUIRED. REUSE MATERIAL PER SPECIFICATIONS.
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	NO	REVISION	DRAWN	CHKD	APPRVD	DATE

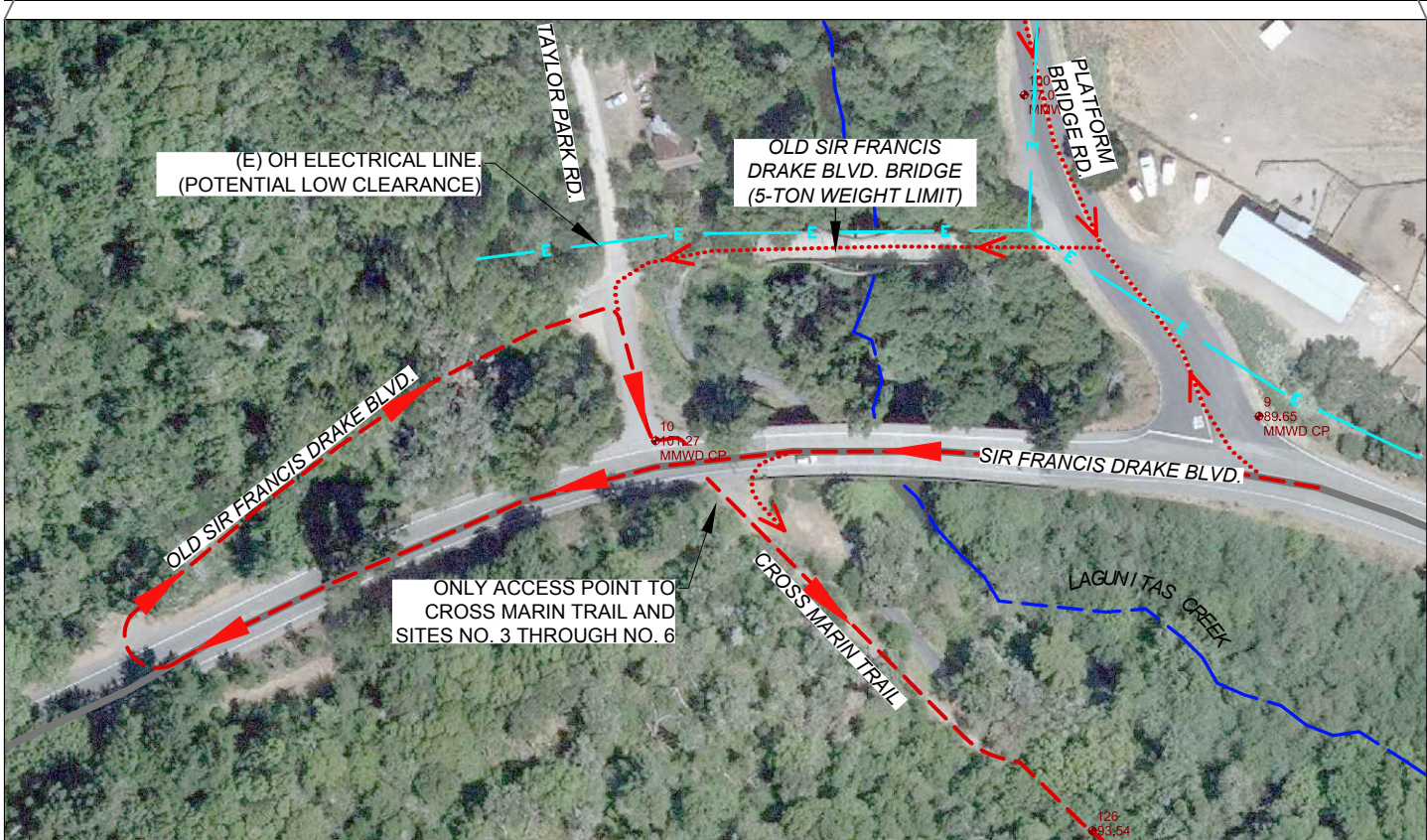
 KAMMAN HYDROLOGY & ENGINEERING, INC.	SCALE	DESIGN	DRAWN BY	 MARIN MUNICIPAL WATER DISTRICT 220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455	<i>LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS SITE ACCESS AND STAGING BIG BEND, SITES NO. 1 AND 2</i>	<div><div>G3</div><div>325</div><div>SHEET NO. JOB NO.</div></div>			
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ENGINEERING SEAL	CONSULTANT								

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- NOTES:
1. NO SITE ACCESS OR PARKING ON SIR FRANCIS DRAKE BLVD.
 2. VEHICLE WEIGHT LIMIT OF 5-TONS ON OLD SIR FRANCIS DRAKE BLVD. BRIDGE.
 3. ALL EQUIPMENT AND VEHICLE STAGING IN DESIGNATED AREAS OR ALONG CROSS MARIN TRAIL.
 4. ALL MATERIAL STAGING IN DESIGNATED MATERIAL STAGING AREAS OR AS DIRECTED BY CONSTRUCTION MANAGER.
 5. CONTRACT SHALL NOT IMPORT ANY DRAIN ROCK OR ROAD BASE OR OTHER MATERIALS TO IMPROVE ACCESS ROUTES.




- RECOMMENDED SITE ACCESS ROUTE OFF SIR FRANCIS DRAKE BLVD.
- ALTERNATE ACCESS ROUTES PENDING VEHICLE SIZE AND WEIGHT.
- (E) OVERHEAD ELECTRICAL LINE

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& ENGINEERING, INC.

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ENGR SERV
INSPECTION
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RECORDS/SUBD.

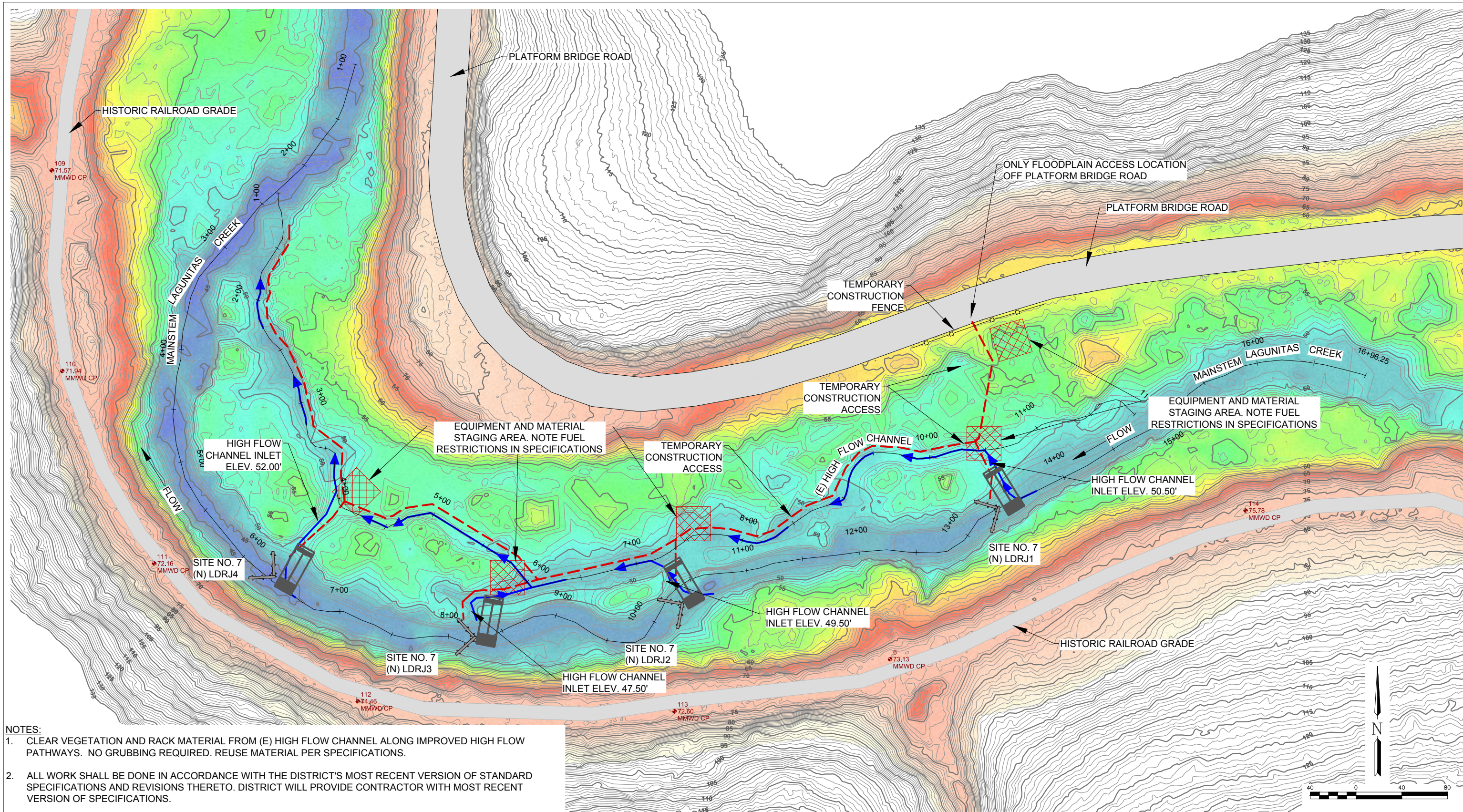
 **MARIN MUNICIPAL WATER DISTRICT**
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PROJECT
SITE ACCESS AND STAGING
McISAAC, SITES NO. 3, 4, 5 & 6

G4
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NOTES:

1. CLEAR VEGETATION AND RACK MATERIAL FROM (E) HIGH FLOW CHANNEL ALONG IMPROVED HIGH FLOW PATHWAYS. NO GRUBBING REQUIRED. REUSE MATERIAL PER SPECIFICATIONS.
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NO	REVISION	CLH	GRK	RZK	3/10/17
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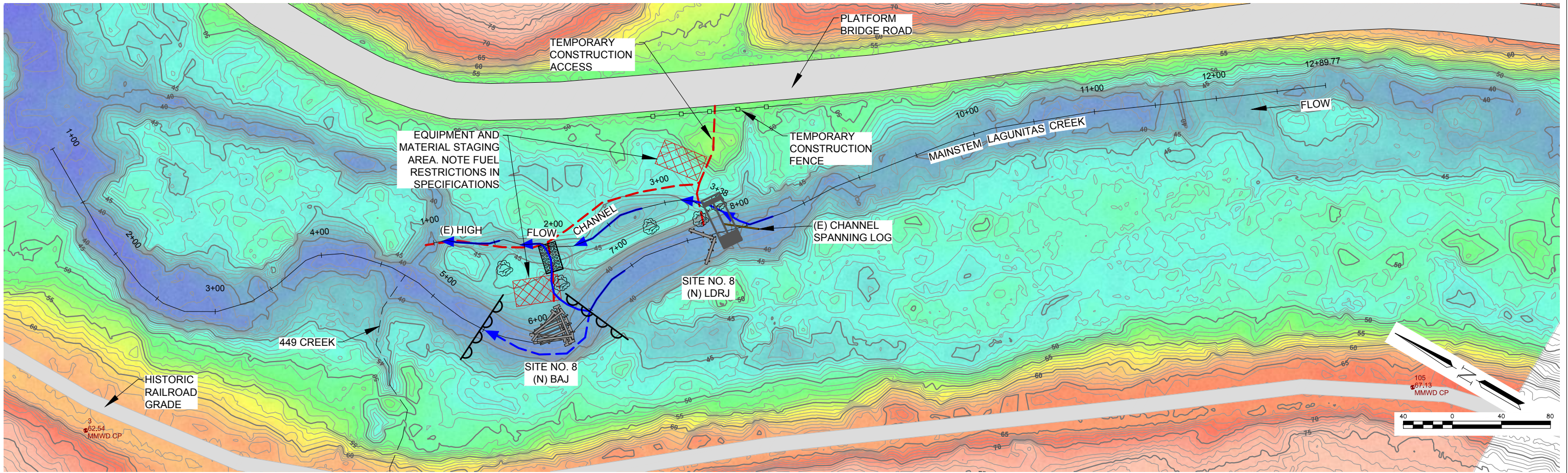
 **MARIN MUNICIPAL WATER DISTRICT**
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

*LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
SITE ACCESS AND STAGING
FERN ROCK, SITE NO. 7*

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APPROVED CHIEF ENGR.			

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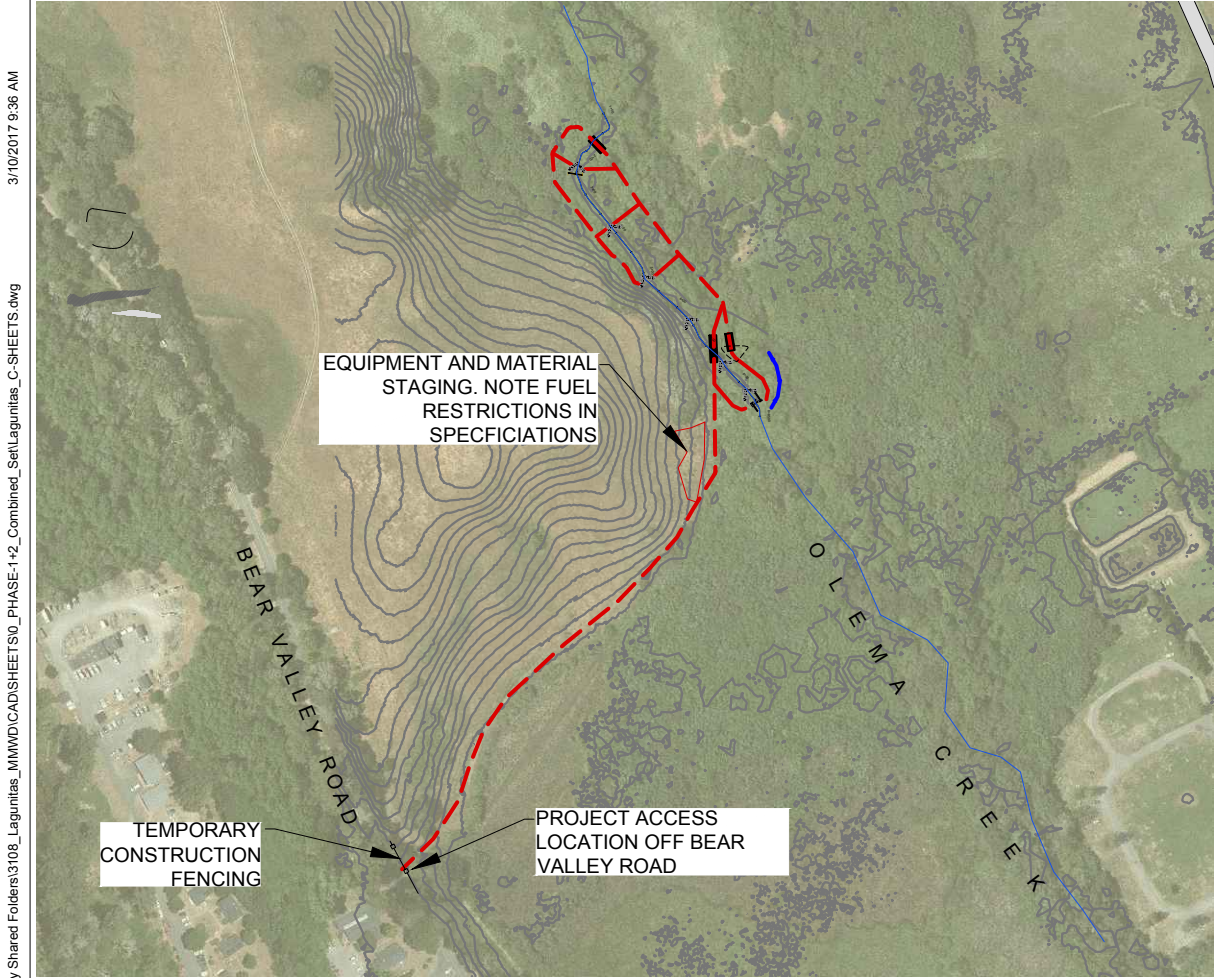
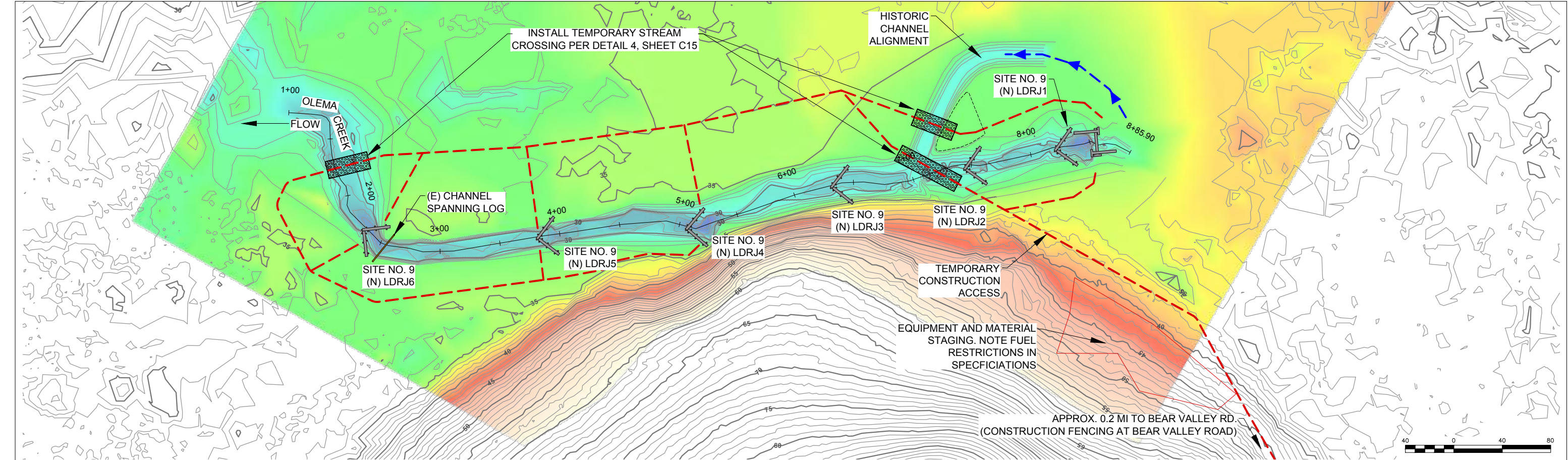
MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
SITE ACCESS AND STAGING
449 CREEK, SITE NO. 8

G6

6 25

SHEET NO.
JOB NO.



- NOTES:**
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NOTES:

1. CONSTRUCTION ACCESS MUST CROSS BYPASS CHANNEL. CONTRACTOR TO INSTALL CROSSING USING MATERIALS AND METHODS APPROVED BY CONSTRUCTION MANAGER.

DIRECT BYPASS TO (E) HIGH FLOW CHANNEL, LINE CHANNEL WITH VISQUEEN. SOME MINOR EARTHWORK LIKELY ALONG ALIGNMENT TO ENSURE POSITIVE FLOW. ASSUME 6-FT BOTTOM WIDTH; 2:1 SLOPES; DEPTH = 2-FT. BACKFILL TO FINISH GRADE AFTER CONSTRUCTION, AS NECESSARY.

CULVERT OR APPROVED EQUIVALENT STEEL PLATE BYPASS CROSSING FOR CONSTRUCTION EQUIPMENT ACCESS

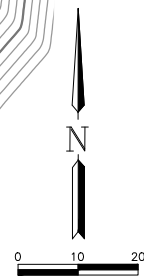
BAR APEX JAM
(SITE NO. 2)

TEMPORARY ENERGY DISSIPATER (RIPRAP) OR APPROVED EQUIVALENT AT OUTFALL TO CREEK. REMOVE AFTER CONSTRUCTION.

INSTALL/REMOVE TEMPORARY COFFER DAM PER SPECIFICATIONS CREST HEIGHT = 90.6-FT

INSTALL/REMOVE TEMPORARY COFFER DAM PER SPECIFICATIONS CREST HEIGHT = 90.6-FT

COFFER DAM AND CHANNEL
BYPASS: BIG BEND
BAR APEX JAM (SITE NO. 2)



NOTES:

1. CONSTRUCTION ACCESS MUST CROSS BYPASS CHANNEL. CONTRACTOR TO INSTALL CROSSING USING MATERIALS AND METHODS APPROVED BY CONSTRUCTION MANAGER.
2. CONSTRUCTION LIKELY REQUIRES REMOVAL OF LOG JAMS ON BOTH BANKS.

INSTALL/REMOVE TEMPORARY COFFER DAM PER SPECIFICATIONS CREST HEIGHT = 70-FT

CULVERT OR APPROVED EQUIVALENT STEEL PLATE BYPASS CROSSING FOR CONSTRUCTION EQUIPMENT ACCESS

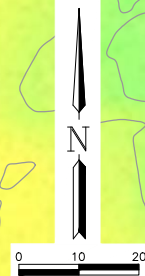
DIRECT BYPASS TO (E) HIGH FLOW CHANNEL, LINE CHANNEL WITH VISQUEEN. SOME MINOR EARTHWORK LIKELY ALONG ALIGNMENT TO ENSURE POSITIVE FLOW. ASSUME 6-FT BOTTOM WIDTH; 2:1 SLOPES; BED INVERT ELEV. = 67-FT; DEPTH = 2-FT. BACKFILL TO FINISH GRADE AFTER CONSTRUCTION, AS NECESSARY.

BAR APEX JAM
(SITE NO. 3)

TEMPORARY ENERGY DISSIPATER (RIPRAP) OR APPROVED EQUIVALENT AT OUTFALL TO CREEK. REMOVE AFTER CONSTRUCTION.

INSTALL/REMOVE TEMPORARY COFFER DAM PER SPECIFICATIONS CREST HEIGHT = 70-FT

COFFER DAM AND CHANNEL
BYPASS: UPPER McISAAC
BAR APEX JAM (SITE NO. 3)



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ENGINEERING SEAL



KAMMAN HYDROLOGY
& ENGINEERING, INC.

CONSULTANT

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PLANNING
CIVIL DESIGN
OPERATIONS
CORROSION
M&E/CNTRLS
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INSPECTION
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RECORDS/SUBD.

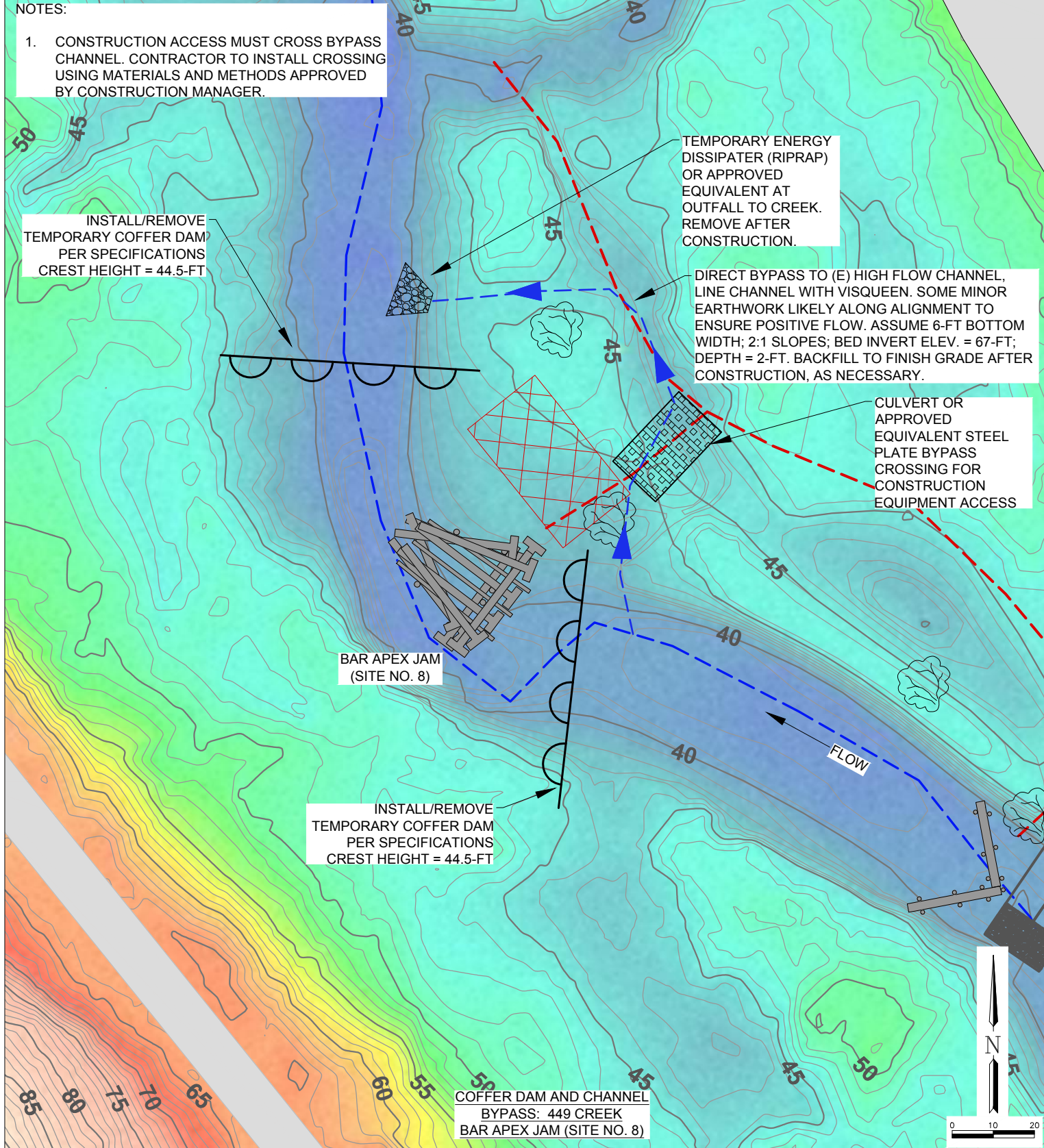
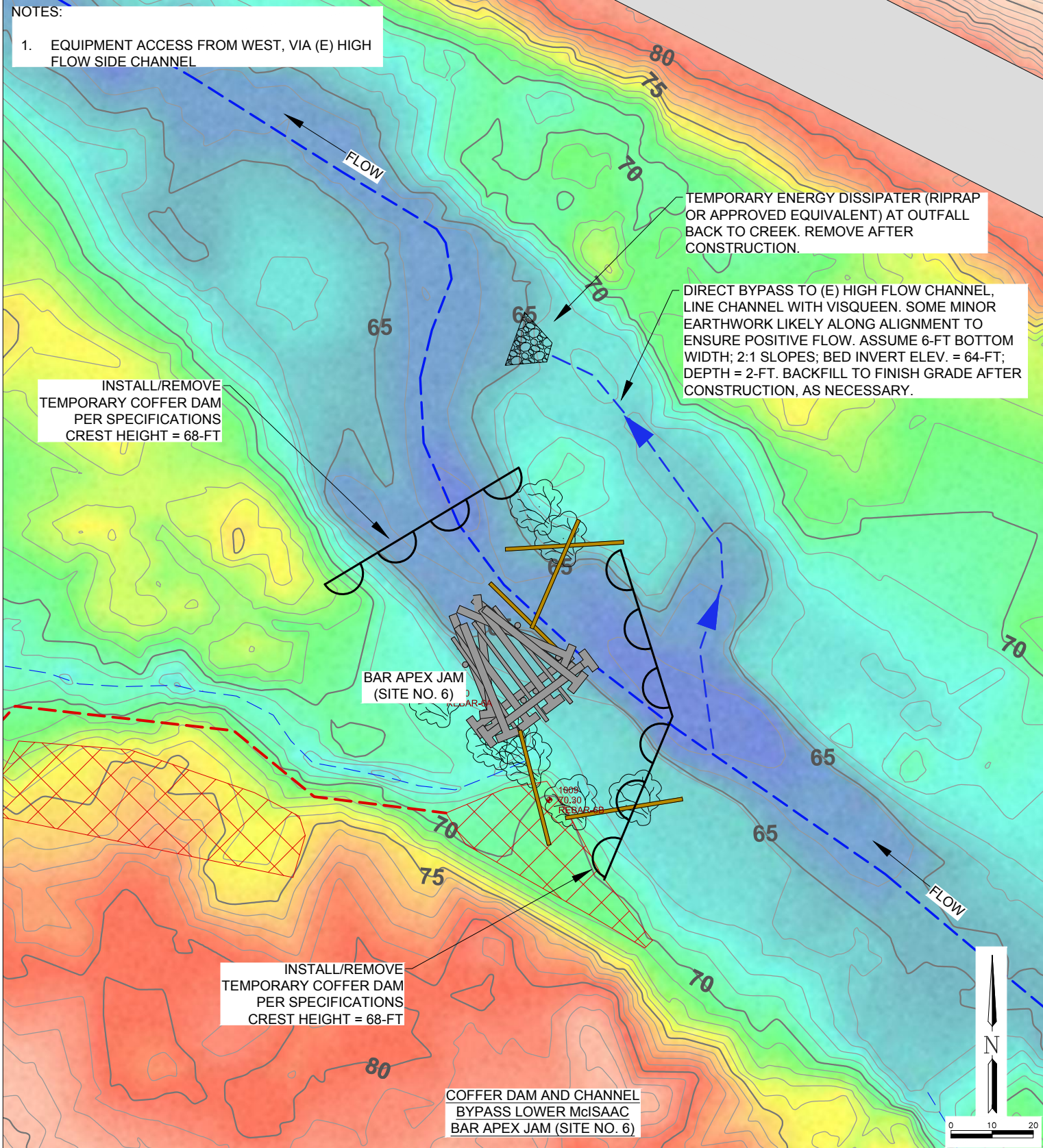


MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
CLEAR WATER DIVERSION
RECOMMENDATIONS, SITES 2 & 3

G8
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SHEET NO.
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ENGINEERING SEAL



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& ENGINEERING, INC.

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PLANNING
CIVIL DESIGN
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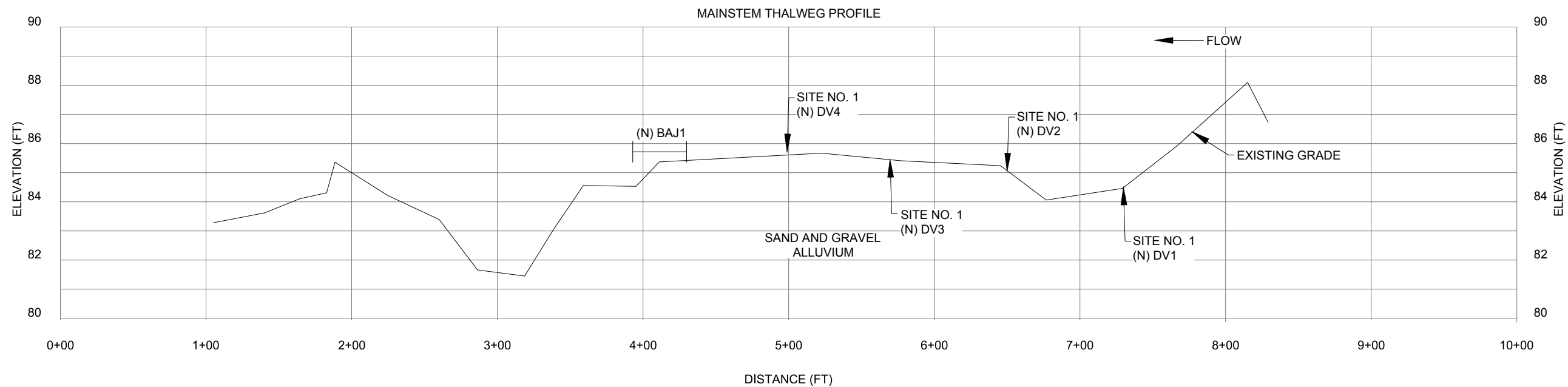
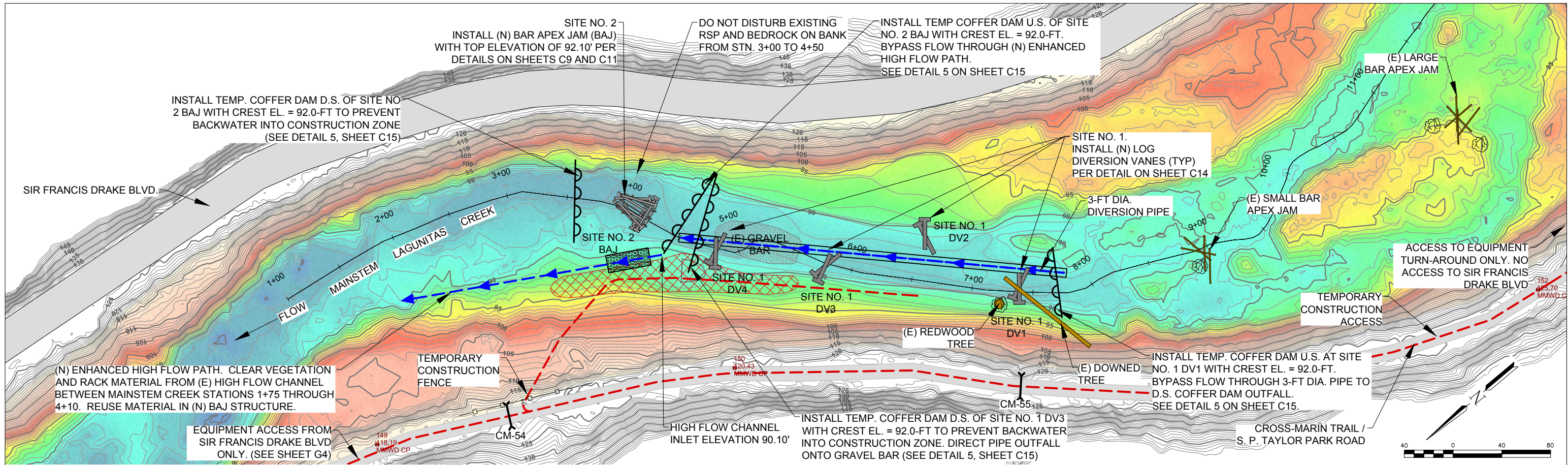
MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
CLEAR WATER DIVERSION
RECOMMENDATIONS, SITES 6 & 8

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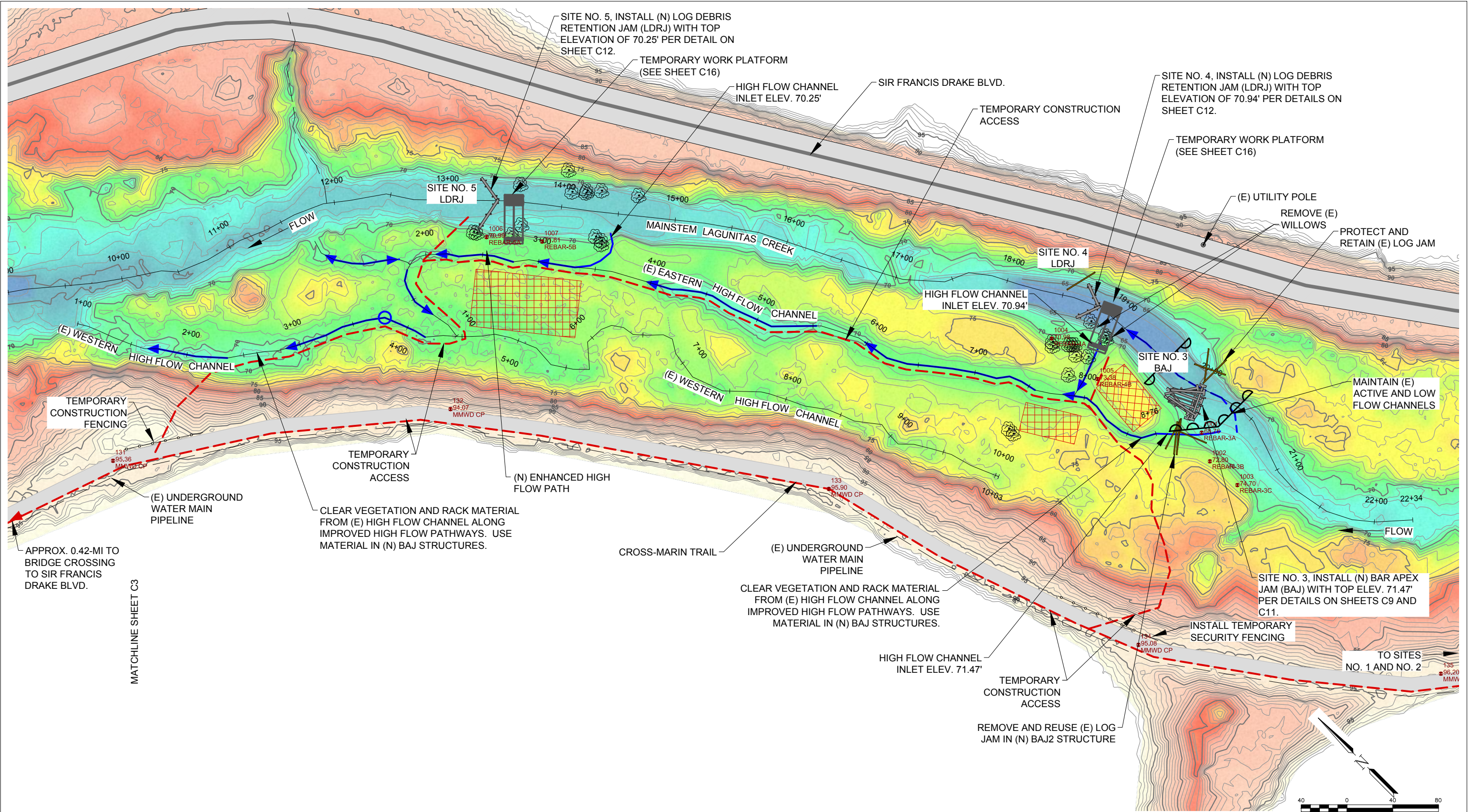
 **MARIN MUNICIPAL WATER DISTRICT**
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*LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
BIG BEND PLAN AND PROFILE
SITES NO. 1 AND 2*

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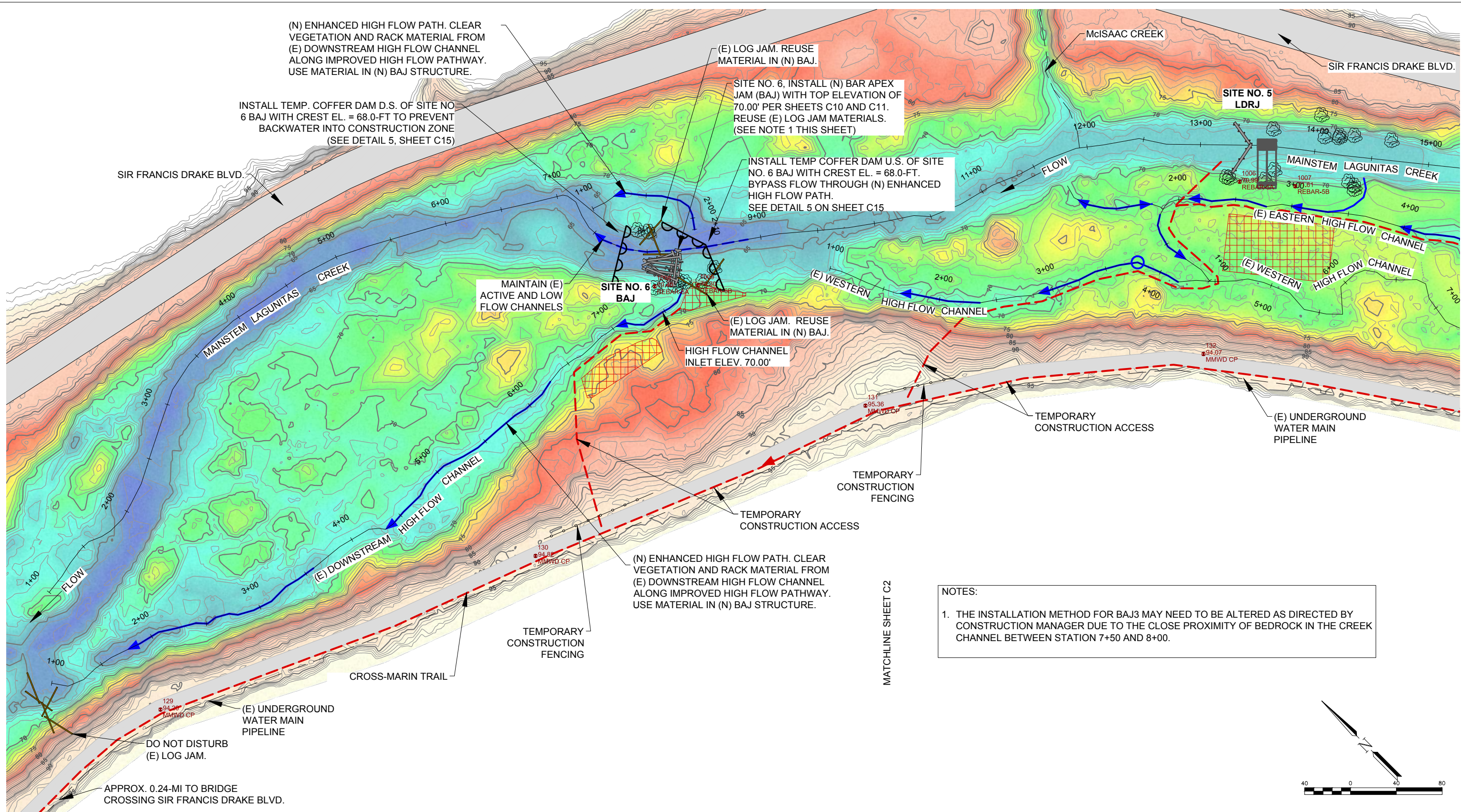
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MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455
**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT**
McISAAC PLAN UPSTREAM

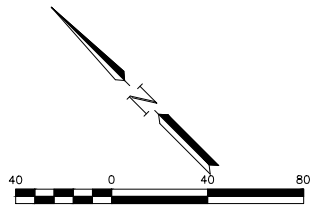
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NOTES:
1. THE INSTALLATION METHOD FOR BAJ3 MAY NEED TO BE ALTERED AS DIRECTED BY CONSTRUCTION MANAGER DUE TO THE CLOSE PROXIMITY OF BEDROCK IN THE CREEK CHANNEL BETWEEN STATION 7+50 AND 8+00.



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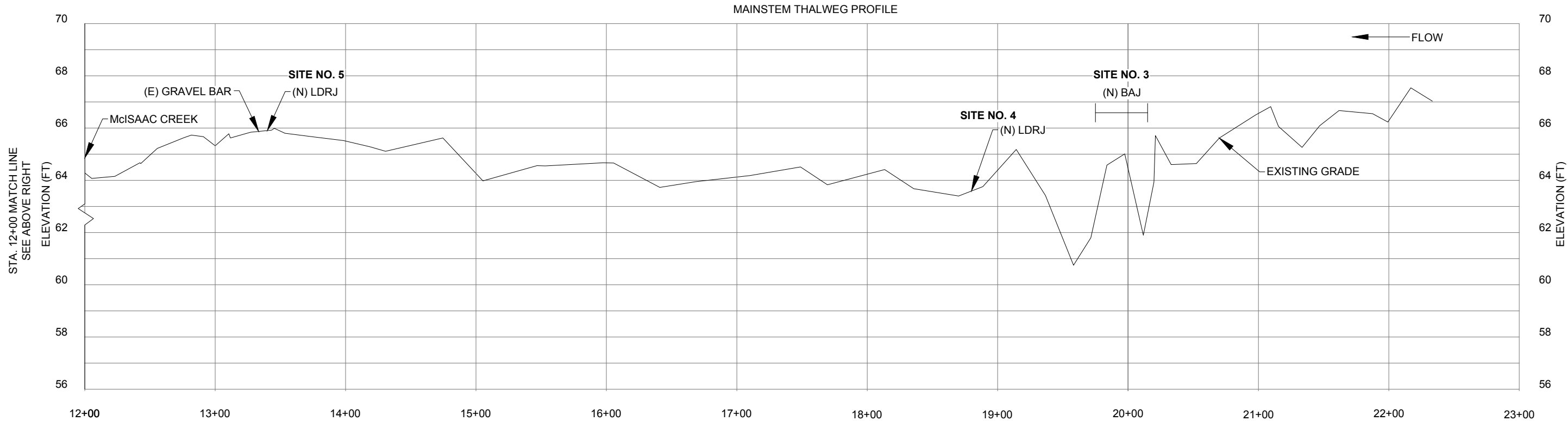
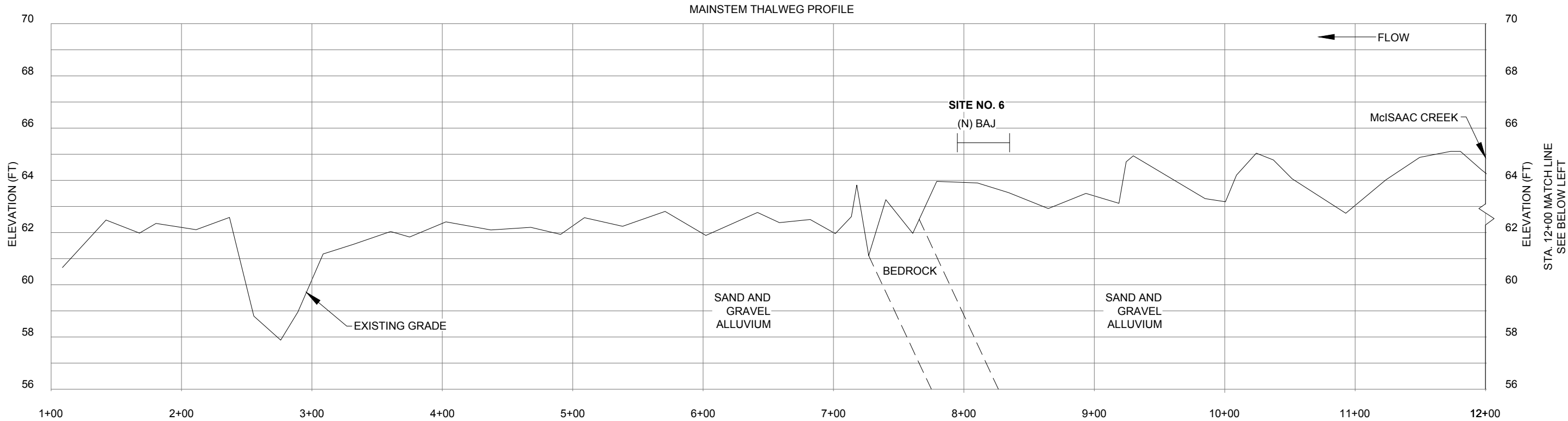
LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
McISAAC PLAN DOWNSTREAM

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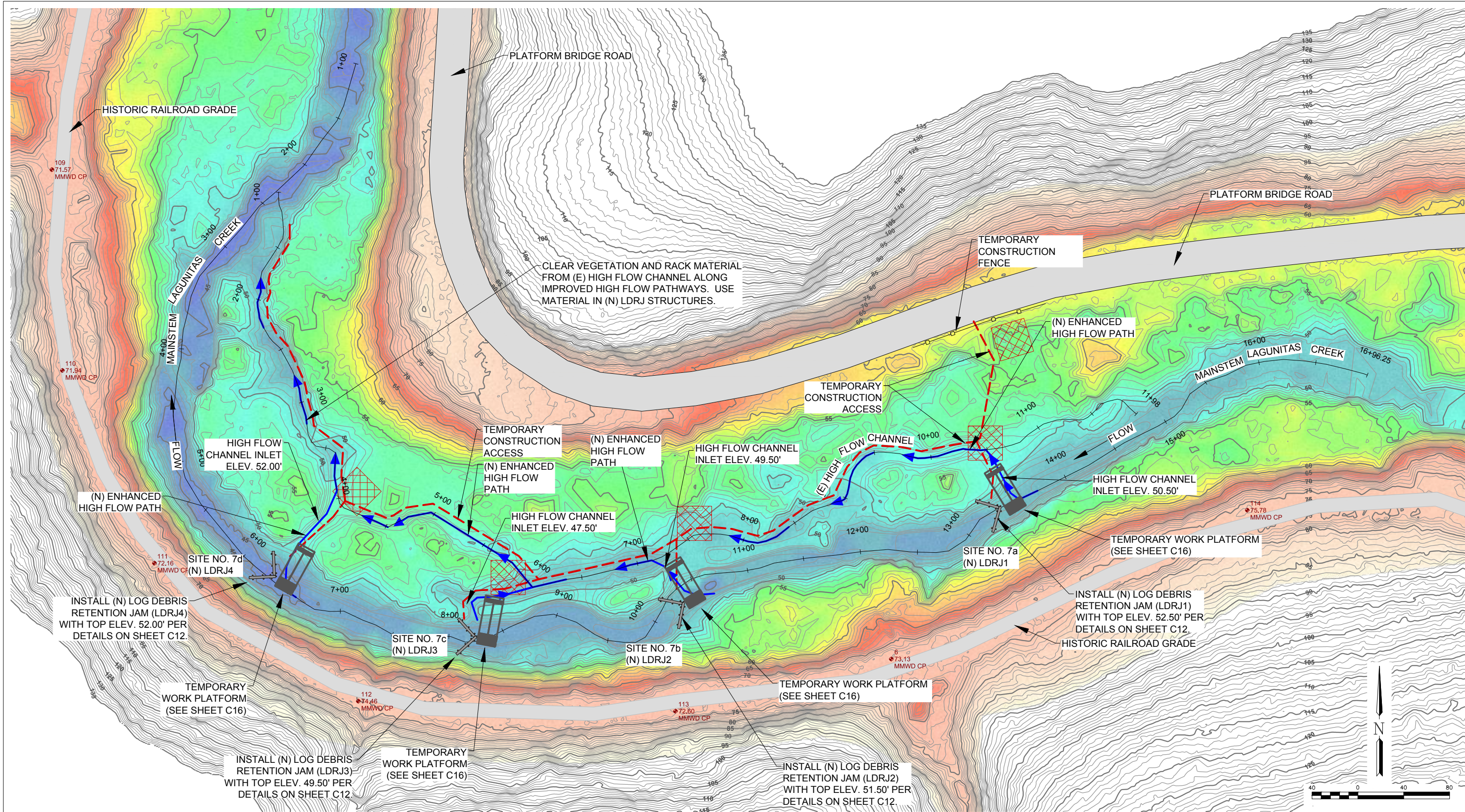
*LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
McISAAC PROFILES*

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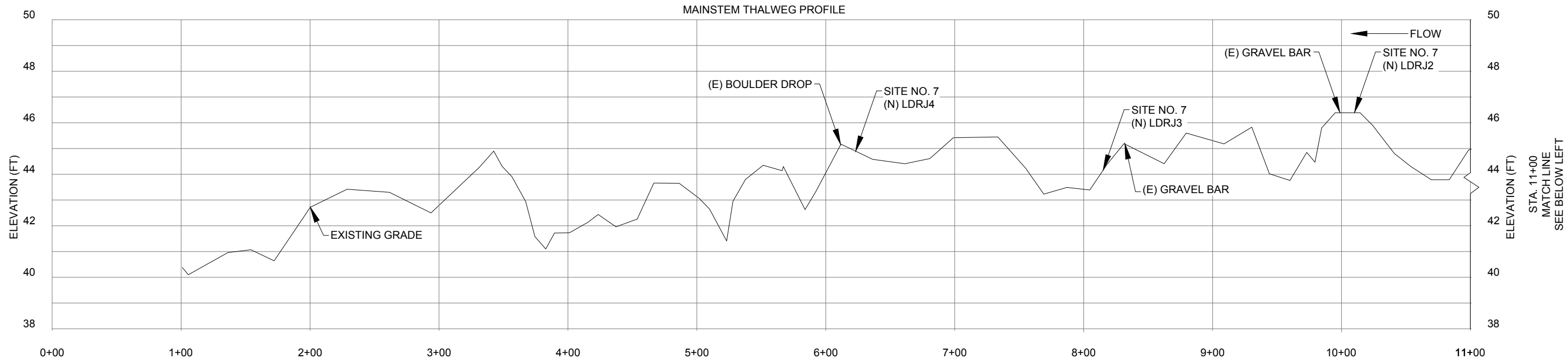
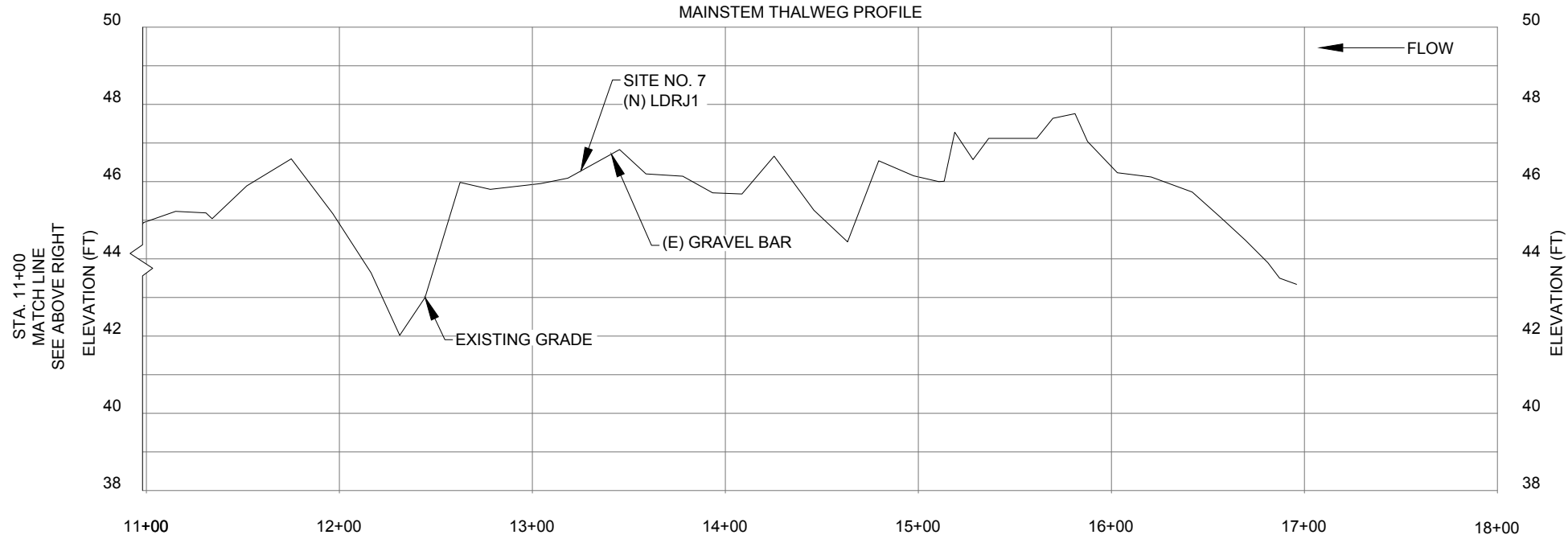
 **MARIN MUNICIPAL WATER DISTRICT**
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**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
FERN ROCK PLAN**

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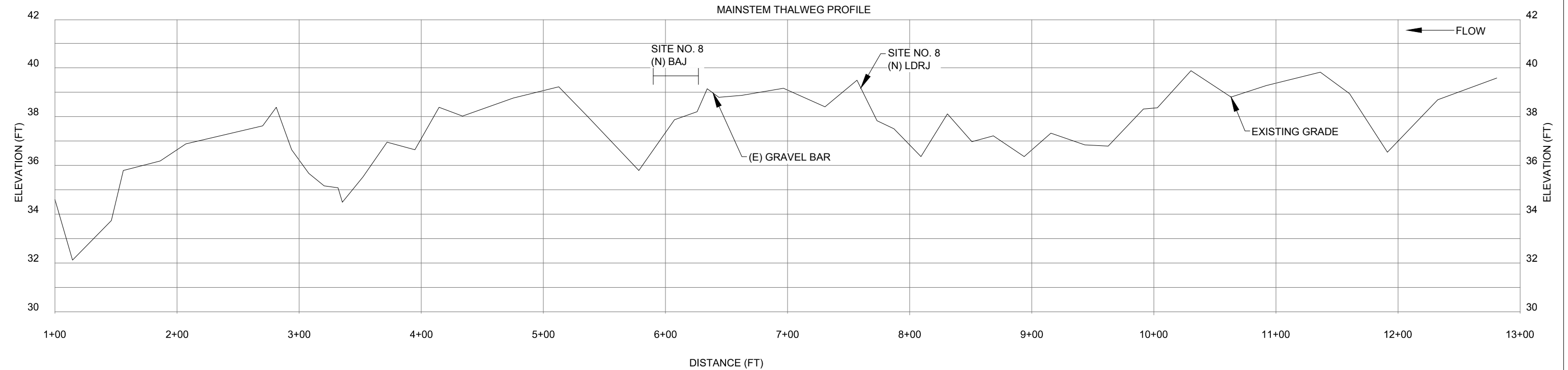
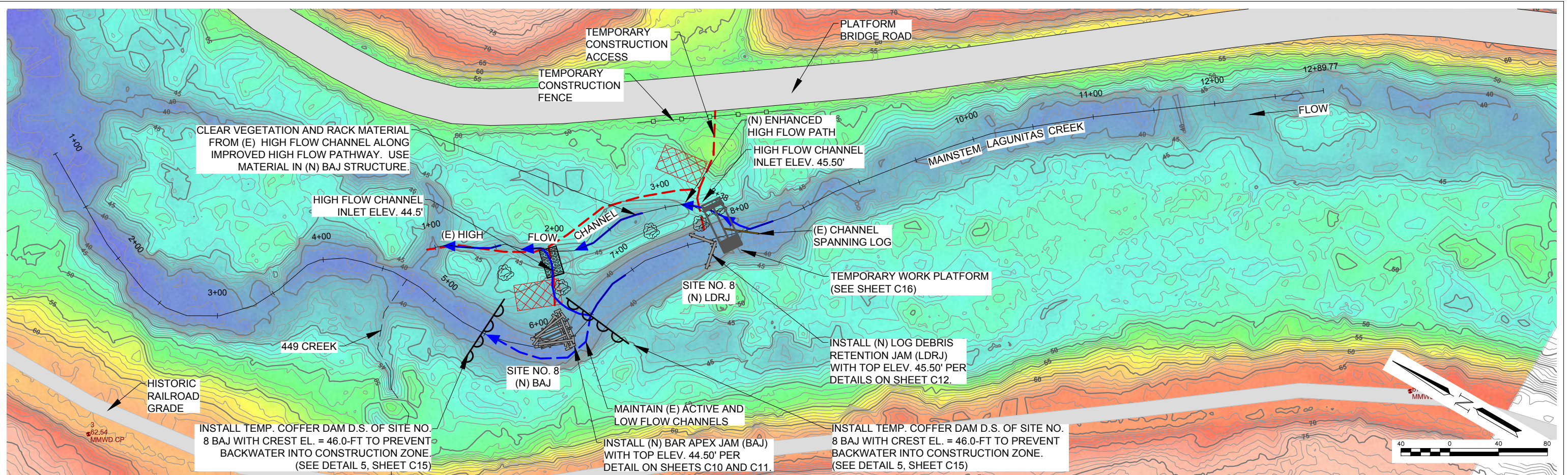
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LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
FERN ROCK PROFILE

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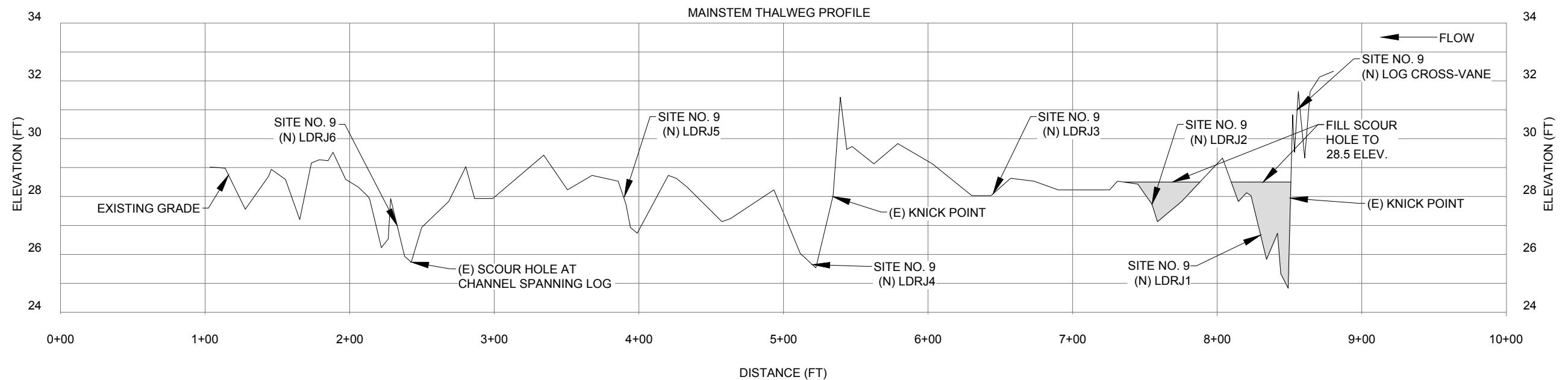
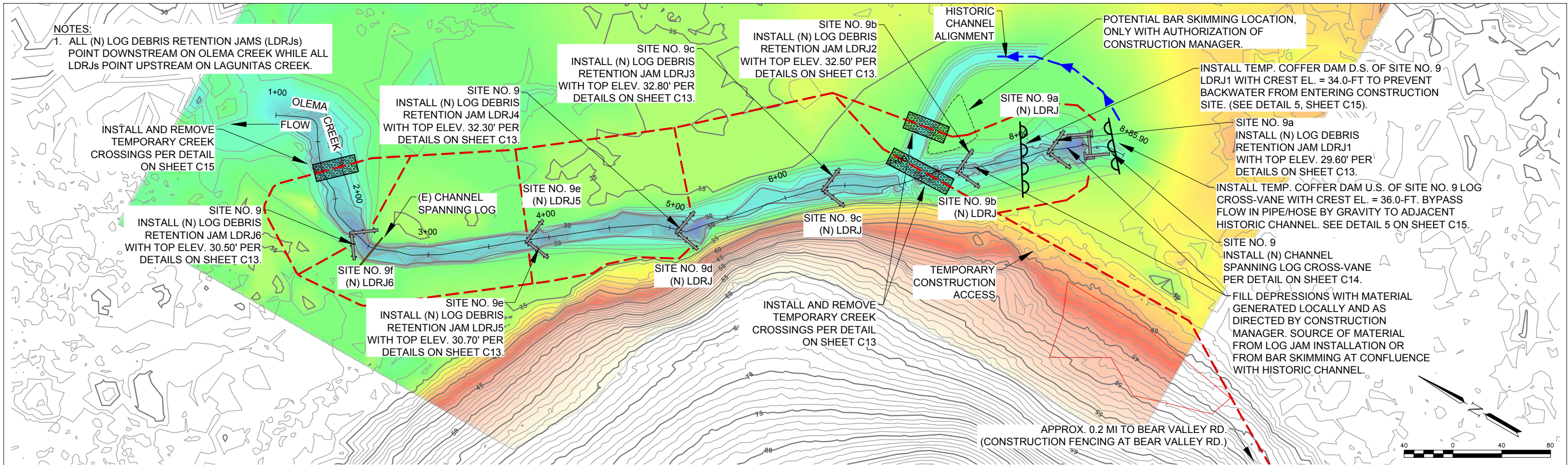
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 MARIN MUNICIPAL WATER DISTRICT 220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455	C7 16/25 SHEET NO. JOB NO.
LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS 449 CREEK PLAN AND PROFILE	

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**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
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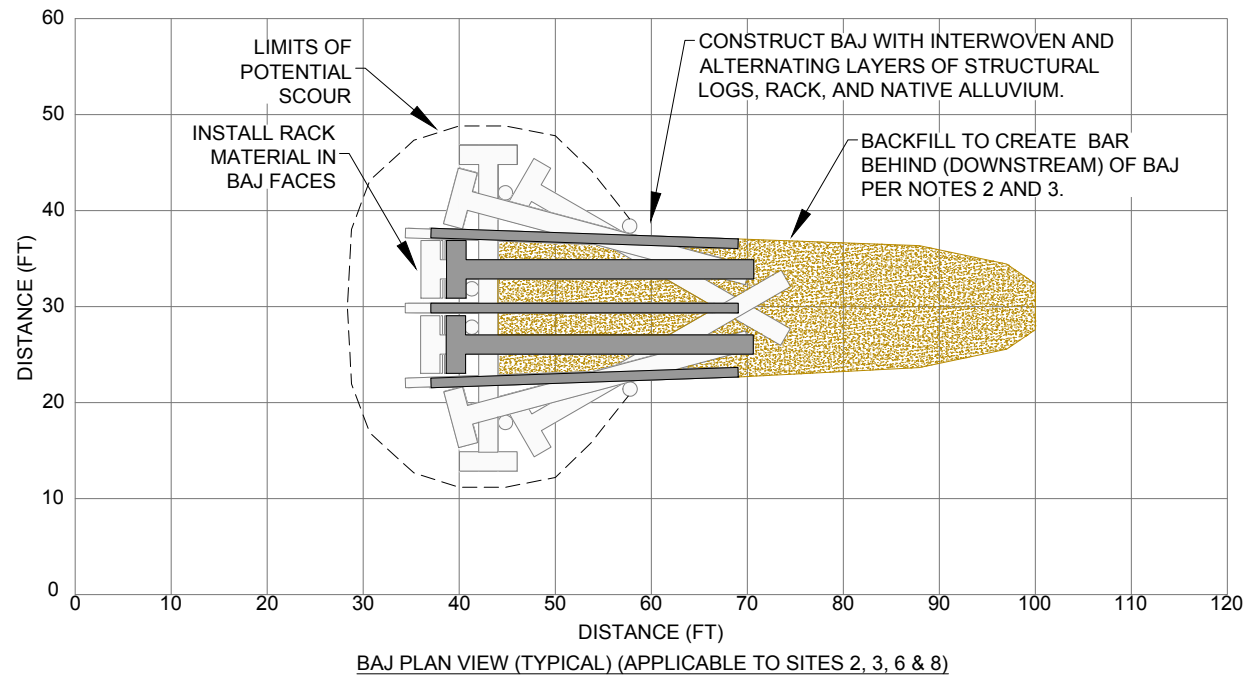
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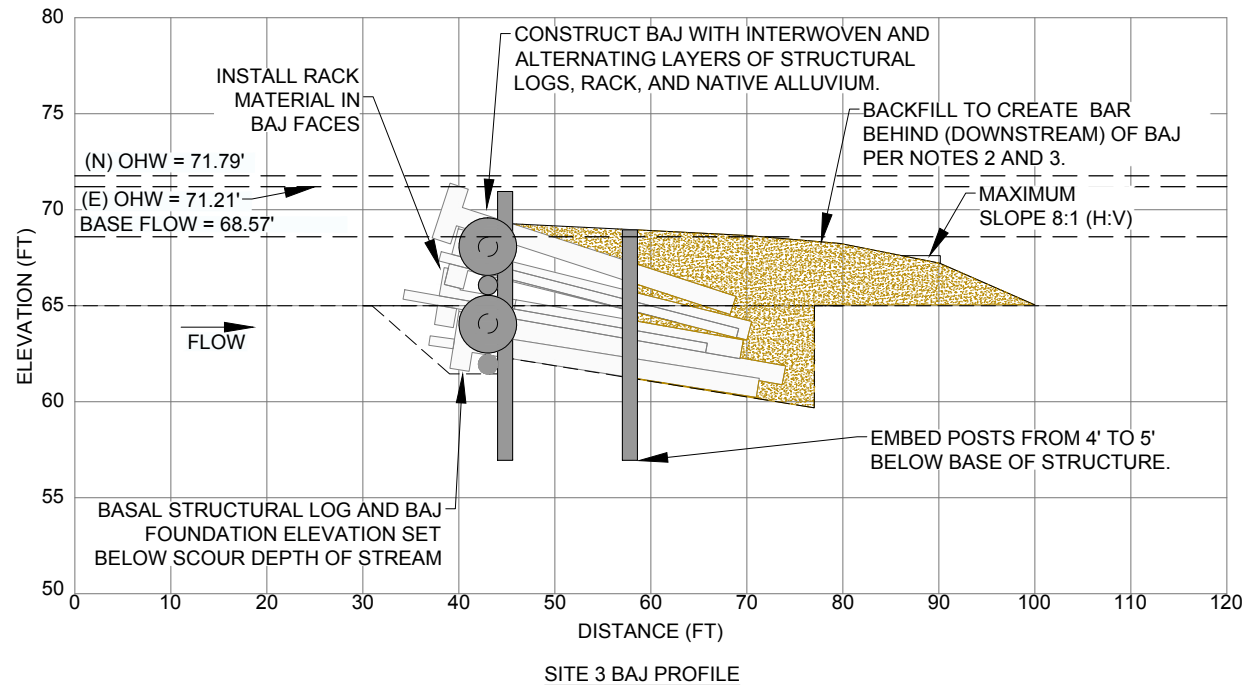
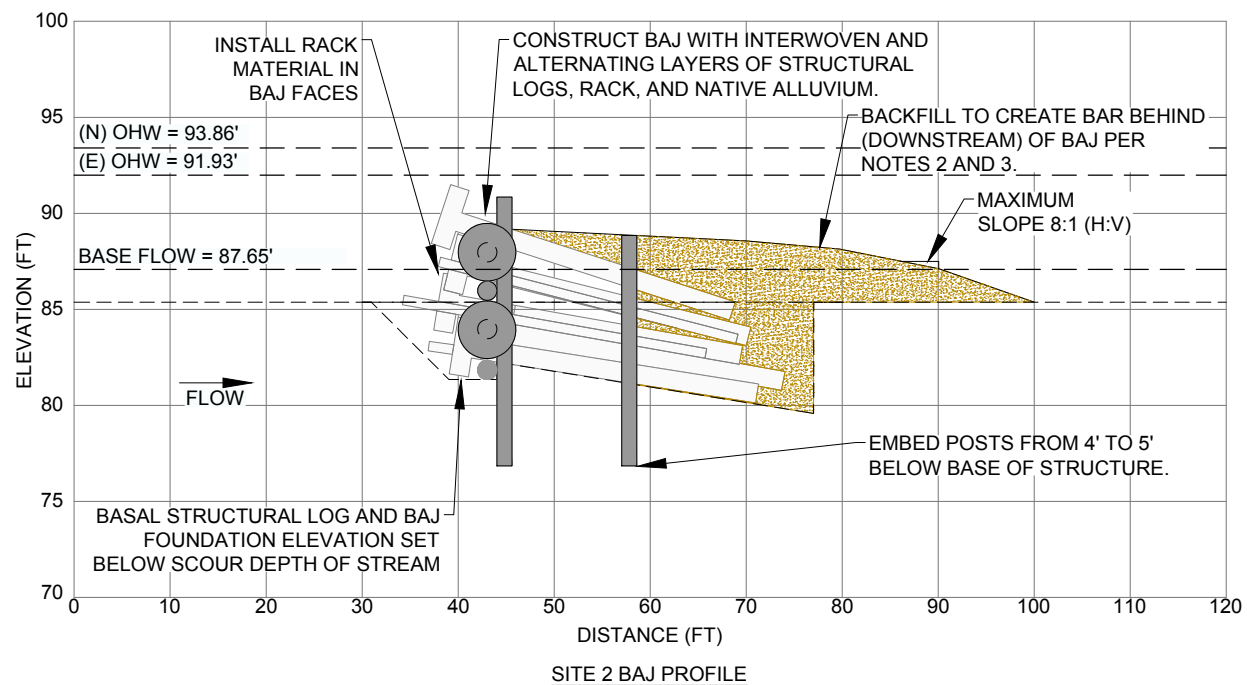
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- NOTES:
1. FINAL BAJ HEIGHT AS INDICATED ON PROJECT PLAN SHEETS. ADJUST THE TOTAL NUMBER OF LAYERS TO BEST ACHIEVE FINAL DESIGN HEIGHT. SEE SHEET C10 FOR LAYER CONSTRUCTION SEQUENCING.
 2. BACKFILL BEHIND BAJ (DOWNSTREAM END) TO HOST VEGETATED BAR. BACKFILL WITH NATIVE ALLUVIUM AND WOOD. COMPACT TO 90% MAXIMUM DENSITY.
 3. (N) BAR TO EXTEND 20' TO 30' DOWNSTREAM FROM END OF BAJ. CONTOUR (N) BAR TO MEET BAJ AND EXISTING GRADES.
 4. PLAN AND SECTION VIEWS OF STRUCTURAL LOGS AND NATIVE ALLUVIAL FILL ONLY - NO RACK SHOWN.
 5. INSTALL POSTS WITH SLIGHT BATTER SO THEY TILT INWARD TOWARDS CENTER OF LOG STRUCTURE. THIS WILL PREVENT STRUCTURAL AND FILLER LOGS FROM LIFTING DUE TO BUOYANCY FORCES WHEN SUBMERGED.
 6. MINIMUM MATERIALS NEEDED FOR 7 LAYER STRUCTURE INCLUDE:
 - 18 STRUCTURAL LOGS WITH ROOTWADS
 - 9 FILLER LOGS
 - 6 POST LOGSADJUST MATERIALS PER FINAL NUMBER OF LAYERS PER ASSEMBLY SEQUENCE ON SHEET C10.



KEY:

- STRUCTURAL LOG WITH ROOTWAD (L=25' TO 30'; DBH=2.0' TO 3.0')
- FILLER LOG (ROOT WAD OPTIONAL; L=25' TO 30'; DBH=1.5' TO 2.0')
- RACK MATERIAL (POLES, BRUSH AND LIVE WILLOW)
- POSTS (L=25' TO 30'; DBH=1.0')
- NATIVE ALLUVIUM

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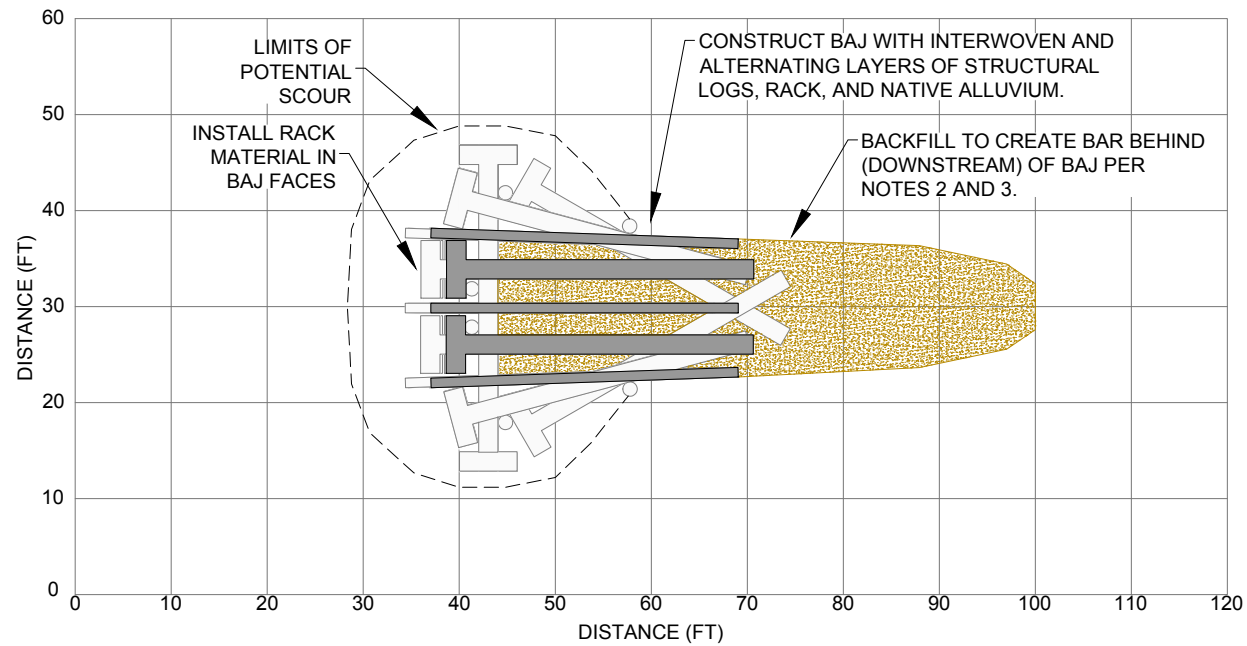
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220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

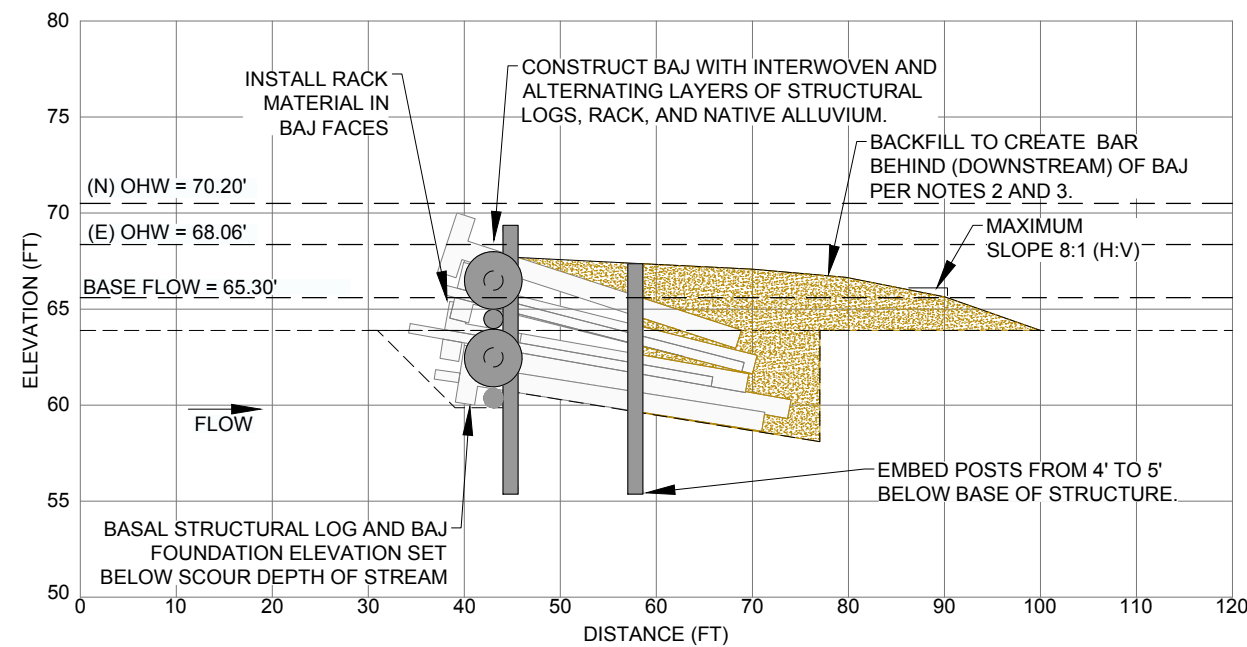
LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS
BAR APEX JAM DETAILS,
SITES 2 & 3

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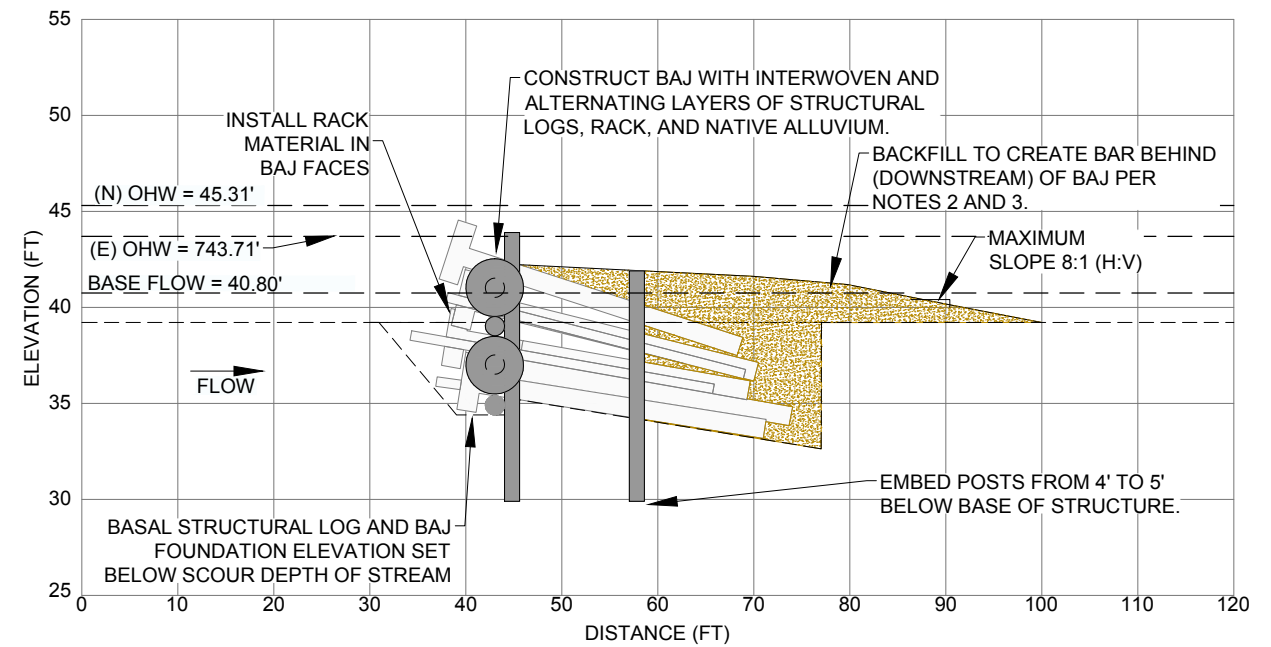
BAJ PLAN VIEW (TYPICAL) APPLICABLE TO SITES 2, 3, 6 & 8



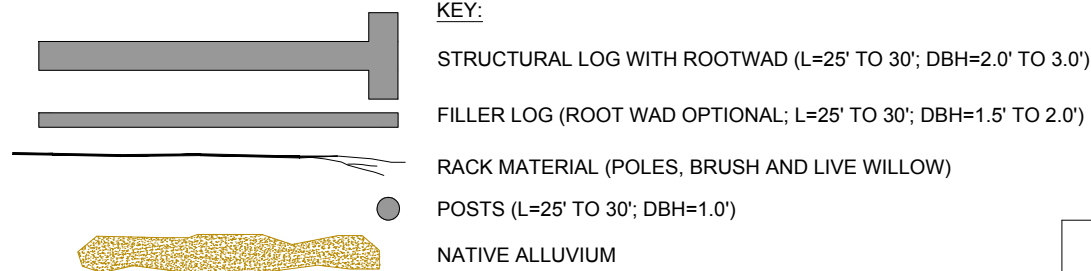
SITE 6 BAJ PROFILE

NOTES:

1. FINAL BAJ HEIGHT AS INDICATED ON PROJECT PLAN SHEETS. ADJUST THE TOTAL NUMBER OF LAYERS TO BEST ACHIEVE FINAL DESIGN HEIGHT. SEE SHEET C10 FOR LAYER CONSTRUCTION SEQUENCING.
2. BACKFILL BEHIND BAJ (DOWNSTREAM END) TO HOST VEGETATED BAR. BACKFILL WITH NATIVE ALLUVIUM AND WOOD. COMPACT TO 90% MAXIMUM DENSITY.
3. (N) BAR TO EXTEND 20' TO 30' DOWNSTREAM FROM END OF BAJ. CONTOUR (N) BAR TO MEET BAJ AND EXISTING GRADES.
4. PLAN AND SECTION VIEWS OF STRUCTURAL LOGS AND NATIVE ALLUVIAL FILL ONLY - NO RACK SHOWN.
5. INSTALL POSTS WITH SLIGHT BATTER SO THEY TILT INWARD TOWARDS CENTER OF LOG STRUCTURE. THIS WILL PREVENT STRUCTURAL AND FILLER LOGS FROM LIFTING DUE TO BUOYANCY FORCES WHEN SUBMERGED.
6. MINIMUM MATERIALS NEEDED FOR 7 LAYER STRUCTURE INCLUDE:
 - 18 STRUCTURAL LOGS WITH ROOTWADS
 - 9 FILLER LOGS
 - 6 POST LOGSADJUST MATERIALS PER FINAL NUMBER OF LAYERS PER ASSEMBLY SEQUENCE ON SHEET C10.



SITE 8 BAJ PROFILE



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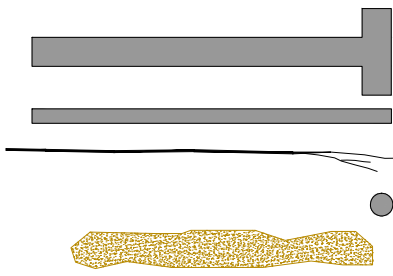
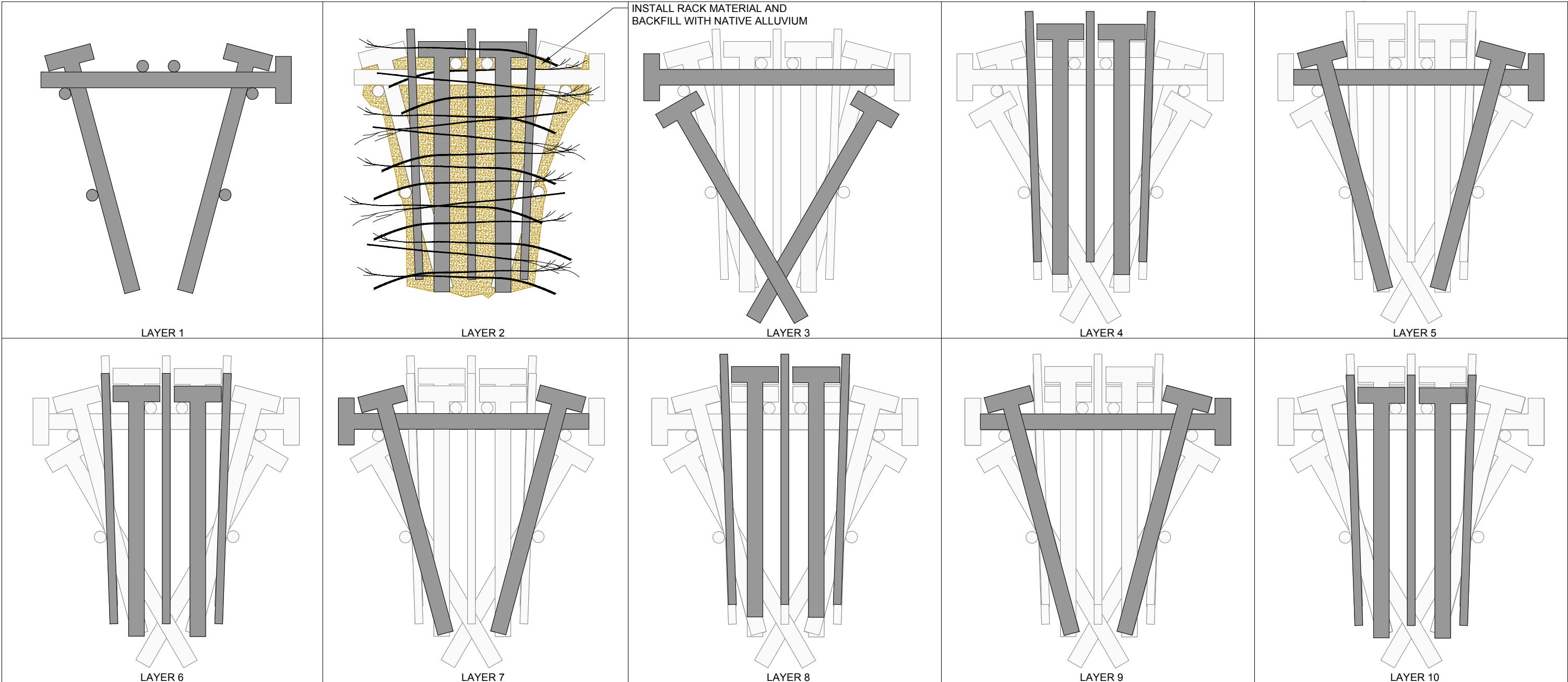


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LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
BAR APEX JAM DETAILS,
SITES 6 & 8

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KEY:

STRUCTURAL LOG WITH ROOTWAD (L=25' TO 30'; DBH=2.0' TO 3.0')

FILLER LOG (ROOT WAD OPTIONAL; L=25' TO 30'; DBH=1.5' TO 2.0')

RACK MATERIAL (POLES, BRUSH AND LIVE WILLOW)

POSTS (L=25' TO 30'; DBH=1.0')

NATIVE ALLUVIUM

STRUCTURAL LOG LAYER SEQUENCE

- NOTES:**
- SEE SHEET C9 FOR PLANVIEW AND SECTION OF FINISHED BAJ STRUCTURE.
 - PRIOR TO INSTALLATION OF LAYER 1: EXCAVATE TO DESIRED DEPTH PER SECTION ON SHEET C9; INSTALL POSTS BY EMBEDDING 4.0' TO 5.0' BELOW BASE OF STRUCTURE.
 - INSTALL STRUCTURAL LOG LAYER (LAYER 1) IN BASE OF EXCAVATION.
 - BACKFILL BETWEEN ALL STRUCTURAL LOG LAYERS. BACKFILL SHALL CONSIST OF RACK AND NATIVE ALLUVIUM TO OVERLAP ALL STRUCTURAL LOGS. EXTENT OF BACKFILL SHOWN ON LAYER 2 PANEL. RACK CONSISTS OF WOODY DEBRIS GENERATED DURING CLEARING OF LIVE MATERIAL, CREEK-BORN WOODY DEBRIS, AND LIVE WILLOW. FILL VOIDS WITHIN RACK WITH NATIVE ALLUVIUM.
 - INSTALL LAYERS IN NUMERICAL SEQUENCE (E.G., LAYER 1, FOLLOWED BY LAYER 2, ETC.). TOTAL NUMBER OF LAYERS MAY VARY BETWEEN STRUCTURES FINAL BAJ HEIGHT AS INDICATED ON PROJECT PLAN SHEETS. ADJUST THE TOTAL NUMBER OF LAYERS TO BEST ACHIEVE FINAL DESIGN HEIGHT.
 - PLAN VIEWS LIMITED TO STRUCTURAL LOGS ONLY FOR CLARITY. LAYER 2 PANEL DEPICTS EXTENT OF STRUCTURE BACKFILL TYPICAL OF ALL LAYERS.



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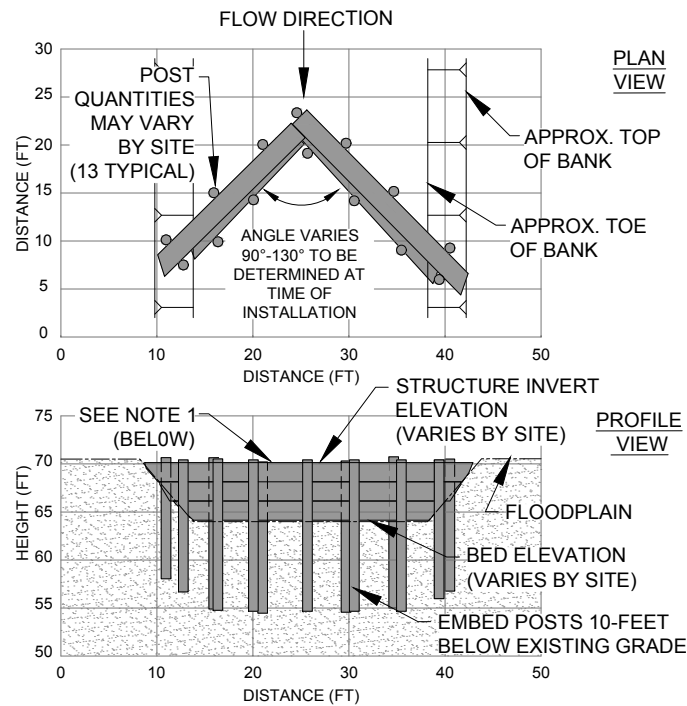
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	APPROVED CHIEF ENGR.			

	MARIN MUNICIPAL WATER DISTRICT 220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455
LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS BAR APEX JAM ASSEMBLY SEQUENCE	

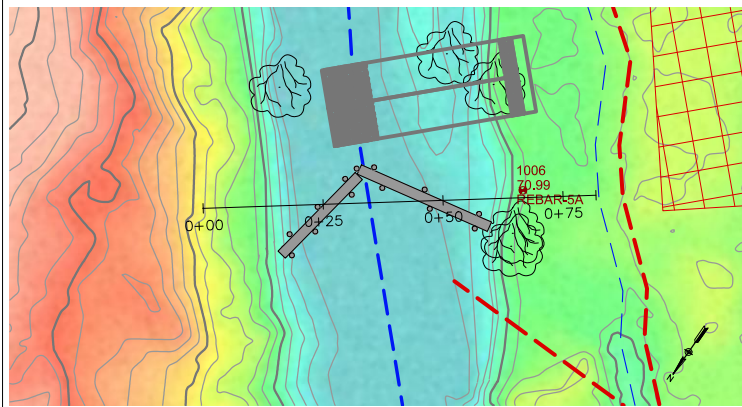
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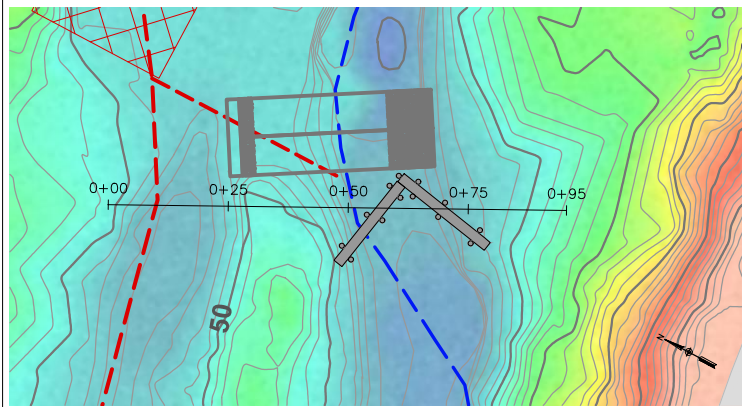
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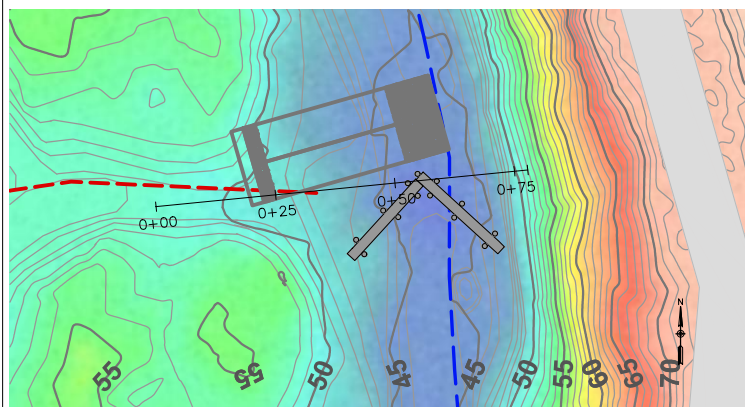
- NOTES:
1. ADJUST TOTAL NUMBER OF LOGS TO ACHIEVE DESIRED HEIGHT AT TOP OF STRUCTURE ELEVATION PER PROJECT PLANS.
 2. INTERSPERSE AND WEAVE RACK INTO LOG STRUCTURE.
 3. OPTIONAL PILOT HOLES FOR POSTS AUGERED OR EXCAVATED 10-FEET BELOW DRJ FOUNDATION.
 4. SECURE CROSS PIECES TO POSTS USING BOLT AND / OR CABLE TO INCREASE FACTOR OF SAFETY.
 5. CONSTRUCT ALL LDRJ UNDER GUIDANCE OF DESIGN ENGINEER.



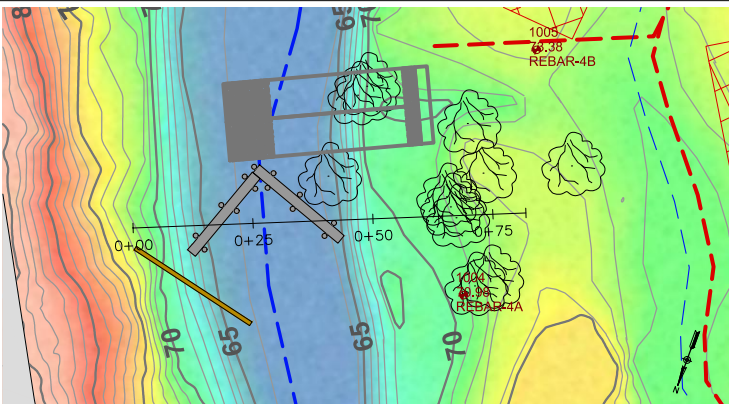
PLAN AND PROFILE SCHEMATIC SITE 5:
McISAAC DOWNSTREAM DEBRIS JAM



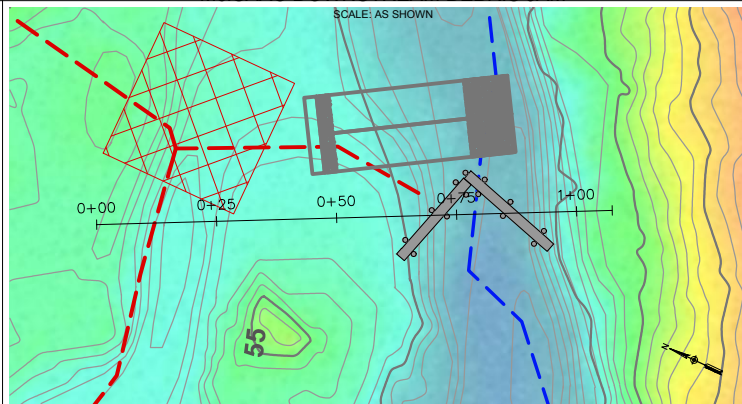
PLAN AND PROFILE SCHEMATIC SITE 7b: FERN ROCK DEBRIS JAM



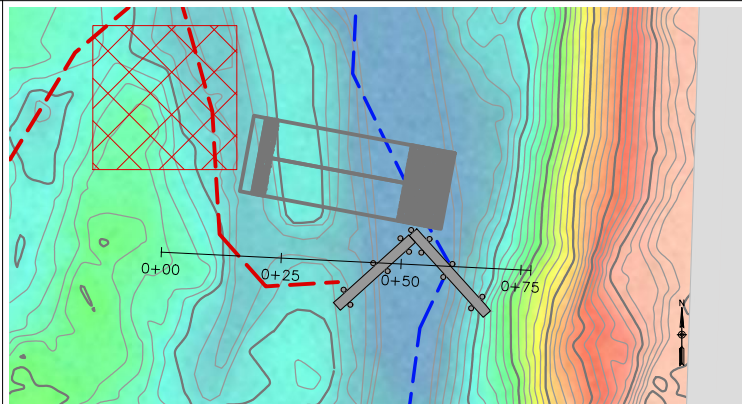
PLAN AND PROFILE SCHEMATIC SITE 7d: FERN ROCK DEBRIS JAM



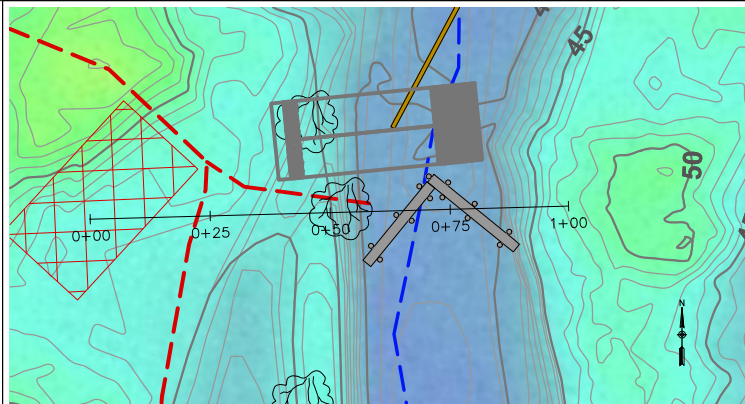
PLAN AND PROFILE SCHEMATIC SITE 4: McISAAC UPSTREAM DEBRIS JAM



PLAN AND PROFILE SCHEMATIC SITE 7a: FERN ROCK DEBRIS JAM



PLAN AND PROFILE SCHEMATIC SITE 7c: FERN ROCK DEBRIS JAM



PLAN AND PROFILE SCHEMATIC SITE 8: 449 CREEK DEBRIS JAM

KEY:



STRUCTURAL LOG (L = 25-FT TO 30-FT;
DBH = 2.0-FT TO 3.0-FT)



POSTS (SECTION VIEW) (MIN. DBH = 1.5-FT)



POSTS (PLAN VIEW) (MIN DBH = 1.5-FT)

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NO

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CLH

GRK

RZK

3/10/17

DRAWN

CHKD

APPRVD

DATE

ENGINEERING SEAL



KAMMAN HYDROLOGY
& ENGINEERING, INC.

CONSULTANT

SCALE

CADD FILE

CONTRACT NO.

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SIGN DATE

CONST COM DATE

APPROVED
CHIEF ENGR.

DESIGN

DESIGN BY

CHECKED BY

PROJ. MGR.

RECOMMEND

PRINCIPAL ENGR.

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OPERATIONS

CORROSION

M&E/CNTRL

FAC/WTR MGT

ENGR SERV

INSPECTION

WTR QUALITY

RECORDS/SUBD.



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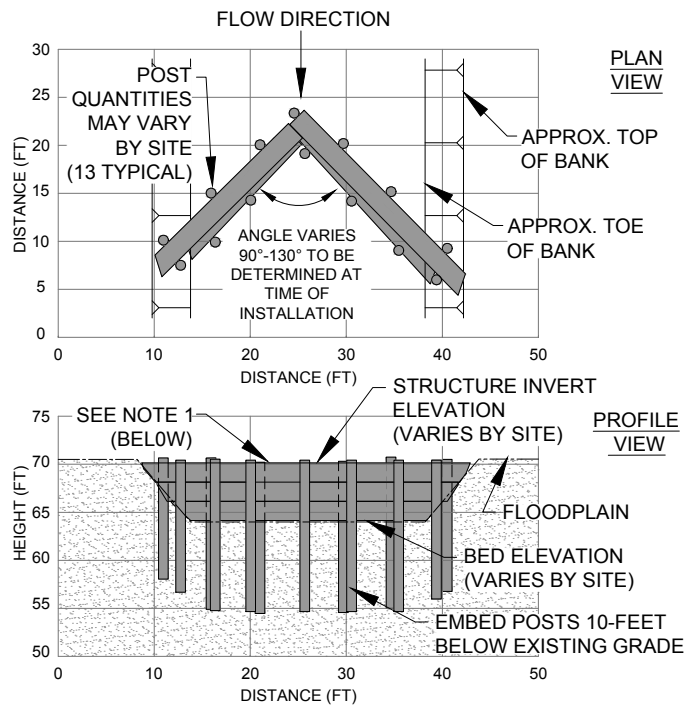
LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
LOG JAM PLAN AND PROFILES
SITES 4, 5, 7 & 8

C12
21 25

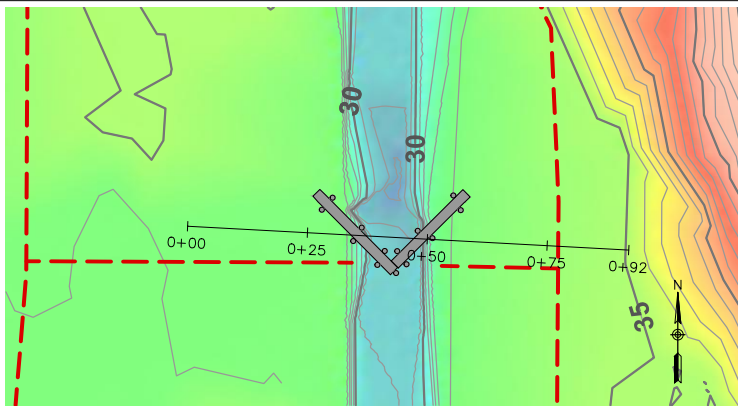
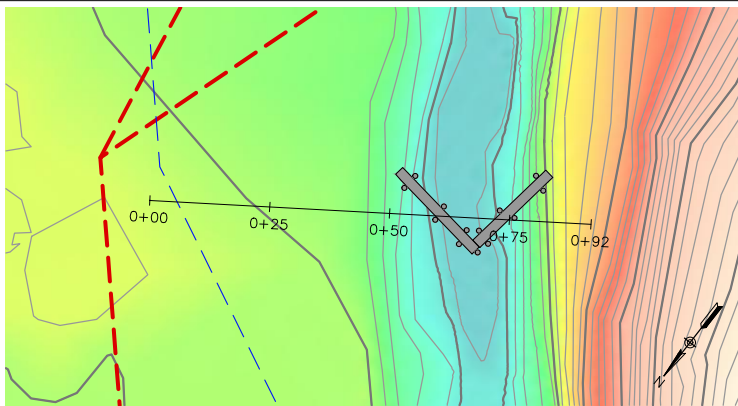
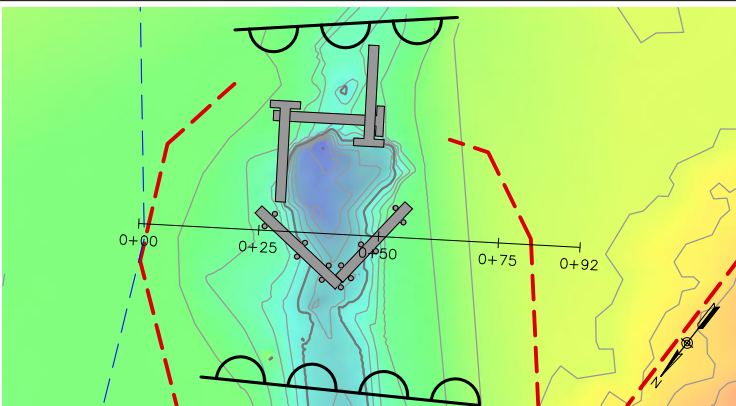
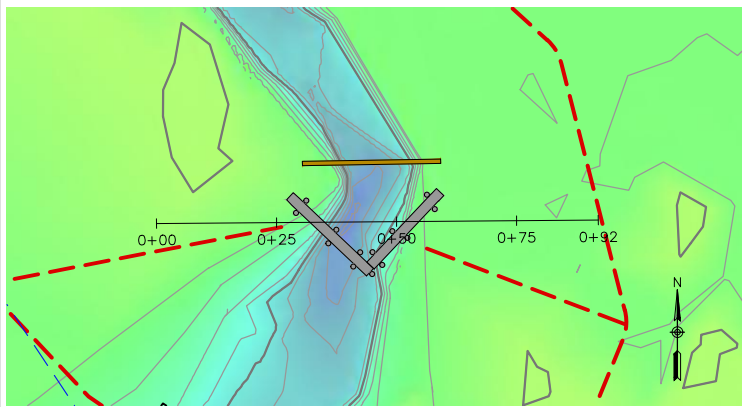
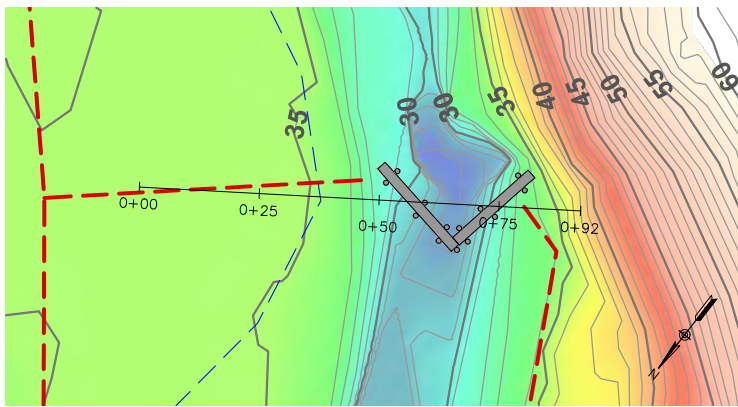
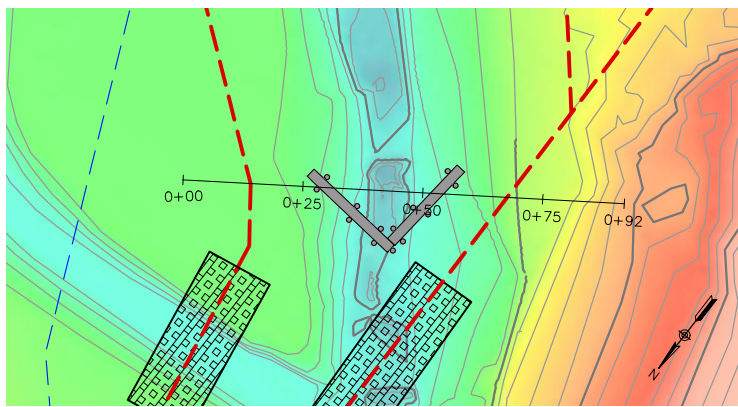
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- SCHEMATIC: TYPICAL LOG DEBRIS RETENTION JAM (LDRJ)
- NOTES:
1. ADJUST TOTAL NUMBER OF LOGS TO ACHIEVE DESIRED HEIGHT AT TOP OF STRUCTURE ELEVATION PER PROJECT PLANS.
 2. INTERSPERSE AND WEAVE RACK INTO LOG STRUCTURE.
 3. OPTIONAL PILOT HOLES FOR POSTS AUGERED OR EXCAVATED 10-FEET BELOW DRJ FOUNDATION.
 4. SECURE CROSS PIECES TO POSTS USING BOLT AND / OR CABLE TO INCREASE FACTOR OF SAFETY.
 5. CONSTRUCT ALL LDRJ UNDER GUIDANCE OF DESIGN ENGINEER.



KEY:



STRUCTURAL LOG (L = 25-FT TO 30-FT; DBH = 2.0-FT TO 3.0-FT)



POSTS (SECTION VIEW) (MIN. DBH = 1.5-FT)



POSTS (PLAN VIEW) (MIN DBH = 1.5-FT)

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CONSULTANT

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PRINCIPAL ENGR.

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OPERATIONS

CORROSION

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INSPECTION

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RECORDS/SUBD.



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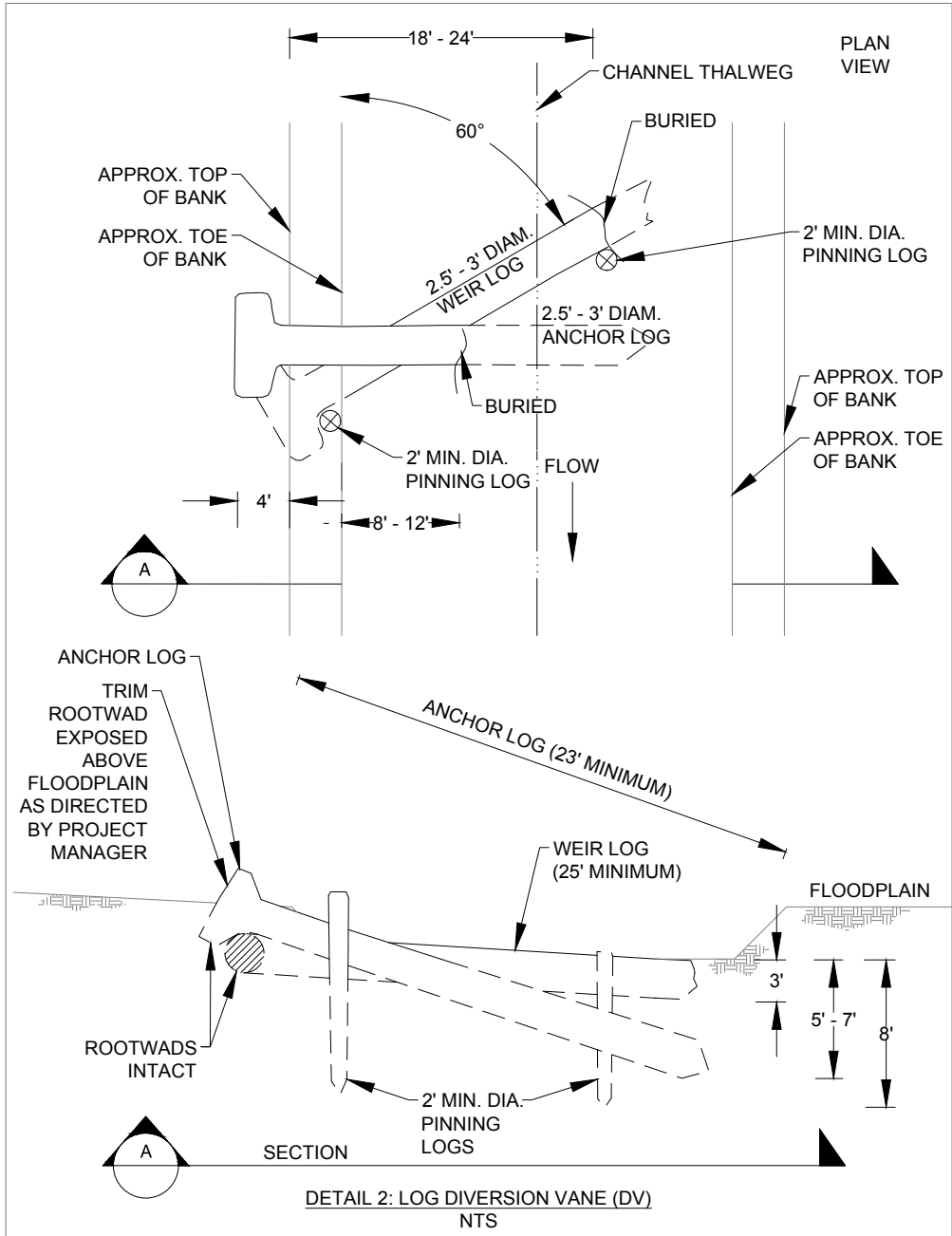
LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT
LOG JAM PLAN AND PROFILES
SITE 9, OLEMA

C13

22 25

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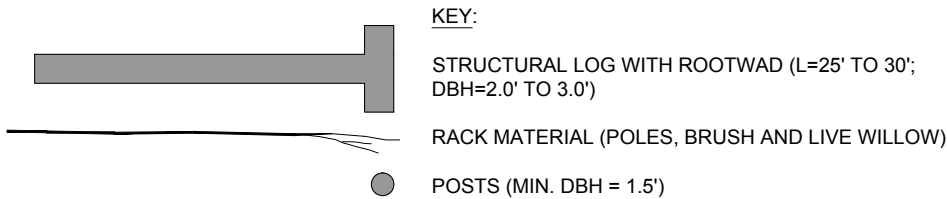
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NOTES:
1. CONTRACTOR TO INSTALL LOG DIVERSION VANES UNDER DIRECTION OF CONSTRUCTION MANAGER OR DESIGN ENGINEER.

LOG DIVERSION VANE PLACEMENT TABLE ¹																						
LOG JAM				WEIR LOG					ANCHOR LOG					PINNING LOGS								
NUMBER	APPROX. STATION	RW LOCATION ²	LENGTH (FEET)	ANGLE TO BANK	VERTICAL ANGLE	ELEVATION OF TOP TRUNK RELATIVE TO STREAMBED (FEET) ³			LENGTH (FEET)	ANGLE TO BANK	VERTICAL ANGLE	ELEVATION OF TOP TRUNK RELATIVE TO STREAMBED (FEET) ⁴			LENGTH PINNING LOG NEAR BANK ⁵	VERTICAL ANGLE	ELEVATION OF LOG ENDS RELATIVE TO BED ELEVATION (FEET)		LENGTH PINNING LOG IN-STREAM (FEET) ⁶	VERTICAL ANGLE	ELEVATION OF LOG ENDS RELATIVE TO BED ELEVATION (FEET)	
						RW END	AT BANK	TIP				RW END	AT BANK	TIP			RW END	TIP				
DV1	7+30	LB	25	60°	4°	2.0	1.5	Flush	23	90°	20°	5.5	3.5	2.5	16'	60°	4	-10	2'	60°	Flush with Weir Log	-10
DV2	6+50	RB	25	60°	4°	2.0	1.5	Flush	23	90°	20°	5.5	3.5	2.5	16'	60°	4	-10	2'	60°	Flush with Weir Log	-10
DV3	5+70	LB	25	60°	4°	2.0	1.5	Flush	23	90°	20°	5.5	3.5	2.5	16'	60°	4	-10	2'	60°	Flush with Weir Log	-10

¹ GIVEN VARIABLE FIELD CONDITIONS, FINAL ELEVATION TOLERANCES FOR ELJ LOGS TO BE APPROVED BY PROJECT MANAGER
² LB AND RB REFER TO LEFT AND RIGHT BANKS LOOKING DOWNSTREAM RESPECTIVELY.
³ APPROXIMATE ELEVATIONS AT RW END AND BANK BASED ON LOG POSITIONED AT 4 DEGREE SLOPE
⁴ APPROXIMATE ELEVATIONS AT RW END AND BANK BASED ON LOG POSITIONED AT 20 DEGREE SLOPE
⁵ ROOTWAD TO REMAIN INTACT ON NEAR BANK PINNING LOG.
⁶ ROOTWAD TO BE REMOVED ON IN-STREAM PINNING LOG.



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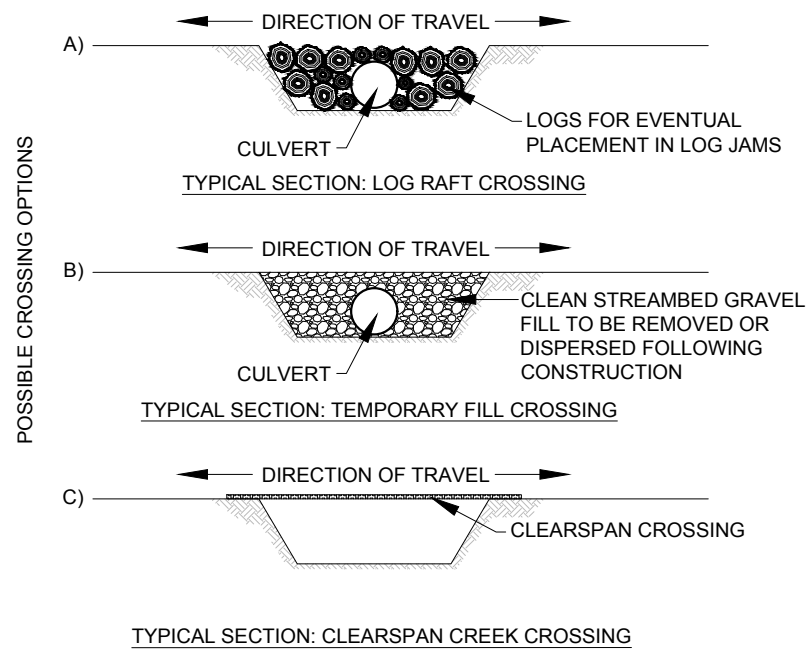
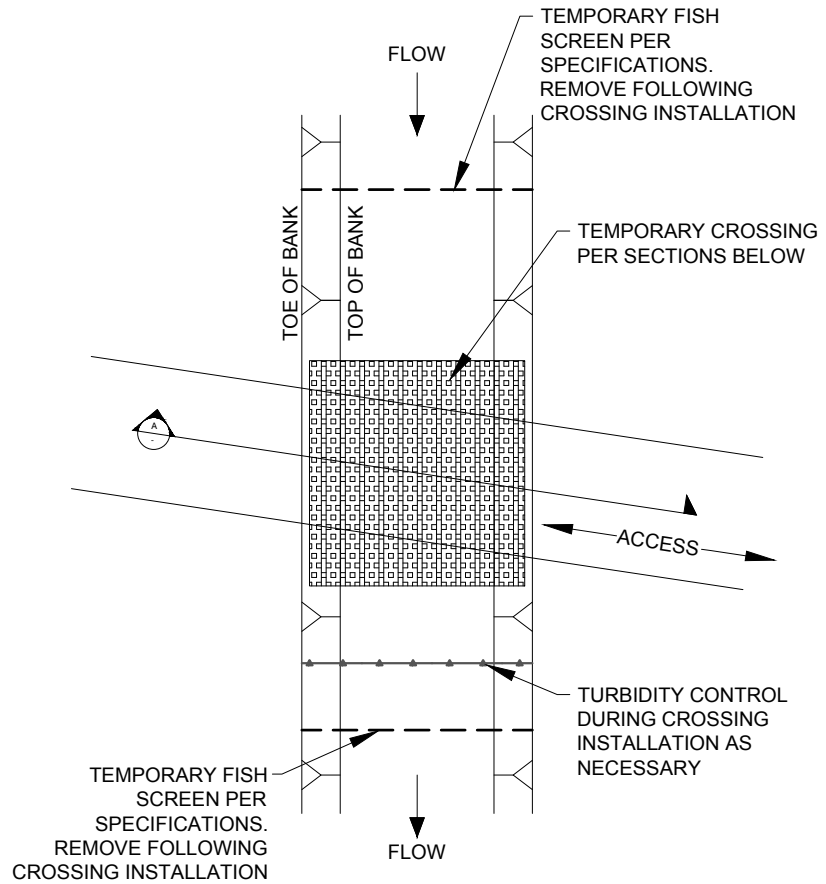
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LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS
LOG JAM DETAILS

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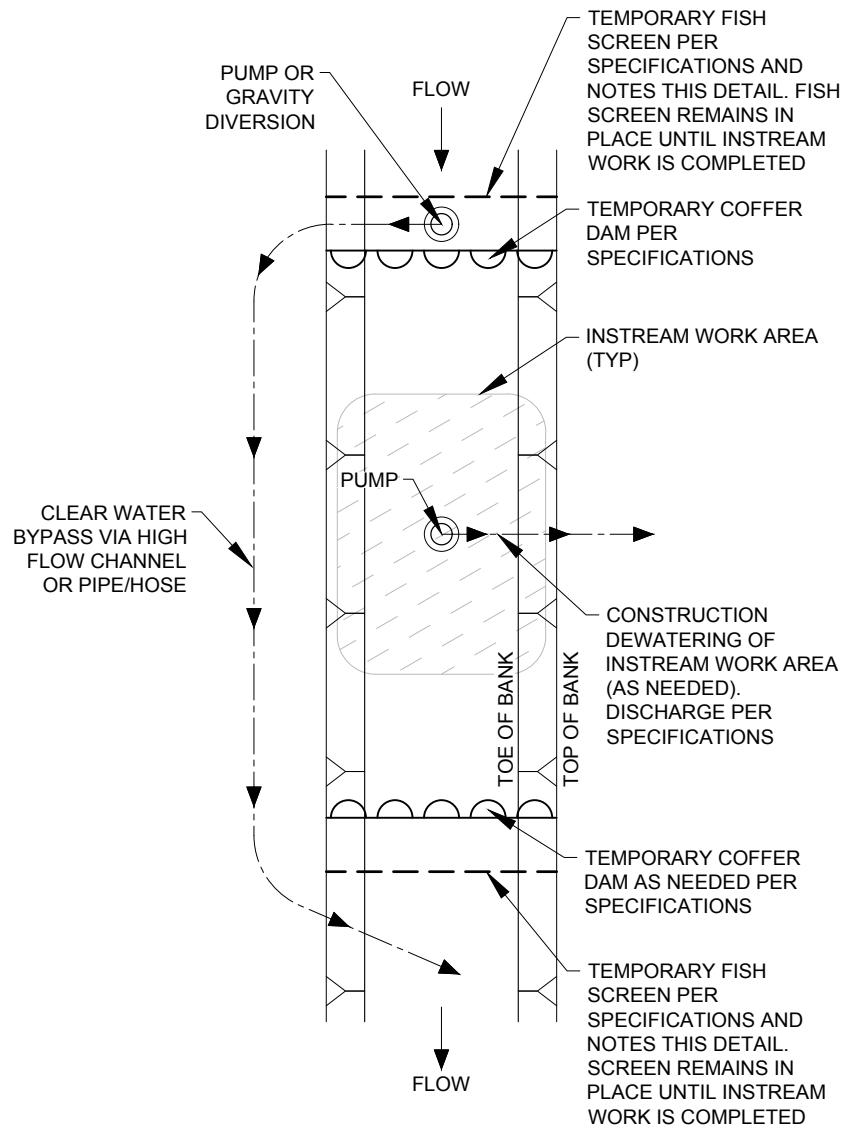
DETAIL 4: TYPICAL CREEK CROSSINGS
NTS

NOTES:

1. INSTALLATION OF STREAM CROSSING SHALL BE CLOSELY COORDINATED WITH FISH SALVAGE OPERATIONS

NOTES:

1. FISH BARRIER SHALL CONSIST OF < 1/8" MESH SCREEN
2. FISH SCREEN LOCATION PER CDFW FISH SCREENING CRITERIA



DETAIL 5: TYPICAL CLEAR WATER DIVERSION
AND WORK AREA DEWATERING
NTS



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LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
DETAILS

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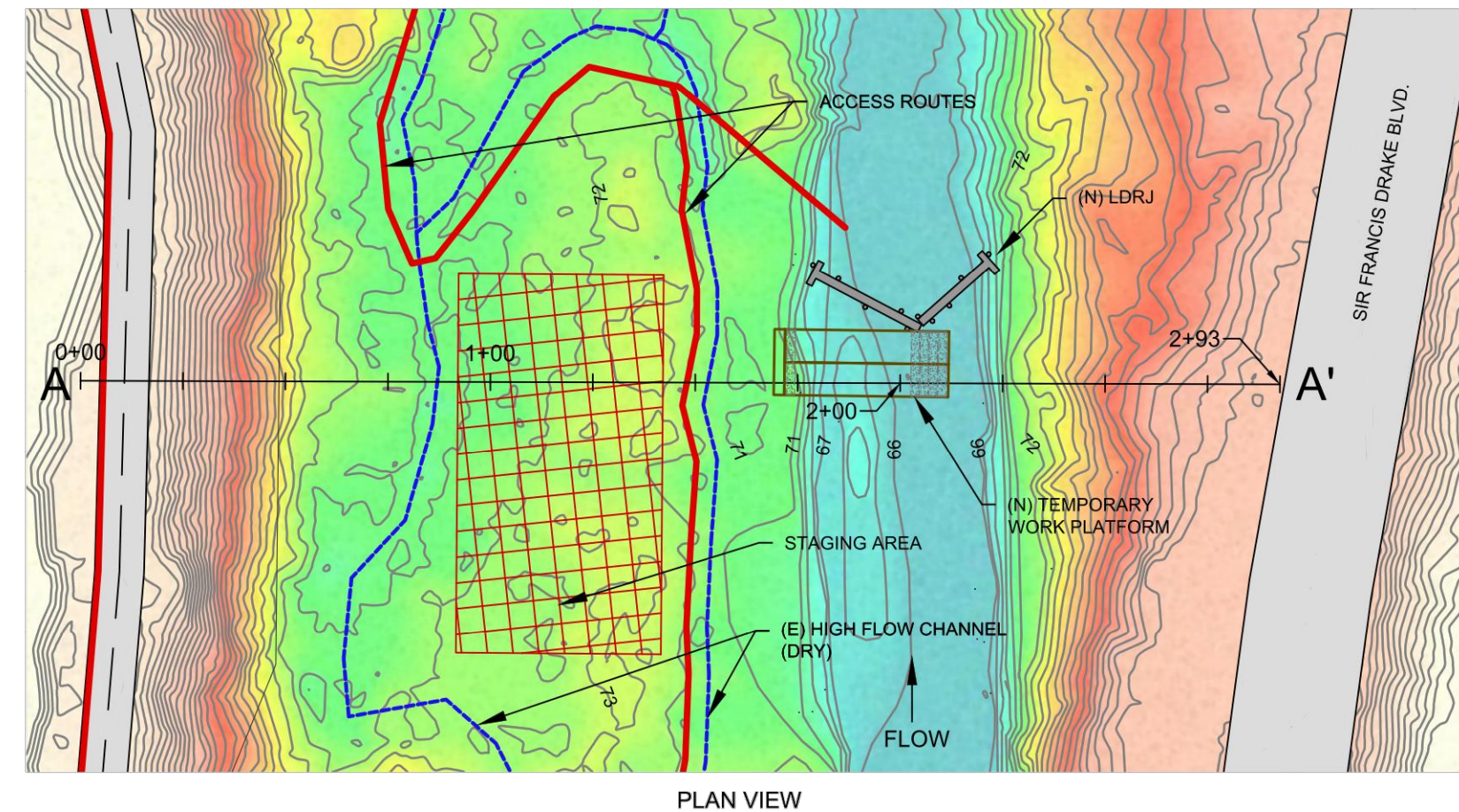
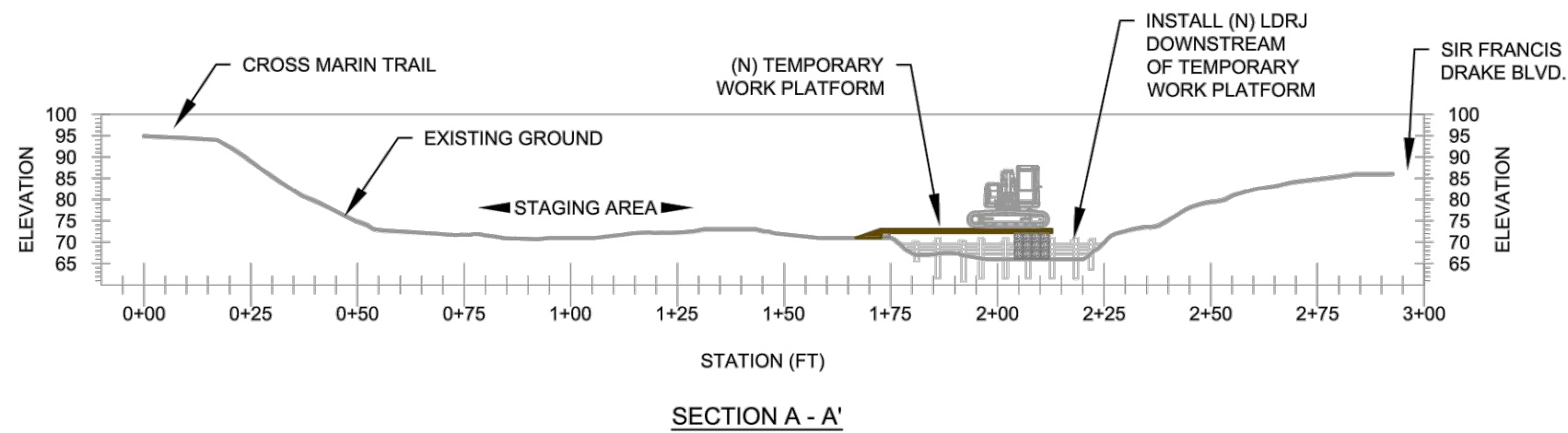
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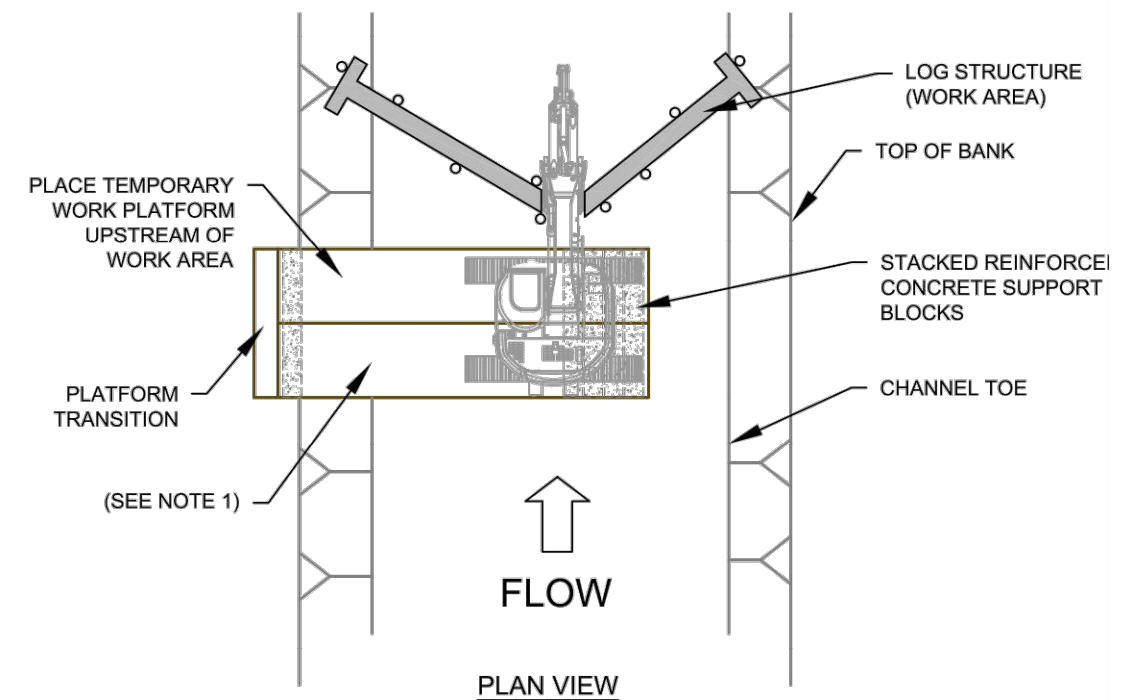
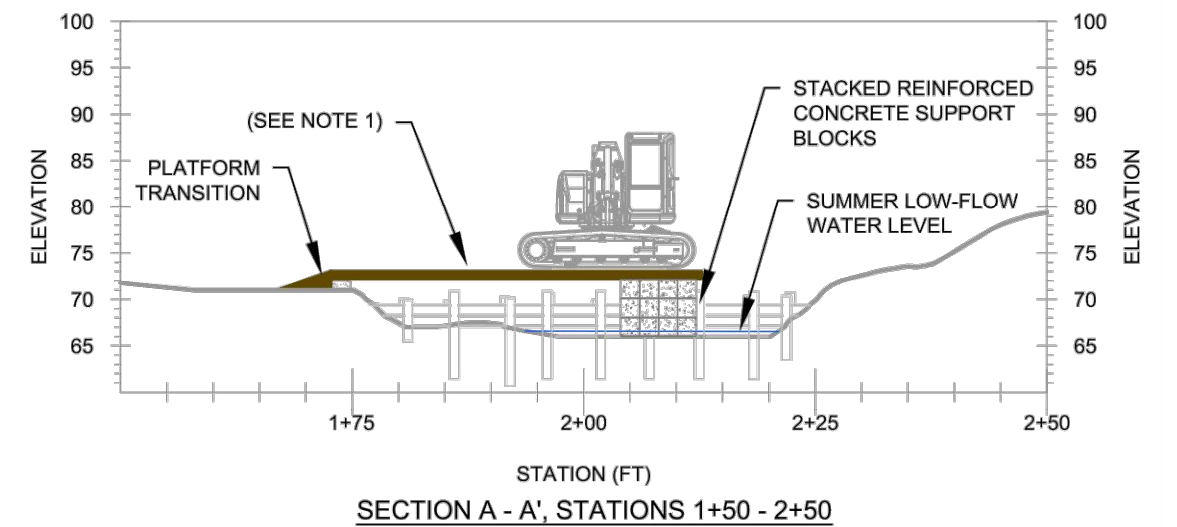
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CONSULTANT

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SITE 5 TEMPORARY WORK PLATFORM PLAN AND SECTION



- NOTES:
1. SUGGESTED WORK PLATFORM MATERIAL CAN BE CONSTRUCTED OF 8" THICK GLULAM OR STRESS-LAMINATED TIMBER. GLULAM DECK TO BE MADE OF UNTREATED GREEN MIXED HARDWOODS. SUGGESTED FINAL DECK WIDTH OF 16-FT WIDE BY 40-FT LONG, CONSTRUCTED FROM TWO (2) 8-FT WIDE BY, 40-FT LONG MODULES.

TEMPORARY WORK PLATFORM SCHEMATIC (NTS)

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& ENGINEERING, INC.

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		INSPECTION
		WTR QUALITY
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REVIEW	REVIEW

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**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
DETAILS**

C16
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SHEET NO.
JOB NO.

APPENDIX C

Photographs of Sites

Lagunitas Creek Winter Habitat Enhancement

Project Site Photographs

Tocaloma Floodplain Site; Project Site #'s 3 - 6

(Photos taken by MMWD; November 2015 - February 2016)



1. Tocaloma Floodplain Site: Looking north from Platform Bridge Road; project site is off to the left.



2. Tocaloma Floodplain Site: Looking south from Platform Bridge Road; project site is off to the right.



3. Tocaloma Floodplain Site: Looking northwest from Platform Bridge Road at the project site.



4. Tocaloma Floodplain Site: Looking southwest from Platform Bridge Road at the project site).



5. Tocaloma Floodplain Site: Lagunitas Creek at the upstream end of the proposed floodplain channel, to cut off and through riparian areas off to the right, at flagging.



6. Tocaloma Floodplain Site: Lagunitas Creek at the upstream end (mouth) of the proposed floodplain channel, to cut off to the right at red flagging.



7. Tocaloma Floodplain Site: Riparian area within alignment of proposed floodplain channel, channel to run from right to left at yellow flags.



8. Project Site #3: Lagunitas Creek looking downstream at the location for the Bar Apex Jam of Site #3.



9. Project Site #3: Lagunitas Creek looking downstream at the location for the Bar Apex Jam of Site #3.



10. Project Site #4: Lagunitas Creek looking upstream at the location for the Log Debris Retention Jam Site #4, at red flagging.



11. Project Site #4: Lagunitas Creek looking upstream at the location for the Log Debris Retention Jam Site #4, at red flagging.



12. Project Site #4: Lagunitas Creek looking downstream at the location for the Log Debris Retention Jam Site #4, at red flagging



13. Project Site #4: Lagunitas Creek from Sir Francis Drake Blvd., looking down at the approximate location for the Log Debris Retention Jam Site #4.



14. Project Site #5: Lagunitas Creek looking downstream at the location for the Log Debris Retention Jam Site #5, at red flagging.



15. Project Site #5: Lagunitas Creek looking downstream at the location for the Log Debris Retention Jam Site #5, at red flagging.



16. Project Site #5: Lagunitas Creek looking upstream from the location for the Log Debris Retention Jam Site #5.



17. Project Site #5: In vicinity of access point from Cross Marin Trail, looking easterly at the floodplain and channel of Lagunitas Creek (Sir Francis Drake Blvd in background).



18. Project Site #6: Lagunitas Creek looking downstream at the location for the Bar Apex Jam for Site #6.



19. Project Site #6: Lagunitas Creek looking downstream at the location for the Bar Apex Jam for Site #6.



20. Project Site #6: Lagunitas Creek looking upstream at the location for the Bar Apex Jam for Site #6, in upper left.

Lagunitas Creek Winter Habitat & Floodplain Enhancement Project

Visual Assessment Photographs

(Photos taken by MMWD; October 2015 and September & October 2016)

Visibility of Project Sites from Public Roads and Trails



1. Project Site #'s 1 & 2: Looking east from Sir Francis Drake Blvd.; Lagunitas Creek and the project sites are off to the right (down slope) and not visible here.



2. Project Site #'s 1 & 2: Looking west from Sir Francis Drake Blvd.; Lagunitas Creek and the project sites are off to the left (down slope) and not visible here.



3. Project Site #'s 1 & 2: Panorama looking east from Sir Francis Drake Blvd.; Lagunitas Creek and the project sites are visible down to the right.



4. Project Site #'s 1 & 2: Panorama looking west from Sir Francis Drake Blvd.; Lagunitas Creek is somewhat visible down to the left, through the trees.



5. Project Site #'s 1 & 2: Looking south down at Lagunitas Creek from the shoulder of Sir Francis Drake Blvd., looking down at location for Project Site 2 and lower end of Site 1.



6. Project Site #'s 1 & 2: Panorama looking west and north from Cross Marin Trail; Lagunitas Creek and Project Site 1 are visible down to the right.



7. Project Site #'s 1 & 2: Panorama looking east and north from Cross Marin Trail; Lagunitas Creek and Project Site 1 are visible down to the left.



8. Project Site #s 1 & 2: Access point from Cross Marin Trail, looking easterly; access is proposed off of trail and down the slope, across from marker CM54; project sites not visible.



9. Project Site # 7: Looking southeast from Platform Bridge Road. Lagunitas Creek is off to the right; creek and project site are not visible from the road.



10. Project Site # 7: Looking northwest from Platform Bridge Road; access point to project site is on the left; Lagunitas Creek and project site are not visible from the road.



11. Project Site # 7: Looking southeast from Platform Bridge Road; access point to project site is on the right; Lagunitas Creek and project site are not visible from the road.



12. Project Site #87: Looking southerly from Platform Bridge Road; access point to project site is on the right; Lagunitas Creek and project site are not visible from the road.



13. Project Site # 8: Looking northerly from Platform Bridge Road; access point to project site is on the left; Lagunitas Creek and project site are not visible from the road.



14. Project Site # 8: Looking westerly from Platform Bridge Road, at the access point to project site (post with white sign); Lagunitas Creek and project site not visible from the road.



15. Project Site #9: Looking southeast from Bear Valley Road; access to project site is to the left of the white SUV; Olema Creek and the project site are about 1,000 feet from the road and are not visible from the road; the entrance to Point Reyes National Seashore Visitor Center is in the background on the right.



16. Project Site #9: Looking northerly from Bear Valley Road; looking at the access point off of Bear Valley Road to project site (to the left of the white SUV); Olema Creek and the project site are about 1,000 feet in from the road and are not visible from the road.



17. Project Site #9: Looking northwest from Bear Valley Road; access to project site is back and to the right of the road sign on the right; Olema Creek and the project site are about 1,000 feet from the road and are not visible from the road.

APPENDIX D
*Clear Water Diversion/
Bypass Alternatives Memorandum*

MEMORANDUM

Kamman Hydrology & Engineering, Inc.

7 Mt. Lassen Dr., Ste. B250,, San Rafael, CA 94903
Telephone: (415) 491-9600
Facsimile: (415) 680-1538
E-mail: greg@khe-inc.com

Date: December 3, 2015
To: Greg Andrew, MMWD
From: Greg Kamman, Rachel Kamman and Rocco Fiori (Fiori Geosciences)
Subject: Clear Water Diversion/Bypass Alternatives
Phase 1 Construction, Lagunitas Creek Winter Salmonid Habitat Enhancement

The following memorandum is a working document presenting preliminary ideas and thoughts regarding temporary clear water diversions and bypass during construction of Phase 1 engineered log jams (Sites 3 through 6 on project drawings).

1.0 ASSUMPTIONS

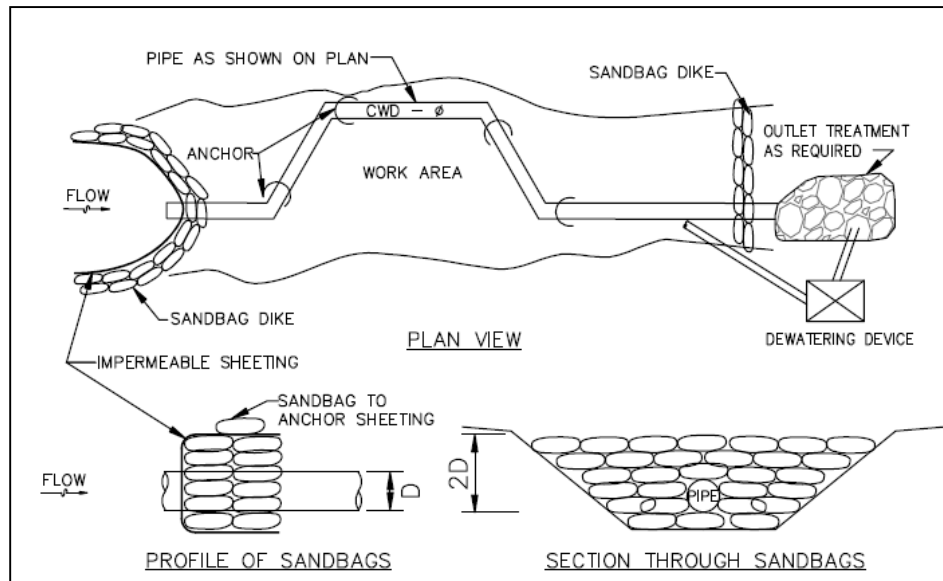
- Minimum flow releases in Lagunitas Creek of 6-8 cfs exceed ability to pump water around channel work areas; gravity flow bypass required.
- Presence of freshwater shrimp and other sensitive species require minimizing length of dewatered channel.
- Need to adhere to turbidity and water quality conditions in permits and standard BMP practices.
- Will need to develop contingencies for late summer/early season storms.
- Earthen materials to fill sand bags and cellular cofferdams would be native creek channel materials from construction area.
- Water to fill water bags would be from creek flow.

2.0 GENERAL METHODS

A. Channel-Spanning Cofferdams

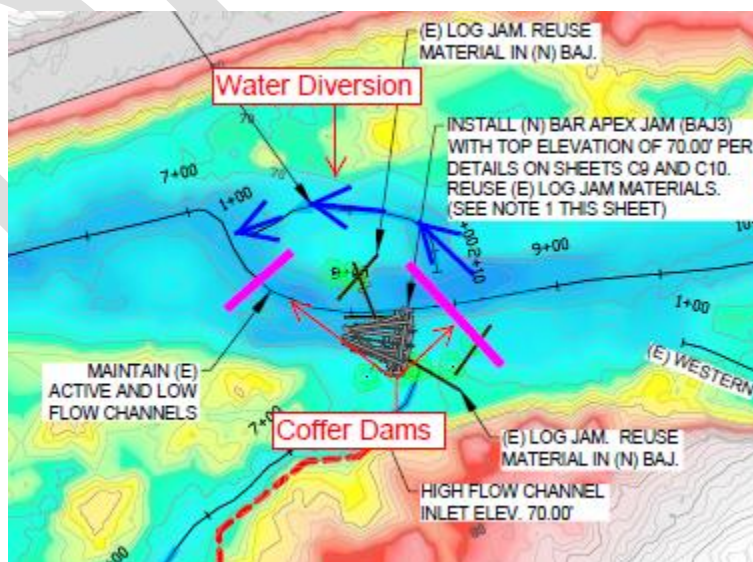
- Dewater entire channel width in order to install Bar Apex Jams (Sites 3 and 6).
- Two coffer dams: upstream and downstream of work areas, needed to fully dewater channel reach at Bar Apex Jam Sites 3 and 6..
- Culvert installed through each coffer dam to convey 8-cfs summer minimum flows (conservative design to 12-cfs).
- Possible coffer dams include materials that will accommodate (fit snugly around) a diversion pipe/culvert, such as earth, sand bags and water bags.
- Sheet pile could be used with holes to accommodate culvert. Sheet pile preferred method spanning bank and into channel. Vibra hammer used to install vertical posts also preferred method for installation of sheet pile.

- Turbid water generated and contained during construction to be pumped and discharged onto surrounding floodplain where it will not return to creek. Construction discharge areas to be restricted to large floodplain area located southwest of the creek levees where water will pond and infiltrate and not run back into the creek.



B. Water Diversion around Work Area

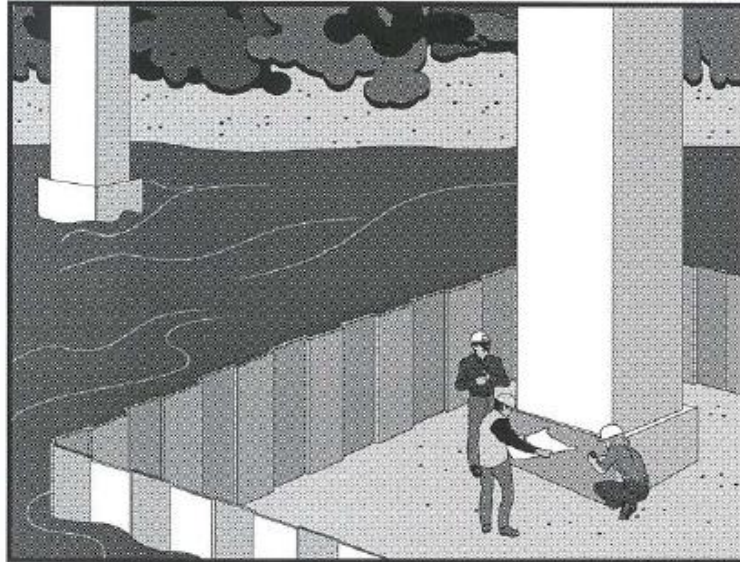
- Divert full creek flow around construction areas through existing side (high flow) channels. Good example as Downstream McIsaac Bar Apex Jam at Site 6 (see following schematic).



- Cofferdams can be constructed using: earth; sand bags; water bags; K-rail; and sheet pile, although shallow bedrock may complicate sheet-pile installation.

C. Partial Channel Isolation

- Goal is to isolate a portion of channel from one bank by deflecting all channel flow through narrowed, unobstructed channel section (see following schematic and Figure 3).



- Application to Phase 1 project would be exclusive to construction of Log Debris Retention Jams (LDRJs), one-half at a time. Half of structure constructed from each bank with each half meeting in middle of channel.
- Given LDRJs are channel spanning structure, there would need to be a gap in the isolation structure where it intersects the LDRJ. This will allow for minor amount of water exchange between inside and outside of structure. It is important to note that LDRJs can be installed in saturated/wet conditions – channel does not need to be completely dry.
- In addition to coffer dam materials listed above, K-rails, cellular and portadam-type (see graphic next page) cofferdams could be used.



- Tolerances of coffer dam don't need to be as high for partial channel isolation as LDRJs can be installed quickly and LDRJs don't need to be installed in dry channel.
- This approach

D. Turbidity Curtain

- Installation of Log Debris Retention Jams can be completed without dewatering the channel as long as turbidity Curtain can be used to contain turbid water.
- Turbidity curtains, by themselves, are not sturdy enough to remain in place under the anticipated creek baseflows. Therefore, a diagonal wall of K-rail angled from mid-channel to bank and pointing upstream should be installed to deflect flow to the other side of the creek and provide more stagnant water conditions in the work area. Turbidity curtain can be installed immediately downstream of the K-rail “wedge” to contain turbid water. K-rail wedges and turbidity curtain would be installed per isolation dams – half channel width at a time.
- If an excavator must enter the channel during LDRJ installation, K-rail or equivalent should be placed under the excavator tracks to maintain a flat and stable work surface.

E. Sources of Information for Cofferdam Types

- Water Bags

<http://www.aquadam.net/>

<http://damitdams.com/>

- Cellular Cofferdam

<http://www.bigbagsusa.com/>

- Portadam

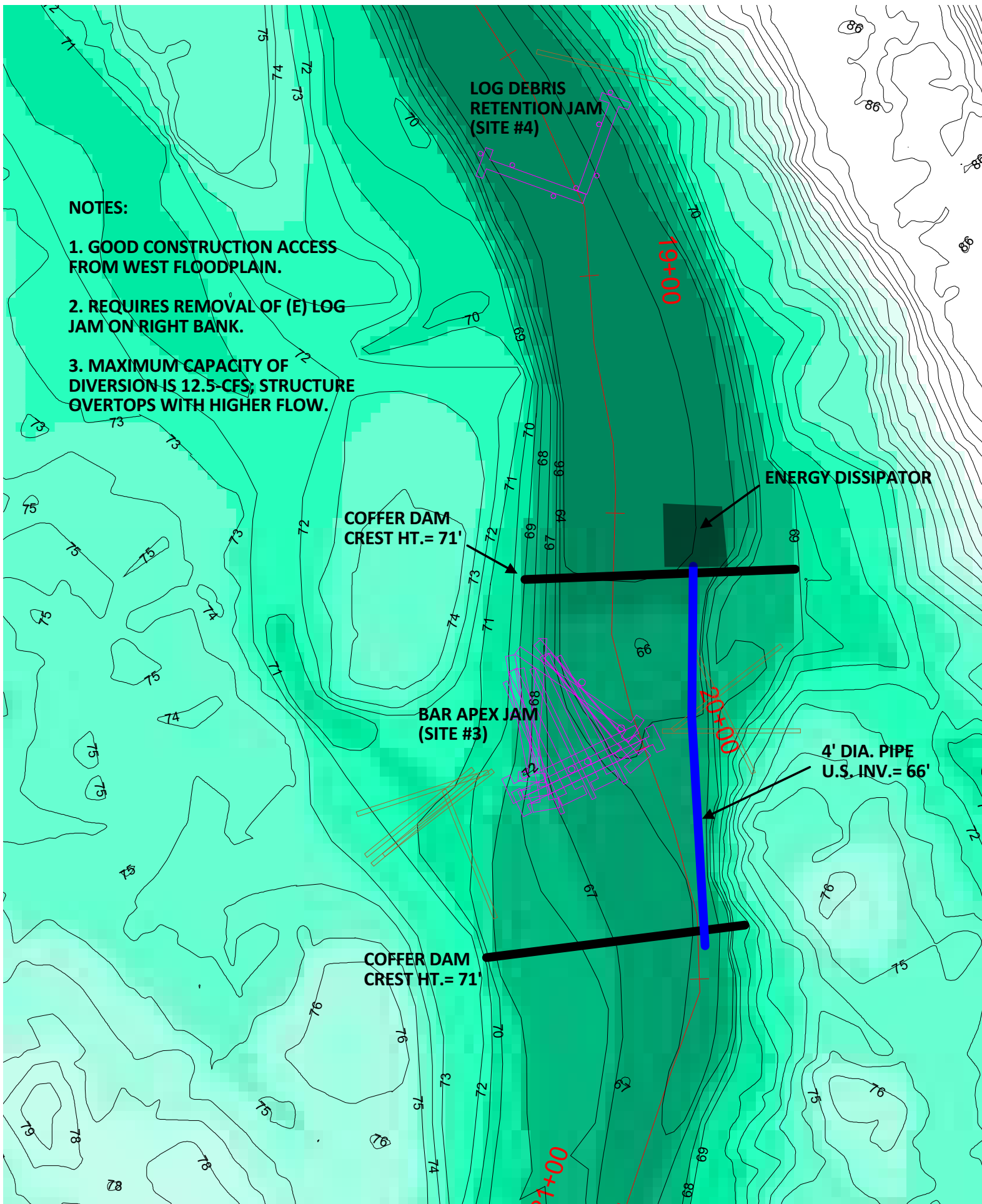
[http://www.rainforrent.com/Portable Temporary Cofferdams.aspx](http://www.rainforrent.com/Portable_Temporary_Cofferdams.aspx)

3.0 PROJECT-SPECIFIC CLEAR WATER DIVERION ALTERNATIVES

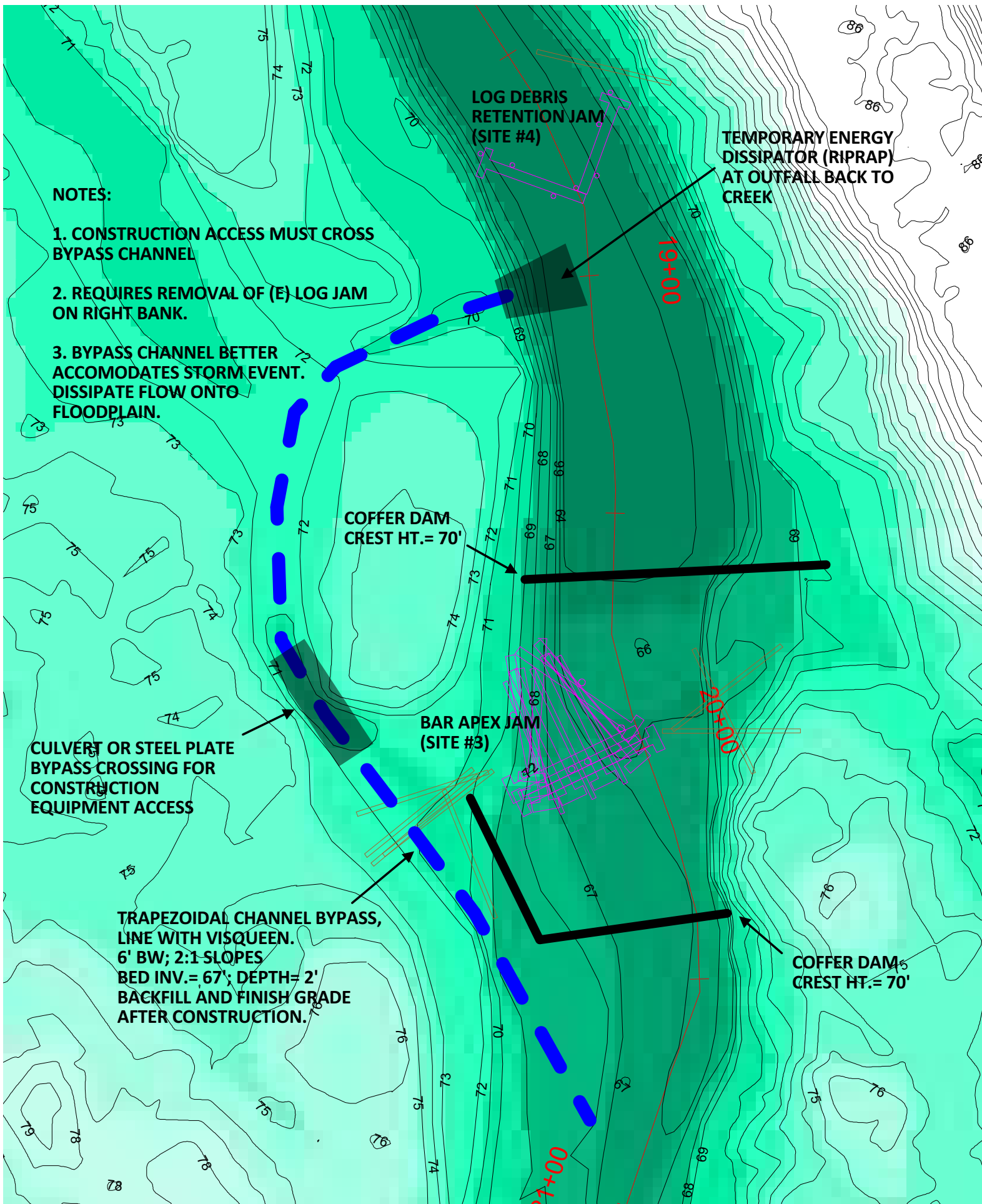
Project specific approaches for dewatering channels in association with installation of Bar Apex Jams are presented in Figures 1, 2 and 5. Approaches for channel isolation and turbidity control during installation of Log Debris Retention Jams are presented on Figures 3 and 4.

Hydraulic design criteria used to evaluate bypass culvert and channel sizes is provided in the following table.

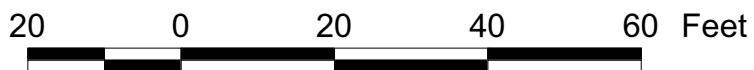
Pipe Capacity		http://www.hawsedc.com/engcalcs/Manning-Pipe-Flow.php				
Dia. (ft)	Slope (r/r)	n-value	% Full	Q (cfs)	Vel (ft/s)	
4	0.0001	0.015	100%	12.5	1.0	
4	0.0001	0.015	75%	11.4	1.1	
4	0.0001	0.015	50%	6.2	1.0	
3	0.0001	0.015	100%	5.8	0.8	
3	0.0001	0.015	75%	5.3	0.9	
3	0.0001	0.015	50%	2.9	0.8	
2	0.0001	0.015	100%	2.0	0.6	
Trapezoidal Channel		http://www.hawsedc.com/engcalcs/Manning-Trap.php				
Bottom W	side slope	slope	manning	Q depth	Q	Vel
(ft)	(H:V)	(r/r)	n-value	(ft)	(cfs)	(ft/s)
6	2:1	0.0001	0.030	1.0	3.3	0.41
6	2:1	0.0001	0.030	1.5	7.0	0.52
6	2:1	0.0001	0.030	2.0	12.0	0.6



**FIGURE 1: THROUGH COFFER DAM PIPE
UPPER MCISAAC BAR APEX JAM (SITE #3)**

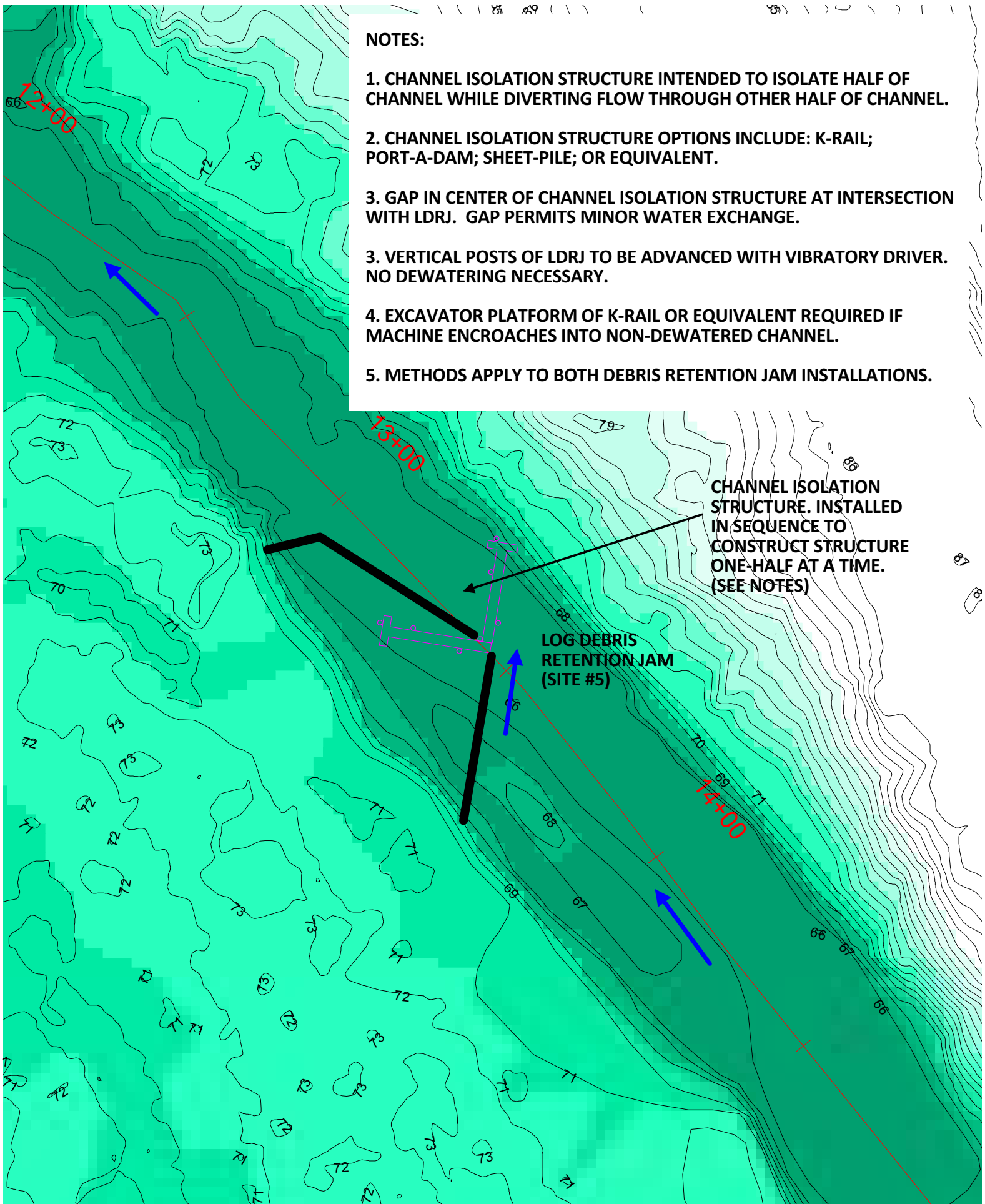


**FIGURE 2: CHANNEL BYPASS
UPPER MCISAAC BAR APEX JAM (SITE #3)**



NOTES:

1. CHANNEL ISOLATION STRUCTURE INTENDED TO ISOLATE HALF OF CHANNEL WHILE DIVERTING FLOW THROUGH OTHER HALF OF CHANNEL.
2. CHANNEL ISOLATION STRUCTURE OPTIONS INCLUDE: K-RAIL; PORT-A-DAM; SHEET-PILE; OR EQUIVALENT.
3. GAP IN CENTER OF CHANNEL ISOLATION STRUCTURE AT INTERSECTION WITH LDRJ. GAP PERMITS MINOR WATER EXCHANGE.
3. VERTICAL POSTS OF LDRJ TO BE ADVANCED WITH VIBRATORY DRIVER. NO DEWATERING NECESSARY.
4. EXCAVATOR PLATFORM OF K-RAIL OR EQUIVALENT REQUIRED IF MACHINE ENCROACHES INTO NON-DEWATERED CHANNEL.
5. METHODS APPLY TO BOTH DEBRIS RETENTION JAM INSTALLATIONS.

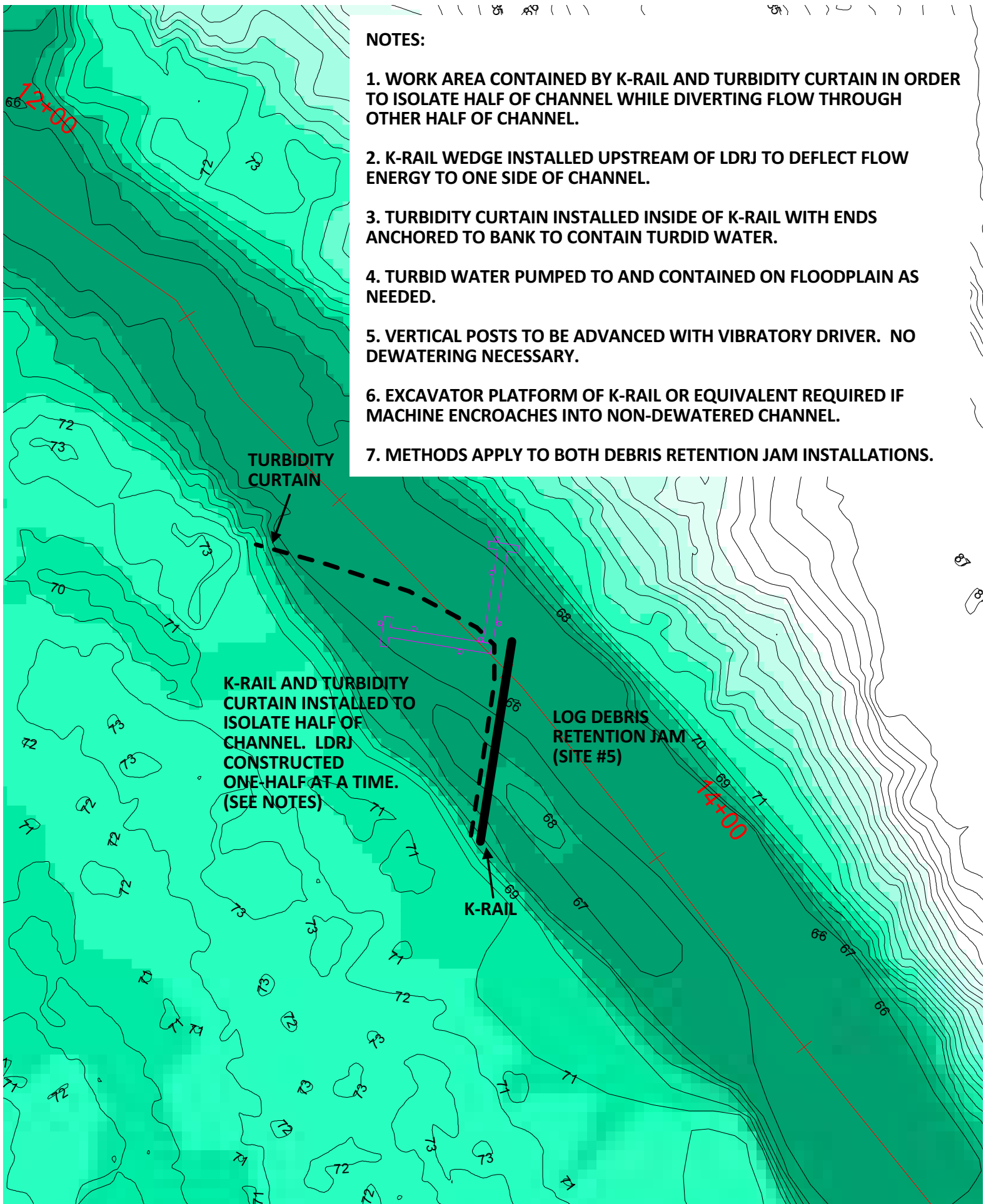


**FIGURE 3: CHANNEL ISOLATION
UPPER McISAAC DEBRIS RETENTION JAM (SITE #5)**



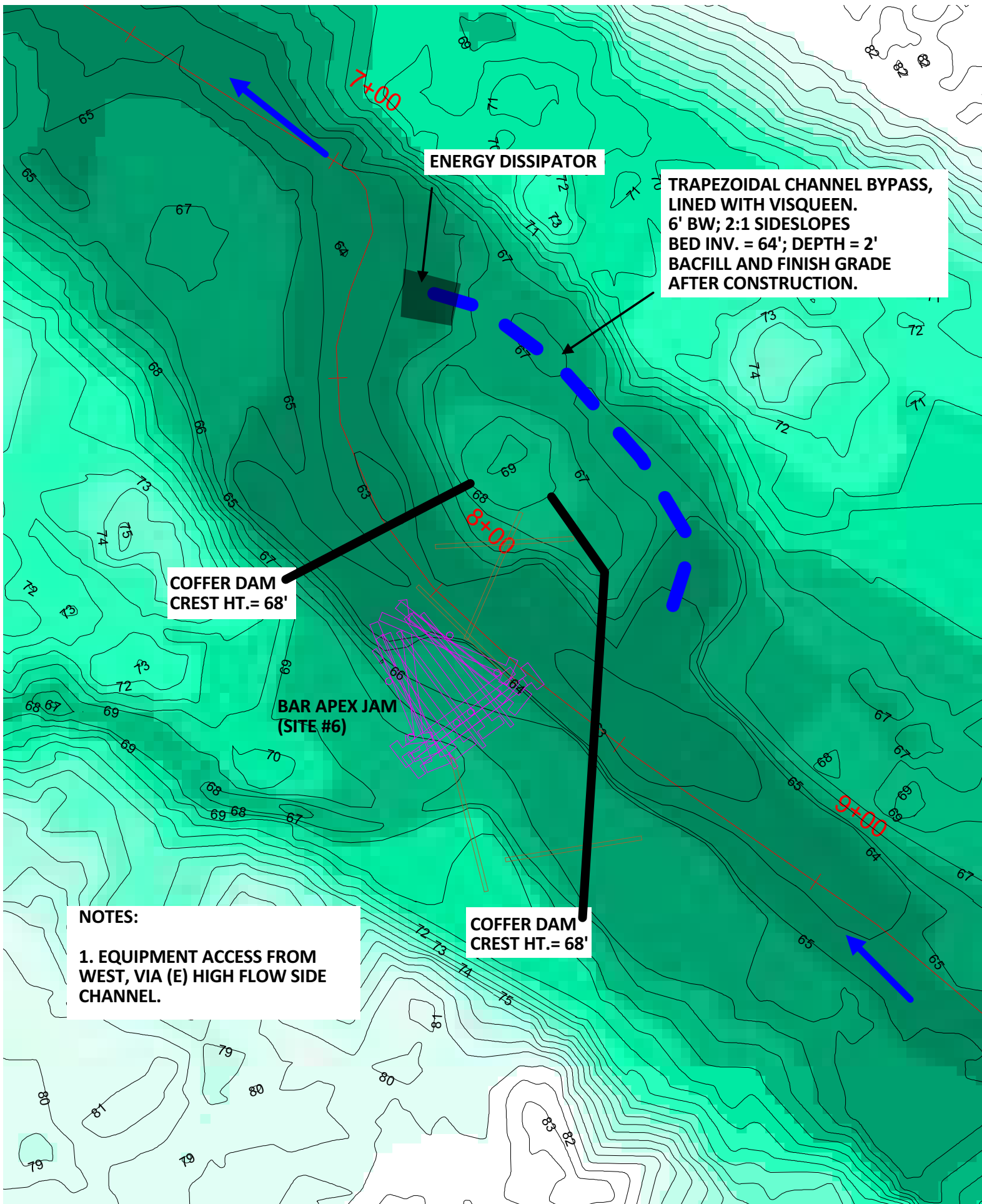
NOTES:

1. WORK AREA CONTAINED BY K-RAIL AND TURBIDITY CURTAIN IN ORDER TO ISOLATE HALF OF CHANNEL WHILE DIVERTING FLOW THROUGH OTHER HALF OF CHANNEL.
2. K-RAIL WEDGE INSTALLED UPSTREAM OF LDRJ TO DEFLECT FLOW ENERGY TO ONE SIDE OF CHANNEL.
3. TURBIDITY CURTAIN INSTALLED INSIDE OF K-RAIL WITH ENDS ANCHORED TO BANK TO CONTAIN TURBID WATER.
4. TURBID WATER PUMPED TO AND CONTAINED ON FLOODPLAIN AS NEEDED.
5. VERTICAL POSTS TO BE ADVANCED WITH VIBRATORY DRIVER. NO DEWATERING NECESSARY.
6. EXCAVATOR PLATFORM OF K-RAIL OR EQUIVALENT REQUIRED IF MACHINE ENCROACHES INTO NON-DEWATERED CHANNEL.
7. METHODS APPLY TO BOTH DEBRIS RETENTION JAM INSTALLATIONS.

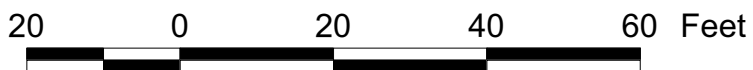


**FIGURE 4: TURBIDITY CURTAIN INSTALLATION
McISAAC DEBRIS RETENTION JAM (SITE #5)**





**FIGURE 5: COFFER DAM AND CHANNEL BYPASS
LOWER McISAAC BAR APEX JAM (SITE #6)**

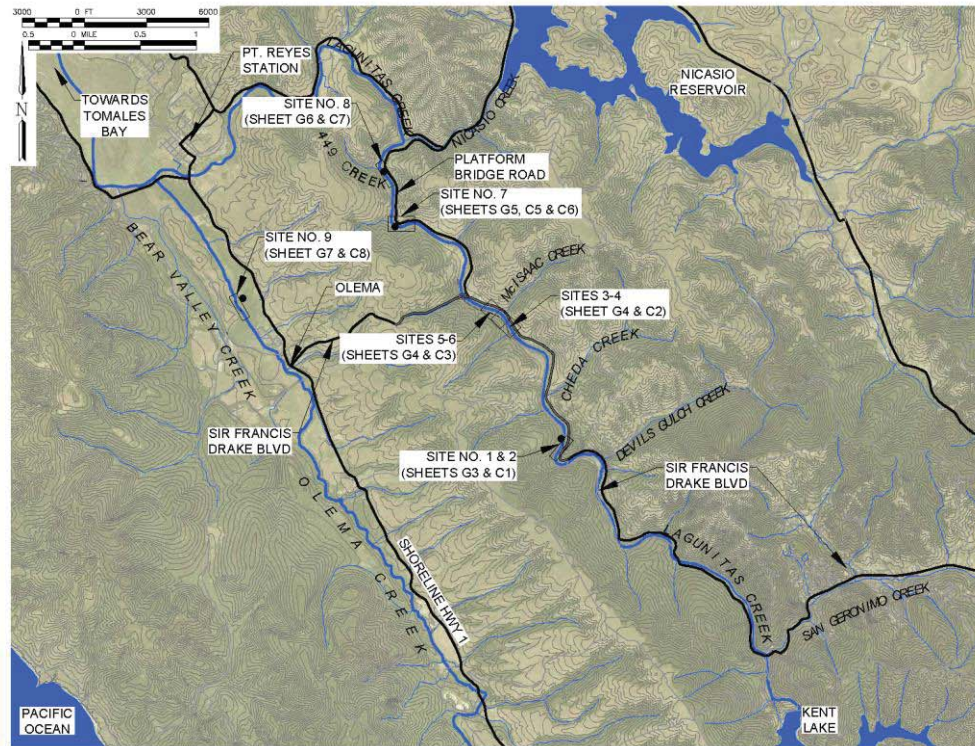
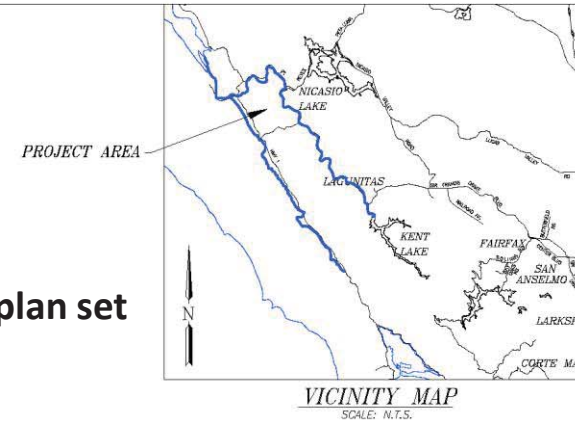


APPENDIX E

Lagunitas Creek Salmonid Winter Enhancement Plans – Habitat Typing Units

LAGUNITAS CREEK SALMONID WINTER HABITAT ENHANCEMENT PLANS MARIN COUNTY, CALIFORNIA

PROJECT SITES 1 - 9 Note: Sites 3 – 9 in this plan set



NOTE: NUMBERS REFER TO PROJECT SITES - SEE TABLE THIS SHEET

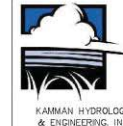
HABITAT TYPING UNITS

DRAFT 100% SUBMITTAL

NO REVISION

CLH DRK RZK 2/10/17
DRAWN CHKD APPRVD DATE

ENGINEERING SEAL



CONSULTANT



GENERAL MANAGER



INDEX TO DRAWINGS

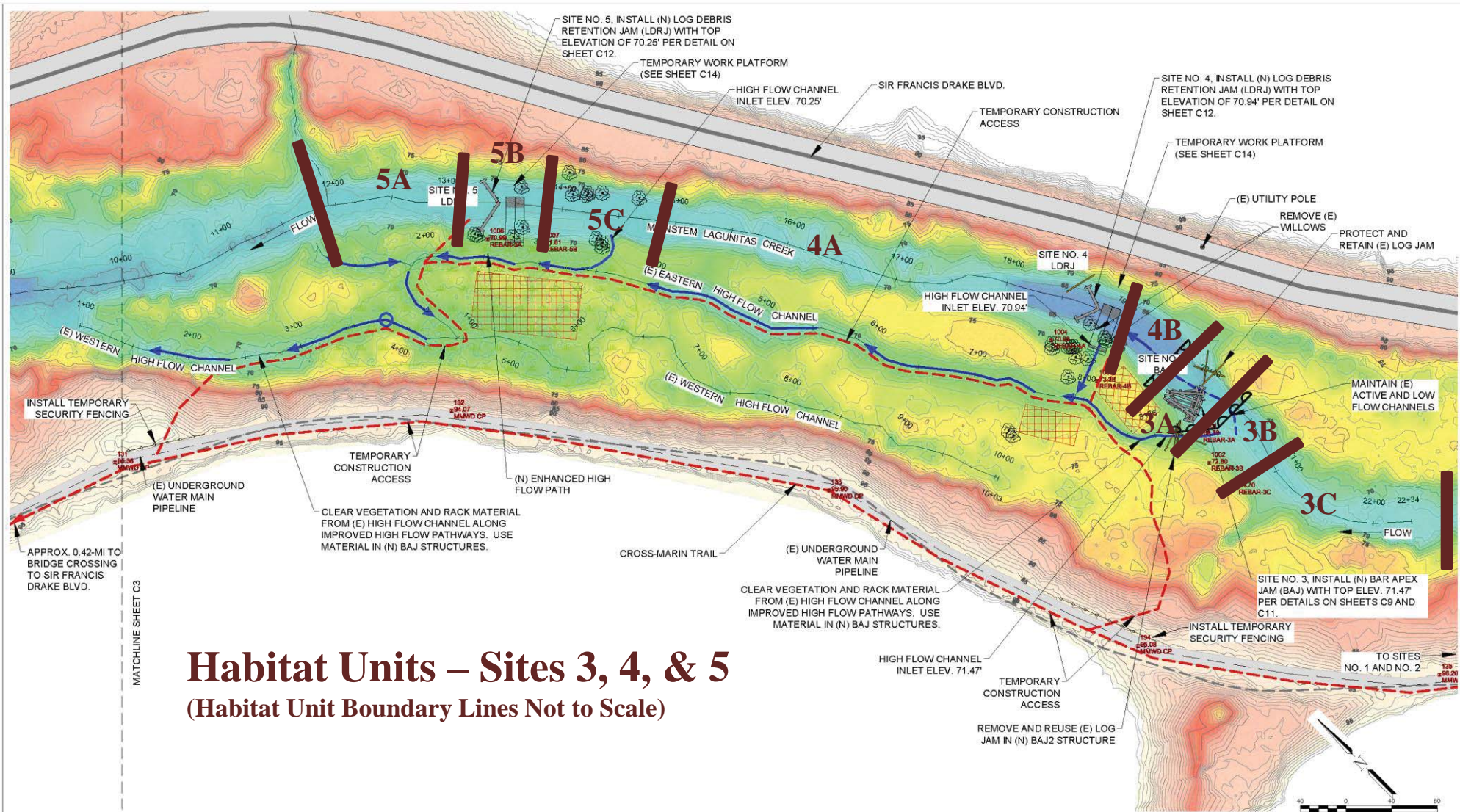
SHEET NO.	SHEET COUNT	TITLE
GENERAL		
G1	1	INDEX TO DRAWINGS, VICINITY MAP & LOCATION MAP
G2	2	GENERAL NOTES, ABBREVIATIONS, SYMBOLS & REFERENCES
G3	3	SITE ACCESS AND STAGING BIG BEND, SITES NO. 1 & 2
G4	4	SITE ACCESS AND STAGING McISAAC, SITES NO. 3, 4, 5 & 6
G5	5	SITE ACCESS AND STAGING FERN ROCK, SITE NO. 7
G6	6	SITE ACCESS AND STAGING 499 CREEK, SITE NO. 8
G7	7	SITE ACCESS AND STAGING OLEMA CREEK, SITE NO. 9
G8	8	CLEAR WATER DIVERSION RECOMMENDATIONS, SITES 2 & 3
G9	9	CLEAR WATER DIVERSION RECOMMENDATIONS, SITES 6 & 8
CIVIL		
C1	10	BIG BEND PLAN AND PROFILE
C2	11	McISAAC PLAN UPSTREAM
C3	12	McISAAC PLAN DOWNSTREAM
C4	13	McISAAC PROFILES
C5	14	FERN ROCK PLAN
C6	15	FERN ROCK PROFILE
C7	16	499 CREEK PLAN AND PROFILE
C8	17	OLEMA PLAN AND PROFILE
C9	18	BAR APEX JAM DETAILS, SITES 2 & 3
C10	19	BAR APEX JAM DETAILS, SITES 6 & 8
C11	20	BAR APEX JAM ASSEMBLY SEQUENCE
C12	21	LOG JAM DETAILS
C13	22	DETAILS
C14	23	DETAILS

PROJECT SITES

1	BIG BEND DEFLECTOR VANES (4)	7b	FERN ROCK DEBRIS JAM 2
2	BIG BEND BAR APEX JAM	7c	FERN ROCK DEBRIS JAM 3
3	McISAAC UPSTREAM BAR APEX JAM	7d	FERN ROCK DEBRIS JAM 4
4	McISAAC UPSTREAM DEBRIS JAM	8a	449 CREEK DEBRIS JAM
5	McISAAC UPSTREAM DEBRIS JAM	8b	449 CREEK BAR APEX JAM
6	McISAAC DOWNSTREAM BAR APEX JAM	9a	OLEMA CREEK CROSS VANE
7a	FERN ROCK DEBRIS JAM 1	9b	OLEMA CREEK DEBRIS JAMS (6)

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Habitat Units – Sites 3, 4, & 5

(Habitat Unit Boundary Lines Not to Scale)

DRAFT 100% SUBMITTAL

NO	REVISION	CLH	GRK	RZK	2/10/17
		DRAWN	CHKD	APPROVD	DATE

ENGINEERING SEAL



KAMMAN HYDROLOGY
& ENGINEERING, INC.

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CONTRACT NO.
DWG DATE
SIGN DATE
CONST COM DATE
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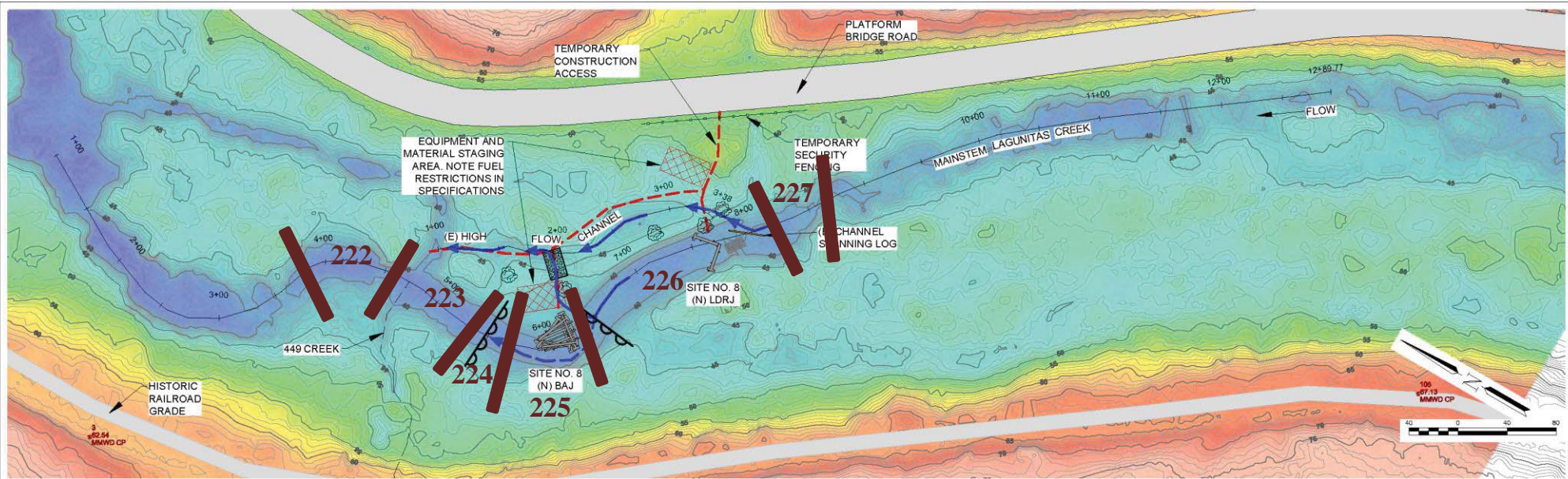
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OPERATIONS
CORROSION
MAINT./CNTRLS
FAC/WTR MGT
ENGR SERV
INSPECTION
WTR QUALITY
RECORDS/SUBD.

MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PROJECT**
McISAAC PLAN UPSTREAM
Sites 3, 4, 5

C2
11 23
SHEET NO.
JOB NO.



NOTES:

1. CLEAR VEGETATION AND RACK MATERIAL FROM (E) HIGH FLOW CHANNEL ALONG IMPROVED HIGH FLOW PATHWAYS. REUSE MATERIAL IN (N) LDRJ STRUCTURES.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE DISTRICT'S MOST RECENT VERSION OF STANDARD SPECIFICATIONS AND REVISIONS THERETO. DISTRICT WILL PROVIDE CONTRACTOR WITH MOST RECENT VERSION OF SPECIFICATIONS.
3. CHANNEL IMPROVEMENTS INDICATED ON DRAWINGS SHALL NOT BE MODIFIED WITHOUT PRIOR AUTHORIZATION OF THE CONSTRUCTION MANAGER.
4. PRIOR TO INSTALLATION, THE LOCATIONS OF NEW CHANNEL IMPROVEMENTS SHALL BE MARKED IN THE FIELD BY THE DISTRICT OR APPROPRIATE PARTY.
5. WHEN AN AREA IS DISTURBED, THE CONTRACTOR SHALL RESTORE IT AS NEARLY AS POSSIBLE TO MATCH EXISTING CONDITIONS AS DETERMINED BY THE ENGINEER.


Habitat Units – Site 8

(Habitat Unit Boundary Lines Not to Scale)

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DRAFT 100% SUBMITTAL

NO	REVISION	CLH	DRK	RZK	2/10/17
		DRAWN	CHKD	APPRVD	DATE




KAMMAN HYDROLOGY
& ENGINEERING, INC.

ENGINEERING SEAL

CONSULTANT

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DWG DATE	PROJ. MGR.
SIGN DATE	PRINCIPAL ENGR.
CONS COM DATE	
APPROVED CHIEF ENGR.	

REVIEW
PLANNING
CIVIL DESIGN
OPERATIONS
CORROSION
MAINT/CONTROLS
FAC/INTL MGT
ENGR SERV
INSPECTION
WTR QUALITY
RECORDS/SUBD.



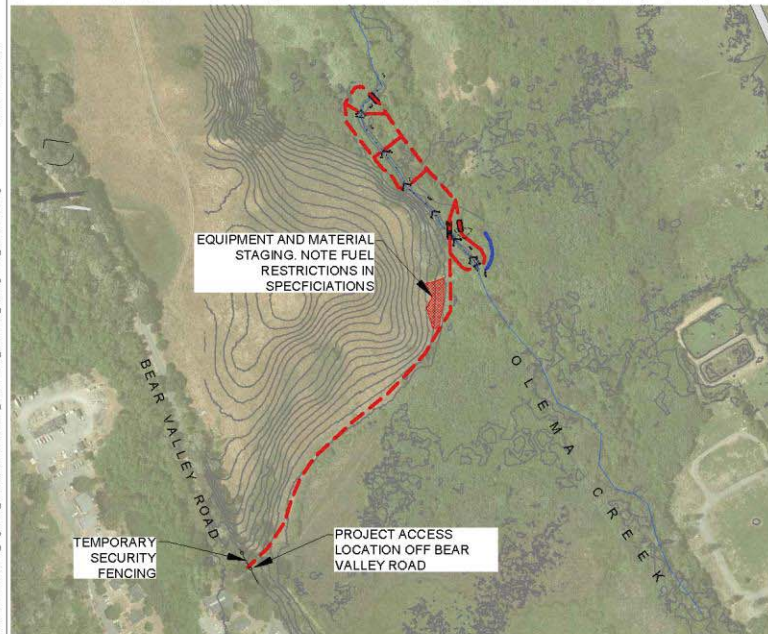
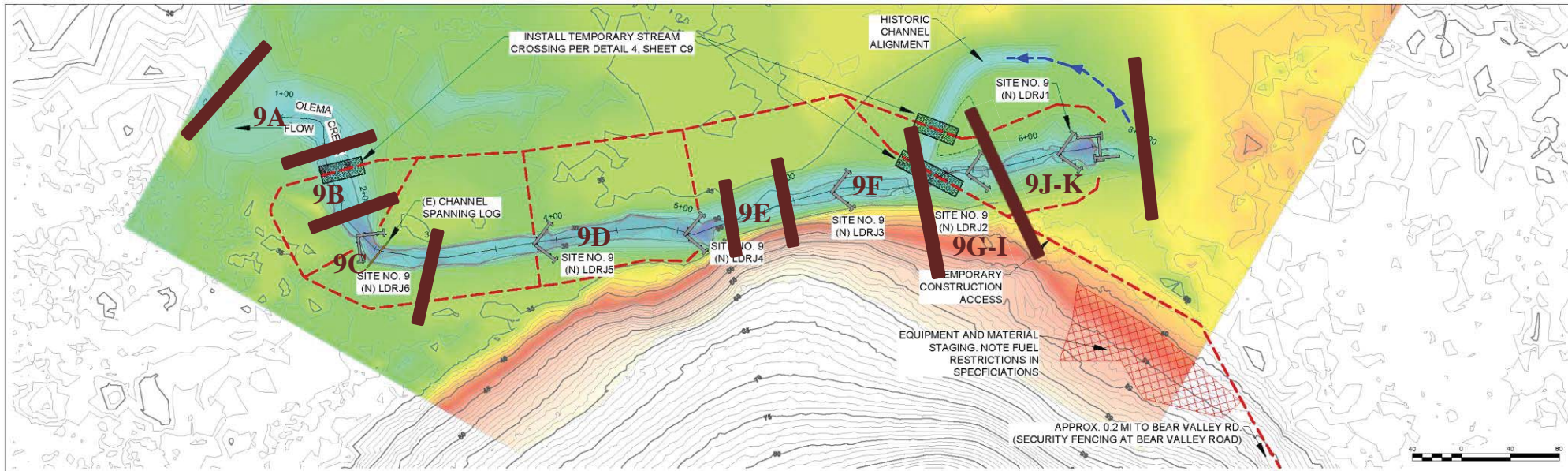
MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
SITE ACCESS AND STAGING
449 CREEK, SITE NO. 8

G6

6 23

SHEET NO.
JOB NO.



NOTES:

1. CLEAR VEGETATION AND RACK MATERIAL FROM (E) HIGH FLOW CHANNEL ALONG IMPROVED HIGH FLOW PATHWAYS. REUSE MATERIAL IN (N) LDRJ STRUCTURES.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE DISTRICT'S MOST RECENT VERSION OF STANDARD SPECIFICATIONS AND REVISIONS THERETO. DISTRICT WILL PROVIDE CONTRACTOR WITH MOST RECENT VERSION OF SPECIFICATIONS.
3. CHANNEL IMPROVEMENTS INDICATED ON DRAWINGS SHALL NOT BE MODIFIED WITHOUT PRIOR AUTHORIZATION OF THE CONSTRUCTION MANAGER.
4. PRIOR TO INSTALLATION, THE LOCATIONS OF NEW CHANNEL IMPROVEMENTS SHALL BE MARKED IN THE FIELD BY THE DISTRICT OR APPROPRIATE PARTY.
5. WHEN AN AREA IS DISTURBED, THE CONTRACTOR SHALL RESTORE IT AS NEARLY AS POSSIBLE TO MATCH EXISTING CONDITIONS AS DETERMINED BY THE ENGINEER.

Habitat Units – Site 9

(Habitat Unit Boundary Lines Not to Scale)

DRAFT 100% SUBMITTAL

NO.	REVISION	CLH	DRK	RZK	2/10/17
		DRAWN	CHKD	APPRVD	DATE

ENGINEERING SEAL



KAMMAN HYDROLOGY
& ENGINEERING, INC.

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OPERATIONS
CORROSION
MAINT/CNTRLS
FAC/WTR MGT
ENGR. SERV
INSPECTION
WTR QUALITY
RECORDS/SUBD.

MARIN MUNICIPAL WATER DISTRICT
220 NELLEN AVE., CORTE MADERA, CA 94925 (415) 945-1455

**LAGUNITAS CREEK SALMONID WINTER
HABITAT ENHANCEMENT PLANS
SITE ACCESS AND STAGING
OLEMA, SITE NO. 9**

G7
723
SHEET NO.
JOB NO.

Lagunitas Creek Winter Habitat - Habitat Typing Data
February, July and September 2016

											Shelter Rating										Substrate Composition						
Winter Habitat Site #	Habitat Unit Number	Habitat Unit Type	Length (ft)	Mean Width (ft)	Area FT2	Mean Depth	Max Depth	Depth of Pool Tail Crest	Pool Tail Embeddedness	Pool Tail Substrate	% Unit Cover	undercut bank	% SWD (d<12")	LWD (d> 12")	root mass	Terrestrial Vegetation	Aquatic Vegetation	bubble curtain	boulders (d>10")	bedrock ledges	Silt/ Clay/Sand	Gravel	Small Cobble	Large Cobble	Boulder	Bedrock	% Exposed Substrate
Site # 3	3A	RF	33	20.0		1.0	2.3				50	0	40	10	0	40	0	2	0	0		2	1				5
	3B	RU	66	15.1		1.6	2.4				40	10	20	5	10	45	0	10	0	0		1	2			0	
	3C	RU	174	20.7		2.1	1.8				25	20	10	10	5	15	0	0	0	0		2	1			5	
Site # 4	4A	PL	433	33.8		2.8	3.6	1.0	4	B	50	20	5	5	10	60	0	0	0	0		2	1			0	
	4B	PL	62	24.6		3.4	4.4	1.5	4	A	60	5	30	50	5	10	0	0	0	0		1	2			0	
Site # 5	5A	RU	151	29.5		1.6	2.4				20	70	5	0	5	20	5	0	0	0		1	2			0	
	5B	RF/RU	75	25.3		0.9	1.3				10	30	1	0	0	70	0	0	0	0		2	1			0	
	5C	GL	98	24.0		1.1	2.1				10	20	5	0	10	55	10	0	0	0		1	2			0	
Site # 6	6A	PL	325	27.6		2.0	2.6	0.5	4	B	30	3	10	2	5	80	0	0	0	0		2	1			0	
	6B	PL	59	20.0		2.1	3.0	0.8	2	B	25	15	15	10	40	20	0	0	0	0		2	1			0	
	6C	PL	43	21.0		2.4	3.7	1.4	2	C	20	5	5	0	70	20	0	0	0	0		1	2			0	
	6D	RU	36	25.6		2.1	3.0				15	5	5	0	10	80	0	0	0	0		1	2			0	
	6E	RF	26	17.1		1.0	1.3				5	0	0	0	0	85	0	0	0	15				1	1		
	6F	PL	102	21.0		2.9	3.9	1.1	1	B	60	10	10	10	20	50	0	0	0	0		2	1			0	
	6G	RU/GL	72	26.6		0.9	1.1				10	15	0	0	45	40	0	0	0	0		2	1			0	
Site # 7	242	PL	283	30	8490	3.5	4.5	0.7	4	B	10	5	25	5	5	60	0	0	0	0		1	2			0	
	243	PL	98	23	2254	1.6	2.7	0.8	2	B	5	0	25	0	25	50	0	0	0	0		1	2			0	
	244	PL	149	22	3278	1.9	4.3	0.4	4	B	15	0	25	0	5	45	0	0	5	20		1	2			0	
	245	PL	128	21	2688	2.1	4.8	0.6	3	B	10	0	10	0	50	30	0	0	10	0		1	2			5	
	246	RU	404																								
	247	PL	111	21	2331	1.9	2.8	0.6	4	B	10	40	45	5	0	10	0	0	0	0		1	2			0	
	248	PL	90	27	2430	1.7	3.5	0.7	4	B	5	0	45	0	50	5	0	0	0	0		1	2			0	
	249	RU	108	22	2376	1.2	1.9				5	0	80	0	0	20	0	0	0	0		1	2			0	
	250	PL	171	26	4446	1.5	3.8	0.5	2	B	20	10	5	5	0	80	0	0	0	0		1	2			0	
	251	PL	183	30	5490	2	4.5	0.5	2	B	10	5	0	20	50	25	0	0	0	0		1	2			0	
	252	PL	181	33	5973	1.8	4.5	0.6	4	B	15	0	20	0	30	50	0	0	0	0		1	2			0	
Site # 8	222	RU	104																								
	223	PL	181	20	3620	1.8	5.5	0.9	4	B	15	0	40	20	20	20	0	0	0	0		1	2			0	
	224	RF	38	20	760	0.5	1.2				5	0	10	0	0	90	0	0	0	0		1	1	2		5	
	225	PL	118	25	2950	2.2	4.3	0.5	4	B	15	0	30	15	5	50	0	0	0	0		1	2			0	
	226	PL	415	25	10375	1.9	5.1		4	B	65	0	50	10	10	30	0	0	0	0		1	2			0	
227	GL	73	29	2117	1.2	1.6					10	0	20	15	5	60	0	0	0	0		1		2		0	
Site # 9	9A	PL	78	16	1248	1.3	2.3	0.1	2	C	30	30	10	0	20	30	10	0	0	0			1	2		5	
	9B	RF	22	5	110	0.2	0.2				10	10	0	0	80	10	0	0	0	0			1	2		15	
	9C	PL	194	19	3686	2.2	3.3	0.2	3	C	35	25	25	20	10	10	10	0	0	0		1	2			5	
	9D	PL	216	18	3888	2.0	4.2	0.4	4	A	30	15	5	0	35	40	5	0	0	0		1	2			0	
	9E	RF	45	5	225	0.3	0.7				15	40	0	0	20	40	0	0	0	0			1	2		15	
	9F	PL	95	11	1045	1.2	2.4	0.3	3	C	40	20	45	0	10	20	5	0	0	0		1				5	
	9G	PL	69	9	621	1.7	3.0	0.2	5	A	5	80	0	0	20	0	0	0	0	0		1				nd	
	9H	RF	24	5	120	0.4	0.4				nd											1				0	
	9I	PL	67	12	804	2.8	4.9	0.4	5	A	60	10	30	20	30	10	0	0	0	0		1				0	
	9J	RN	126	7	882	0.5	0.9				10	0	0	0	0	50	50	0	0	0		1				0	
	9K	PL	275	10	2750	1.4	1.8	0.2	5	A	30	10	10	0	10	60	10	0	0	0		1				0	

Key:

Habitat Unit Type: PL-Pool RU-Run RF-Riffle GL-Glide CS-Casade

Shelter Value: 0) No shelter 1) Simple shelter 2) Moderate shelter 3) Complex shelter

Substrate Type: Two Most Dominant Identified: A) Silt/Clay B) Sand(<0.08") C) Gravel(0.08-2.5") D) Sm Cobble(2.5-5") E) Lq Cobble(5-10") F) Boulder(>10") G) Bedrock

Bank Composition Type: 1) Bedrock 2)Boulder 3) Cobble, Gravel 4) Sand, Silt, Clay

Vegetation Types: 5) Grass 6) Shrubs 7) Deciduous Trees 8) Evergreen Trees 9) No Vegetation

Lagunitas Creek Winter Habitat - Habitat Typing Data
February, July and September 2016

Winter Habitat Site #	Habitat Unit Number	Habitat Unit Type	Canopy			Bank Comp. & Veg.						Survey Date	Comments
			% Total Canopy	% Deciduous Trees	% Evergreen Trees	Rt Bank Composition	Rt Bank Dominant Veg	% Rt Bank Vegetated	Lf Bank Composition	Lf Bank Dominant Veg.	% Left Bank Vegetated		
Site # 3	3A	RF	90	100	0	3	7	90	3	7	80	2/17/2016	BAJ3 is within this unit. Unit starts immediately upstream of the large debris jam in Unit 4B.HOBO stage gage datalogger in unit. Very fast water flowing through this unit and Unit 3A downstream.
	3B	RU	95	100	0	4	7	80	3	7	60	2/17/2016	
	3C	RU	80	80	20	3	7	60	4	8	70	2/17/2016	
Site # 4	4A	PL	80	100	0	4	7	95	4	7	95	2/17/2016	LRJ4 is within this unit, very long pool, 120m upstream from the end/start of the pool. HOBO stage gage datalogger in unit. Large debris jam covers the upper part of this pool.
	4B	PL	70	100	0	3	7	80	3	7	80	2/17/2016	
Site # 5	5A	RU	85	100	0	4	7	95	4	7	90	2/17/2016	Starts at mouth of McIsaac Creek trib. "Good" spawning w/multiple redds at the downstream end of this unit. LRJ5 is within this unit. The "good" spawning area is 150 ft (46 m) downstream, at downstream end of Unit 5A. Steelhead redd #LGT-7 is at the downstream end of this unit. HOBO stage gage datalogger in this unit.
	5B	RF/RU	70	80	20	4	7	90	4	7	80	2/17/2016	
	5C	GL	40	80	20	4	7	100	4	7	90	2/17/2016	
Site # 6	6A	PL	60	100	0	4	7	100	4	7	100	2/17/2016	Starts 52 meters downstream of diversion outfall, 75 meters downstream of BAJ6. Steelhead redd on left side, left of bedrock; adult SH observed. BAJ6 is upstream of unit 6E; BAJ structure is in unit 6F. HOBO stage gage datalogger in this unit.
	6B	PL	90	100	0	4	7	90	3	7	70	2/17/2016	
	6C	PL	90	100	0	4	6	80	3	6	80	2/17/2016	
	6D	RU	50	100	0	4	7	70	4	5	95	2/17/2016	
	6E	RF	80	100	0	4	7	80	4	7	90	2/17/2016	
	6F	PL	60	100	0	4	7	100	3	7	70	2/17/2016	
	6G	RU/GL	80	100	0	4	7	90	4	7	80	2/17/2016	
Site # 7	242	PL	88	100	0	4	7	95	4	7	95	7/5/2016	Site 7 Downstream Limit Fern Rock Site 7 LDRJ4 within unit
	243	PL	75	100	0	4	7	100	4	7	90	7/5/2016	
	244	PL	82	100	0	4	7	90	4	7	100	7/5/2016	
	245	PL	90	100	0	4	7	100	4	5	100	7/5/2016	
	246	RU										7/5/2016	
	247	PL	78	100	0	4	7	90	4	7	85	7/7/2016	
	248	PL	98	100	0	4	7	85	4	7	90	7/7/2016	
	249	RU	91	10	90	4	7	100	4	5	60	7/7/2016	
	250	PL	97	100	0	4	7	100	4	6	95	7/7/2016	
	251	PL	94	100	0	4	7	100	3	5	90	7/7/2016	
	252	PL	84	100	0	4	7	95	4	7	100	7/7/2016	
Site # 8	222	RU										7/5/2016	Site 8 Downstream Limit; Juv. LG-2, lumped pool & run Site 8 Upstream Limit; access in unit; long and obstructed Site 8 Upstream Limit is downstream of this unit
	223	PL	94	100	0	3	7	80	4	7	95	7/5/2016	
	224	RF	85	100	0	4	7	95	3	7	95	7/5/2016	
	225	PL	86	100	0	3	7	90	4	7	100	7/5/2016	
	226	PL	76	100	0	4	7	95	4	7	95	7/5/2016	
	227	GL	86	100	0	4	7	90	4	7	85	7/5/2016	
Site # 9	9A	PL	80	100		3	7	100	3	7	100	9/29/2016	Pool downstream of temporary crossing (9B) Site 9 Downstream Limit; temporary stream crossing Large debris jam across channel in lower end of pool Deepest hole at u/s end of this unit Olema Cr. "old channel" enters this pool Habitat unit ends at headcut Site 9 Upstream Limit; ends at headcut
	9B	RF	30	100		3	5	80	3	7	30	9/29/2016	
	9C	PL	100	100		4	5	100	4	5	100	9/29/2016	
	9D	PL	100	100		4	5	100	4	5	100	9/29/2016	
	9E	RF	90	100		4	6	100	3	5	30	9/29/2016	
	9F	PL	80	100		4	5	90	4	7	70	9/29/2016	
	9G	PL	90	100		4	5	100	4	5	100	9/29/2016	
	9H	RF	100	100		4	5	100	4	5	100	9/29/2016	
	9I	PL	100	100		4	5	100	4	5	100	9/29/2016	
	9J	RN	100	100		4	5	100	4	5	100	9/29/2016	
	9K	PL	100	100		4	5	100	4	5	100	9/29/2016	

Key:

Habitat Unit Type: PL-Pool RU-Run RF-Riffle GL- Glide CS -Casade

Shelter Value: 0) No shelter 1) Simple shelter 2) Moderate shelter 3) Complex shelter

Substrate Type: Two Most Dominant Identified: A) Silt/Clay B) Sand(<0.08") C) Gravel(0.08-2.5") D) Sm Cobble(2.5-5") E) Lq Cobble(5-10") F) Boulder(>10") G) Bedrock

Bank Composition Type: 1) Bedrock 2)Boulder 3) Cobble, Gravel 4) Sand, Silt, Clay

Vegetation Types: 5) Grass 6) Shrubs 7) Deciduous Trees 8) Evergreen Trees 9) No Vegetation

APPENDIX F

Botanical Reports

HI-168 Lagunitas Creek Winter Habitat
Enhancement Implementation – Phase I

Marin County, CA

Final Report

December 5, 2015
Prepared by Jennifer Kalt
for the California Department of Fish and Wildlife

Location: Inverness USGS 7.5 minute Quadrangle,
T3N, R8W, Unsectioned

Project Applicant: Marin Municipal Water District

Botanical Surveyor: Jennifer Kalt, M.A.

Survey Date: May 12, 2015

Field Person Hours: 3 hours

Prepared by:
Jennifer Kalt
Cultural Resources Facility
Humboldt State University Sponsored Programs Foundation
P.O. Box 1185
Arcata, CA 95518

Prepared for:
Scott Monday
The California Department of Fish and Wildlife
1455 Sandy Prairie Ct. #J
Fortuna, CA 95540

INTRODUCTION

This report was prepared to assess potential impacts to botanical resources from implementation of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, under the direction of the California Department of Fish and Wildlife (CDFW).

As part of the environmental review process, the California Environmental Quality Act (CEQA) requires that project proponents implement procedures to inventory botanical resources and to assess potential impacts to these resources located within projects conducted, funded, or permitted by State Agencies. Under CEQA, the Department completed a Mitigated Negative Declaration (MND) for all 2015 FRGP projects and determined that the projects would not result in negative effects if mitigation measures to identify and avoid botanical resources are met prior to project implementation (CDFW 2015).

In order to meet CEQA requirements, an assessment for potential presence of sensitive plant species or sensitive plant communities was conducted to determine whether the proposed project would have significant negative impacts on any sensitive plants or plant communities in the project area. Sensitive plants are rare, threatened or endangered species as defined by the Federal and California Endangered Species Acts, as well as non-listed species that require consideration under 14 Cal. Code Reg. §15380. Sensitive plant communities are considered a high priority for inventory due to their rarity status as defined by the CDFW.

ENVIRONMENTAL SETTING

The project area is located in the Lagunitas Creek watershed, a tributary to the Pacific Ocean, located in Marin County, California (see Appendix A for botanical survey route map of the project area). The proposed project will improve winter habitat and refuge for coho, and increase the winter habitat carrying capacity for salmonids in Lagunitas Creek, by constructing habitat enhancement work at five sites. The project area is at an elevation of approximately 100 to 300 feet above sea level, and is located in a riparian area within a landscape dominated by vegetation of the redwood series (Sawyer and Keeler-Wolf 1995). Dominant trees are box elder, bigleaf maple, and red alder.

METHODS

Prior to field surveys, a list of the sensitive plant species and habitats with recorded occurrences in the assessment area was compiled by consulting the California Natural Diversity Database (CDFW 2001) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001, 2015). The assessment area was defined as the USGS 7.5' quadrangle in which the project is located (Inverness Quad), as well as the

adjacent quadrangles (Tomales, Point Reyes NE, Petaluma, San Geronimo, Bolinas, Double Point, Drakes Bay). The most up-to-date CNDDB Quick Viewer (2015) and CNPS Inventory (2015) were used to query known occurrences of California Rare Plant Rank (CRPR) List 1 and 2 species within the assessment area. The CNPS Inventory was also queried for CRPR List 3 and 4 species known to occur within the county, although those species lists are not presented here. The queries yielded 84 sensitive species previously documented in the assessment area (Table 1). Six sensitive plant communities are documented from this assessment area (Table 2). Though suitable habitat for some of the species in the scoping list was not present within the project area, the complete scoping list is present in Table 1.

Table 1. Lagunitas Creek Assessment Area: Predicted Sensitive Plant Species and California Rare Plant Rankings.

Scientific Name	Common Name	CRPR
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	List 1B.1
<i>Agrostis blasdalei</i>	Blasdale's bent grass	List 1B.2
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	List 1B.2
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	List 1B.1
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	List 1B.2
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	List 1B.2
<i>Arctostaphylos montana</i> ssp. <i>montana</i>	Mt. Tamalpais manzanita	List 1B.3
<i>Arctostaphylos virgata</i>	Marin manzanita	List 1B.2
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	List 1B.2
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	List 1B.2
<i>Blennosperma nanum</i> var. <i>robustum</i>	Point Reyes blennosperma	List 1B.2
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	List 2B.1
<i>California macrophylla</i>	round-leaved filaree	List 1B.1
<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	coastal bluff morning-glory	List 1B.2
<i>Campanula californica</i>	swamp harebell	List 1B.2
<i>Cardamine angulata</i>	seaside bittercress	List 2B.1
<i>Carex leptalea</i>	bristle-stalked sedge	List 2B.2
<i>Carex lyngbyei</i>	Lyngbye's sedge	List 2B.2
<i>Castilleja affinis</i> var. <i>neglecta</i>	Tiburon paintbrush	List 1B.2
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	List 1B.2
<i>Castilleja leschkeana</i>	Point Reyes paintbrush	List 1A
<i>Ceanothus gloriosus</i> var. <i>porrectus</i>	Mt. Vision ceanothus	List 1B.3
<i>Ceanothus masonii</i>	Mason's ceanothus	List 1B.2
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes bird's-beak	List 1B.2
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	San Francisco Bay spineflower	List 1B.2
<i>Chorizanthe cuspidata</i> var. <i>villosa</i>	woolly-headed spineflower	List 1B.2
<i>Chorizanthe robusta</i> var. <i>robusta</i>	robust spineflower	List 1B.1
<i>Chorizanthe valida</i>	Sonoma spineflower	List 1B.1
<i>Cicuta maculata</i> var. <i>bolanderi</i>	Bolander's water-hemlock	List 2B.1

<i>Cirsium andrewsii</i>	Franciscan thistle	List 1B.2
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	Mt. Tamalpais thistle	List 1B.2
<i>Clarkia concinna</i> ssp. <i>raichei</i>	Raiche's red ribbons	List 1B.1
<i>Collinsia corymbosa</i>	round-headed Chinese-houses	List 1B.2
<i>Delphinium bakeri</i>	Baker's larkspur	List 1B.1
<i>Delphinium luteum</i>	golden larkspur	List 1B.1
<i>Dirca occidentalis</i>	western leatherwood	List 1B.2
<i>Entosthodon kochii</i>	Koch's cord moss	List 1B.3
<i>Erigeron supplex</i>	supple daisy	List 1B.2
<i>Eriogonum luteolum</i> var. <i>caninum</i>	Tiburon buckwheat	List 1B.2
<i>Erysimum concinnum</i>	bluff wallflower	List 1B.2
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Marin checker lily	List 1B.1
<i>Fritillaria liliacea</i>	fragrant fritillary	List 1B.2
<i>Gilia capitata</i> ssp. <i>chamissonis</i>	blue coast gilia	List 1B.1
<i>Gilia capitata</i> ssp. <i>tomentosa</i>	woolly-headed gilia	List 1B.1
<i>Gilia millefoliata</i>	dark-eyed gilia	List 1B.2
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant	List 1B.2
<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	List 1B.2
<i>Hesperolinon congestum</i>	Marin western flax	List 1B.1
<i>Heteranthera dubia</i>	water star-grass	List 2B.2
<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's horkelia	List 1B.1
<i>Horkelia marinensis</i>	Point Reyes horkelia	List 1B.2
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	List 1B.2
<i>Kopsiopsis hookeri</i>	small groundcone	List 2B.3
<i>Lasthenia californica</i> ssp. <i>bakeri</i>	Baker's goldfields	List 1B.2
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	List 1B.2
<i>Layia carnosa</i>	beach layia	List 1B.1
<i>Leptosiphon croceus</i>	coast yellow leptosiphon	List 1B.1
<i>Leptosiphon rosaceus</i>	rose leptosiphon	List 1B.1
<i>Lessingia micradenia</i> var. <i>micradenia</i>	Tamalpais lessingia	List 1B.2
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	List 1B.1
<i>Lilium maritimum</i>	coast lily	List 1B.1
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily	List 1B.1
<i>Limnanthes douglasii</i> ssp. <i>sulphurea</i>	Point Reyes meadowfoam	List 1B.2
<i>Lupinus tidestromii</i>	Tidestrom's lupine	List 1B.1
<i>Microseris paludosa</i>	marsh microseris	List 1B.2
<i>Mielichhoferia elongata</i>	elongate copper moss	List 2B.2
<i>Monardella sinuata</i> ssp. <i>nigrescens</i>	northern curly-leaved monardella	List 1B.2
<i>Navarretia rosulata</i>	Marin County navarretia	List 1B.2
<i>Phacelia insularis</i> var. <i>continentis</i>	North Coast phacelia	List 1B.2
<i>Piperia elegans</i> ssp. <i>decurtata</i>	Point Reyes rein orchid	List 1B.1
<i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Petaluma popcorn-flower	List 1A
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	List 1B.1
<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	Tamalpais oak	List 1B.3
<i>Rhynchospora californica</i>	California beaked-rush	List 1B.1
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Point Reyes checkerbloom	List 1B.2

<i>Sidalcea hickmanii</i> ssp. <i>viridis</i>	Marin checkerbloom	List 1B.3
<i>Sidalcea malviflora</i> ssp. <i>purpurea</i>	purple-stemmed checkerbloom	List 1B.2
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	List 1B.2
<i>Streptanthus batrachopus</i>	Tamalpais jewel-flower	List 1B.3
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	Mt. Tamalpais bristly jewel-flower	List 1B.2
<i>Thamnia vermicularis</i>	whiteworm lichen	List 2B.1
<i>Trifolium amoenum</i>	two-fork clover	List 1B.1
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	List 1B.2
<i>Triquetrella californica</i>	coastal triquetrella	List 1B.2

Table 2. Lagunitas Creek Assessment Area: Sensitive Plant Communities.

Monterey Pine Forest
Northern Coastal Salt Marsh
Northern Interior Cypress Forest
Serpentine Bunchgrass
Valley Needlegrass Grassland
Valley Oak Woodland

The primary sources for information on the status of sensitive plant species and plant communities are the California Native Plant Society and the California Natural Diversity Database (CNDDDB). The CNPS Inventory of Rare and Endangered Plants of California is a comprehensive list with five categories that are summarized below.

Plants on lists 1A, 1B and 2 are considered sensitive species as described in the California Environmental Quality Act (14 Cal. Code Reg. §15380) and are therefore the focus of this report.

- 1A: Plants presumed extinct in California
- 1B: Plants rare, threatened, or endangered in California and elsewhere
- 2A: Plants presumed extirpated in California, but common elsewhere
- 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
- 3: Plants about which we need more information - a review list
- 4: Plants of limited distribution – a watch list

A Threat Code extension follows the California Rare Plant Rank (e.g. 1B.1, 2.2 etc.) such that the lower the number, the higher the corresponding threat level:

- .1 - Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

CDFW has a similar list of Special Vascular Plants, Bryophytes, and Lichens published by the California Natural Diversity Database (CNDDDB). The Special Plants List includes the CNPS Inventory, as well as species considered sensitive by other governmental agencies (e.g., Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Forest Service). In addition, CNDDDB recognizes certain habitats as sensitive (CDFW 2001).

In keeping with guidelines established by both CNPS (CNPS 2001) and CDFW (CDFW 2000), field surveys were floristic in nature. A field visit is typically planned to coincide with the blooming periods of sensitive species known from the assessment area. All plants encountered during the surveys were identified to the taxonomic level necessary to determine whether or not they are sensitive. Taxonomy follows the Jepson Manual (Baldwin et al. 2012). The entire project area, including a 25-foot area adjacent to the streambank and road prism, was thoroughly surveyed to identify all plant species present.

Jennifer Kalt conducted the pre-field scoping, field surveys, and plant identification. Kalt is a professional botanist with a Bachelor of Science degree in Botany and a Master of Arts degree in Biology from Humboldt State University, with more than fifteen years of experience conducting sensitive plants surveys in northern California. The survey was conducted on May 12, 2015, with 3 field-person hours spent surveying the project area.

SPECIES LIST

The following species were observed within the project site. All plants were identified to the most specific taxonomic level necessary to determine presence of sensitive species.

Scientific Name	Common Name
Trees	
<i>Acer macrophyllum</i>	bigleaf maple
<i>Acer negundo</i> var. <i>californica</i>	box elder
<i>Aesculus californica</i>	California buckeye
<i>Alnus rubra</i>	red alder
<i>Fraxinus latifolia</i>	Oregon ash
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas-fir
<i>Quercus agrifolia</i>	coast live oak
<i>Salix</i> sp.	willow
<i>Sequoia sempervirens</i>	coast redwood
<i>Umbellularia californica</i>	California-bay
Shrubs	
<i>Baccharis pilularis</i>	coyote brush

<i>Clematis ligusticifolia</i>	Virgin's bower
<i>Corylus cornuta</i> ssp. <i>californica</i>	California hazelnut
<i>Frangula purshiana</i>	cascara
<i>Genista monspessulana</i>	French broom
<i>Holodiscus discolor</i>	ocean spray
<i>Lonicera involucrata</i>	twinberry
<i>Oemleria cerasiformis</i>	osoberry
<i>Prunus</i> sp.	plum or cherry
<i>Ribes</i> sp.	gooseberry
<i>Rosa</i> sp.	rose
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rubus parviflorus</i>	thimbleberry
<i>Rubus ursinus</i>	California blackberry
<i>Salix</i> sp.	willow
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	common snowberry

Herbs

<i>Allium triquetrum</i>	escaped ornamental onion
<i>Anagallis arvensis</i>	scarlet pimpernel
<i>Aquilegia formosa</i>	crimson columbine
<i>Aristolochia californica</i>	pipevine
<i>Artemisia douglasiana</i>	mugwort
<i>Athyrium filix-femina</i>	lady fern
<i>Avena</i> sp.	wild oat
<i>Brassica nigra</i>	black mustard
<i>Briza maxima</i>	large quaking or rattlesnake grass
<i>Bromus carinatus</i>	California brome
<i>Bromus hordeaceus</i>	soft chess
<i>Bromus inermis</i>	awnless brome
<i>Bromus madritensis</i>	foxtail chess
<i>Bromus</i> sp.	brome grass
<i>Cardamine californica</i>	California toothwort or milk maids
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carex leptopoda</i>	short-scaled sedge
<i>Carex obnupta</i>	slough sedge
<i>Carex</i> sp.	sedge
<i>Cicuta douglasii</i>	water hemlock
<i>Cirsium</i> sp.	thistle
<i>Cirsium vulgare</i>	bull thistle

<i>Claytonia perfoliata</i>	miner's lettuce
<i>Conium maculatum</i>	poison hemlock
<i>Convolvulus arvensis</i>	field bindweed
<i>Cyperus</i> sp.	nut-sedge
<i>Dactylis glomerata</i>	orchard grass
<i>Dipsacus sativus</i>	Fuller's teasel
<i>Dryopteris arguta</i>	coastal wood fern
<i>Elymus glaucus</i>	blue wildrye
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	purple-leaved willowherb
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail
<i>Eschscholzia californica</i>	California poppy
<i>Euphorbia</i> sp.	spurge
<i>Festuca perennis</i>	perennial ryegrass
<i>Festuca</i> sp.	fescue
<i>Foeniculum vulgare</i>	fennel
<i>Fragaria vesca</i>	wood strawberry
<i>Galium aparine</i>	goose grass
<i>Geranium dissectum</i>	cut-leaved geranium
<i>Hedera helix</i>	English ivy
<i>Heracleum maximum</i>	cow parsnip
<i>Hirschfeldia incana</i>	Mediterranean mustard
<i>Holcus lanatus</i>	common velvet grass
<i>Hordeum jubatum</i>	foxtail barley
<i>Hypochaeris radicata</i>	hairy cat's-ear
<i>Iris</i> sp.	iris
<i>Juncus effusus</i>	common rush
<i>Juncus patens</i>	spreading rush
<i>Lapsana communis</i>	nipplewort
<i>Lathyrus</i> sp.	wild pea
<i>Lonicera hispidula</i> var. <i>vacillans</i>	hairy honeysuckle
<i>Maianthemum stellata</i>	star Solomon's seal
<i>Marah</i> sp.	wild cucumber
<i>Melissa officinalis</i>	lemon balm
<i>Mentha pulegium</i>	pennyroyal
<i>Myosotis latifolia</i>	forget-me-not
<i>Nemophila parviflora</i>	small-flowered nemophila
<i>Oenanthe sarmentosa</i>	Pacific water-parsley
<i>Osmorhiza berteroi</i>	mountain sweet-cicely
<i>Persicaria maculosa</i>	lady's thumb
<i>Phleum pratense</i>	cultivated timothy grass

<i>Plantago lanceolata</i>	English plantain
<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Polypodium</i> sp.	polypody
<i>Polystichum munitum</i>	sword fern
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern
<i>Raphanus sativus</i>	wild radish
<i>Rumex</i> sp.	dock
<i>Sanicula crassicaulis</i>	Pacific snakeroot
<i>Saxifraga mertensiana</i>	Merten's saxifrage
<i>Scirpus microcarpus</i>	small-flowered bulrush
<i>Scrophularia californica</i>	coast figwort
<i>Solanum</i> sp.	nightshade
<i>Stachys ajugoides</i> var. <i>rigida</i>	hedge nettle
<i>Torilis arvensis</i>	rattlesnake weed
<i>Trientalis latifolia</i>	Pacific star flower
<i>Trifolium dubium</i>	little hop clover
<i>Trillium ovatum</i>	western trillium
<i>Urtica dioica</i>	stinging nettle
<i>Veronica</i> sp.	veronica
<i>Vicia</i> sp.	vetch
<i>Vinca major</i>	greater periwinkle
<i>Woodwardia fimbriata</i>	giant chain fern

RESULTS

No sensitive species or plant communities were encountered during the field surveys of the project area.

RECOMMENDATIONS

Results of the botanical survey indicate that negative impacts to sensitive species or sensitive plant communities will not occur as a result of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I. Since no sensitive species or sensitive plant communities were found within the project area, no further botanical surveys are recommended before ground-disturbing activities commence.

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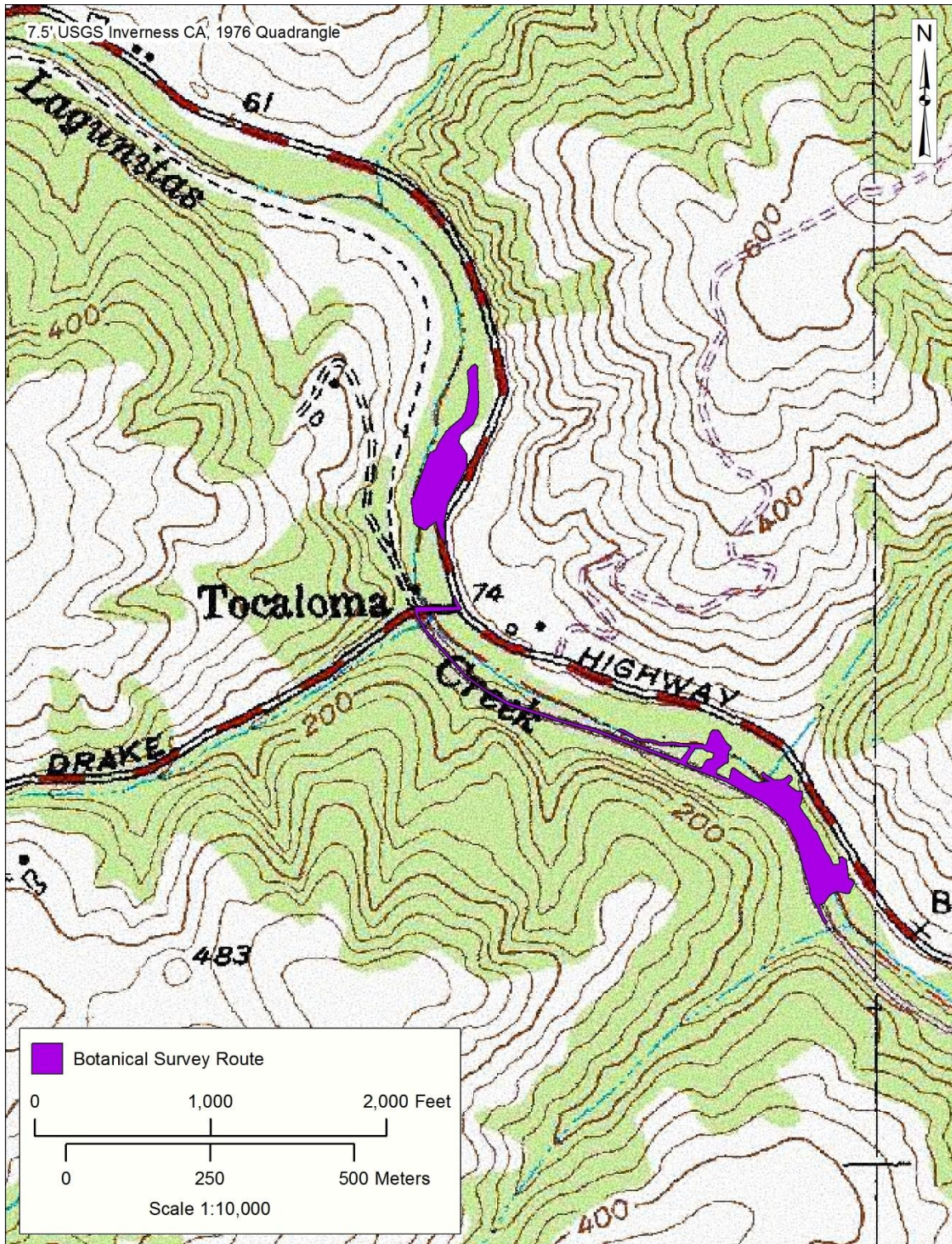
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Appendix A. Botanical Survey Route Map of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I.



Special Status Plants – Botanical Survey Results

LAGUNITAS CREEK WINTER HABITAT ENHANCEMENT IMPLEMENTATION - PHASE II PROJECT

MARIN COUNTY, CA



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1.0 INTRODUCTION

This report presents the results of botanical surveys for Special Status plant species and natural communities conducted for the Marin Municipal Water District's Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II Project in Marin County, California. The purpose of the surveys was to identify Special Status plants and natural communities that could be impacted by instream habitat enhancement project implementation in Lagunitas Creek.

The project will improve winter habitat and refuge for coho, and increase the winter habitat carrying capacity for salmonids in Lagunitas Creek, by constructing habitat enhancement work at five sites. The project area is at an elevation of approximately 100 to 300 feet above sea level, and is located in a riparian area within a landscape dominated by vegetation of the redwood series (Sawyer and Keeler-Wolf 1995).

As part of the environmental review process, the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) requires that project proponents implement procedures to inventory botanical resources and to assess potential impacts to these resources located within projects conducted, funded, or permitted by state and federal agencies or on lands managed by such agencies.

No Special Status plants or natural communities were encountered within the project area. Results of the botanical survey indicate that negative impacts to sensitive listed or non-listed species or sensitive habitats will not occur as a result of the Lagunitas Creek Salmonid Winter Habitat Enhancement Phase II Project. Since no sensitive species or sensitive habitats were found within the project area, no further botanical surveys are recommended before project-related activities commence.

2.0 SPECIAL STATUS PLANT AND NATURAL COMMUNITY DEFINITIONS

Special Status plants are rare, threatened or endangered species as defined by the Federal and California Endangered Species Acts, as well as non-listed species that require consideration under 14 Cal. Code Reg. §15380.

Special Status plants include species that meet one or more of the following criteria:

- Plants listed or proposed for listing as threatened or endangered under the federal Endangered Species Act or California Endangered Species Act.
- Plants on the California Rare Plant Ranking (CRPR) Lists 1A, 1B, and 2.

The primary sources for information on the status of sensitive plant species and plant communities are the California Native Plant Society and the California

Natural Diversity Database (CNDDDB). The CNPS Inventory of Rare and Endangered Plants of California is a comprehensive list with five categories that are summarized below.

Plants on lists 1A, 1B, 2A, and 2B are considered sensitive species as described in the California Environmental Quality Act (14 Cal. Code Reg. §15380) and are therefore the focus of this report.

- 1A: Plants presumed extinct in California
- 1B: Plants rare, threatened, or endangered in California and elsewhere
- 2A: Plants presumed extirpated in California, but common elsewhere
- 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
- 3: Plants about which we need more information - a review list
- 4: Plants of limited distribution – a watch list

A Threat Code extension follows the California Rare Plant Rank (e.g. 1B.1, 2.2 etc.) such that the lower the number, the higher the corresponding threat level:

- .1 - Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

CDFW has a similar list of Special Vascular Plants, Bryophytes, and Lichens published by the California Natural Diversity Database (CNDDDB). The Special Plants List includes the CNPS Inventory, as well as species considered sensitive by other governmental agencies (e.g., Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Forest Service). In addition, CNDDDB recognizes certain habitats as sensitive (CDFW 2001).

Special Status natural communities are communities with limited distribution that may be vulnerable to environmental impacts. The Global (G) and State (S) rarity rankings for currently recognized vegetation alliances are provided on the most recent DFW *Natural Communities List* (DFG 2015).

3.0 ENVIRONMENTAL SETTING

3.1. Project Location

The project area is located in the Lagunitas Creek watershed, a tributary to Tomales Bay and the Pacific Ocean, located in Marin County, California (see Appendix A for botanical survey route map of the project area). The project area is at an elevation of approximately 100 to 300 feet above sea level, and is located in a riparian area within a landscape dominated by vegetation of the redwood series (Sawyer and Keeler-Wolf 1995).

3.2. Vegetation

The majority of the study area is within riparian habitat along Lagunitas Creek. The canopy is generally dominated by red alder (*Alnus rubra*), box elder (*Acer negundo*), and willows (*Salix* spp.). Common understory plants include California blackberry (*Rubus ursinus*), singing nettle (*Urtica dioica*), and mugwort (*Artemesia douglasiana*). Upland areas within and adjacent to the study include redwood (*Sequoia sempervirens*) forest, grasslands, and areas dominated by coast live oak (*Quercus agrifolia*) and California bay (*Umbellularia californica*). There are also several eucalyptus (*Eucalyptus* sp.) trees at the Cross Marin Trail culvert site known as Eucalyptus, or CM47 or Site 115.

4.0 METHODS

4.1. Scoping

In order to meet CEQA requirements, an assessment for potential presence of sensitive plant species or sensitive plant communities was conducted to determine whether the proposed project would have significant negative impacts on any sensitive plants or plant communities in the project area. Sensitive plants are rare, threatened or endangered species as defined by the Federal and California Endangered Species Acts, as well as non-listed species that require consideration under 14 Cal. Code Reg. §15380. Sensitive plant communities are considered a high priority for inventory due to their rarity status as defined by the California Department of Fish & Wildlife (CDFW).

Prior to field surveys, a list of the sensitive plant species and habitats with recorded occurrences in the assessment area was compiled by consulting the California Natural Diversity Database (CDFW 2001) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001, 2015). The assessment area was defined as the USGS 7.5' quadrangle in which the project is located (Inverness Quad), as well as the adjacent quadrangles (Tomales, Point Reyes NE, Petaluma, San Geronimo, Bolinas, Double Point, Drakes Bay). The most up-to-date CNDDB Quick Viewer (2015) and CNPS Inventory (2015) were used to query known occurrences of California Rare Plant Rank (CRPR) List 1 and 2 species within the assessment area. The CNPS Inventory was also queried for CRPR List 3 and 4 species known to occur within the county, although those species lists are not presented here. The queries yielded 84 sensitive species previously documented in the assessment area (Table 1). Six sensitive plant communities are documented from this assessment area (Table 2). Though suitable habitat for some of the species in the scoping list was not present within the project area, the complete scoping list is presented in Table 1.

Table 1. Lagunitas Creek Assessment Area: Predicted Sensitive Plant Species and California Rare Plant Rankings.

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	List 1B.1	Jun-Oct	Coastal dunes	Low
<i>Agrostis blasdalei</i>	Blasdale's bent grass	List 1B.2	May-Jul	Coastal bluff scrub, Coastal dunes, Coastal prairie	Low
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	List 1B.2	(Apr), May-Jun	Cismontane woodland, Valley and foothill grassland/clay, volcanic, often serpentinite	Low
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	List 1B.1	May-Jul	Marshes and swamps (freshwater), Riparian scrub	Moderate
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	List 1B.2	Apr-Jul	Broadleafed upland forest(openings), Chaparral, Cismontane woodland	Low
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	List 1B.2	Mar-Jun	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland	Low
<i>Arctostaphylos montana</i> ssp. <i>montana</i>	Mt. Tamalpais manzanita	List 1B.3	Feb-Apr	Chaparral, Valley and foothill grassland/serpentinite, rocky	Low
<i>Arctostaphylos virgata</i>	Marin manzanita	List 1B.2	Jan-Mar	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, North Coast coniferous forest/sandstone or granitic	Low
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	List 1B.2	Apr-Oct	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	Low to Moderate
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	List 1B.2	Mar-Jun	Playas, Valley and foothill grassland (adobe clay), Vernal pools/alkaline	Low
<i>Blennosperma nanum</i> var. <i>robustum</i>	Point Reyes blennosperma	List 1B.2	Feb-Apr	Coastal prairie, Coastal scrub	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	List 2B.1	May-Aug	Coastal scrub (mesic), Marshes and swamps (freshwater)	Low to Moderate
<i>California macrophylla</i>	round-leaved filaree	List 1B.2	Mar-May	Cismontane woodland, Valley and foothill grassland/clay	Low
<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	coastal bluff morning-glory	List 1B.2	(Mar), Apr-Sep	Coastal bluff scrub, Coastal dunes, Coastal scrub, North Coast coniferous forest	Low
<i>Campanula californica</i>	swamp harebell	List 1B.2	Jun-Oct	Bogs and fens, Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Marshes and swamps (freshwater), North Coast coniferous forest/mesic	Low to Moderate
<i>Cardamine angulata</i>	seaside bittercress	List 2B.1	(Jan), Mar-Jul	Lower montane coniferous forest, North Coast coniferous forest/Wet areas, streambanks	Moderate
<i>Carex leptalea</i>	bristle-stalked sedge	List 2B.2	Mar-Jul	Bogs and fens, Meadows and seeps (mesic), Marshes and swamps	Moderate
<i>Carex lyngbyei</i>	Lyngbye's sedge	List 2B.2	Apr-Aug	Marshes and swamps (brackish or freshwater)	Low to Moderate
<i>Castilleja affinis</i> var. <i>neglecta</i>	Tiburon paintbrush	List 1B.2	Apr-Jun	Valley and foothill grassland (serpentinite)	Low
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	List 1B.2	Apr-Aug	Marshes and swamps (coastal salt)	Low
<i>Castilleja leschkeana</i>	Point Reyes paintbrush	List 1A	Jun	Marshes and swamps (coastal)	Low
<i>Ceanothus gloriosus</i> var. <i>porrectus</i>	Mt. Vision ceanothus	List 1B.3	Feb-May	Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Valley and foothill grassland	Low
<i>Ceanothus masonii</i>	Mason's ceanothus	List 1B.2	Mar-Apr	Chaparral (openings, rocky, serpentinite)	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Chloropyron maritimum ssp. palustre</i>	Point Reyes bird's-beak	List 1B.2	Jun-Oct	Marshes and swamps (coastal salt)	Low
<i>Chorizanthe cuspidata var. cuspidata</i>	San Francisco Bay spineflower	List 1B.2	Apr-Jul(Aug)	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub/sandy	Low
<i>Chorizanthe cuspidata var. villosa</i>	woolly-headed spineflower	List 1B.2	May-Jul(Aug)	Coastal dunes, Coastal prairie, Coastal scrub/sandy	Low
<i>Chorizanthe robusta var. robusta</i>	robust spineflower	List 1B.1	Apr-Sep	Chaparral (maritime), Cismontane woodland (openings), Coastal dunes, Coastal scrub/sandy or gravelly	Low
<i>Chorizanthe valida</i>	Sonoma spineflower	List 1B.1	Jun-Aug	Coastal prairie (sandy)	Low
<i>Cicuta maculata var. bolanderi</i>	Bolander's water-hemlock	List 2B.1	Jul-Sep	Marshes and swamps/Coastal, fresh or brackish water	Low to Moderate
<i>Cirsium andrewsii</i>	Franciscan thistle	List 1B.2	Mar-Jul	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub/mesic, sometimes serpentinite	Low
<i>Cirsium hydrophilum var. vaseyi</i>	Mt. Tamalpais thistle	List 1B.2	May-Aug	Broadleafed upland forest, Chaparral, Meadows and seeps/serpentinite seeps	Low
<i>Clarkia concinna ssp. raichei</i>	Raiche's red ribbons	List 1B.1	Apr-May	Coastal bluff scrub	Low
<i>Collinsia corymbosa</i>	round-headed Chinese-houses	List 1B.2	Apr-Jun	Coastal dunes	Low
<i>Delphinium bakeri</i>	Baker's larkspur	List 1B.1	Mar-May	Broadleafed upland forest, Coastal scrub, Valley and foothill grassland/decomposed shale, often mesic	Low
<i>Delphinium luteum</i>	golden larkspur	List 1B.1	Mar-May	Chaparral, Coastal prairie, Coastal scrub/rocky	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Dirca occidentalis</i>	western leatherwood	List 1B.2	Jan-Mar(Apr)	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland/mesic	Moderate
<i>Entosthodon kochii</i>	Koch's cord moss	List 1B.3	-	Cismontane woodland (soil)	Low
<i>Erigeron supplex</i>	supple daisy	List 1B.2	May-Jul	Coastal bluff scrub, Coastal prairie	Low
<i>Eriogonum luteolum var. caninum</i>	Tiburon buckwheat	List 1B.2	May-Sep	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland/serpentine, sandy to gravelly	Low
<i>Erysimum concinnum</i>	bluff wallflower	List 1B.2	Feb-Jul	Coastal bluff scrub, Coastal dunes, Coastal prairie	Low
<i>Fritillaria lanceolata var. tristulis</i>	Marin checker lily	List 1B.1	Feb-May	Coastal bluff scrub, Coastal prairie, Coastal scrub	Low
<i>Fritillaria liliacea</i>	fragrant fritillary	List 1B.2	Feb-Apr	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland/Often serpentine	Low
<i>Gilia capitata ssp. chamissonis</i>	blue coast gilia	List 1B.1	Apr-Jul	Coastal dunes, Coastal scrub	Low
<i>Gilia capitata ssp. tomentosa</i>	woolly-headed gilia	List 1B.1	May-Jul	Coastal bluff scrub, Valley and foothill grassland/Serpentine, rocky, outcrops	Low
<i>Gilia millefoliata</i>	dark-eyed gilia	List 1B.2	Apr-Jul	Coastal dunes	Low
<i>Grindelia hirsutula var. maritima</i>	San Francisco gumplant	List 3.2	Jun-Sep	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland/sandy or serpentine	Low
<i>Hemizonia congesta ssp. congesta</i>	congested-headed hayfield tarplant	List 1B.2	Apr-Nov	Valley and foothill grassland/sometimes roadsides	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	List 1B.2	Mar-Jun	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	Low
<i>Hesperolinon congestum</i>	Marin western flax	List 1B.1	Apr-Jul	Chaparral, Valley and foothill grassland/serpentine	Low
<i>Heteranthera dubia</i>	water star-grass	List 2B.2	Jul-Oct	Marshes and swamps (alkaline, still or slow-moving water)/Requires a pH of 7 or higher, usually in slightly eutrophic waters	Low
<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's horkelia	List 1B.1	Apr-Sep	Closed-cone coniferous forest, Chaparral(maritime), Coastal dunes, Coastal scrub/sandy or gravelly, openings	Low
<i>Horkelia marinensis</i>	Point Reyes horkelia	List 1B.2	May-Sep	Coastal dunes, Coastal prairie, Coastal scrub/sandy	Low
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	List 1B.2	May-Jul(Aug),	Broadleafed upland forest, Chaparral, Valley and foothill grassland/mesic openings, sandy	Low
<i>Kopsiopsis hookeri</i>	small groundcone	List 2B.3	Apr-Aug	North Coast coniferous forest	Low
<i>Lasthenia californica</i> ssp. <i>bakeri</i>	Baker's goldfields	List 1B.2	Apr-Oct	Closed-cone coniferous forest (openings), Coastal scrub, Meadows and seeps, Marshes and swamps	Low to Moderate
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	List 1B.2	Jan-Nov	Coastal bluff scrub, Coastal dunes, Coastal scrub	Low
<i>Layia carnosa</i>	beach layia	List 1B.1	Mar-Jul	Coastal dunes, Coastal scrub (sandy)	Low
<i>Leptosiphon croceus</i>	coast yellow leptosiphon	List 1B.1	Apr-May	Coastal bluff scrub, Coastal prairie	Low
<i>Leptosiphon rosaceus</i>	rose leptosiphon	List 1B.1	Apr-Jul	Coastal bluff scrub	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Lessingia micradenia</i> var. <i>micradenia</i>	Tamalpais lessingia	List 1B.2	(Jun),Jul-Oct	Chaparral, Valley and foothill grassland/usually serpentinite, often roadsides	Low
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	List 1B.1	Apr-Nov	Marshes and swamps (brackish or freshwater), Riparian scrub	Moderate
<i>Lilium maritimum</i>	coast lily	List 1B.1	May-Aug	Broadleafed upland forest, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest/sometimes roadside	Moderate
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily	List 1B.1	Jun-Jul	Cismontane woodland, Meadows and seeps, Marshes and swamps (freshwater)/mesic, sandy	Moderate
<i>Limnanthes douglasii</i> ssp. <i>sulphurea</i>	Point Reyes meadowfoam	List 1B.2	Mar-May	Coastal prairie, Meadows and seeps (mesic), Marshes and swamps (freshwater), Vernal pools	Low
<i>Lupinus tidestromii</i>	Tidestrom's lupine	List 1B.1	Apr-Jun	Coastal dunes	Low
<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	List 3.2	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky	Low
<i>Microseris paludosa</i>	marsh microseris	List 1B.2	Apr-Jun(Jul),	Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, Valley and foothill grassland	Low
<i>Monardella sinuata</i> ssp. <i>nigrescens</i>	northern curly-leaved monardella	List 1B.2	(Apr),May-Jul(Aug),(Sep)	Chaparral(SCR Co.), Coastal dunes & scrub, Lower montane coniferous forest (SCR Co.)	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Navarretia rosulata</i>	Marin County navarretia	List 1B.2	May-Jul	Closed-cone coniferous forest, Chaparral/serpentine, rocky	Low
<i>Phacelia insularis</i> var. <i>continentis</i>	North Coast phacelia	List 1B.2	Mar-May	Coastal bluff scrub, Coastal dunes/sandy, sometimes rocky	Low
<i>Piperia elegans</i> ssp. <i>decurtata</i>	Point Reyes rein orchid	List 1B.1	Jul-Oct	Coastal bluff scrub, Coastal prairie	Low
<i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Petaluma popcornflower	List 1A	Jun-Jul	Marshes and swamps (coastal salt), Valley and foothill grassland(mesic)	Low
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	List 1B.1	Apr-Jun	Broadleafed upland forest, Meadows and seeps, North Coast coniferous forest/open areas, mesic	Low
<i>Polygonum marinense</i>	Marin knotweed	List 3.1	(Apr),May-Aug(Oct)	Marshes and swamps (coastal salt or brackish)	Low
<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	Tamalpais oak	List 1B.3	Mar-Apr	Lower montane coniferous forest	Low
<i>Rhynchospora californica</i>	California beaked-rush	List 1B.1	May-Jul	Bogs and fens, Lower montane coniferous forest, Meadows and seeps (seeps), Marshes and swamps (freshwater)	Low to Moderate
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Point Reyes checkerbloom	List 1B.2	Apr-Sep	Marshes and swamps (freshwater, near coast)	Moderate
<i>Sidalcea hickmanii</i> ssp. <i>viridis</i>	Marin checkerbloom	List 1B.3	May-Jun	Chaparral (serpentine)	Low
<i>Sidalcea malviflora</i> ssp. <i>purpurea</i>	purple-stemmed checkerbloom	List 1B.2	May-Jun	Broadleafed upland forest, Coastal prairie	Low
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	List 1B.2	Apr-May	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland/open areas, sometimes serpentine	Low

Scientific Name	Common Name	CRPR	Blooming Time	Habitat	Potential to Occur in Project Area
<i>Streptanthus batrachopus</i>	Tamalpais jewelflower	List 1B.3	Apr-Jul	Closed-cone coniferous forest, Chaparral/serpentine	Low
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	Mt. Tamalpais bristly jewelflower	List 1B.2	May-Jul(Aug),	Chaparral, Valley and foothill grassland/serpentine	Low
<i>Thamnolia vermicularis</i>	whiteworm lichen	List 2B.1	-	Chaparral, Valley and foothill grassland/On rocks derived from sandstone	Low
<i>Trifolium amoenum</i>	two-fork clover	List 1B.1	Apr-Jun	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentine)	Low
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	List 1B.2	Apr-Jun	Coastal prairie, Coastal scrub, Valley and foothill grassland/usually serpentine	Low
<i>Triquetrella californica</i>	coastal triquetrella	List 1B.2	-	Coastal bluff scrub, Coastal scrub/soil	Low

Table 2. Lagunitas Creek Assessment Area: Sensitive Plant Communities.

Monterey Pine Forest
Northern Coastal Salt Marsh
Northern Interior Cypress Forest
Serpentine Bunchgrass
Valley Needlegrass Grassland
Valley Oak Woodland

4.2. Special Status Plant Surveys

In keeping with guidelines established by both CNPS (CNPS 2001) and CDFW (CDFW 2000), field surveys were floristic in nature. A field visit is typically planned to coincide with the blooming periods of sensitive species known from the assessment area. The timing of the field survey was during the blooming period for all sensitive species with suitable habitat in the project area with the exception of western leatherwood (*Dirca occidentalis*), an evergreen shrub that is identifiable in the absence of flowers. Many of the sensitive species included in the scoping list (see Table 1) have low potential to occur within the project area since suitable habitat is not present (e.g. Coastal salt marsh, coastal dunes, etc.).

All plants encountered during the surveys were identified to the taxonomic level necessary to determine whether or not they are sensitive. Taxonomy follows the Jepson Manual (Baldwin et al. 2012). The entire project area, including a 25-foot area adjacent to the streambank and road prism, was thoroughly surveyed to identify all plant species present.

Jennifer Kalt conducted the pre-field scoping, field surveys, and plant identification. Kalt is a professional botanist with a Bachelor of Science degree in Botany and a Master of Arts degree in Biology from Humboldt State University, with more than fifteen years of experience conducting sensitive plants surveys in northern California. The survey was conducted on July 9, 2015, with 1.5 field-person hours spent surveying the project area.

5.0 RESULTS

5.1. Special Status Plants

No Special Status plants were encountered in the project area. A list of all plant species encountered is provided in Appendix B.

5.2. Special Status Natural Communities

No special status natural communities were encountered in the project area.

6.0 RECOMMENDATIONS

No Special Status plants or natural communities were encountered within the project area. Results of the botanical survey indicate that negative impacts to sensitive species or sensitive habitats will not occur as a result of the Lagunitas Creek Salmonid Winter Habitat Enhancement Project. Since no sensitive species or sensitive habitats were found within the project area, no further botanical surveys are recommended before project-related activities commence.

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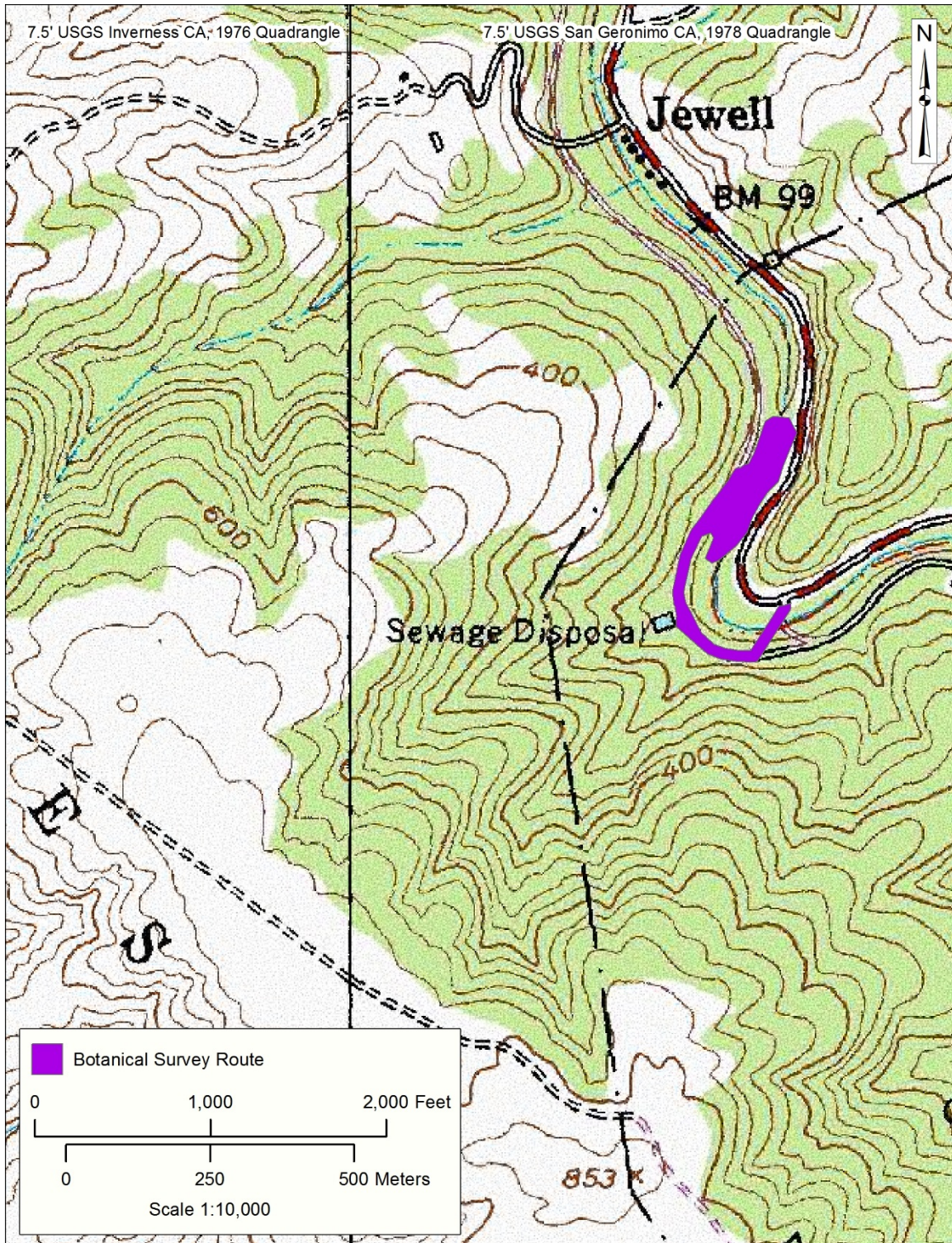
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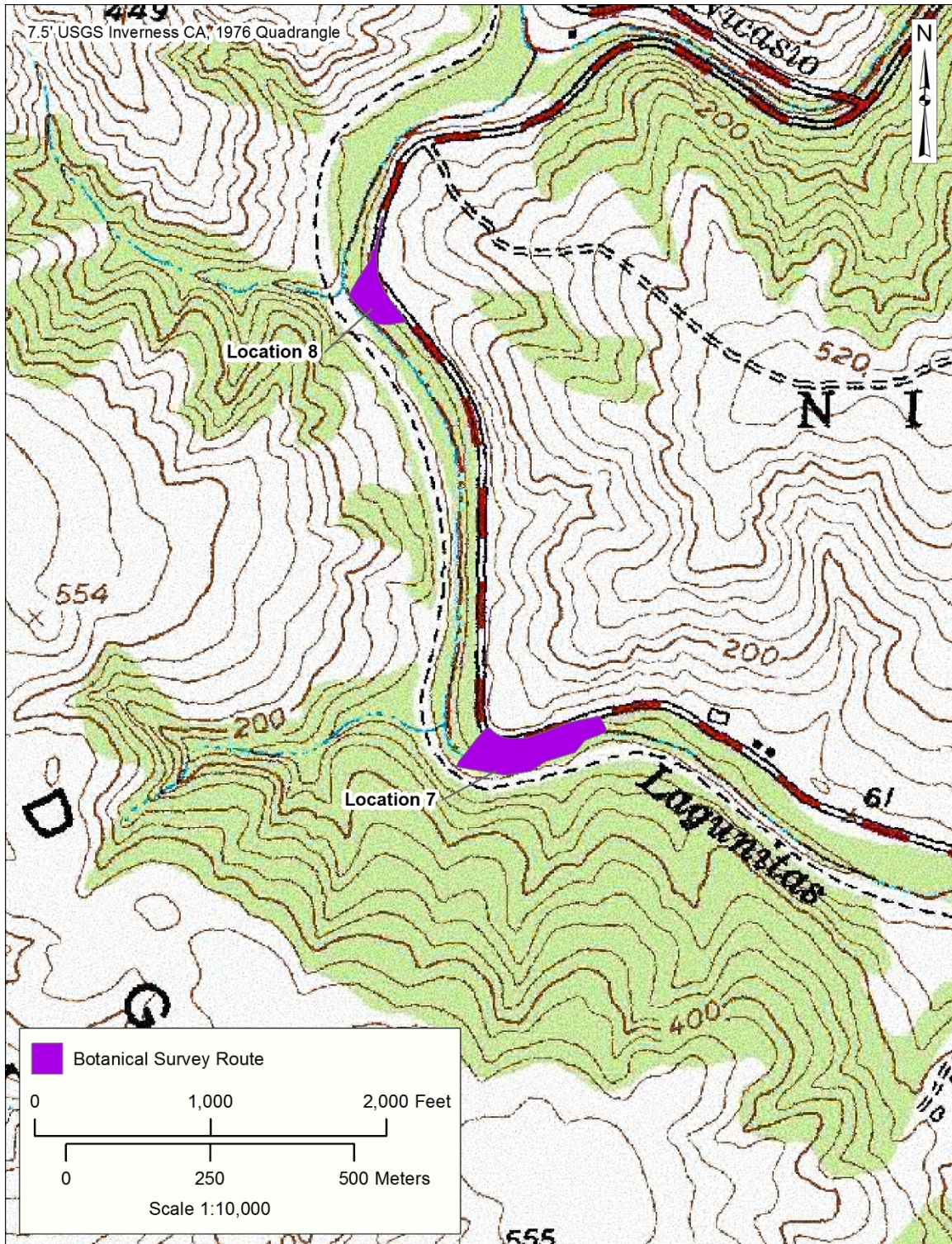
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Appendix A. Botanical Survey Route Map of the Lagunitas Creek Salmonid Winter Habitat Enhancement Project Phase II - Locations 1 and 2



Appendix A. Botanical Survey Route Map of the Lagunitas Creek Salmonid Winter Habitat Enhancement Project Phase II - Locations 7 and 8



Appendix B. Species List. The following species were observed within the project area. All plants were identified to the most specific taxonomic level necessary to determine presence of sensitive species.

Scientific Name	Common Name
Trees	
<i>Acer macrophyllum</i>	bigleaf maple
<i>Acer negundo</i> var. <i>californica</i>	box elder
<i>Aesculus californica</i>	California buckeye
<i>Alnus rubra</i>	red alder
<i>Fraxinus latifolia</i>	Oregon ash
<i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i>	tanbark oak
<i>Quercus lobata</i>	valley oak
<i>Salix</i> sp.	willow
<i>Torreya californica</i>	California nutmeg
<i>Umbellularia californica</i>	California-bay
Shrubs	
<i>Baccharis pilularis</i>	coyote brush
<i>Corylus cornuta</i> ssp. <i>californica</i>	California hazelnut
<i>Frangula californica</i>	California coffeeberry
<i>Genista monspessulana</i>	French broom
<i>Physocarpus capitatus</i>	Pacific ninebark
<i>Ribes</i> sp.	gooseberry
<i>Rubus parviflorus</i>	thimbleberry
<i>Rubus ursinus</i>	California blackberry
<i>Salix</i> sp.	willow
<i>Sambucus racemosa</i>	red elderberry
<i>Toxicodendron diversilobum</i>	poison-oak
Herbs	
<i>Aristolochia californica</i>	pipevine
<i>Artemisia douglasiana</i>	mugwort
<i>Athyrium filix-femina</i>	lady fern
<i>Avena</i> sp.	wild oat
<i>Briza maxima</i>	rattlesnake grass
<i>Bromus carinatus</i>	California brome
<i>Carex nudata</i>	torrent sedge
<i>Carex obnupta</i>	slough sedge
<i>Cicuta douglasii</i>	water hemlock

<i>Cirsium vulgare</i>	bull thistle
<i>Conium maculatum</i>	poison hemlock
<i>Crocosmia</i> sp.	crocosmia
<i>Cynosurus echinatus</i>	hedgehog dogtail grass
<i>Cyperus</i> sp.	nut-sedge
<i>Dicentra formosa</i>	Pacific bleeding heart
<i>Dipsacus sativus</i>	Fuller's teasel
<i>Dryopteris arguta</i>	wood fern
<i>Elymus glaucus</i>	blue wildrye
<i>Epilobium ciliatum</i>	northern willowherb
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail
<i>Euphorbia</i> sp.	spurge
<i>Galium aparine</i>	goose grass
<i>Galium</i> sp.	bedstraw
<i>Geranium robertianum</i>	Robert's geranium
<i>Hedera helix</i>	English ivy
<i>Helenium bigelovii</i>	Bigelow's sneezeweed
<i>Heracleum maximum</i>	cow parsnip
<i>Hirschfeldia incana</i>	Mediterranean mustard
<i>Holcus lanatus</i>	common velvet grass
<i>Hypericum</i> sp.	(ornamental shrub)
<i>Hypochaeris radicata</i>	hairy cat's-ear
<i>Iris</i> sp.	iris
<i>Juncus effusus</i>	common rush
<i>Juncus patens</i>	spreading rush
<i>Lapsana communis</i>	nipplewort
<i>Lathyrus</i> sp.	wild pea
<i>Lonicera hispidula</i> var. <i>vacillans</i>	hairy honeysuckle
<i>Maianthemum racemosa</i>	branched Solomon's seal
<i>Marah</i> sp.	wild cucumber
<i>Melissa officinalis</i>	lemon balm
<i>Mentha pulegium</i>	pennyroyal
<i>Mentha spicata</i>	spearmint
<i>Myosotis latifolia</i>	forget-me-not
<i>Oenanthe sarmentosa</i>	Pacific water-parsley
<i>Osmorhiza berteroi</i>	mountain sweet-cicely
<i>Oxalis oregana</i>	redwood sorrel
<i>Persicaria maculosa</i>	lady's thumb
<i>Poa</i> sp.	bluegrass
<i>Polystichum munitum</i>	sword fern

<i>Prunella vulgaris</i>	self-heal
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern
<i>Rumex</i> sp.	dock
<i>Sanicula crassicaulis</i>	Pacific snakeroot
<i>Scirpus microcarpus</i>	small-flowered bulrush
<i>Scoliopus bigelovii</i>	slink-pod
<i>Sonchus</i> sp.	sow thistle
<i>Stellaria</i> sp.	chickweed
<i>Torilis arvensis</i>	rattlesnake weed
<i>Trillium ovatum</i>	western trillium
<i>Urtica dioica</i>	stinging nettle
<i>Veronica</i> sp.	veronica
<i>Vinca major</i>	greater periwinkle
<i>Viola glabella</i>	stream violet

HI-085 Lagunitas Creek Winter Habitat Enhancement
Implementation – Phase II
Grant # P1530404

Marin County, CA

Final Report

August 17, 2016
Prepared by Jennifer Kalt
for the California Department of Fish and Wildlife

Location: San Geronimo USGS 7.5 minute Quadrangle,
T2N, R8W, Sec. 5

Project Applicant: Marin Municipal Water District

Botanical Surveyor: Jennifer Kalt

Survey Date: May 5, 2016

Field Person Hours: 1.75 hours

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INTRODUCTION

This report was prepared to assess potential impacts to botanical resources from implementation of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II, under the direction of the California Department of Fish and Wildlife (CDFW).

As part of the environmental review process, the California Environmental Quality Act (CEQA) requires that project proponents implement procedures to inventory botanical resources and to assess potential impacts to these resources located within projects conducted, funded, or permitted by State Agencies. Under CEQA, the Department completed a Mitigated Negative Declaration (MND) for all 2015 FRGP projects and determined that the projects would not result in negative effects if mitigation measures to identify and avoid botanical resources are met prior to project implementation (CDFW 2015).

In order to meet CEQA requirements, an assessment for potential presence of sensitive plant species or sensitive plant communities was conducted to determine whether the proposed project would have significant negative impacts on any sensitive plants or plant communities in the project area. Sensitive plants are rare, threatened or endangered species as defined by the Federal and California Endangered Species Acts, as well as non-listed species that require consideration under 14 Cal. Code Reg. §15380. Sensitive plant communities are considered a high priority for inventory due to their rarity status as defined by the CDFW.

ENVIRONMENTAL SETTING

The project area is located in the Lagunitas Creek watershed, a tributary to Pacific Ocean, located in Marin County, California (see Appendix A for botanical survey route map of the project area). The proposed project will improve winter habitat and refuge for coho, and increase the winter habitat carrying capacity for salmonids in Lagunitas Creek, by constructing habitat enhancement work at five sites identified in recently completed assessment and design reports. The project area is at an elevation of approximately 250 to 500 feet above sea level, and is located in riparian area within a landscape dominated by vegetation of the redwood series (Sawyer and Keeler-Wolf 1995). Dominant trees are red alder. The dominant understory species is California blackberry.

METHODS

Prior to field surveys, a list of the sensitive plant species and habitats with recorded occurrences in the assessment area was compiled by consulting the California Natural Diversity Database (CDFW 2001) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001, 2015). The assessment area was defined as the USGS 7.5'

quadrangle in which the project is located (San Geronimo Quadrangle), as well as the adjacent quadrangles (Point Reyes NE, Petaluma, Petaluma River, Novato, San Rafael, Bolinas, Double Point, and Inverness). The most up-to-date CNDDDB Quick Viewer (2015) and CNPS Inventory (2015) were used to query known occurrences of California Rare Plant Rank (CRPR) List 1 and 2 species within the assessment area. The CNPS Inventory was also queried for CRPR List 3 and 4 species known to occur within the county, although those species lists are not presented here. The queries yielded 76 sensitive species previously documented in the assessment area (Table 1). Six sensitive plant communities are documented from this assessment area (Table 2). Though suitable habitat for some of the species in the scoping list was not present within the project area, the complete scoping list is present in Table 1.

Table 1. San Geronimo Creek Assessment Area: Predicted Sensitive Plant Species and California Rare Plant Rankings.

Scientific Name	Common Name	CRPR
<i>Agrostis blasdalei</i>	Blasdale's bent grass	List 1B.2
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	List 1B.2
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	List 1B.1
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	List 1B.2
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	List 1B.2
<i>Arctostaphylos montana</i> ssp. <i>montana</i>	Mt. Tamalpais manzanita	List 1B.3
<i>Arctostaphylos virgata</i>	Marin manzanita	List 1B.2
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	List 1B.2
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	List 1B.2
<i>California macrophylla</i>	round-leaved filaree	List 1B.2
<i>Campanula californica</i>	swamp harebell	List 1B.2
<i>Cardamine angulata</i>	seaside bittercress	List 2B.1
<i>Carex lyngbyei</i>	Lyngbye's sedge	List 2B.2
<i>Castilleja affinis</i> var. <i>neglecta</i>	Tiburon paintbrush	List 1B.2
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	List 1B.2
<i>Ceanothus gloriosus</i> var. <i>porrectus</i>	Mt. Vision ceanothus	List 1B.3
<i>Ceanothus masonii</i>	Mason's ceanothus	List 1B.2
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes bird's-beak	List 1B.2
<i>Chloropyron molle</i> ssp. <i>molle</i>	soft bird's-beak	List 1B.2
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	San Francisco Bay spineflower	List 1B.2
<i>Chorizanthe valida</i>	Sonoma spineflower	List 1B.1
<i>Cicuta maculata</i> var. <i>bolanderi</i>	Bolander's water-hemlock	List 2B.1
<i>Cirsium andrewsii</i>	Franciscan thistle	List 1B.2
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	Mt. Tamalpais thistle	List 1B.2
<i>Collinsia corymbosa</i>	round-headed Chinese-houses	List 1B.2
<i>Delphinium bakeri</i>	Baker's larkspur	List 1B.1
<i>Delphinium luteum</i>	golden larkspur	List 1B.1
<i>Dirca occidentalis</i>	western leatherwood	List 1B.2
<i>Entosthodon kochii</i>	Koch's cord moss	List 1B.3

<i>Erigeron biolettii</i>	streamside daisy	List 3
<i>Eriogonum luteolum</i> var. <i>caninum</i>	Tiburon buckwheat	List 1B.2
<i>Erysimum concinnum</i>	bluff wallflower	List 1B.2
<i>Fissidens pauperculus</i>	minute pocket moss	List 1B.2
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Marin checker lily	List 1B.1
<i>Fritillaria liliacea</i>	fragrant fritillary	List 1B.2
<i>Gilia capitata</i> ssp. <i>chamissonis</i>	blue coast gilia	List 1B.1
<i>Gilia capitata</i> ssp. <i>tomentosa</i>	woolly-headed gilia	List 1B.1
<i>Grindelia hirsutula</i> var. <i>maritima</i>	San Francisco gumplant	List 3.2
<i>Helianthella castanea</i>	Diablo helianthella	List 1B.2
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant	List 1B.2
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	List 1B.2
<i>Hesperolinon congestum</i>	Marin western flax	List 1B.1
<i>Heteranthera dubia</i>	water star-grass	List 2B.2
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	List 1B.1
<i>Horkelia marinensis</i>	Point Reyes horkelia	List 1B.2
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	List 1B.2
<i>Kopsiopsis hookeri</i>	small groundcone	List 2B.3
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	List 1B.2
<i>Lasthenia conjugens</i>	Contra Costa goldfields	List 1B.1
<i>Layia carnosa</i>	beach layia	List 1B.1
<i>Leptosiphon croceus</i>	coast yellow leptosiphon	List 1B.1
<i>Lessingia hololeuca</i>	woolly-headed lessingia	List 3
<i>Lessingia micradenia</i> var. <i>micradenia</i>	Tamalpais lessingia	List 1B.2
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	List 1B.1
<i>Lilium maritimum</i>	coast lily	List 1B.1
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily	List 1B.1
<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	List 3.2
<i>Microseris paludosa</i>	marsh microseris	List 1B.2
<i>Monardella sinuata</i> ssp. <i>nigrescens</i>	northern curly-leaved monardella	List 1B.2
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	List 1B.1
<i>Navarretia rosulata</i>	Marin County navarretia	List 1B.2
<i>Pentachaeta bellidiflora</i>	white-rayed pentachaeta	List 1B.1
<i>Phacelia insularis</i> var. <i>continentis</i>	North Coast phacelia	List 1B.2
<i>Plagiobothrys glaber</i>	hairless popcornflower	List 1A
<i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Petaluma popcornflower	List 1A
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	List 1B.1
<i>Polygonum marinense</i>	Marin knotweed	List 3.1
<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	Tamalpais oak	List 1B.3
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Point Reyes checkerbloom	List 1B.2
<i>Sidalcea hickmanii</i> ssp. <i>viridis</i>	Marin checkerbloom	List 1B.3
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	List 1B.2
<i>Streptanthus batrachopus</i>	Tamalpais jewelflower	List 1B.3
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	Mt. Tamalpais bristly jewelflower	List 1B.2
<i>Trifolium amoenum</i>	two-fork clover	List 1B.1

<i>Triphysaria floribunda</i>	San Francisco owl's-clover	List 1B.2
<i>Triquetrella californica</i>	coastal triquetrella	List 1B.2

Table 2. San Geronimo Creek Assessment Area: Sensitive Plant Communities.

Coastal Brackish Marsh
Coastal Terrace Prairie
Northern Coastal Salt Marsh
Northern Maritime Chaparral
Northern Vernal Pool
Serpentine Bunchgrass

The primary sources for information on the status of sensitive plant species and plant communities are the California Native Plant Society and the California Natural Diversity Database (CNDDDB). The CNPS Inventory of Rare and Endangered Plants of California is a comprehensive list with five categories that are summarized below.

Plants on lists 1A, 1B and 2 are considered sensitive species as described in the California Environmental Quality Act (14 Cal. Code Reg. §15380) and are therefore the focus of this report.

- 1A: Plants presumed extinct in California
- 1B: Plants rare, threatened, or endangered in California and elsewhere
- 2A: Plants presumed extirpated in California, but common elsewhere
- 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
- 3: Plants about which we need more information - a review list
- 4: Plants of limited distribution – a watch list

A Threat Code extension follows the California Rare Plant Rank (e.g. 1B.1, 2.2 etc.) such that the lower the number, the higher the corresponding threat level:

- .1 - Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

CDFW has a similar list of Special Vascular Plants, Bryophytes, and Lichens published by the California Natural Diversity Database (CNDDDB). The Special Plants List includes the CNPS Inventory, as well as species considered sensitive by other governmental agencies (e.g., Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Forest Service). In addition, CNDDDB recognizes certain habitats as sensitive (CDFW 2001).

In keeping with guidelines established by both CNPS (CNPS 2001) and CDFW (CDFW 2000), field surveys were floristic in nature. A field visit is typically

planned to coincide with the blooming periods of sensitive species known from the assessment area. All plants encountered during the surveys were identified to the taxonomic level necessary to determine whether or not they are sensitive. Taxonomy follows the Jepson Manual (Baldwin et al. 2012). The entire project area, including a 25-foot area adjacent to the streambank and road prism, was thoroughly surveyed to identify all plant species present.

Jennifer Kalt conducted the pre-field scoping, field surveys, and plant identification. Kalt is a professional botanist with a Bachelor of Science degree in Botany and a Master of Arts degree in Biology from Humboldt State University, with more than fifteen years of experience conducting sensitive plants surveys in northern California. The survey was conducted on May 5, 2016, with 1.75 field-person hours spent surveying the project area.

SPECIES LIST

The following species were observed within the project site. All plants were identified to the most specific taxonomic level necessary to determine presence of sensitive species.

Scientific Name

Common Name

Trees

Acer negundo var. *californica*
Alnus rubra
Fraxinus latifolia
Quercus agrifolia
Salix sp.
Umbellularia californica

box elder
red alder
Oregon ash
coast live oak
willow
California-bay

Shrubs

Baccharis pilularis
Clematis ligusticifolia
Rubus armeniacus
Rubus ursinus
Sambucus mexicana
Toxicodendron diversilobum

coyote brush
Virgin's bower
Himalayan blackberry
California blackberry
blue elderberry
poison-oak

Herbs

Acemispion americanus var. *americanus*
Aira caryophyllea
Alisma triviale
Anagallis arvensis
Athyrium filix-femina
Avena sp.

Spanish lotus
silver European hair grass
American waterplantain
scarlet pimpernel
lady fern
wild oat

<i>Briza maxima</i>	large rattlesnake grass
<i>Briza minor</i>	small rattlesnake grass
<i>Bromus diandrus</i>	ripgut grass
<i>Bromus hordeaceus</i>	soft chess
<i>Bromus</i> sp.	brome grass
<i>Cardamine</i> sp.	toothwort
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carex leptopoda?</i>	short-scaled sedge
<i>Cirsium vulgare</i>	bull thistle
<i>Claytonia perfoliata</i>	miner's lettuce
<i>Conium maculatum</i>	poison hemlock
<i>Corethrogyne filaginifolia</i>	sand aster
<i>Cyperus</i> sp.	nut-sedge
<i>Epilobium ciliatum</i>	northern willowherb
<i>Equisetum arvense</i>	common horsetail
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail
<i>Erodium</i> sp.	stork's-bill
<i>Eschscholzia californica</i>	California poppy
<i>Festuca arundinacea</i>	tall fescue
<i>Festuca perennis</i>	perennial ryegrass
<i>Festuca</i> spp.	fescue
<i>Galium aparine</i>	goose grass
<i>Geranium dissectum</i>	cut-leaved geranium
<i>Heracleum maximum</i>	cow parsnip
<i>Holcus lanatus</i>	common velvet grass
<i>Hordeum</i> sp.	wild barley
<i>Hypochaeris radicata</i>	hairy cat's-ear
<i>Juncus bufonius</i>	common toad rush
<i>Juncus effusus</i>	common rush
<i>Juncus patens</i>	spreading rush
<i>Lupinus bicolor?</i>	lupine
<i>Marah</i> sp.	wild cucumber
<i>Mentha x piperita</i>	peppermint
<i>Mentha pulegium</i>	pennyroyal
<i>Myosotis discolor</i>	yellow and blue scorpion grass
<i>Oenanthe sarmentosa</i>	Pacific water-parsley
<i>Persicaria maculosa</i>	lady's thumb
<i>Plantago major</i>	common plantain
<i>Poa</i> sp.	bluegrass
<i>Polystichum munitum</i>	sword fern

<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern
<i>Ranunculus repens</i>	creeping buttercup
<i>Ranunculus</i> sp.	buttercup
<i>Raphanus sativus</i>	wild radish
<i>Rumex acetosella</i>	sheep sorrel
<i>Rumex</i> sp.	dock
<i>Scirpus microcarpus</i>	small-flowered bulrush
<i>Scrophularia californica</i>	coast figwort
<i>Silybum marianum</i>	milk thistle
<i>Sonchus</i> sp.	sow thistle
<i>Sparganium</i> sp.	bur-reed
<i>Stachys ajugoides</i> var. <i>rigida</i>	hedge nettle
<i>Stellaria media</i>	common chickweed
<i>Torreyochloa pallida</i> var. <i>pauciflora</i>	weak mannagrass
<i>Trifolium dubium</i>	shamrock clover
<i>Trifolium fragiferum</i> ?	clover
<i>Trifolium repens</i>	white clover
<i>Typha latifolia</i>	broadleaf cattail
<i>Urtica dioica</i>	stinging nettle
<i>Veronica</i> sp.	veronica
<i>Vicia sativa</i>	common vetch
<i>Vinca major</i>	greater periwinkle

RESULTS

No sensitive species or plant communities were encountered during the field surveys of the project area.

RECOMMENDATIONS

Results of the botanical survey indicate that negative impacts to sensitive species or sensitive plant communities will not occur as a result of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II. Since no sensitive species or sensitive plant communities were found within the project area, no further botanical surveys are recommended before ground-disturbing activities commence.

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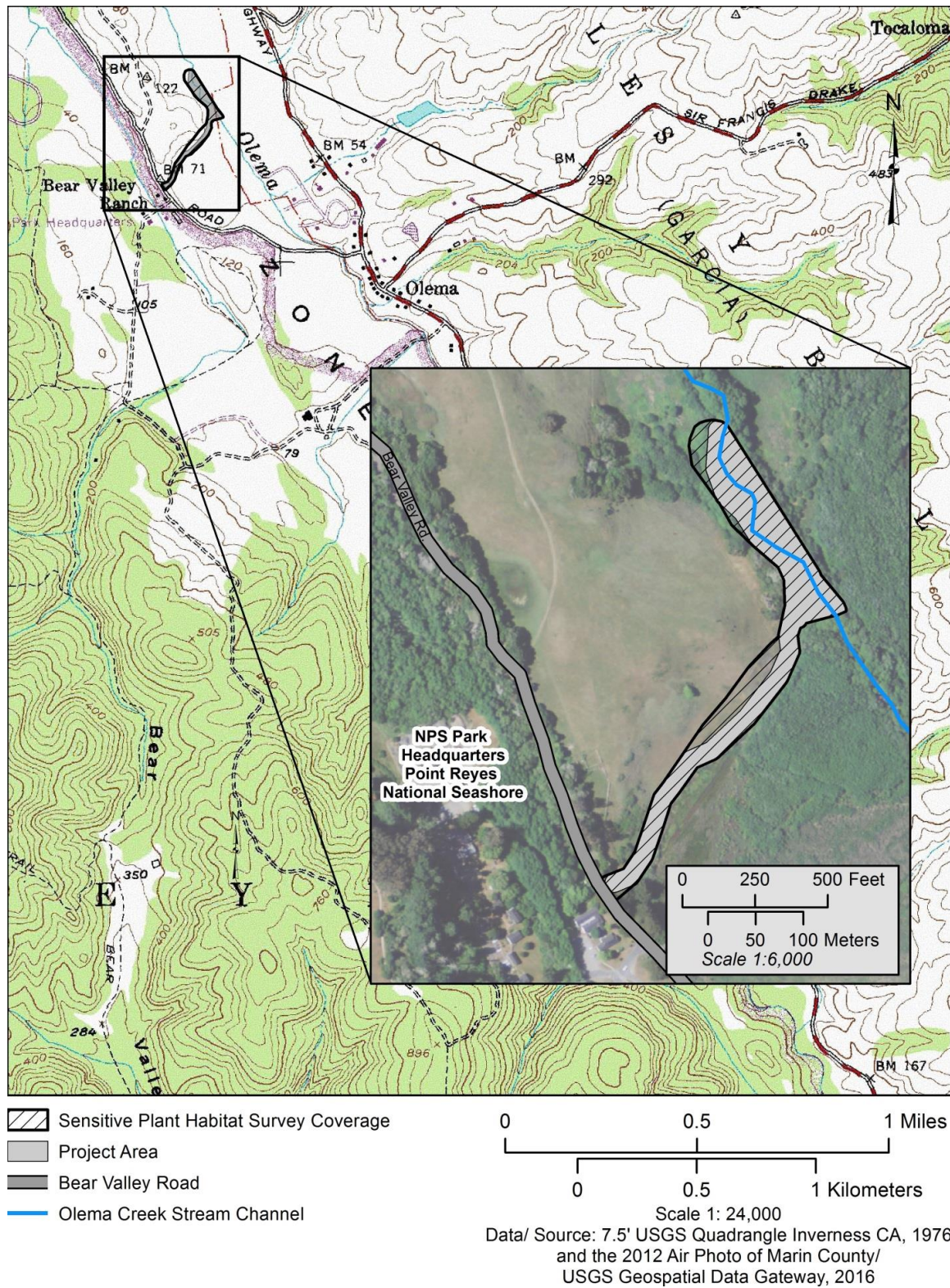
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Appendix A. Botanical Survey Route Map of the Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II.



From: [Andrea Williams](#)
To: [Nicholas Salcedo](#)
Subject: Surveys of Tocaloma and Sites 1-6
Date: Tuesday, March 17, 2015 3:14:31 PM

Nick,

Just to summarize my searches today of the Tocaloma floodplain and Sites 1-6 along Lagunitas Creek, I was primarily looking for early-blooming rare species western leatherwood (*Dirca occidentalis*) and bent-flower fiddleneck (*Amsinckia lunaris*), the latter only at the Tocaloma site. Victor's gooseberry (*Ribes victoris*) and Lobb's aquatic buttercup (*Ranunculus lobbii*) were also possible, but unlikely, although the buttercup is possible to likely at Olema. Other sites have an incompatible flow regime. At Tocaloma I found the habitat unsuitable for leatherwood and fiddleneck; at Sites 1-6 it was slightly better for leatherwood and gooseberry, but I saw no rare species during my targeted searches.

Additionally, I confirmed that there appears from the geologic map that no greenstone underlays the project areas; leatherwood has a strong affinity for greenstone and so is particularly unlikely. Finally, while I saw many gooseberries, none were Victor's.

I encourage summer surveys at Tocaloma for hayfield tarweed (*Hemizonia congesta* ssp. *congesta*), and all sites should have full floristic surveys done in accordance with the Department of Fish and Wildlife's guidelines

(http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf).

Further, all appropriate steps should be taken to minimize weed spread—including altering the access point at Site 6 (BAJ3) from going through the teasel patch to going through the poison-oak patch to keep from tracking teasel into the channel. Plus, so many other weeds at all the sites.

Thank you for the opportunity to comment.

Andrea Williams

Vegetation Ecologist



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Just because it could be worse, doesn't mean it can't be better.

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 3 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
Site #'s 3 & 4 (S3/4)								
Started Survey at Access off of Cross-Marin Trail; followed access route down to Sites #'s 3 & 4 and then floodplain towards Site #5:								
Access Note:								Shared access route to Site #s 3 & 4 is T1 - T7
	S3/4-T1	Buckeye	1	1	1	6		
	S3/4-T2	Bay	1	1	1	6		1 bay limb only; not rooted tree trunk
	S3/4-T3	Bay	1	1	1	2		
	S3/4-T4	Bay	1	1	4	14	8 - 14	4 bay limbs only
	S3/4-T5	Box-elder	1	1	1	5		
	S3/4-T6	Willow	1	1	1	6		
	S3/4-T7	Willow	2	2	2	8	6 - 8	2 willow limbs only; not rooted tree trunks
Access Note:								Access to Site #3 is T8 - T13
	S3/4-T8	Willow	9	9	9	6	4 - 6	9 willow stems
	S3/4-T9	Willow	3	3	13	8	7 - 8	3 willow stems w/13 limbs
	S3/4-T10	Willow	25	25	25	4	2 - 4	25 willow stems
	S3/4-T11	Willow	4	4	12	9	6 - 9	4 willow stems w/12 limbs
	S3/4-T12	Willow	7	7	7	6	2 - 6	7 willow stems
	S3/4-T13	Willow	6	6	Many	4	2 - 4	6 willow stems with many small limbs
Access Note:								Access to Site #4 is T14 - T18
	S3/4-T14	Ash	4	4	4	5	3 - 5	4 ask trees/saplings
	S3/4-T15	Willow	3	3	3	6	4 - 6	3 willow stems w/3 limbs
	S3/4-T16	Alder	1	1	1	18		1 alder w/4 limbs
	S3/4-T17	Willow	3	3	3	10	7 - 10	1 willow w/3 stems and many limbs
	S3/4-T18	Willow	1	1	1	8		
Access Note:								Access to Site #5 along floodplain is T19 - T21
	S3/4-T19	Willow	18	18	18	8	2 - 8	18 willow stems
	S3/4-T20	Willow	8	8	8	7	2 - 7	8 willow stems
	S3/4-T21	Willow	8	8	8	12	4 - 12	8 willow stems spaced out across ~ 50 feet
Site #'s 3 & 4 - Subtotal of Trees Surveyed/Impacted			108	108				

Site # 5								
Started Survey near edge of creek, top of bank, at Site 5 then surveyed through floodplain area towards Site #6.								
	S5-T1	Willow	10	10	10	6	3 - 6	10 willow stems
Site #5 - Subtotal of Trees Surveyed/Impacted			10	10				

Site #6								
Start at Access off of Cross-Marin Trail; followed access route down to Sites #6 and then floodplain towards Site #5.								
	S6-T1	Madrone	1	1	1	3		1 madrone w/2 small stems
	S6-T2	Ash	7	7	7	8	3 - 8	7 ash stems
	S6-T3	Ash	1	1	1	20		1 large ash tree, next to creek
	S6-T4	Willow	1	1	2	3	2 - 3	1 willow w/2 stems
Site #6 - Subtotal of Trees Surveyed/Impacted			10	10				

Site # 7								
Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to downstream LDRJs.								
	S7-T1	Willow	1	0	ND	7		Willow at entrance; avoid by entering to south
	S7-T2	Willow	1	1	ND	10		In staging area
	S7-T3	Willow	1	1	ND	4		In access route
	S7-T4	Willow	1	1	ND	6		In access route
	S7-T5	Willow	1	1	ND	4		
	S7-T6	Willow	3	3	ND	4	3 - 4	
	S7-T7	Willow	1	1	ND	5		
	S7-T8	Willow	1	1	ND	7		
	S7-T9	Willow	1	1	ND	7		
	S7-T10	Willow	1	1	ND	16		
	S7-T11	Willow	1	1	ND	9		In creek at LDRJ #3
	S7-T12	Willow	1	1	ND	6		
	S7-T13	Willow	1	1	ND	8		

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 3 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	S7-T14	Willow	1	1	ND	9		
	S7-T15	Willow	3	3	ND	9	8 - 9	Flag hung on the middle tree
	S7-T16	Willow	1	1	ND	5		In staging area for LDRJ #4
	S7-T17	Willow	1	1	ND	13		At creek edge of LDRJ #4
Site #7 - SubTotal of Trees Surveyed			21					
Site #7 - Subtotal Corrected of Trees Impacted			20	20				

Site # 8	Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to the downstream-most BAJ.							
	S8-T1	Boxelder	1	1		24		Maybe OK to just limb S8-T1
	S8-T2	Boxelder	1	1	A few	5	2 - 5	
Access Note:								Staging Area & Access to LDRJ
	S8-T3	Boxelder	1	1	Many	7	4 - 7	
	S8-T4	Boxelder	1	1	Many	7	7	
	S8-T5	Boxelder	1	1		4		
	S8-T6	Willow	4	4	A few	4	3 - 4	
	S8-T7	Willow	1	1	Many	6	2 - 6	
	S8-T8	Willow	1	1		12		
	S8-T9	Willow	1	1	5	3	2 - 3	S8-T9 is in channel at site #8 LDRJ
Access Note:								Access to BAJ
	S8-T10	Boxelder	1	1		9		May be dead
	S8-T11	Boxelder	1	1	2	3	2 - 3	
	S8-T12	Boxelder	1	1	Many	3	2 - 3	S8-T12 main trunk is dead
	S8-T13	Boxelder	1	1	3	6	2 - 6	
	S8-T14	Boxelder	1	1		9		
	S8-T15	Willow	1	1	9	8	2 - 8	
	S8-T16	Willow	1	1	5	5	2 - 5	T15 and T16 along bank at BAJ
Site #8 - Subtotal of Trees Surveyed/Impacted			19	19				

Site #9	Started at access off Bear Valley Road; followed access into the site, across creek to upstream Cross-Vane, down through floodplain to downstream end, and back up other side.							
	S9-T1	Coast Live Oak	1	1	1	8		Oak at access entrance off Bear Valley Road
	S9-T2	Alder	4	4	4	3	2 - 3	Trees impacted by u/s Cross-Vane & LDRJ#1
	S9-T3	Willow	18	18	18	6	3 - 6	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	7	7	"
	"	Willow	1	1	1	9	9	"
	S9-T4	Willow	1	1	1	6	6	Trees impacted by u/s Cross-Vane & LDRJ#1
	"	Willow	1	1	1	5	5	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	9	9	"
	"	Alder	19	19	19	5	2 - 5	"
Access Note:	Access to LDRJ#2:							
	S9-T5	Willow	1	1	1	9	9	Access route to LDRJ#2
	"	Willow	4	4	4	6	4 - 6	"
	"	Alder	47	47	47	8	2 - 8	"
	"	Alder	13	13	13	8	2 - 8	"
	"	Alder	15	15	15	6	2 - 6	"
	"	Willow	1	1	1	8	8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	5	5	5	9	8 - 9	"
	"	Alder	3	3	3	6	4 - 6	"
	S9-T6	Alder	1	1	1	4	4	"
	"	Alder	7	7	7	6	3 - 6	"
	"	Alder	1	1	1	7	7	"

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 3 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	"	Alder	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	4	4	4	8	6 - 8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	1	1	1	10	10	"
	"	Alder	10	10	10	5	2 - 5	"
	"	Alder	1	1	1	9	9	"
	"	Alder	24	24	24	6	2 - 6	"
	"	Alder	2	2	2	7	7	Both 7-inches DBH
Access Note: LDRJ#2:								
	S9-T7	Alder	2	2	2	5	5	Trees impacted by LDRJ#2 (on south bank)
	"	Alder	14	14	14	6	3 - 6	Trees impacted by LDRJ#2 (on north bank)
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	10	10	"
	"	Willow	1	1	1	9	9	"
	"	Willow	5	5	5	6	3 - 6	"
Access Note: Access to LDRJ#3:								
	S9-T8	Alder	16	16	16	6	3 - 6	Access route to LDRJ#3
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	7	7	"
	"	Alder	15	15	15	5	2 - 5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	8	8	8	4	2 - 4	"
	"	Alder	1	1	1	5	5	"
Access Note: LDRJ#3:								
	S9-T9	Alder	1	1	1	6	6	Trees impacted by LDRJ#3
	"	Alder	4	4	4	3	2 - 3	"
Access Note: Access to LDRJ#4:								
	S9-T10	Alder	8	8	8	3	2 - 3	Access route to LDRJ#4
	"	Alder	1	1	1	6	6	"
	"	Willow	1	1	1	5	5	"
	"	Willow	1	1	1	11	11	"
	"	Alder	1	1	1	9	9	"
	"	Willow	1	1	1	10	10	"
Access Note: LDRJ#4:								
	S9-T11	Willow	1	1	Multi-stems	6	6	Trees impacted by LDRJ#4 (on north bank)
	"	Alder	1	1	1	3	3	Trees impacted by LDRJ#4 (on south bank)
Access Note: Access to LDRJ#5:								
	S9-T12	Alder	1	1	1	9	9	Access route to LDRJ#5
	"	Alder	1	1	1	11	11	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	6	6	"
	"	Willow	4	4	4	8	6 - 8	"
	"	Willow	3	3	3	7	6 - 7	"
	"	Willow	2	2	2	6	6	Both 6-inches DBH
	"	Alder	1	1	1	8	8	Access route to LDRJ#5
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
	"	Alder	1	1	1	3	3	"
Access Note: LDRJ#5:								
	S9-T13	Alder	1	1	1	7	7	Trees impacted by LDRJ#5 (on north bank)
	"	Alder	1	1	1	8	8	Trees impacted by LDRJ#5 (on south bank)
	"	Alder	1	1	1	4	4	"
Access Note: Access to LDRJ#6:								
	S9-T14	Willow	1	1	1	4	4	Access route to LDRJ#6
	"	Willow	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
Access Note: LDRJ#6:								
		N/A						No trees impacted by LDRJ#6

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 3 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
Access Note: Access to Downstream Creek Crossing:								
	S9-T15	Alder	1	1	1	7	7	Access route to downstream creek crossing
	"	Alder	1	1	1	5	5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	1	1	1	7	7	"
Access Note: Downstream Creek Crossing:								
		N/A						No trees impacted by d/s creek crossing
Access Note: Access Along South Side of Olema Creek, from Downstream Creek Crossing back up to LDRJ#4								
	S9-T16	Alder	1	1	1	6	6	Access route along south side Olema Cr.
	"	Alder	1	1	1	8	8	"
	"	Willow	3	3	3	6	4 - 6	"
	"	Willow	1	1	1	3	3	"
	"	Willow	1	1	1	6	6	"
	"	Willow	4	4	4	7	7	All 4-inches DBH
	"	Willow	6	6	6	4	3 - 4	Access route along south side Olema Cr.
	"	Alder	1	1	1	11	11	"
	"	Willow	3	3	3	7	5 - 7	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	9	9	"
	"	Alder	1	1	1	7	7	"
Site #9 - Subtotal of Trees Surveyed/Impacted			359	359				

Site #10- Tocaloma Floodplain Site	Started at Upstream End of the Floodplain Enhancement Channel and Moved Downstream through the Floodplain							
	TF-T1	Willow	7	7	7	6	2 - 6	7 willows
	TF-T2	Willow	2	2	2	10	6 - 10	2 willows
	TF-T3	Willow	1	1	Multiple	13		1 willow with multiple branchings
	TF-T4	Willow	1	1	3	10	Up to 10	1 willow with 3 stems
	TF-Misc.	Willow	1	1	1	2		1 willow ~ 2 in. dia.
	TF-T5	Willow	1	1	2	9	Up to 9	1 willow w/2 stems
	TF-T6	Willow	1	1	3	19	Up to 19	1 willow w/3 stems
	TF-T7	Willow	1	1	1	9		
	TF-T8	Willow	1	1	1	14		
	TF-Misc.	Willow	1	1	1	6		1 willow next to T8
	TF-Misc.	Willow	1	1	1	12		1 willow near T8
	TF-T9	Willow	1	1	1	7		
	TF-T10	Willow	1	1	ND	ND	ND	No Data on this occurrence
	TF-Misc.	Willow	2	2	2	4		2 willows laying near T9
	TF-T11	Willow	1	1	10	17	8 - 17	1 willow w/10 stems
	TF-T12	Willow	1	1	15	13	8 - 13	1 willow w/15 stems
	TF-T13	Willow	1	1	1	15		
	TF-T14	Ash	1	1	1	4		ash tree/sapling
	TF-T15	Willow	1	1	3	9	8 - 9	1 willow w/3 stems
	TF-T16	Willow	1	1	3	11	10 - 11	1 willow w/stems
	TF-T17	Willow	1	1	7	10	8 - 10	1 willow w/7 stems
	TF-Misc.	Willow	6	6	6	6	2 - 16	6 willows east of T17
	TF-T18	Willow	1	1	14	11	6 - 11	1 willow w/14 stems
	TF-T19	Ash	2	2	2	6	4 - 6	2 ash trees/saplings
	TF-Misc.	Willow	15	15	15	6	2 - 6	15 willows between T17 & T19
	TF-T20 ¹	Bay	1	0	3	23	9 - 23	Very large bay tree with 3 stems. Tree east of the floodplain channel, will not need to be removed
	TF-T21	Willow	2	2	3	7	4 - 7	2 willows w/3 stems, laying down
	TF-Misc.	Ash	1	1	1	6		1 ash between T19 & T21
	TF-Misc.	Willow	5	5	5	4	2 - 4	5 willows between T19 & T21
	TF-22	Willow	1	1	5	8	5 - 8	1 willow w/5 stems
	TF-23	Willow	1	1	2	8	5 - 8	1 willow w/2 stems

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 3 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	TF-24 ¹	Willow	5	0	22	12	5 - 12	Willow cluster of 5 trees, 22 stems; 7 stems @ 10" - 12", 15 stems @ 5" - 7" dia. Cluster at the west bank of floodplain channel, may not need to be removed
	TF-25 ¹	Willow	8	0	20	14	4 - 14	Willow cluster of 8 trees, 20 stems; 7 stems @ 8" - 14", 13 stems @ 4" - 6" dia. Cluster at the west bank of floodplain channel, may not need to be removed
	TF-26	Willow	10	10	Multiple	6	2 - 6	10 willows with multiple stems
	TF-27	Willow	35	35	Multiple	4	2 - 6	35 willows scattered within floodplain channel
	TF-28	Willow	10	10	Multiple	5	4 - 5	10 willows scattered within floodplain channel
	TF-29	Willow	1	1	9	8	5 - 8	1 willow w/9 stems
	TF-30	Willow	4	4	4	14	6 - 14	4 willows
	TF-31	Willow	3	3	5	10	4 - 10	3 willows w/5 stems
	TF-32 ¹	Alder	1	0	1	19	19	1 large alder tree; immediately downstream of end of floodplain channel
Site #10 - SubTotal of Trees Surveyed			141					
Site #10 - Subtotal Corrected of Trees Impacted			126	126				
Note: ¹ Trees outside of the Tocaloma Floodplain channel that were included in the survey but will not be removed for the project.								

PROJECT TOTAL - ALL SITES						
PROJECT TOTAL - TOTAL No. of TREES SURVEYED	668					
PROJECT TOTAL - TOTAL No. of TREES IMPACTED	652	652				

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Phase 2 Project Sites; #'s 1, 2, 7, 8, & 9

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
Site #'s 1 & 2 (S1/2)								
Started survey at access off of Cross Marin Trail; followed down access route to staging area and then up the floodplain to Site #2 and then Site #1.								
Access Note:								Shared access route to Site #S 1 & 2
	S1/2-T1	Bay	1	0	ND	8		Avoid this tree; do not need to remove.
	S1/2-T2	Bay	1	1	ND	28		Fallen bay tree with sprouts, in access route.
	S1/2-T3	Buckeye	1	1	ND	4		
	S1/2-T4	Bay	1	1	ND	11		
	S1/2-T5	Ash	1	1	ND	6		
	S1/2-T6	Willow	20	20	ND	3	2 - 3	Clustered willows (20 total)
	S1/2-T7	Willow	2	2	ND	4	4	Clustered willows (2 total)
	S1/2-T8	Willow	2	2	ND	4	4	
Access Note:								Manuver around trees on left side of floodplain, between Site 2 and Site 1, and up through Site 1. Do not remove existing trees around DV #1 at Site 1, especially the large Redwood tree.
Site #'s 1 & 2 - SubTotal of Trees Surveyed			29					
Site #'s 1 & 2 - Subtotal Corrected of Trees Impacted			28	28				

Site # 7								
Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to downstream LDRJs.								
	S7-T1	Willow	1	0	ND	7		Willow at entrance; avoid by entering to south
	S7-T2	Willow	1	1	ND	10		In staging area
	S7-T3	Willow	1	1	ND	4		In access route
	S7-T4	Willow	1	1	ND	6		In access route
	S7-T5	Willow	1	1	ND	4		
	S7-T6	Willow	3	3	ND	4	3 - 4	
	S7-T7	Willow	1	1	ND	5		
	S7-T8	Willow	1	1	ND	7		
	S7-T9	Willow	1	1	ND	7		
	S7-T10	Willow	1	1	ND	16		
	S7-T11	Willow	1	1	ND	9		In creek at LDRJ #3
	S7-T12	Willow	1	1	ND	6		
	S7-T13	Willow	1	1	ND	8		
	S7-T14	Willow	1	1	ND	9		
	S7-T15	Willow	3	3	ND	9	8 - 9	Flag hung on the middle tree
	S7-T16	Willow	1	1	ND	5		In staging area for LDRJ #4
	S7-T17	Willow	1	1	ND	13		At creek edge of LDRJ #4
Site #7 - SubTotal of Trees Surveyed			21					
Site #7 - Subtotal Corrected of Trees Impacted			20	20				

Site # 8								
Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to the downstream-most BAJ.								
	S8-T1	Boxelder	1	1		24		Maybe OK to just limb S8-T1
	S8-T2	Boxelder	1	1	A few	5	2 - 5	
Access Note:								Staging Area & Access to LDRJ
	S8-T3	Boxelder	1	1	Many	7	4 - 7	
	S8-T4	Boxelder	1	1	Many	7	7	
	S8-T5	Boxelder	1	1		4		
	S8-T6	Willow	4	4	A few	4	3 - 4	
	S8-T7	Willow	1	1	Many	6	2 - 6	
	S8-T8	Willow	1	1		12		
	S8-T9	Willow	1	1	5	3	2 - 3	S8-T9 is in channel at site #8 LDRJ
Access Note:								Access to BAJ
	S8-T10	Boxelder	1	1		9		May be dead
	S8-T11	Boxelder	1	1	2	3	2 - 3	
	S8-T12	Boxelder	1	1	Many	3	2 - 3	S8-T12 main trunk is dead
	S8-T13	Boxelder	1	1	3	6	2 - 6	

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Phase 2 Project Sites; #'s 1, 2, 7, 8, & 9

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	S8-T14	Boxelder	1	1		9		
	S8-T15	Willow	1	1	9	8	2 - 8	
	S8-T16	Willow	1	1	5	5	2 - 5	T15 and T16 along bank at BAJ
Site #8 - Subtotal of Trees Surveyed/Impacted			19	19				

Site #9	Started at access off Bear Valley Road; followed access into the site, across creek to upstream Cross-Vane, down through floodplain to downstream end, and back up other side.							
	S9-T1	Coast Live Oak	1	1	1	8		Oak at access entrance off Bear Valley Road
	S9-T2	Alder	4	4	4	3	2 - 3	Trees impacted by u/s Cross-Vane & LDRJ#1
	S9-T3	Willow	18	18	18	6	3 - 6	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	7	7	"
	"	Willow	1	1	1	9	9	"
	S9-T4	Willow	1	1	1	6	6	Trees impacted by u/s Cross-Vane & LDRJ#1
	"	Willow	1	1	1	5	5	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	9	9	"
	"	Alder	19	19	19	5	2 - 5	"
Access Note: Access to LDRJ#2:								
	S9-T5	Willow	1	1	1	9	9	Access route to LDRJ#2
	"	Willow	4	4	4	6	4 - 6	"
	"	Alder	47	47	47	8	2 - 8	"
	"	Alder	13	13	13	8	2 - 8	"
	"	Alder	15	15	15	6	2 - 6	"
	"	Willow	1	1	1	8	8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	5	5	5	9	8 - 9	"
	"	Alder	3	3	3	6	4 - 6	"
	S9-T6	Alder	1	1	1	4	4	"
	"	Alder	7	7	7	6	3 - 6	"
	"	Alder	1	1	1	7	7	"
	"	Alder	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	4	4	4	8	6 - 8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	1	1	1	10	10	"
	"	Alder	10	10	10	5	2 - 5	"
	"	Alder	1	1	1	9	9	"
	"	Alder	24	24	24	6	2 - 6	"
	"	Alder	2	2	2	7	7	Both 7-inches DBH
Access Note: LDRJ#2:								
	S9-T7	Alder	2	2	2	5	5	Trees impacted by LDRJ#2 (on south bank)
	"	Alder	14	14	14	6	3 - 6	Trees impacted by LDRJ#2 (on north bank)
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	10	10	"
	"	Willow	1	1	1	9	9	"
	"	Willow	5	5	5	6	3 - 6	"
Access Note: Access to LDRJ#3:								
	S9-T8	Alder	16	16	16	6	3 - 6	Access route to LDRJ#3
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	7	7	"
	"	Alder	15	15	15	5	2 - 5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	8	8	8	4	2 - 4	"
	"	Alder	1	1	1	5	5	"
Access Note: LDRJ#3:								
	S9-T9	Alder	1	1	1	6	6	Trees impacted by LDRJ#3

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	"	Alder	4	4	4	3	2 - 3	"
Access Note:	Access to LDRJ#4:							
	S9-T10	Alder	8	8	8	3	2 - 3	Access route to LDRJ#4
	"	Alder	1	1	1	6	6	"
	"	Willow	1	1	1	5	5	"
	"	Willow	1	1	1	11	11	"
	"	Alder	1	1	1	9	9	"
	"	Willow	1	1	1	10	10	"
Access Note:	LDRJ#4:							
	S9-T11	Willow	1	1	Multi-stems	6	6	Trees impacted by LDRJ#4 (on north bank)
	"	Alder	1	1	1	3	3	Trees impacted by LDRJ#4 (on south bank)
Access Note:	Access to LDRJ#5:							
	S9-T12	Alder	1	1	1	9	9	Access route to LDRJ#5
	"	Alder	1	1	1	11	11	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	6	6	"
	"	Willow	4	4	4	8	6 - 8	"
	"	Willow	3	3	3	7	6 - 7	"
	"	Willow	2	2	2	6	6	Both 6-inches DBH
	"	Alder	1	1	1	8	8	Access route to LDRJ#5
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
	"	Alder	1	1	1	3	3	"
Access Note:	LDRJ#5:							
	S9-T13	Alder	1	1	1	7	7	Trees impacted by LDRJ#5 (on north bank)
	"	Alder	1	1	1	8	8	Trees impacted by LDRJ#5 (on south bank)
	"	Alder	1	1	1	4	4	"
Access Note:	Access to LDRJ#6:							
	S9-T14	Willow	1	1	1	4	4	Access route to LDRJ#6
	"	Willow	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
Access Note:	LDRJ#6:							
		N/A						No trees impacted by LDRJ#6
Access Note:	Access to Downstream Creek Crossing:							
	S9-T15	Alder	1	1	1	7	7	Access route to downstream creek crossing
	"	Alder	1	1	1	5	5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	1	1	1	7	7	"
Access Note:	Downstream Creek Crossing:							
		N/A						No trees impacted by d/s creek crossing
Access Note:	Access Along South Side of Olema Creek, from Downstream Creek Crossing back up to LDRJ#4							
	S9-T16	Alder	1	1	1	6	6	Access route along south side Olema Cr.
	"	Alder	1	1	1	8	8	"
	"	Willow	3	3	3	6	4 - 6	"
	"	Willow	1	1	1	3	3	"
	"	Willow	1	1	1	6	6	"
	"	Willow	4	4	4	7	7	All 4-inches DBH
	"	Willow	6	6	6	4	3 - 4	Access route along south side Olema Cr.
	"	Alder	1	1	1	11	11	"
	"	Willow	3	3	3	7	5 - 7	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	9	9	"
	"	Alder	1	1	1	7	7	"
Site #9 - Subtotal of Trees Surveyed/Impacted			359	359				

Notes: Trees surveyed included only trees potentially cut or uprooted, to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
PROJECT TOTAL - ALL SITES								
PROJECT TOTAL - TOTAL No. of TREES SURVEYED			428					
PROJECT TOTAL - TOTAL No. of TREES IMPACTED			426	426				

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 1 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
Site #'s 1 & 2 (S1/2)								
Started survey at access off of Cross Marin Trail; followed down access route to staging area and then up the floodplain to Site #2 and then Site #1.								
Access Note:								
	S1/2-T1	Bay	1	0	ND	8		Shared access route to Site #5 1 & 2
	S1/2-T2	Bay	1	1	ND	28		Avoid this tree; do not need to remove.
	S1/2-T3	Buckeye	1	1	ND	4		Fallen bay tree with sprouts, in access route.
	S1/2-T4	Bay	1	1	ND	11		
	S1/2-T5	Ash	1	1	ND	6		
	S1/2-T6	Willow	20	20	ND	3	2 - 3	Clustered willows (20 total)
	S1/2-T7	Willow	2	2	ND	4	4	Clustered willows (2 total)
	S1/2-T8	Willow	2	2	ND	4	4	
Access Note:								
Manuver around trees on left side of floodplain, between Site 2 and Site 1, and up through Site 1. Do not remove existing trees around DV #1 at Site 1, especially the large Redwood tree.								
Site #'s 1 & 2 - SubTotal of Trees Surveyed			29					
Site #'s 1 & 2 - Subtotal Corrected of Trees Impacted			28	28				

Site #'s 3 & 4 (S3/4)								
Started Survey at Access off of Cross-Marin Trail; followed access route down to Sites #'s 3 & 4 and then floodplain towards Site #5:								
Access Note:								
	S3/4-T1	Buckeye	1	1	1	6		Shared access route to Site #s 3 & 4 is T1 - T7
	S3/4-T2	Bay	1	1	1	6		1 bay limb only; not rooted tree trunk
	S3/4-T3	Bay	1	1	1	2		
	S3/4-T4	Bay	1	1	4	14	8 - 14	4 bay limbs only
	S3/4-T5	Box-elder	1	1	1	5		
	S3/4-T6	Willow	1	1	1	6		
	S3/4-T7	Willow	2	2	2	8	6 - 8	2 willow limbs only; not rooted tree trunks
Access Note:								
Access to Site #3 is T8 - T13								
	S3/4-T8	Willow	9	9	9	6	4 - 6	9 willow stems
	S3/4-T9	Willow	3	3	13	8	7 - 8	3 willow stems w/13 limbs
	S3/4-T10	Willow	25	25	25	4	2 - 4	25 willow stems
	S3/4-T11	Willow	4	4	12	9	6 - 9	4 willow stems w/12 limbs
	S3/4-T12	Willow	7	7	7	6	2 - 6	7 willow stems
	S3/4-T13	Willow	6	6	Many	4	2 - 4	6 willow stems with many small limbs
Access Note:								
Access to Site #4 is T14 - T18								
	S3/4-T14	Ash	4	4	4	5	3 - 5	4 ask trees/saplings
	S3/4-T15	Willow	3	3	3	6	4 - 6	3 willow stems w/3 limbs
	S3/4-T16	Alder	1	1	1	18		1 alder w/4 limbs
	S3/4-T17	Willow	3	3	3	10	7 - 10	1 willow w/3 stems and many limbs
	S3/4-T18	Willow	1	1	1	8		
Access Note:								
Access to Site #5 along flooplain is T19 - T21								
	S3/4-T19	Willow	18	18	18	8	2 - 8	18 willow stems
	S3/4-T20	Willow	8	8	8	7	2 - 7	8 willow stems
	S3/4-T21	Willow	8	8	8	12	4 - 12	8 willow stems spaced out across ~ 50 feet
Site #'s 3 & 4 - Subtotal of Trees Surveyed/Impacted			108	108				

Site # 5								
Started Survey near edge of creek, top of bank, at Site 5 then surveyed through floodplain area towards Site #6.								
	S5-T1	Willow	10	10	10	6	3 - 6	10 willow stems
Site #5 - Subtotal of Trees Surveyed/Impacted			10	10				

Site #6								
Start at Access off of Cross-Marin Trail; followed access route down to Sites #6 and then floodplain towards Site #5.								
	S6-T1	Madrone	1	1	1	3		1 madrone w/2 small stems
	S6-T2	Ash	7	7	7	8	3 - 8	7 ash stems
	S6-T3	Ash	1	1	1	20		1 large ash tree, next to creek

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 1 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	S6-T4	Willow	1	1	2	3	2 - 3	1 willow w/2 stems
Site #6 - Subtotal of Trees Surveyed/Impacted			10	10				

Site # 7	Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to downstream LDRJs.							
	S7-T1	Willow	1	0	ND	7		Willow at entrance; avoid by entering to south
	S7-T2	Willow	1	1	ND	10		In staging area
	S7-T3	Willow	1	1	ND	4		In access route
	S7-T4	Willow	1	1	ND	6		In access route
	S7-T5	Willow	1	1	ND	4		
	S7-T6	Willow	3	3	ND	4	3 - 4	
	S7-T7	Willow	1	1	ND	5		
	S7-T8	Willow	1	1	ND	7		
	S7-T9	Willow	1	1	ND	7		
	S7-T10	Willow	1	1	ND	16		
	S7-T11	Willow	1	1	ND	9		In creek at LDRJ #3
	S7-T12	Willow	1	1	ND	6		
	S7-T13	Willow	1	1	ND	8		
	S7-T14	Willow	1	1	ND	9		
	S7-T15	Willow	3	3	ND	9	8 - 9	Flag hung on the middle tree
	S7-T16	Willow	1	1	ND	5		In staging area for LDRJ #4
	S7-T17	Willow	1	1	ND	13		At creek edge of LDRJ #4
Site #7 - SubTotal of Trees Surveyed			21					
Site #7 - Subtotal Corrected of Trees Impacted			20	20				

Site # 8	Started survey at access off of Platform Bridge Road; followed access route to upstream-most LDRJ and then through floodplain to the downstream-most BAJ.							
	S8-T1	Boxelder	1	1		24		Maybe OK to just limb S8-T1
	S8-T2	Boxelder	1	1	A few	5	2 - 5	
Access Note:								Staging Area & Access to LDRJ
	S8-T3	Boxelder	1	1	Many	7	4 - 7	
	S8-T4	Boxelder	1	1	Many	7	7	
	S8-T5	Boxelder	1	1		4		
	S8-T6	Willow	4	4	A few	4	3 - 4	
	S8-T7	Willow	1	1	Many	6	2 - 6	
	S8-T8	Willow	1	1		12		
	S8-T9	Willow	1	1	5	3	2 - 3	S8-T9 is in channel at site #8 LDRJ
Access Note:								Access to BAJ
	S8-T10	Boxelder	1	1		9		May be dead
	S8-T11	Boxelder	1	1	2	3	2 - 3	
	S8-T12	Boxelder	1	1	Many	3	2 - 3	S8-T12 main trunk is dead
	S8-T13	Boxelder	1	1	3	6	2 - 6	
	S8-T14	Boxelder	1	1		9		
	S8-T15	Willow	1	1	9	8	2 - 8	
	S8-T16	Willow	1	1	5	5	2 - 5	T15 and T16 along bank at BAJ
Site #8 - Subtotal of Trees Surveyed/Impacted			19	19				

Site #9	Started at access off Bear Valley Road; followed access into the site, across creek to upstream Cross-Vane, down through floodplain to downstream end, and back up other side.							
	S9-T1	Coast Live Oak	1	1	1	8		Oak at access entrance off Bear Valley Road
	S9-T2	Alder	4	4	4	3	2 - 3	Trees impacted by u/s Cross-Vane & LDRJ#1
	S9-T3	Willow	18	18	18	6	3 - 6	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	7	7	"

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 1 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	"	Willow	1	1	1	9	9	"
	S9-T4	Willow	1	1	1	6	6	Trees impacted by u/s Cross-Vane & LDRJ#1
	"	Willow	1	1	1	5	5	"
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	9	9	"
	"	Alder	19	19	19	5	2 - 5	"
Access Note: Access to LDRJ#2:								
	S9-T5	Willow	1	1	1	9	9	Access route to LDRJ#2
	"	Willow	4	4	4	6	4 - 6	"
	"	Alder	47	47	47	8	2 - 8	"
	"	Alder	13	13	13	8	2 - 8	"
	"	Alder	15	15	15	6	2 - 6	"
	"	Willow	1	1	1	8	8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	5	5	5	9	8 - 9	"
	"	Alder	3	3	3	6	4 - 6	"
	S9-T6	Alder	1	1	1	4	4	"
	"	Alder	7	7	7	6	3 - 6	"
	"	Alder	1	1	1	7	7	"
	"	Alder	1	1	1	9	9	"
	"	Alder	13	13	13	5	2 - 5	"
	"	Alder	4	4	4	8	6 - 8	"
	"	Willow	1	1	1	9	9	"
	"	Alder	1	1	1	10	10	"
	"	Alder	10	10	10	5	2 - 5	"
	"	Alder	1	1	1	9	9	"
	"	Alder	24	24	24	6	2 - 6	"
	"	Alder	2	2	2	7	7	Both 7-inches DBH
Access Note: LDRJ#2:								
	S9-T7	Alder	2	2	2	5	5	Trees impacted by LDRJ#2 (on south bank)
	"	Alder	14	14	14	6	3 - 6	Trees impacted by LDRJ#2 (on north bank)
	"	Alder	1	1	1	10	10	"
	"	Willow	1	1	1	10	10	"
	"	Willow	1	1	1	9	9	"
	"	Willow	5	5	5	6	3 - 6	"
Access Note: Access to LDRJ#3:								
	S9-T8	Alder	16	16	16	6	3 - 6	Access route to LDRJ#3
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	7	7	"
	"	Alder	15	15	15	5	2 - 5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	8	8	8	4	2 - 4	"
	"	Alder	1	1	1	5	5	"
Access Note: LDRJ#3:								
	S9-T9	Alder	1	1	1	6	6	Trees impacted by LDRJ#3
	"	Alder	4	4	4	3	2 - 3	"
Access Note: Access to LDRJ#4:								
	S9-T10	Alder	8	8	8	3	2 - 3	Access route to LDRJ#4
	"	Alder	1	1	1	6	6	"
	"	Willow	1	1	1	5	5	"
	"	Willow	1	1	1	11	11	"
	"	Alder	1	1	1	9	9	"
	"	Willow	1	1	1	10	10	"
Access Note: LDRJ#4:								
	S9-T11	Willow	1	1	Multi-stems	6	6	Trees impacted by LDRJ#4 (on north bank)
	"	Alder	1	1	1	3	3	Trees impacted by LDRJ#4 (on south bank)
Access Note: Access to LDRJ#5:								
	S9-T12	Alder	1	1	1	9	9	Access route to LDRJ#5
	"	Alder	1	1	1	11	11	"

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

BAJ - Bar Apex Jam; LDRJ - Log Debris Retention Jam; DV - Diversion Vane

Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 1 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	"	Alder	1	1	1	8	8	"
	"	Alder	1	1	1	6	6	"
	"	Willow	4	4	4	8	6 - 8	"
	"	Willow	3	3	3	7	6 - 7	"
	"	Willow	2	2	2	6	6	Both 6-inches DBH
	"	Alder	1	1	1	8	8	Access route to LDRJ#5
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
	"	Alder	1	1	1	3	3	"
Access Note: LDRJ#5:								
	S9-T13	Alder	1	1	1	7	7	Trees impacted by LDRJ#5 (on north bank)
	"	Alder	1	1	1	8	8	Trees impacted by LDRJ#5 (on south bank)
	"	Alder	1	1	1	4	4	"
Access Note: Access to LDRJ#6:								
	S9-T14	Willow	1	1	1	4	4	Access route to LDRJ#6
	"	Willow	1	1	1	6	6	"
	"	Alder	1	1	1	2	2	"
Access Note: LDRJ#6:								
		N/A						No trees impacted by LDRJ#6
Access Note: Access to Downstream Creek Crossing:								
	S9-T15	Alder	1	1	1	7	7	Access route to downstream creek crossing
	"	Alder	1	1	1	5	5	"
	"	Alder	1	1	1	7	7	"
	"	Alder	1	1	1	7	7	"
Access Note: Downstream Creek Crossing:								
		N/A						No trees impacted by d/s creek crossing
Access Note: Access Along South Side of Olema Creek, from Downstream Creek Crossing back up to LDRJ#4								
	S9-T16	Alder	1	1	1	6	6	Access route along south side Olema Cr.
	"	Alder	1	1	1	8	8	"
	"	Willow	3	3	3	6	4 - 6	"
	"	Willow	1	1	1	3	3	"
	"	Willow	1	1	1	6	6	"
	"	Willow	4	4	4	7	7	All 4-inches DBH
	"	Willow	6	6	6	4	3 - 4	Access route along south side Olema Cr.
	"	Alder	1	1	1	11	11	"
	"	Willow	3	3	3	7	5 - 7	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	10	10	"
	"	Alder	1	1	1	9	9	"
	"	Alder	1	1	1	7	7	"
Site #9 - Subtotal of Trees Surveyed/Impacted			359	359				

Site #10- Tocaloma Floodplain Site	Started at Upstream End of the Floodplain Enhancement Channel and Moved Downstream through the Floodplain							
	TF-T1	Willow	7	7	7	6	2 - 6	7 willows
	TF-T2	Willow	2	2	2	10	6 - 10	2 willows
	TF-T3	Willow	1	1	Multiple	13		1 willow with multiple branchings
	TF-T4	Willow	1	1	3	10	Up to 10	1 willow with 3 stems
	TF-Misc.	Willow	1	1	1	2		1 willow ~ 2 in. dia.
	TF-T5	Willow	1	1	2	9	Up to 9	1 willow w/2 stems
	TF-T6	Willow	1	1	3	19	Up to 19	1 willow w/3 stems
	TF-T7	Willow	1	1	1	9		
	TF-T8	Willow	1	1	1	14		
	TF-Misc.	Willow	1	1	1	6		1 willow next to T8
	TF-Misc.	Willow	1	1	1	12		1 willow near T8
	TF-T9	Willow	1	1	1	7		
	TF-T10	Willow	1	1	ND	ND	ND	No Data on this occurrence
	TF-Misc.	Willow	2	2	2	4		2 willows laying near T9

Notes: Trees surveyed included only trees potentially cut or uprooted to accommodate equipment access, staging, or project features (i.e., not partially limbed trees).

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Lagunitas Creek Winter Habitat and Floodplain Enhancement Project - All Project Sites; #'s 1 - 10

TREE SURVEY

Prepared by MMWD: Surveyed February, March, & November 2016; and January 2017.

Site	Tree ID#	Species	Number of Trees	Number of Trees To Be Cut or Uprooted	Number of Stems/Limbs	Max. Diameter (DBH in.)	Range of Diameters (in.)	Comments
	TF-T11	Willow	1	1	10	17	8 - 17	1 willow w/10 stems
	TF-T12	Willow	1	1	15	13	8 - 13	1 willow w/15 stems
	TF-T13	Willow	1	1	1	15		
	TF-T14	Ash	1	1	1	4		ash tree/sapling
	TF-T15	Willow	1	1	3	9	8 - 9	1 willow w/3 stems
	TF-T16	Willow	1	1	3	11	10 - 11	1 willow w/stems
	TF-T17	Willow	1	1	7	10	8 - 10	1 willow w/7 stems
	TF-Misc.	Willow	6	6	6	6	2 - 16	6 willows east of T17
	TF-T18	Willow	1	1	14	11	6 - 11	1 willow w/14 stems
	TF-T19	Ash	2	2	2	6	4 - 6	2 ash trees/saplings
	TF-Misc.	Willow	15	15	15	6	2 - 6	15 willows between T17 & T19
	TF-T20 ¹	Bay	1	0	3	23	9 - 23	Very large bay tree with 3 stems. Tree east of the floodplain channel, will not need to be removed
	TF-T21	Willow	2	2	3	7	4 - 7	2 willows w/3 stems, laying down
	TF-Misc.	Ash	1	1	1	6		1 ash between T19 & T21
	TF-Misc.	Willow	5	5	5	4	2 - 4	5 willows between T19 & T21
	TF-22	Willow	1	1	5	8	5 - 8	1 willow w/5 stems
	TF-23	Willow	1	1	2	8	5 - 8	1 willow w/2 stems
	TF-24 ¹	Willow	5	0	22	12	5 - 12	Willow cluster of 5 trees, 22 stems; 7 stems @ 10" - 12", 15 stems @ 5" - 7" dia. Cluster at the west bank of floodplain channel, may not need to be removed
	TF-25 ¹	Willow	8	0	20	14	4 - 14	Willow cluster of 8 trees, 20 stems; 7 stems @ 8" - 14", 13 stems @ 4" - 6" dia. Cluster at the west bank of floodplain channel, may not need to be removed
	TF-26	Willow	10	10	Multiple	6	2 - 6	10 willows with multiple stems
	TF-27	Willow	35	35	Multiple	4	2 - 6	35 willows scattered within floodplain channel
	TF-28	Willow	10	10	Multiple	5	4 - 5	10 willows scattered within floodplain channel
	TF-29	Willow	1	1	9	8	5 - 8	1 willow w/9 stems
	TF-30	Willow	4	4	4	14	6 - 14	4 willows
	TF-31	Willow	3	3	5	10	4 - 10	3 willows w/5 stems
	TF-32 ¹	Alder	1	0	1	19	19	1 large alder tree; immediately downstream of end of floodplain channel
Site #10 - SubTotal of Trees Surveyed			141					
Site #10 - Subtotal Corrected of Trees Impacted			126	126				
Note: ¹ Trees outside of the Tocaloma Floodplain channel that were included in the survey but will not be removed for the project.								

PROJECT TOTAL - ALL SITES						
PROJECT TOTAL - TOTAL No. of TREES SURVEYED	697					
PROJECT TOTAL - TOTAL No. of TREES IMPACTED	680	680				

