

MILLIKEN CREEK FLOOD REDUCTION AND FISH PASSAGE IMPROVEMENT PROJECT

Initial Study / Mitigated Negative Declaration

Prepared for
County of Napa

August 2016



MILLIKEN CREEK FLOOD REDUCTION AND FISH PASSAGE IMPROVEMENT PROJECT

Initial Study / Mitigated Negative Declaration

Prepared for
County of Napa

August 2016



1425 N. McDowell Boulevard
Suite 200
Petaluma, CA 94954
707.795.0900
www.esassoc.com

Los Angeles

Oakland

Orlando

Palm Springs

Portland

Sacramento

San Diego

San Francisco

Seattle

Tampa

Woodland Hills

OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

TABLE OF CONTENTS

Milliken Creek Flood Reduction and Fish Passage Improvement Project Initial Study / Mitigated Negative Declaration

	<u>Page</u>
Acronyms and Abbreviations	iii
1. Project Description	1-1
1.1 Introduction	1-1
1.2 Project Background and Purpose	1-2
1.3 Proposed Project	1-2
1.4 Project Construction	1-7
1.5 Project Operation	1-11
1.6 Report Organization	1-11
1.7 Agency Use of this Document	1-11
1.8 References	1-12
2. Environmental Checklist	2-1
2.1 Environmental Factors Potentially Affected	2-3
2.2 Environmental Checklist	2-4
2.2.1 Aesthetics	2-4
2.2.2 Agricultural and Forest Resources	2-6
2.2.3 Air Quality	2-8
2.2.4 Biological Resources	2-15
2.2.5 Cultural Resources	2-31
2.2.6 Geology, Soils, and Seismicity	2-38
2.2.7 Greenhouse Gas Emissions	2-42
2.2.8 Hazards and Hazardous Materials	2-44
2.2.9 Hydrology and Water Quality	2-47
2.2.10 Land Use and Land Use Planning	2-52
2.2.11 Mineral Resources	2-53
2.2.12 Noise	2-54
2.2.13 Population and Housing	2-61
2.2.14 Public Services	2-62
2.2.15 Recreation	2-64
2.2.16 Transportation and Traffic	2-65
2.2.17 Utilities and Service Systems	2-39
2.2.18 Mandatory Findings of Significance	2-71

	<u>Page</u>
3. Mitigation Measures and Mitigation Monitoring and Report Program	3-1
3.1 Air Quality	3-1
3.2 Biological Resources	3-2
3.3 Cultural Resources	3-8
3.4 Noise	3-9
Appendices	
A. 60% Design Plan Set	A-1
B. Air Quality/Greenhouse Gas Emission Construction Assumptions and Calculations	B-1
C. List of Special-Status Species Considered in the Study Area	C-1
List of Figures	
1-1 Project Location	1-4
1-2 Site Photos	1-5
List of Tables	
2-1 Construction Criteria Pollutant Exhaust Emissions	2-11
2-2 Trees Proposed for Removal	2-28
2-3 Construction GHG Emissions Estimate	2-43
2-4 Napa County Noise Limits for Construction Activities	2-56
2-5 Typical Noise Levels from Construction Equipment	2-57

ACRONYMS AND ABBREVIATIONS

2010 CAP	Bay Area 2010 Clean Air Plan
CARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CAL FIRE	California Department of Forestry
Caltrans	California Department of Transportation
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	California Freshwater Shrimp
CGS	California Geological Survey
CNEL	community noise equivalent level
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO ₂	carbon dioxide
dBA	A-weighted decibels
dB	decibel
DTSC	Department of Toxic Substances Control
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GHG	greenhouse gases
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
L _{dn}	day-night noise level
L _{eq}	steady-state acoustical energy level
MND	Mitigated Negative Declaration
NMFS	National Marine Fisheries Service
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
PM ₁₀	particulate matter, less than 10 microns in diameter
PM _{2.5}	fine particulate matter, less than 2.5 microns in diameter
PPV	peak particle velocity

ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	Total maximum daily load
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey

CHAPTER 1

Project Description

1.1 Introduction

The County of Napa (County) in collaboration with Project partners Silverado Resort and the Kaanapali Drive Homeowners Association (HOA) proposes to implement the Milliken Creek Flood Reduction and Fish Passage Improvement Project (Project), within unincorporated Napa County, California. The Project includes dam removal and bridge replacement on Milliken Creek, creek restoration actions, street drainage improvements above an existing culvert on Kaanapali Drive and on Atlas Peak Road, and construction of a bypass storm drain from the south end of the Silverado golf course to the intersection of Kaanapali Drive and Hillcrest Drive.

This document is an Initial Study/Mitigated Negative Declaration (IS/MND) that analyzes the potential environmental impacts of the Project. This IS/MND is prepared in compliance with Public Resources Code Section 21000 et seq., California Environmental Quality Act (CEQA) of 1970 (as amended), and Title 14, Chapter 3 of the California Administrative Code. In accordance with the CEQA Guidelines, California Code of Regulations Title 14, Chapter 3, Section 15070, a Mitigated Negative Declaration shall be prepared if the following criteria are met:

- There is no substantial evidence that the project will have a significant effect; or
- Where there may be a potentially significant effect, revisions to the project would avoid or mitigate the effects to a point where clearly no significant effects would occur.

In accordance with Section 15073 of the CEQA Guidelines, this document is being circulated to local, state and federal agencies and to interested organizations and individuals who may wish to review and comment on the report. Written comments may be forwarded to:

Richard Thomasser
Watershed & Flood Control Operations Manager
County of Napa Department of Public Works
804 First Street
Napa, CA 94559

1.2 Project Background and Purpose

In recent years, high water flows from Milliken Creek at the Silverado golf course and break-out flows upstream of an existing summer impoundment dam have led to flooding of homes and streets in the area. Out of bank flooding has occurred before but the property damage associated with the December 2005 event was greater than previous flooding events observed by local residents. Since 2005 several studies have been conducted to assess flood conditions and analyze several flood reduction alternatives. These studies were conducted in collaboration with the Silverado Property Owner's Association and Silverado Resort.

In 2014, the County worked with consultants to refine the prior studies, evaluated preferred alternatives, and developed a preferred alternative for the Milliken Creek Flood Reduction and Fish Passage Project. Also, in 2014, the property owners of the 55 homes on Kaanapali Drive voted to create a Homeowner's Association (HOA), which has as its purpose to work with the County and the Silverado Resort to implement this Project. With concurrence of the parties, it was decided that the Project would include: 1) removal of the summer impoundment dam and creek restoration, 2) installation of street drainage improvements to the East Fork Milliken Creek culvert, and 3) installation of a bypass channel near the southern portion of the Silverado golf course to improve the storm drainage from the golf course detention area during periods of high flows. Based on hydraulic analyses performed during design, it was further determined that this storm drainage relief could best be accomplished using a piped storm drain as compared to an open channel design.

Milliken Creek is a tributary to the Napa River, with its confluence located just north of the city of Napa. The Milliken Creek watershed drains the western face of Atlas Peak along the east side of the Napa Valley. Within the Project vicinity, the creek's channel is incised with over steepened banks both upstream and downstream of the summer impoundment dam. The summer impoundment dam: 1) raises water surface elevations upstream causing out of bank flooding along the main stem of Milliken Creek, 2) locally traps sediment upstream and causes local sediment depletion and scour downstream, and 3) is a barrier to upstream migration of steelhead trout and other native fish at certain flows. Furthermore, Milliken Creek upstream of the summer impoundment dam has been identified by Napa County Resource Conservation District as high value rearing habitat for steelhead trout (Koehler, 2009); therefore, dam removal potentially provides a way of reducing flooding and restoring habitat.

The main objective of the Project is to provide flood relief to the maximum number of households along Kaanapali Drive and to remove barriers to fish passage along Milliken Creek.

1.3 Proposed Project

1.3.1 Project Location and Setting

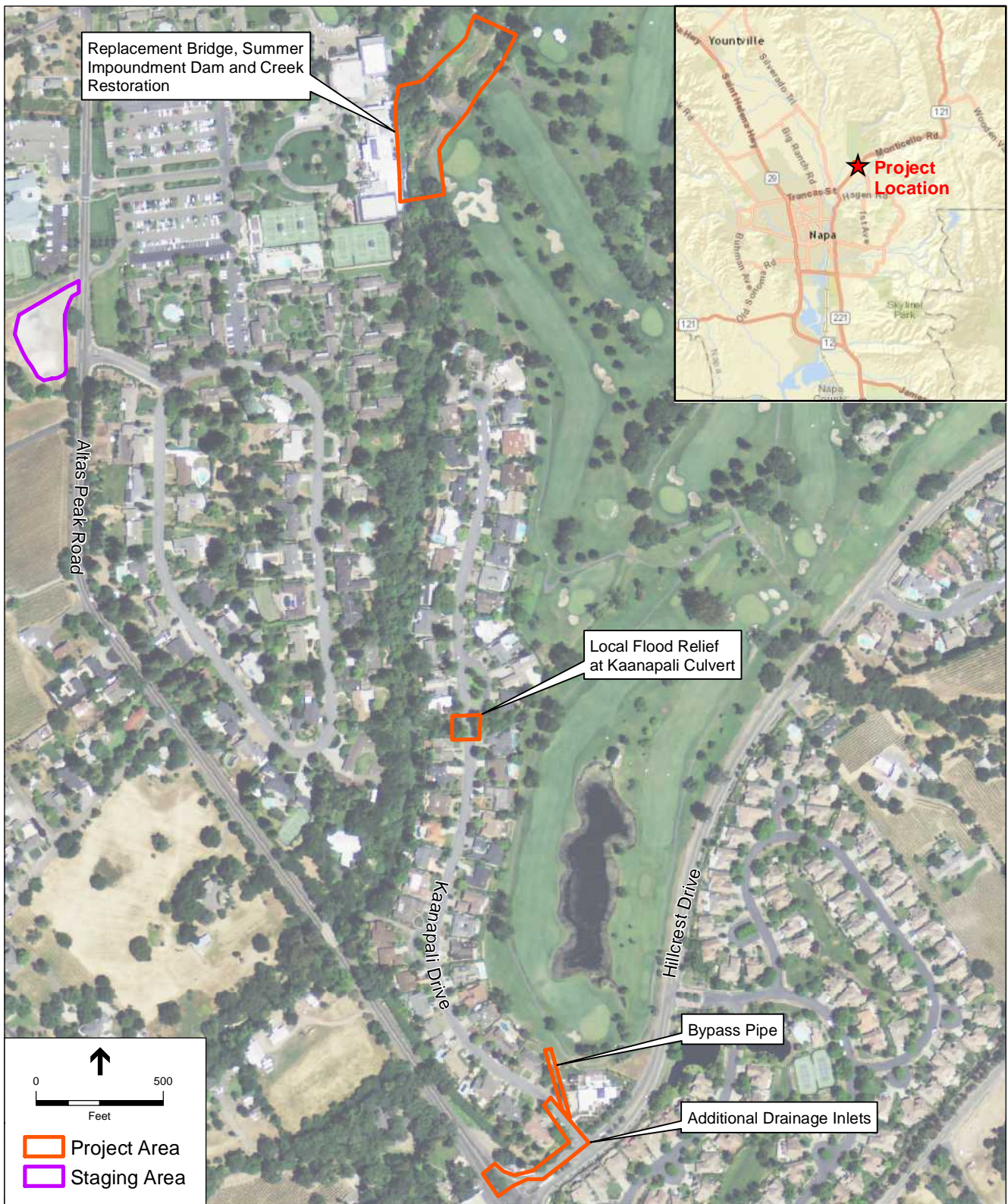
The Project site is located in the unincorporated area of Silverado, in Napa County, approximately 3.5 miles northeast of downtown Napa (**Figure 1-1**). The Project would occur in and along Milliken Creek at the Silverado Resort, and within the Kaanapali neighborhood located southwest of the Silverado Resort. Topography is generally level with a gentle slope to the south. Current land uses include a golf course, residential development, and open space, including Milliken Creek.

Milliken Creek is a tributary to the Napa River, and the creek bisects the Silverado Resort in a northeast southwest direction. Milliken Creek exits the Silverado Resort at the southwest corner between the residential streets of Silver Trail and Kaanapali Drive. Within the Project areas the banks of Milliken Creek are lined with trees and other riparian vegetation. The Kaanapali neighborhood is relatively level with many homes established lower than the street. The area surrounding the Kaanapali neighborhood is also level. The Project site has been designated Napa County General Plan and Zoning Code as Planned Development (PD) (County of Napa, 2008; 2013).

1.3.2 Summer Impoundment Dam Removal and Creek Restoration

The Project proposes the removal of the existing summer impoundment dam on Milliken Creek at the Silverado golf course and completion of creek restoration activities in the same area. The purpose of the dam was to impound water for the purposes of diverting water from Milliken Creek under riparian and pre-1914 water rights held by the Silverado Resort. The summer impoundment dam is approximately 13 feet high and 80 feet wide at the base, and appears to be constructed from earth encased by concrete. The creek passes through the dam in a 102-foot long, 6-foot diameter culvert controlled by an adjustable slide gate at the upstream end (see **Figure 1-2**). The downstream end of the concrete apron has been undercut and has partially failed, leaving underlying rebar exposed. The downstream end of the culvert is perched by about 2.5 feet above the channel invert downstream. It is expected that dam removal would improve natural geomorphic conditions within this reach of Milliken Creek, improve fish passage conditions, and restore natural sediment transport processes. In conjunction with the other flood management measures being proposed, dam removal will not cause a net increase in water surface elevation that threatens property. It is expected that at flows less than the 1% exceedance flow (the 100-year flood), the overall Project would provide a net benefit for the neighborhood. See Section 1.4 Project Construction, for additional details related to the dam removal process.

Following removal of the summer impoundment dam and necessary bank grading and recontouring, creek restoration activities would begin. Creek restoration and enhancement activities would occur along approximately 600 feet of stream channel, extending from approximately 300 feet upstream of the summer impoundment dam to approximately 300 feet downstream of the existing dam. Creek



SOURCE: Aerial (NAIP 2012); Study Area (ESA 2015)

Milliken Creek Flood Reduction and Fish Passage Project . 130530

Figure 1-1
Project Location



View from the top of the summer impoundment dam looking towards the downstream culvert.



View from downstream of the summer impoundment dam on Milliken Creek.

Source: ESA

Milliken Creek Flood Reduction and Fish Passage Project . 150530

Figure 1-2
Site Photos

restoration work includes construction of a series of coarse riffle crests and associated channel grading to extend the 0.9% riffle-pool reach found upstream of the dam throughout the Project reach. Four coarse riffle crests would be constructed using a reference reach found approximately half a mile upstream of the dam. The riffles would be composed of a mixture of boulders (12-18 inch diameter), cobble (3-6 inch diameter), and coarse gravel (1-2 inch diameter). The low flow channel banks would be graded with alternating expansions at the riffles and contractions at the pools, so as to encourage riffle-pool persistence through periodic velocity reversals. Fill volumes are estimated at approximately 610 cubic yards, though may be significantly less if the fill within the dam is competent material and over-excavation is not required. Cut volumes are estimated at 2,400 cubic yards.

The creek banks would be graded or recontoured to conform to existing banks downstream and upstream of the existing dam. Upon completion of the bank grading, the site would be hydroseeded with a native grass and herbaceous seed mix and replanted with native trees, shrubs, and herbaceous plants to enhance habitat and prevent future erosion and degradation. This Project component includes riparian revegetation upstream of the existing dam location. In total approximately 0.78 acres of riparian bank habitat will be restored as part of the Project. See **Appendix A** for the 60% Design Plan Set.

1.3.3 Replacement Bridge

The Project proposes a new bridge, to be constructed by Silverado Resort, over Milliken Creek to replace the summer impoundment dam that is currently used by vehicles and pedestrians to cross Milliken Creek at the Silverado golf course. The proposed replacement bridge would be 20 feet wide by 122 feet long and the bridge soffit would be placed above the 100-year base flood elevation.

The replacement bridge would consist of reinforced concrete decking on reinforced concrete abutments placed on top-of-bank on both sides of Milliken Creek. The abutments would be 21 feet long by 2.33 feet wide and would be buried 12 feet deep, each requiring 7.2 yards of concrete. Wing walls would attach to each abutment to retain soil fill for the roadway-to-bridge ramps. The wing walls would be 1 foot wide and extend 2 feet above grade to meet the bridge deck and would require a total of 7.7 yards of concrete. On each side of the creek, the road would require 350 yards of earth fill to meet the bridge deck.

1.3.4 Local Flood Relief at Kaanapali Culvert

To address certain observed ponding and drainage issues on Kaanapali Drive, a curb cut would be added near the drop inlet on the west side of Kaanapali Drive near the outlet of the culvert that conveys the East Fork of Milliken Creek under the roadway (see **Figure 1-1**). A boulder cascade structure would be constructed to allow flows in excess of the drainage inlet capacity along Kaanapali Drive to flow overland and directly enter East Fork Milliken Creek. The boulder cascade structure would connect the roadway with a point 12 inches above the top of the existing culvert.

1.3.5 Bypass Storm Drain Pipe and Atlas Peak Drainage Improvements

This component includes the construction of a 36-inch underground pipe storm drain from the south end of the golf course to Kaanapali Drive, between the first two homes on the northeast side of Kaanapali Drive, northwest of Hillcrest Drive (see **Figure 1-1**). After leaving the private property, the pipe will be aligned along Kaanapali Drive and will daylight near the intersection of Kaanapali Drive and Hillcrest Drive through an overflow structure that will be similar in form to a drainage drop inlet. During larger storm events the proposed bypass pipe would allow for gravity overflow from the Silverado golf course to the Kaanapali Drive and Hillcrest Drive intersection. The proposed bypass pipe will not operate during low flow events.

Additional street flows introduced by the bypass pipe will be diverted to an existing underground drainage pipe that originates at the Atlas Peak Road and Monticello Road intersection and flows in the north-westerly direction under Atlas Peak Road before discharging into Milliken Creek immediately downstream of the Atlas Peak Road Bridge. The diversion will be achieved by constructing a drop inlet on Atlas Peak Road which will be connected with the existing underground drainage pipe under Atlas Peak Road.

1.4 Project Construction

Project construction is anticipated to take up to 4 months, beginning in late spring 2017. Construction activities associated with the replacement bridge would occur over a 1 month period. Following the completion of the replacement bridge the summer impoundment dam would be removed. Creek restoration work would occur after the summer impoundment dam has been removed and is anticipated to occur over a 4-week period. Construction activities would take place primarily during daytime hours from 7:00 a.m. and 7:00 p.m., Monday through Friday, consistent with the County Code.

Construction workers would access the Project area via Highway 121 and Atlas Peak Road. Construction work at the 3 sites would likely be phased to occur at different times within the up to 4-month construction period and on any given work day. Although unlikely, if construction at all 3 sites occurred simultaneously, a maximum of 25 workers could be working at all 3 sites. Construction workers would park in maintenance area of the Silverado Country Club or along Kaanapali Drive.

The types of equipment that would be used during various phases of construction may include, but are not limited to, the following: bulldozers, water trucks, compactors/rollers, skid steer, pickup trucks, pavers, loaders, flatbed trucks, backhoes, aerial lifts, dump trucks, concrete trucks, and excavators. Staging of equipment would occur on a gravel lot across the street from Silverado Resort on Atlas Peak Road (see **Figure 1-1**). Construction equipment would also be staged on the top-of-bank, but temporary access to the creek would require complete dewatering activities and construction of the in-stream Project components, including riffle construction, bank grading, and

excavation of a secondary channel. In total, construction would require 329 trucks (658 one-way trips).¹ This would result in up to a maximum of 30 one-way truck trips per day.

1.4.1 Replacement Bridge

A new bridge would be constructed over Milliken Creek by the Silverado Resort to replace the functionality of the existing summer impoundment dam crossing and allow continued vehicular and pedestrian access associated with Silverado golf course across the creek following dam removal. The bridge would span the creek and would consist of reinforced concrete decking, set on reinforced concrete abutments placed on top-of-bank at both sides of the creek.

On each side of the creek, the roadway would ramp up to meet the bridge deck. The volume of earth fill, including paving to achieve this would be 180 yard on the north bank and 170 yard on the south bank. No rip-rap would be placed on bank as a part of construction. Other than the abutment and roadway ramping, all other portions of the creek would be available for native grass, shrub, and tree enhancement plantings to enhance riparian cover and shading of the creek. Construction equipment would be staged on the top-of-bank, and no equipment would enter the bed of the creek. A portion of the dam will also be removed to facilitate bridge installation. It is estimated that the top portion of the dam prism will be removed to allow for 11 feet of clearance under the new bridge to facilitate full removal. This effort is also anticipated to be achieved without equipment entering the bed of the creek. No water would be diverted to facilitate construction activities.

Construction equipment associated with the replacement bridge is anticipated to occur with an excavator, a dozer/scrapper, a front end loader and a truck for temporarily stockpiling excavated materials for later use in construction.

1.4.2 Summer Impoundment Dam Removal and Creek Restoration

It is anticipated that the removal of the summer impoundment dam would take up to 4 weeks and demolition would begin after June 1, 2017. All in-channel excavation work and the majority of bank reconfiguration would occur during the dry season between June 1, 2017 and October 31, 2017, when flows in the channel and subsequent water level is expected to be low. Construction equipment would be staged on the top-of-bank, but temporary access to the creek would require complete dewatering activities and riffle construction, bank grading, and excavation of a secondary channel. Heavy equipment such as trucks would access the site via a small access road accessible via Club House Drive. Project construction would begin with site clearing, preparation and installation of a coffer dam to divert water from the creek for the duration of construction.

Installation of a cofferdam and dewatering would be necessary for in-creek construction related work. The coffer dam installation process would begin with the placement of bio-exclusionary

¹ For the purposes of analysis, it is assumed that trucks would not be dual purpose (i.e., an empty truck will enter the Project site, and be filled with an off-haul load only).

fencing, anticipated to be placed at both the upstream and downstream ends of the Project approximately 50 to 100 feet beyond the limits of construction. Following installation of the fencing, and in the presence of biological monitors, the Project site would be cleared of native fish and any other aquatic organisms. The coffer dam would likely be constructed of sand bags and viscene, spanning the channel both upstream and downstream of the Project site within the fenced and cleared area. Screened pumps would be installed with flexible piping to route flows downstream for the duration of construction. There may also be a need to dewater the construction site by installing some temporary infiltration galleries to lower groundwater sufficiently to dry the upper layer of the streambed.

Following coffer dam installation and any dewatering, dam removal operations would commence including removal of existing asphalt and excavation of the impoundment dam's structural fill prism. Excavation would continue until approximately 15 feet of depth at which the underlying culvert is located, and/or until final channel bank design grades are achieved. If necessary and depending on the material used for dam construction, the bank may need to be over-excavated and rebuilt with viable top soil that would allow for revegetation. This work is anticipated to occur with an excavator, a dozer/scrapper, a front end loader and hydraulic hammer. It is anticipated that the removal of the dam would generate approximately 2,100 cubic yards of materials to be off hauled to a suitable upland disposal site.

Following the removal of the summer impoundment dam, creek restoration activities would begin. As described in Section 1.3.2 Summer Impoundment Dam Removal and Creek Restoration, creek restoration activities would occur along approximate 600 feet of stream channel. Restoration would begin by excavating vegetation away from the banks and grading the banks to be consistent with the natural topography. Installation of the coarse riffle crests and associated channel grading would take place within the stream.

Construction associated with the summer impoundment dam removal and creek restoration is anticipated to occur with an excavator, a dozer, a front end loader and a truck for temporarily stockpiling excavated materials for later use in construction. Handheld equipment including compactors would also be needed for in-channel structures. A water truck is anticipated to be used daily for dust control.

1.4.3 Local Flood Relief at Kaanapali Culvert

Construction of the flood relief structure at Kaanapali culvert would begin with site clearing and preparation. The boulder cascade structure would be excavated using an excavator, and backfilled according to construction specifications. A concrete saw would be used to remove the existing curb head for gutter reconstruction. Construction associated with this Project component could obstruct portions of Kaanapali Drive resulting in the affected segments of the road to be narrowed for through traffic. Road construction signage and traffic cones would be used to direct the public around the affected area.

1.4.4 Bypass Storm Drain Pipe

For the bypass pipe, the Project construction would begin with site clearing and preparation, including the removal of 4 existing trees. Construction of the pipe segment under Kaanapali Drive will involve removal of existing road grade and subgrade. The bypass pipe would be constructed using excavators, dozer/scrapers, front end loaders and trucks hauling excavated materials. A concrete saw would be used to remove the existing road grade along the pipe alignment under Kaanapali Drive. The surface of the ground along the pipe alignment will be restored to pre-project condition after installation of the pipe is complete.

Construction of the drop inlet at Atlas Peak Road and connecting it with existing drainage pipes under Atlas Peak will involve concrete saws, excavators, trucks for hauling away material, and concrete equipment. Construction associated with the bypass pipe will obstruct portions of Kaanapali Drive, Hillcrest Drive, and Atlas Peak Road resulting in the affected segments of the streets to be narrowed for through traffic on a temporary basis. Road construction signage and traffic cones would be used to direct the public around the affected area.

1.4.5 Storm Water Pollution Prevention Plan and Best Management Practices

Because construction of the Project would involve the disturbance of a surface area greater than 1 acre, the County would be required to obtain coverage under the State Construction General Permit, under the National Pollutant Discharge Elimination System (NPDES) program. The County would prepare a Storm Water Pollution Prevention Plan (SWPPP), which would be based on the final engineering design and include all Project components.

The SWPPP would be prepared by a qualified engineer or erosion control specialist, and would be implemented during construction. The SWPPP would be designed to reduce potential impacts related to erosion and surface water quality during construction activities and throughout the life of the Project. It would include Project information, monitoring and reporting procedures, and best management practices (BMPs). The BMPs would include dewatering procedures, storm water runoff quality control measures, concrete waste management, watering for dust control, and construction of perimeter silt fences, as needed. Specific BMPs would include:

1. Measures to prevent sediment from entering aquatic habitat near work areas, including the use of silt fencing and/or sterile hay bales.
2. Measures to prevent the cleaning of equipment in drainages or other wetlands.
3. Measures addressing temporary sediment disposal.
4. Measures to ensure that equipment storage, fueling, and staging areas are located on upland sites with minimal risks of direct drainage into wetland areas or other sensitive habitats. These designated areas would be located so as to prevent any runoff from entering sensitive habitat.
5. Measures to prevent releases of cement or other toxic substances into surface waters.

6. Reporting of project-related spills of hazardous materials to appropriate regulatory entities, including but not limited to: Napa County; the U.S. Fish and Wildlife Service (USFWS); the California Department of Fish and Game (CDFG); and the Regional Water Quality Control Board (RWQCB). Hazardous materials spills would be cleaned up immediately, and contaminated soils would be excavated and transported to approved disposal areas.

Implementation of the SWPPP would comply with State and federal water quality regulations.

1.5 Project Operation

After construction is completed, the bypass drainage outlet at the intersection of Kaanapali Drive and Hillcrest Drive and the storm drainage inlet on Atlas Peak Road would require periodic cleaning and debris removal, which would be conducted by the County as a normal part of roadway maintenance. Any clearing of the bypass pipe inlet on the golf course would be conducted by the Resort. Following habitat restoration and monitoring, there would be no additional activities associated with the Project beyond the routine operational and maintenance activities.

1.6 Report Organization

This report is organized as follows:

Chapter 1, Project Description, provides an introduction to the Project with Project background, needs and objectives, and discusses the proposed facilities.

Chapter 2, Environmental Checklist, presents the CEQA Initial Study Environmental Checklist, analyzes environmental impacts resulting from the Project and describes the mitigation measures that would be incorporated into the project to avoid or reduce impacts to less-than-significant levels.

Chapter 3, Mitigation Measures and Mitigation Monitoring and Reporting Program, lists the mitigation measures recommended in Chapter 2 along with the monitoring and reporting procedures.

1.7 Agency Use of this Document

The County, as the Lead Agency, along with the responsible agencies, will use this IS/MND to evaluate environmental impacts of the Project and make a decision of adopting the IS/MND and approving the Project. Upon adoption of the IS/MND and the mitigation measures described herein, County will use this document to make written findings, consider Project approval, and file a Notice of Determination (NOD).

The analysis contained within this IS/MND would also be used to support the acquisition of regulatory permits or approvals, as needed. The anticipated approvals or permits that the County may be required to apply for or obtain for the Project include:

- United States Army Corps Clean Water Act Section 404 Nationwide Permit;
 - California Department of Fish and Wildlife Fish and Game Code Section 1600 Lake and Streambed Alteration Agreement;
 - San Francisco Bay Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification;
 - Notice of Intent to obtain the General Construction Permit from the San Francisco Bay RWQCB.
-

1.8 References

County of Napa, 2008. *Napa County General Plan*, June 3, 2008.

Koehler, J. and C. Edwards 2009. Southern Napa River Watershed Restoration Plan. Napa County Resource Conservation District. Prepared for California Department of Fish and Game, April 30, 2009.

CHAPTER 2

Environmental Checklist

1. **Project Title:** Milliken Creek Flood Reduction and Fish Passage Improvement Project
2. **Lead Agency Name and Address:** Napa County Department of Public Works
1195 Third Street, Suite 101
Napa, CA 94559
3. **Contact Person and Phone Number:** Richard Thomasser
(707) 259-8600
4. **Project Location and APN:** The Project site is located in or near Milliken Creek at the Silverado Resort in Napa County, as shown in **Figure 1-1**. APNs: 060361014000, 060010001000, 060350001000, 060350025000, 060361001000, 060362001000, 060361015000
5. **Project Sponsor's Name and Address:** County of Napa
1195 Third Street, Suite 101
Napa, CA 94559
6. **General Plan Designation(s):** County of Napa, Planned Development (PD)
7. **Zoning Designation(s):** County of Napa, Planned Development (PD)

8. Description of Project:

The Project includes dam removal and installation of a bridge to replace existing access across Milliken Creek, creek restoration actions, street drainage improvements above an existing culvert on Kaanapali Drive and on Hillcrest Drive and Atlas Peak Road, and construction of a bypass storm drain pipe from the south end of the Silverado golf course to the intersection of Kaanapali Drive and Hillcrest Drive. Refer to Chapter 1, Project Description, for further details.

9. Surrounding Land Uses and Setting.

The Project site is located in the unincorporated area of Silverado, in Napa County, approximately 3.5 miles northeast of downtown Napa (**Figure 1-1**). The Project would occur in and along Milliken Creek at the Silverado Resort, and within the Kaanapali neighborhood located southwest of the Silverado Resort. Topography is primarily flat level areas on

developed land. Current land uses include a golf course, residential development, and open space, including Milliken Creek.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement. Indicate whether another agency is a responsible or trustee agency.)

- United States Army Corps of Engineers (Corps) – Clean Water Act Section 404 Nationwide Permit for construction activities in the vicinity of drainage and that could affect jurisdictional waters.
- Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) – Clean Water Act Section 401 Water Quality Certification.
- National Oceanic Atmospheric Association (NOAA) Fisheries – Endangered Species Act Section 7(a)(2) Biological Opinion (BO)
- California Department of Fish and Wildlife, Bay Delta Region (CDFW) – Fish and Game Code 1600 Lake and Streambed Alteration Agreement for activities affecting riparian habitat or nesting birds, state Endangered Species Act Section 2080 and California Code of Regulations, Section 783.2 Incidental Take Permit for construction activities affecting state-listed species or habitat.
- County of Napa – Floodplain Management/Grading permit.

11. Other approvals (e.g., easements)

- Easement from private property owners of residential parcels.

2.1 Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

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

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- 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.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- 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.
- 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, no further environmental documentation is required.

Signature

Printed Name

Date

For

2.2 Environmental Checklist

2.2.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
1. 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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a) **No Impact.** There are no designated scenic vistas in the Project vicinity; therefore the Project would have no impact on a scenic vista.
- b) **No Impact.** There are approximately 280 miles of county-designated scenic roadways in Napa County. Although none of the roads are officially designated as Scenic Highways by the State of California, segments of Highway 29, State Route 121 and State Route 221 are eligible for scenic highway designation (County of Napa, 2008; Caltrans, 2015). The Project is not located within any county-designated scenic roadways or state scenic highway; the closest segment of an eligible state scenic highway is approximately 2.80 miles away. Therefore, there would be no impact to scenic resources within a state scenic highway.
- c) **Less than Significant.** Construction activities associated with the Project would require land disturbing activities such as earthmoving, trenching, and grading. Construction-related impacts to visual character and quality of the Project site and surroundings would occur as a result of the presence of exposed soil, construction-related vehicles, heavy equipment, building materials, and a work crew on the Project site. This would represent a noticeable but short-term visual change from existing conditions. However, as construction would be completed in approximately 4 months, such impacts would be extremely limited in duration. Construction impacts on existing visual character and quality of the site and its surroundings would therefore be less than significant.

The Project would replace the existing summer impoundment dam over Milliken Creek with a single bridge over Milliken Creek. The summer impoundment dam is approximately 13 feet high and 80 feet wide at the base. The profile of the replacement bridge and approaches would be smaller and located in close proximity to the existing summer impoundment dam. It is not anticipated that the replacement bridge would

degrade the existing visual character or quality of the site and its surroundings as it is replacing the larger dam. Creek restoration around the replacement bridge would enhance the visual quality along that portion of Milliken Creek by adding in native vegetation. Upon completion of the drainage improvements along Kaanapali Drive, Hillcrest Drive, and Atlas Peak Road and the bypass pipe, all features would appear similar to the existing surroundings. Furthermore, the features would not represent a noticeable change that would degrade the visual character due to size and similarity to existing features or structures. As such, the Project's impact with respect to the visual character and quality of the Project site would be less than significant.

- d) **No Impact.** The Project would not include any nighttime construction; therefore, no night lighting would be required during construction. In addition, the Project would not require the installation of any permanent outdoor lighting or include any material or surfaces that would constitute a new source of glare. Therefore, the Project would not create a new source of light or glare, which would adversely affect day or nighttime views.

References

California Department of Transportation (Caltrans), 2015. California Scenic Highway Mapping System, Napa County. Available online at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed August 3, 2015.

County of Napa, 2008. *Napa County General Plan*, June 3, 2008.

2.2.2 Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
2. AGRICULTURAL AND FOREST RESOURCES —				
<p>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 Department 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 forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</p> <p>Would the project:</p>				
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"/>
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"/>
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"/>

Discussion

- a) **No Impact.** The California Department of Conservation Farmland Mapping and Monitoring Program designate the site and staging area as “Urban and Built-Up Land” (CDC, 2014). Therefore, the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use and no impact would occur.
- b) **No Impact.** The Project site is zoned as Planned Development (PD) on the County of Napa’s Zoning map and is not under a Williamson Act contract (CDC, 2013). Therefore, the Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract and no impact would occur.
- c, d, e) **No Impact.** The Project would not occur on land zoned as forest land or timberland, and would not involve other changes in the existing environment that would result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, the Project would have no impact on forest resources or agricultural uses.

References

California Department of Conservation (CDC), 2013. Division of Land Resource Protection, Napa County Williamson Act Lands 2013/2014. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Napa_13_14_WA.pdf. Accessed July 21, 2015.

California Department of Conservation (CDC) 2014. Division of Land Resources Protection, Farmland Mapping and Monitoring Program, *Napa County Important Farmland 2012*, August 2014.

2.2.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
3. 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **No Impact.** The most recently adopted air quality plan for the San Francisco Bay Area is the Bay Area 2010 Clean Air Plan (2010 CAP). The 2010 CAP is an update to the Bay Area Air Quality Management District (BAAQMD)'s 2005 Ozone Strategy to comply with State air quality planning requirements. The 2010 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories, including stationary source measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures, and energy and climate measures (BAAQMD, 2010).

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required, analyze the project with respect to the following questions: 1) does the project support the primary goals of the air quality plan; 2) does the project include applicable control measures from the air quality plan; and 3) does the project disrupt or hinder implementation of any 2010 CAP control measures? If all the questions are concluded in the affirmative, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area (BAAQMD, 2012). Any project that would not support the 2010 CAP goals would not be considered consistent with the 2010 CAP, and if approval of the project would not result in significant and unavoidable air quality impacts after the application of mitigation, then the project would be considered consistent with the 2010 CAP.

As presented in the subsequent impact discussions, the Project would result in no new long-term operations-related emissions and with mitigation, Project-related construction emissions would not exceed the BAAQMD significance thresholds for construction. Therefore, the Project would support the primary goals of the 2010 CAP. As mentioned above, projects that incorporate all feasible air quality plan control measures are considered consistent with the 2010 CAP. There appear to be no 2010 CAP control measures that would be directly applicable to the Project; however, implementation of **Mitigation Measure AIR-1** (see discussion b), below) would ensure that BAAQMD basic construction control measures would be implemented.

The Project would support the primary goals of the 2010 CAP and it would not disrupt or hinder implementation of any 2010 CAP control measures. Therefore, there would be no impact associated with the project conflicting or obstructing implementation of the applicable air quality plan.

- b) ***Less than Significant with Mitigation.*** The Federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations of air pollutants, called Ambient Air Quality Standards (AAQSs). The federal AAQSs, established by U.S. Environmental Protection Agency (USEPA), are typically higher (less stringent) than the State AAQSs, which are established by the California Air Resources Board (CARB) and enforced by the local air district, which is the BAAQMD in the Project area. The air quality standard time periods over which the various pollutants are measured range from a 1-hour average to an annual average. The standards are read as a concentration, in parts per million (ppm) or as a weighted mass of material per a volume of air, in milligrams or micrograms of the pollutant in a cubic meter of air (mg/m^3 or $\mu\text{g}/\text{m}^3$, respectively).

In general, an area is designated as “attainment” of a given standard if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is generally designated as “non-attainment” for an air contaminant if that contaminant standard is violated. In circumstances where there is not enough ambient air quality data available to support designation as either attainment or non-attainment, the area can be designated as unclassified. An unclassified area is normally treated by CARB and USEPA the same as an attainment area for regulatory purposes. An area could be designated attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the State standard for the same air contaminant. The Project area currently is designated as a non-attainment area for violation of the state 1-hour and 8-hour ozone standards, the state particulate matter (PM_{10}) 24-hour and annual average standards, the state fine particulate matter ($\text{PM}_{2.5}$) annual average standard, the federal ozone 8-hour standard, and the federal $\text{PM}_{2.5}$ 24-hour standard. The Project area is designated as attainment for all other state and federal AAQSs (BAAQMD, 2015).

To determine the significance of the Project impact that would be related to the potential for it to cause or contribute to an air quality standard violation, construction exhaust

emissions were estimated and compared to regional significance thresholds recommended in the BAAQMD's *Revised Draft Options and Justification Report* (2009). The justification report provides substantial evidence to support the recommended thresholds and, therefore, the County has determined they are appropriate for use in this analysis. Based on the following, construction and operation of the mitigated Project would not result in a violation of an air quality standard or contribute significantly to an existing or projected air quality violation. Therefore, the associated impact would be less than significant with mitigation.

Construction

Construction activities that would be associated with the Project would occur over a period of approximately 4 months. The majority of proposed Project-related exhaust emissions would be generated on-site due to the use of heavy-duty off-road equipment such as bulldozers, rollers, loaders, excavators, etc. Exhaust emissions would also be generated by an average of approximately 15 construction workers commuting daily to and from the Project sites as well as an average of approximately 4 trips per day from heavy-duty diesel trucks exporting debris and importing materials to and from the Project sites.

Criteria pollutant exhaust emissions of PM_{10} and $PM_{2.5}$ and ozone precursor emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x) from construction equipment and vehicles would incrementally add to the regional atmospheric loading of these pollutants during construction of the Project. Impacts related to the Project contributing to an existing or projected air quality violation and whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or associated precursors are judged by comparing estimated direct and indirect project exhaust emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_x , and $PM_{2.5}$; and 82 pounds per day for PM_{10} . Only the exhaust portion of $PM_{2.5}$ and PM_{10} emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. Rather, the BAAQMD considers implementation of the BAAQMD-recommended basic mitigation measures for fugitive dust sufficient to ensure that the construction-related fugitive dust impact is reduced to a less-than-significant level.

Air pollutant emissions, including ROG, NO_x , PM_{10} , and $PM_{2.5}$ that would be generated by on-site construction equipment were estimated using the California Emission Estimator Model (CalEEMod) Version 2013.2.2. Air pollutant emissions of ROG, NO_x , PM_{10} , and $PM_{2.5}$ that would be generated off-site (i.e., worker vehicles and haul trucks) were estimated using emission factors from CARB's EMFAC2014 emissions model for on-road sources.

Table 2-1 shows the estimated total average daily exhaust emissions that would be associated with construction of the Project. For all assumptions and calculations used to

estimate the Project-related construction emissions, refer to **Appendix B**. As described in the Project Description, construction activities would begin with construction of the replacement bridge followed by the removal of the summer impoundment dam, which would be followed by the creek restoration work. These activities would occur sequentially, and would not overlap; however, it is assumed that the other Project components could overlap with some of these activities. The maximum day emissions that would be associated with off-road equipment would occur during overlapping activities associated with construction of the replacement bridge and installation of the temporary coffer dam. As indicated in the **Table 2-1**, the total average daily construction exhaust emissions would not exceed the BAAQMD's significance thresholds. Therefore, impacts that would be associated with the potential for construction-related exhaust emissions to result or contribute to a violation of an air quality standard would be less than significant.

**TABLE 2-1
CONSTRUCTION CRITERIA POLLUTANT EXHAUST EMISSIONS**

Emissions Source	Average Daily Construction Emissions (pounds/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Off-Road Equipment				
Replacement Bridge	0.69	7.24	0.40	0.38
Coffer Dam Installation	1.28	14.39	0.65	0.61
Summer Impoundment Dam Removal	0.75	8.39	0.36	0.33
East Fork Drop Structures	1.11	12.38	0.6	0.55
Bypass Pipe	0.57	6.07	0.36	0.33
Creek Restoration	1.00	11.50	0.50	0.46
Maximum Daily	1.95	21.63	1.06	0.99
On-Road Vehicles				
Light duty Trucks - commuting workers	0.07	0.23	0.04	0.02
Heavy duty Trucks - hauling	0.37	15.31	0.47	0.32
On-road Vehicle Daily Emissions	0.13	2.75	0.12	0.07
Total Daily Emissions	2.10	24.38	1.18	1.06
BAAQMD Significance Thresholds	54	54	82	54
Significant Impact?	No	No	No	No

NOTES: Emissions were estimated using the CalEEMod model and emission factors from EMFAC 2014. Refer to Appendix A for details on the emissions estimates.

In addition to exhaust emissions, emissions of fugitive dust would also be generated by Project construction activities associated with earth disturbance, travel on paved and unpaved roads, etc. With regard to fugitive dust emissions, the BAAQMD (2009) *Revised Draft Options and Justification Report* recommends that lead agencies focus on implementation of dust control measures to ensure that impacts would be less than significant rather than comparing estimated levels of fugitive dust to quantitative

significance thresholds. Therefore, BAAQMD basic control measures (BAAQMD, 2012), which are recommended for every construction project and contained in **Mitigation Measure AIR-1** (see below), would be implemented to ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level.

Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures.

The County and/or its construction contractors shall comply with the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at Napa County regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Operations

Long-term operation of the Project would involve periodic cleaning of drainage inlets, which would result in negligible emissions associated with gasoline combustion. Therefore, operational impacts associated with the potential for construction-related exhaust emissions to result or contribute to a violation of an air quality standard would be less than significant.

- c) ***Less than Significant with Mitigation.*** Based on BAAQMD guidance, if a project would result in an increase in ROG, NO_x, PM₁₀, or PM_{2.5} of more than its respective average daily mass significance thresholds, then it would also be considered to contribute considerably to a significant cumulative impact. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project would exceed the

identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable. As presented in discussion b) above, short-term construction exhaust emissions would not exceed the applicable significance thresholds and implementation of **Mitigation Measure AIR-1** (see above) would ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level. In addition, the Project would result in negligible emissions associated with gasoline combustion during operations. Therefore, the Project would not be cumulatively considerable and cumulative impacts would be less than significant.

- d) **Less than Significant.** The BAAQMD recommends that lead agencies assess the incremental toxic air contaminant (TAC) exposure risk to all sensitive receptors within a 1,000-foot radius of a project's fence line. Long-term operations that would be associated with the Project would result in no new TAC emissions. However, short-term Project construction activities would generate diesel particulate matter (DPM), which is considered to be a TAC. The majority of DPM exhaust emissions that would be generated during construction would be due to the use of diesel off-road equipment.

As shown in **Figure 1-1**, the Project would occur at various locations in the vicinity of the Silverado Golf Course. The majority of the work would occur immediately east of the golf course clubhouse, which is as close as 250 feet from existing residences. The flood relief structures at Kaanapali culvert and the bypass pipe sites are as close as 50 feet to the nearest residential receptors.

The dose to which receptors are exposed is the primary factor affecting health risk from exposure to TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects (OEHHA, 2003). However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the project. For the Project, DPM emissions that would be generated at the Project sites would occur over periods that would range from 5 workdays to up to 4 months.

Table 2-1 (above) shows that the total on-site daily average PM_{2.5} emissions from construction of the Project would be up to 0.61 pound per day at any one location.¹ Because the daily emissions would only occur over a period of up to 4 months, compared to the 70-year exposure period used in health risk assessments, Project-related DPM emissions would not be considered substantial and would not result in a significant incremental cancer risk. Therefore, the impact related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

¹ PM_{2.5} exhaust emissions are conservatively used here as a surrogate for DPM.

- e) ***Less than Significant.*** Diesel equipment used during construction of the Project may emit objectionable odors associated with combustion of diesel fuel. However, these emissions would be temporary and intermittent in nature, thus odor impacts associated with diesel combustion during construction activities would be less than significant. There would be no expected operational odors associated with the Project and no long-term impact would occur.

References

- Bay Area Air Quality Management District (BAAQMD), 2015. Air Quality Standards and Attainment Status webpage (<http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>), last updated October 32, 2015.
- Bay Area Air Quality Management District (BAAQMD), 2010. *Bay Area 2010 Clean Air Plan, Final Clean Air Plan Volume 1*, adopted September 15, 2010.
- Bay Area Air Quality Management District (BAAQMD), 2012. *CEQA Air Quality Guidelines*, Updated May 2012.
- Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance, October 2009.
- Office of Environmental Health Hazard Assessment (OEHHA). 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. August 2003.
-

2.2.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
4. 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 U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

Environmental Setting

The Napa River watershed covers an area of approximately 426 square miles, and is contained on three sides by mountains to the north, west, and east. The watershed is typical of the California coastal range with northwest-southeast trending topography. The Napa River runs through the center of the watershed on the valley floor. It drains numerous tributaries on its 55-mile run from the headwaters of Mount Saint Helena in the Mayacamas Mountain range to San Pablo Bay.

The habitat types classified in the Project area are based on field observations and the standard *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986). The Project area supports valley foothill riparian, urban/developed, freshwater emergent wetland, and riverine habitat types. Milliken Creek supports valley foothill riparian habitat along its steep banks with overhanging riparian trees over some of the riverine habitat. The valley foothill riparian within the study area is generally composed of a tree and shrub-dominated overstory with an herbaceous understory. Characteristic tree species observed in this habitat within the study area include valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), California black walnut (*Juglans hindsii*), big leaf maple (*Acer macrophyllum*), and Oregon ash (*Fraxinus latifolia*). Shrub and vine species include red willow (*Salix laevigata*), arroyo willow (*Salix*

lasiolepis), California wild grape (*Vitis californica*), English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus armeniacus*). Urban/developed portions of the study area include managed golf course, paved roadways, walkways, and residential yards with residential trees and mowed lawns. Freshwater emergent wetland occurs in association with Milliken Creek. Dominant emergent plants include Himalayan blackberry, common cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), water cress (*Nasturtium officinale*), sedge (*Carex* spp.), mint (*Mentha* spp.) and panicked bulrush (*Scirpus microcarpus*). The upper banks principally support dallis grass (*Paspalum dilatatum*) and poison hemlock (*Conium maculatum*).

Study Area

The study area is located in or near Milliken Creek and in or adjacent to Silverado Resort in an unincorporated part of Napa County, California. The overall Project includes three separate sites: the Milliken Creek Project site, the East Branch of Milliken Creek Project site, and the south end of the golf course Project site; the study area for biological resources included each of these sites with an appropriately-sized buffer (e.g., up to 500 feet) where resources were inventoried to facilitate the assessment of potential direct and indirect impacts to biological resources. The collective footprint of these three sites is described as the "Project area" in this biological resources analysis. The East Branch of Milliken Creek and the south end of the golf course sites generally follow the nearby Kaanapali Drive. Site topography is primarily flat level areas on developed land. Milliken Creek runs through the northern portion of the study area that includes the Milliken Creek Project site; however, it does not cross the other two sites. Current land uses within the study area boundaries include a golf course, residential development, and open space, including Milliken Creek.

Perennial Stream (Milliken Creek). Milliken Creek, which runs through the Milliken Creek Project site, is a jurisdictional water of the U.S. and water of the State characterized by defined bank and water flow. Milliken Creek is designated Critical Habitat for Central California Coastal steelhead (*Oncorhynchus mykiss*).

Intermittent Stream (East Branch of Milliken Creek). The East Branch of Milliken Creek, runs through the Project site in a concrete box culverted section under Kannapali Drive, is a jurisdictional water of the U.S. and water of the State characterized by discernable bed and bank. The East Branch of Milliken Creek connects directly to Milliken Creek and likely contains water more than three months annually.

- a) **Less Than Significant with Mitigation.** For the purposes of this assessment, special-status species are those that are listed as rare, species of concern, candidate, threatened or endangered by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), or CDFW. Special-status plant and animal species with the potential to occur in the Project area were identified through a review of the following resources:
- USFWS List of Federal Endangered and Threatened Species that Occur in or May Be Affected by the Project (USFWS, 2015; **Appendix C**)

- California Natural Diversity Database (CNDDDB) Database Query within a 5-mile radius (CDFW, 2015; Figure C-1, **Appendix C**)
- California Rare Plant Rank Inventory Database Query within a 9-quadrangle area for the Napa USGS quadrangle (**Appendix C**)
- A draft Project Biological Assessment (ESA, 2015)

Tables C-1 and C-2 of Appendix C identify the species with the potential to occur within the Project area. The potential for special-status species to occur in areas affected by Project activities was evaluated according to the following criteria:

- **None:** Project activities would not occur in habitat that supports the species. Species considered to have no potential to be affected by Project activities include those associated with salt marsh, brackish marsh, and salt ponds.
- **Low:** Few of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities. In these instances, the species is not likely to be impacted.
- **Moderate:** Some of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities. The species has a moderate probability of occurring at the Project area.
- **High:** All of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities; the species has a high probability of occurring at the Project area.

A discussion of the Project's potential effects on special-status species and the resultant level of impacts are provided below.

Special-Status Plant Species

Special-status plant species known to occur in the vicinity of the Project area are listed in **Table C-1 of Appendix C**. All special-status plants listed are considered to have no or low potential to occur in the study area because suitable habitat is not present or the study area is not within the species' documented range. The study area is mostly comprised of valley foothill riparian habitat which is not the habitat type for special-status plants present in surrounding areas. The study area is also disturbed and on a golf course or residential area. Therefore, construction activities including removal of the summer impoundment dam and channel and bank restoration would result in no temporary or permanent impacts to special-status plant species and no mitigation is required.

In the long-term, the Project is not expected to have substantial negative effects to special-status plants because no special-status plant species occur in the habitats that are the focus of the Project activities.

Special-Status Invertebrate Species

Special-status invertebrates known to occur in the vicinity of the Project area are identified in **Table C-2 of Appendix C**. All of the special-status invertebrates listed are

considered to have no or low potential to occur in the Project area because suitable habitat is not present or the Project area is not within the species' documented range.

California freshwater shrimp (*Syncaris pacifica*) is listed by the USFWS and the CDFW as endangered. California freshwater shrimp (CFS) are considered to have a low potential to occur in the study area. CFS is a decapod crustacean of the family Atyidae and is believed to be the only extant species of the genus. The distribution of CFS is limited to a small number of low elevation, low gradient, freshwater, perennial streams in Marin, Napa, and Sonoma counties. Winter habitat includes shallow margins of stream pools containing undercut banks and exposed living fine-root material that provide shelter and refuge from high water velocities associated with storm events. Summer habitat includes areas of low velocity (i.e. pools, glides, runs in summer) with suitable vegetation or other cover present, but no undercut banks. It is believed both winter and summer habitat components need to be found in close proximity in order for this species to persist for prolonged periods. Summer freshwater shrimp habitat is abundant and widespread in most streams of the Napa River watershed, however, the presence of winter habitat is the primary limiting factor for freshwater shrimp due to the species' poor swimming capabilities (Napa County RCD, 2015).

In support of this environmental review, a CFS habitat assessment was conducted for the Milliken Creek Project site (Napa County RCD, 2015). The assessment concluded that the Milliken Creek Project site lacks suitable winter habitat, which was categorized as undercut banks that extend at least 2-feet. It identified that some moderate and good quality summer habitat is present within the CFS habitat assessment area which included the Milliken Creek Project site and areas up to approximately 450 feet upstream of the site. No high quality summer habitat was found. The nearest known occurrence data of CFS is on the Napa River in Mount Saint Helena, however additional populations in the Napa watershed may be present, but undetected. Based on the result of the assessment, encountering CFS appears highly unlikely given the lack of winter habitat and the presence of predatory fish species, largemouth bass (*Micropterus salmoides*) and green sunfish (*Lepomis cyanellus*), within the CFS habitat assessment area (Napa County RCD, 2015).

Mitigation Measure BIO-1a includes having a Qualified Biologist on-site during dewatering activities and **Mitigation Measure BIO-1b** includes an environmental education program for construction personnel and pre-construction surveys. Implementation of **Mitigation Measures BIO-1a** and **BIO-1b** would ensure that in impacts on individual CFS are avoided or reduced to a less than significant level.

Mitigation Measure BIO-1a: Qualified Biologist On-site Daily.

- A Qualified Biologist knowledgeable and experienced in the biology and natural history of CFS and wildlife resources will be on site daily during clearing of vegetation and dewatering activities to ensure avoidance measures are being met and minimize impacts to fish and wildlife habitat.

- The Qualified Biologist will be responsible for monitoring all project activities, avoidance measures, including construction and any ground-disturbing activities in any areas where suitable habitat occurs.
- The Qualified Biologist will have the authority to immediately stop any activity that does not comply with avoidance measures identified for CFS, or any other special status or listed species, and suspend construction activities. If any CFS are found within the Milliken Creek Project site, the Qualified Biologist will stop work activities and the District shall coordinate with CDFW Region 3 staff before re-commencing work. If CFS are present, coordination with CDFW and the USFWS may result the need to acquire a state Incidental Take Permit and/or federal Biological Opinion to ensure Project consistency with the California and federal Endangered Species Acts, respectively.

Mitigation Measure BIO-1b: Avoid and Minimize Impacts to California Freshwater Shrimp.

- Prior to commencing construction, trees lining the banks at the Milliken Creek Project site shall be surveyed for the presence of undercut rootmasses (i.e., potential CFS winter habitat). If trees with such features are identified, they shall be avoided during construction, as feasible. Avoidance measures would include adjusting grading limits. In addition, construction crews shall be directed to retain riparian vegetation near the margins of the low flow channel, as feasible. Avoidance measures, determined and implemented by a Qualified Biologist may include adjusting grading limits and reducing the area of dewatering.
- All construction personnel shall attend an environmental education program delivered by a Qualified Biologist prior to working on the Milliken Creek Project site. The program shall include an explanation of how to best avoid harm to CFS. The Qualified Biologist(s) shall conduct a training session that would be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting shall include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis shall be placed on the importance of the habitat and life stage requirements within the context of Project maps showing areas where minimization and avoidance measures are being implemented.
- Following installation of any water diversion structures, and prior to the placement of fill, a Qualified Biologist shall perform surveys for any CFS trapped in the Milliken Creek Project site vicinity.
- If the CDFW or USFWS institute any specific CFS protection measures for the Project through an Incidental Take Permit or Biological Opinion, respectively, the stated measures will be considered to supersede any or all of the measures described above.

Special-Status Fish Species

A primary objective of the Project is to improve habitat for special-status salmonids including Central California Coast steelhead (CCC steelhead). However, channel and

bank restoration activities, could result in temporary impacts to special-status fish species, including salmonids and their habitat.

CCC steelhead is a federally-listed threatened species. This anadromous fish spends time in both fresh and saltwater habitats and requires freshwater spawning and rearing sites. Like other salmonids, CCC steelhead require cool water for health, growth, and reproduction, though they tolerate warmer water conditions as well. Estuaries provide critical nursery areas for juvenile CCC steelhead. Cover is an important habitat component for juvenile CCC steelhead, both as a velocity refuge and as a means of avoiding predation. Currently, CCC steelhead occur within the Napa River watershed, but their population has been greatly reduced from historical levels. Stream course degradation, migration barriers, and habitat destruction are the main threats to this species. As a major tributary to the Napa River, Milliken creek is known to support steelhead spawning and rearing (Koehler and Edwards, 2009; Leidy et al., 2005). In March 1967, the California Department of Fish and Wildlife visually surveyed Milliken Creek from the mouth to Milliken Reservoir and a steelhead was observed at the base of the Silverado Resort Diversion Dam (Leidy et al., 2005). In June 1998, Leidy electrofished in Milliken Creek at Westgate Drive in the Silverado Resort and captured two steelhead (Koehler and Edwards, 2009). Westgate Drive is approximately 0.5 mile upstream from the Action Area. Juvenile steelhead were observed in moderate to high abundances and constructed steelhead redds were also observed within the reach of stream that covers the Action Area between 2006 and 2008, and by an ESA biologist in 2016 (Koehler and Edwards, 2009).

Central Valley fall-run/late fall-run Chinook salmon are not listed; however, they are managed under the Pacific Coast Salmon Fishery Management Plan and Milliken Creek has been designated as Essential Fish Habitat for this run. Adverse impacts to Chinook salmon would be considered significant under CEQA. Occasionally, Chinook salmon are sighted spawning in Milliken Creek, but the relative intensity of spawning is unknown (Koehler and Blank, 2010). Based on stream morphology, Chinook are expected to be limited to the lower gradient reaches of Milliken Creek below Westgate Drive with occasional strays occurring higher in the watershed in favorable hydrologic years (Koehler and Blank, 2010). West Gate Drive is approximately 0.5 mile upstream from the study area. A spawning Chinook salmon was observed in Milliken Creek in 2006 and a carcass was also found in 2006 (Koehler and Edwards, 2009). Therefore, it is likely that fall-run Chinook salmon could be found seasonally within the study area.

Pacific lamprey were not a species detected during USFWS or CNDDDB resources, but CDFW determined there could be potential for Pacific lamprey to occur within the Milliken Creek Project site (Gilmore, 2015). Pacific lamprey are known to occur within the Napa River watershed (Leidy, 2007). Observations of migrating adult Pacific lampreys are few but they have been observed migrating upstream to spawn as early as

January and February in the Alameda Creek watershed. Adult lampreys typically migrate upstream to build nests and spawn in gravel substrates (Streif, 2008).

The summer impoundment dam raises water surface elevations upstream causing flooding, locally trapping sediment upstream causing local sediment depletion and scour downstream, and in addition is a barrier to upstream migration of steelhead trout and other native fish. Furthermore, upstream of the summer impoundment dam has been identified by Napa County Resource Conservation District as high value rearing habitat for steelhead trout (Koehler and Edwards, 2009). Dam removal potentially provides a way of simultaneously reducing flooding, restoring salmonid habitat, and removing barriers to salmonid and Pacific lamprey to the upper watershed of Milliken Creek. Therefore, potential impacts to fisheries habitat are considered beneficial.

During project construction, dewatering will be required during the period when special-status fish, including salmonids and Pacific lamprey, may be present in the project area. If present, these species would need to be relocated to suitable downstream aquatic habitat prior to project activities. During the course of relocation, fish may be subject to injury or mortality during capture, transport, or release within suitable habitat. This potentially significant short-term impact would be reduced to less than significant through the implementation of a standard fish relocation protocol to be defined in a *Fish Relocation Plan*, as described in **Mitigation Measure BIO-2**. This measure minimizes potential short-term adverse impacts on special-status fish species from construction activities by seasonal avoidance and installation of temporary fencing. Implementation of **Mitigation Measure BIO-2** includes installation of temporary fencing and an environmental education program for construction personnel and pre-construction surveys. These measures will ensure impacts to special-status fish species would be reduced to a less than significant level.

Mitigation Measure BIO-2: Minimize Impacts to Salmonids and other Fish Prior to and During Construction.

- Project activities that are expected to disturb the area of the streambed shall occur between June 15 and October 15, or as otherwise stipulated in resource agency permits.
- Temporary fencing shall be installed around the perimeter of the Milliken Creek Project site. Fencing will be installed to the extent necessary to exclude special-status wildlife and habitat from the construction area, and prevent the unintended discharge of excavated material and turbid water. Construction personnel and construction activity shall avoid areas outside the fencing. The exact location of the fencing shall be determined by the resident engineer or Qualified Biologist, with the goal of protecting sensitive biological habitat and water quality. The fencing shall be checked regularly and maintained until all construction is complete.
- All construction personnel shall attend an environmental education program delivered by a Qualified Biologist prior to working on the Milliken Creek Project site. The program shall include an explanation of avoidance measures

for salmonid species and how to best avoid harm to salmonid species and Pacific lamprey. The Qualified Biologist(s) shall conduct a training session that would be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting shall include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis shall be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where minimization and avoidance measures are being implemented.

- Following installation of any water diversion structures, and prior to the placement of fill, the Qualified Biologist shall perform surveys for any fish in the Milliken Creek Project site vicinity, collect, and transfer native fish, including salmonids and Pacific lamprey, to the nearest suitable habitat downstream of the work area. During holding and transportation, fish would be held in stream water collected from the Milliken Creek site.
- Before removal and relocation begins, the Qualified Biologist shall identify the most appropriate release location(s). Release locations should offer ample habitat for salmonids or Pacific lamprey and should be selected to minimize the likelihood of reentering the work area. Suitable habitat is defined as creek sections that would remain wet over the summer and where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation.
- Relocation activities shall be performed during the morning when temperatures are coolest. Air and water temperatures would be periodically measured and dewatering activities would cease when water temperatures exceed those allowed by CDFW and NMFS. A *Fish Relocation Plan* shall be developed and submitted to NMFS within 30 days prior to project construction, or relocation methods shall be performed as stipulated in project permits. If salmonids or Pacific lamprey are relocated from the Milliken Creek Project site vicinity, the following procedure shall be used:
 1. Handling of fish would be minimized. However, when handling is necessary, hands and nets would be wetted prior to handling.
 2. Any handled fish would be immediately placed in an aerated container with a lid in cool, shaded water. Aeration would be provided with a battery powered external bubbler. A thermometer would be placed in each holding container and partial water changes would be conducted as necessary to maintain a stable water temperature following CDFW and NMFS guidelines. Fish would not be held more than 30 minutes.
 3. All handled fish would be moved directly to the nearest suitable habitat in the same reach of the creek.

Special Status Amphibian and Reptile Species

Construction activities, including channel and bank restoration, could result in adverse impacts to special-status amphibian and reptile species such as foothill yellow-legged frog and western pond turtle, if present.

Western pond turtle, a California Species of Special Concern, is an aquatic turtle found in permanent ponds, rivers, streams, channels, and irrigation ditches with rocky or muddy bottoms, and emergent vegetation. Basking areas used by this species include partially submerged logs, rocks, vegetation mats, and open mud banks. Habitat destruction and stream course degradation are the primary threats to this species. The riverine habitat within Milliken Creek can potentially support this species.

The foothill yellow-legged frog is a California Species of Special Concern. Adult frogs eat both aquatic and terrestrial invertebrates. Adult insects appear to be favored, but snails, and pieces of molted skin have also been found in stomach samples. Tadpoles probably graze on algae and diatoms along rocky stream bottoms. Adult foothill yellow-legged frogs often bask on exposed rock surfaces near streams. When disturbed, they dive into the water and take refuge under submerged rocks or sediments. During periods of inactivity, especially during cold weather, individuals seek cover under rocks in the streams or on shore within a few meters of water. Egg clusters are attached to gravel or rocks in moving water near stream margins. The riverine habitat within Milliken Creek can potentially support this species.

Mitigation Measure BIO-3 includes pre-construction surveys for western pond turtle and foothill yellow-legged frog and species protection measures if either is observed. Implementation of this measure would reduce impacts to western pond turtle and foothill yellow-legged frog to less than significant.

Mitigation Measure BIO-3: Protection of Foothill Yellow-Legged Frog and Western Pond Turtle. Surveys for western pond turtle and their nests shall be conducted before construction begins. If western pond turtle nests are found, a 100-foot buffer shall be established around the location of the nests until the young have left the nest, as determined by a Qualified Biologist. While nests are often difficult to find, the surveys would minimize the potential for nest sites to be disturbed. With these measures in place, impacts would be reduced to the extent feasible and are expected to be less than significant. In the long term, the Project is not expected to have substantial negative or beneficial effects on western pond turtle because Project activities are not anticipated to substantially improve habitat for this species.

Surveys for foothill yellow-legged frog shall be conducted before construction begins. In the unlikely event foothill yellow-legged frog eggs or tadpoles are found, a 100-foot buffer shall be established around the location until juveniles disperse from the breeding site, as determined by a Qualified Biologist. If adults are present in the construction area, work shall be stopped until individuals are allowed to disperse on their own volition or the species is relocated by a Qualified Biologist with permission to handle foothill yellow-legged frog.

Special-Status and Common Bird Species

Special-status bird species known to occur in the vicinity of the Project area are identified in **Table C-2** of **Appendix C**. None of the special-status birds identified in **Appendix C**, **Table C-2** have high or moderate potential to nest in the study area. However, disruption

of any nesting migratory or native birds is not permitted under the federal Migratory Bird Treaty Act or the California Fish and Game Code, as it could constitute unauthorized take. Thus, the loss of any active nest by, for example, trimming a tree or removing a shrub containing a nest, must be avoided under federal and California law. **Mitigation Measure BIO-4** includes pre-construction surveys during the bird nesting season (February 15 – August 30), limiting removal of vegetation to periods outside of the bird nesting season, to the extent feasible, and establishing no work buffer zones around active nests that are identified in the study area. The implementation of this measure would reduce potential impacts to special-status and common bird species to less than significant.

Mitigation Measure BIO-4: Nesting Bird Protection.

- Removal of riparian vegetation and trimming or removal of trees shall occur outside the bird nesting season (February 15 - August 30), to the extent feasible.
- If removal of riparian vegetation and trimming or removal of trees during bird nesting season cannot be fully avoided, a qualified wildlife biologist shall conduct pre-construction nesting surveys within 2 weeks prior to the start of such activities or after any construction breaks of 14 days or more. Surveys shall be performed for the study area and suitable habitat within 250 feet of the Project area in order to locate any active passerine (perching bird) nests and within 500 feet of the Project area to locate any active raptor (birds of prey) nest.
- If nesting birds and raptors do not occur within 250 and 500 feet of the Project area, respectively, then no further action is required if construction begins within two weeks.
- If active nests are located during the pre-construction bird nesting surveys, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:
 - If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply:
 - If construction may affect the active nest, the biologist shall establish a no-disturbance buffer. Typically, these buffer distances are between 25 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (i.e., if the Project area is adjacent to a road or community development) and if an obstruction, such as a building structure, is within line-of-sight between the nest and construction. Reduced buffers may be allowed if a full-time biologist is present to monitor the nest and has authority to halt

construction if bird behavior indicates continued activities could lead to nest failure.

- Any birds that begin nesting within the Project area and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and minimum work exclusion zones of 25 feet shall be established around active nests in these cases.

Special-Status Mammal Species

Project construction could result in impacts to the special-status mammal species such as western red bat (*Lasiurus blossevillii*) and pallid bat (*Antrozous pallidus*). The pallid bat is a California Species of Special Concern and occurs throughout California. This large pale colored bat establishes maternity roosts in crevices in rocky outcrops and cliffs, caves, mines, hollowed trees, large tree cavities, and vacant buildings. The mature trees in and adjacent to the study area within the Milliken Creek riparian corridor may provide suitable roost habitat for this species.

The western red bat is a California Species of Special Concern occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. This species migrates between summer and winter ranges, and migrants may be found outside the normal range. Roosting habitat occurs in foliage within riparian habitats, forests and woodlands from sea level up through mixed conifer forests. The trees and shrubs within Milliken Creek riparian corridor may provide suitable roosting habitat for this species.

Removal of trees or structures with active bat roosts would be considered a significant impact. **Mitigation Measure BIO-5** specifies measures which would avoid or minimize impacts to special-status bat species. These measures include pre-construction surveys for roost sites, methods to minimize impacts to active roosts during construction, and protocols to mitigate for unavoidable impacts to special-status bats. With the implementation of **Mitigation Measure BIO-5**, impacts to special-status bats would be reduced to a less than significant level.

Mitigation Measure BIO-5: Bat Protection for Western Red Bat and Pallid Bat. A pre-construction bat survey should be conducted by a Qualified Biologist to establish the presence or absence of roosting bats prior to May 1st in order to put exclusionary measures into place before the active season of this species (no exclusionary efforts should be conducted during May 1 to August 31 of the construction year). If no roosting bats are found, no further mitigation would be necessary; however, it is recommended that exclusionary measures be conducted prior to May 1st of the construction year to prevent bats from utilizing the riparian corridor.

If pallid bats or other bat species are detected within the roost at the time of the survey, excluding any bats from roosts, if possible, will be accomplished by a

Qualified Biologist prior to the removal of roost trees. The timing and other methods of exclusionary activities will be developed by the Qualified Biologist in order to reduce the stress on the bats to the amount feasible while taking into account project schedule. Exclusionary devices, such as plastic sheeting, plastic or wire mesh, can be used to allow for bats to exit but not re-enter any occupied roosts, if applicable. A Qualified Biologist will also be notified and present during any tree removal or tree trimming.

- b) ***Less than Significant with Mitigation.*** Wetlands are addressed separately in criteria (c) below. Implementing channel widening, floodplain restoration, biotechnical stabilization, in-stream habitat structures, and vegetation management would impact riparian and upland habitats. However, no trees would be removed within the channel corridor. A total of ten residential/urban trees would be removed within upland areas. A total of approximately 1 acre of riparian and channel habitats would be restored or enhanced by the Project. This includes conversion of approximately 0.2 acres of urban/developed upland habitat above the culvert and summer impoundment dam on Milliken Creek to be restored to riparian habitat.

Revegetation of both under- and overstory species would be conducted in all graded and disturbed areas as well as where vegetation management is prescribed. For example, new and enhanced floodplain and channel banks would be planted with native species specifically adapted to the expected hydrologic regime. When fully established, plantings will reduce flow velocities, increase bank stability, provide new sources of large woody debris, create high-flow refugia for native fish, and enhance habitat for other species that utilize the riparian corridor. The Project would include a monitoring plan to ensure the success of the revegetation efforts.

Because it is a riparian enhancement project, the Project as designed would have a long-term beneficial effect on wetland and riparian habitats. The Project description includes the specifications for restoration and revegetation of the Project site. The Project would increase the amount of these sensitive habitats in the Project area and improve the quality of existing riparian and wetland habitat in the area. However, impacts due to removal of vegetation during construction or maintenance activities could result in a minor temporal loss of riparian functions and values of riparian habitat. Implementation of **Mitigation Measure BIO-6** would reduce impacts to riparian habitat to a level that is less than significant.

Mitigation Measure BIO-6: Monitor and Document Riparian Habitat.

Following grading and recontouring, as described in Section 1.3.2, *Summer Impoundment Dam Removal and Creek Restoration*, a minimum of 0.52 acres will be planted with riparian vegetation as a component of the Project. In advance of construction, a Riparian Monitoring Plan shall be prepared for riparian areas which will describe the thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. The long-term ecological monitoring program described in the Plan will provide the basis for gauging the achievement of minimum performance standards. The Plan will

describe a three-year riparian monitoring program that assesses the survival and health of on-site plantings. Appropriate performance standards may include, but are not limited to: a 70 percent survival rate of restoration tree and shrub plantings; absence of invasive plant species in restored areas; and self-sustaining conditions (i.e., plant viability without supplemental water) at the end of three years. The Plan will be submitted to the appropriate regulatory agencies for review and approval.

- c) ***Less than Significant.*** Construction of flood benches, alcoves, and instream habitat features (e.g., large wood structures, grade control, roughness boulders) would result in excavation and placement of fill in jurisdictional waters of the U.S. and removal of vegetation within areas that are potentially jurisdictional wetlands. Project activities are not expected to result in loss of waters or wetlands, nor conversion of wetland type.

Following construction, recontoured banks and inset terrace/floodplain surfaces would be replanted with native overstory and understory riparian species, eventually replacing and improving the functions and values currently offered by the mixed native and non-native vegetation in existing in-channel wetlands. Creation of new inset surfaces below the Ordinary High Water Mark would also facilitate sediment deposition and trapping of native seed material and natural recruitment of riparian vegetation, potentially increasing the extent and stability of in-channel and channel-marginal wetland areas. Although some wetland areas would be temporarily disturbed or removed during Project construction, the Project is expected to benefit wetlands overall by increasing their extent, as well as improving functions and values.

Over the long term, Project maintenance could result in disturbance or removal of wetland vegetation. However, as discussed above, any removal of wetland vegetation would be restricted to the minimum necessary to maintain the functionality of the channel and the constructed Project features, and would incorporate best management practices (BMPs) to protect special-status species required during Project construction. Over the long term, the Project would have a beneficial effect on wetlands. Temporary impacts due to removal of vegetation during construction or maintenance activities are expected to have a less than significant impact to federally protected wetlands.

- d) ***Less than Significant with Mitigation.*** Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization can fragment or separate large open-space areas. The fragmentation of natural habitat can create isolated “islands” of vegetation and habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. The retention of wildlife movement corridors ameliorates the effects of such fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished. Such movement may also promote genetic exchange between separated populations.

Milliken Creek provides a movement corridor between the Vaca Mountains and Mayacamas Mountains of the California Coast ranges and the San Francisco Bay-Delta. Milliken Creek allows common aquatic and terrestrial wildlife species to safely disperse back and forth between suitable habitats to the north and south of the study area. Highways, roads, and residential and commercial development can present an impassable barrier to many wildlife species and are hazardous for wildlife to cross. Relatively unimpeded waterways, such as Milliken Creek provide important movement corridors, which allow dispersal and subsequent gene flow between wildlife populations separated by roads and populated areas. Wildlife may move through the study area along Milliken Creek and associated riparian habitats. The riparian habitats surrounding Milliken Creek provides vegetative cover for wildlife and facilitates wildlife movement through the area. The Project would not remove, degrade, or otherwise interfere substantially with the structure or function of this wildlife movement corridor, though some temporary disruption of wildlife movement would occur during the construction period. The Project may be beneficial to the movement corridor through Milliken Creek since one of the components involves creek enhancement activities.

Project construction and maintenance would incorporate a variety of measures to avoid or minimize adverse effects to movement and reproduction of fish and wildlife resources. Specifically, during construction the Project incorporates restrictions on most activities to occur during summer or early fall to avoid sensitive migration and breeding times. For activities that do occur during the breeding season for migratory species, pre-construction surveys are required to identify nest sites and subsequently minimize disturbance to active nests or breeding sites. Following completion, the Project will improve fish and wildlife movement opportunities within the Milliken Creek watershed, and facilitate species access to new portions of the creek. Such habitat improvement is a beneficial project effect.

- e) ***Less than significant with Mitigation.*** The County General Plan contains numerous goals, policies, and action items to protect biological resources. The Project incorporates a variety of measures to avoid or minimize adverse effects to sensitive habitats, wildlife, and fisheries resources. Additionally, in-channel and riparian habitat and stream-dependent wildlife would benefit from the Project over the long-term. At the south end of the golf course site, where the bypass pipe will be constructed, four trees are proposed for removal (**Table 2-2**).

**TABLE 2-2
TREES PROPOSED FOR REMOVAL**

Tree Species (Common Name)	Diameter at Breast Height (inches)
Coast live oak	18
Coast live oak	14
Coast live oak	10
Coast live oak	8

To be consistent with the County General Plan and the Napa County Voluntary Oak Mitigation Plan, projects must provide replacement of oak woodlands or like habitat at a 2:1 ratio when retention of existing vegetation is found to be infeasible. The planting plan includes replacing the oak trees at more than a 2:1 ratio at the Milliken Creek project site and planting additional native trees. Overall, native trees will be planted at more than a 3:1 ratio for all trees being removed. Implementation of **Mitigation Measure BIO-7** would reduce impacts to oak tree species to a level that is less than significant.

Mitigation Measure BIO-7: Mitigation for Tree Removal. All oak trees will be replaced at more than a 2:1 ratio in accordance with the County General Plan and Napa County Voluntary Oak Mitigation Plan, or as otherwise directed by the County Planning Division.

- f) **No Impact.** The Project area is not subject to any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Consequently, there would be no impact related to potential conflicts with the provisions of any such plan, and no mitigation is required.

References

- California Native Plant Society (CNPS), 2015. Rare and Endangered Plant Inventory. Available online at: <http://www.rareplants.cnps.org>. [Reference for Appendix C]
- California Department of Fish and Wildlife (CDFW), 2015. California Natural Diversity Database (CNDDDB) search for the U.S. Geological Survey 7.5-minute Napa topographic quadrangle, and surrounding 8 quadrangles; information accessed July 13, 2015. Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA.
- Environmental Science Associates (ESA), 2015. Milliken Creek Flood Reduction and Fish Passage Project Endangered Species and Essential Fish Habitat Biological Assessment. Prepared for Napa County.
- Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for State of California Department of Fish and Game, October 1986.
- Koehler, J. and P. Blank. 2010. Milliken Creek Steelhead Habitat Modeling and Instream Flow Study. Prepared by Napa County Resource Conservation District.
- Koehler, J. and C. Edwards 2009. Southern Napa River Watershed Restoration Plan. Napa County Resource Conservation District. Prepared for California Department of Fish and Game, April 30, 2009.
- Jennings, M.R. and M.P. Hayes 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game Sacramento, CA. [Reference for Appendix C]
- Leidy, R. A., G. S. Becker & B. N. Harvey 2005. Historical distribution and current status of steelhead/rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA. 275 pp.

- Leidy, R. A. 2007. Ecology, assemblage structure, distribution, and status of fishes in streams tributary to the San Francisco Estuary, California. Prepared for the San Francisco Estuary Institute, April 2007.
- Napa County Resource Conservation District (RCD), 2015. Memorandum: California freshwater shrimp habitat survey, Milliken Creek. Prepared by Jonathan Koehler. Prepared for Napa County, December 23, 2015.
- Streif, B. 2008. Fact Sheet: Pacific Lamprey (*Lampetra tridentata*). U.S. Fish and Wildlife Service, Portland, OR.
- Suzanne Gilmore, California Department of Fish and Wildlife, 2015. Personal communication with ESA biologist Stephanie Bishop on November 5, 2015.
- U.S. Fish and Wildlife Service (USFWS), 2015. List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project. Accessed: July 13, 2015.
- Western Bat Working Group (WBWG), 2015. Western Bat Working Group Species Accounts for all bats. Available online at: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf. [Reference for Appendix C]
- Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Mayer (compiling editors), 1988. California's wildlife. Volume I. Amphibians and reptiles. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California. May 2, 1988. [Reference for Appendix C]
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (compiling editors), 1990. California's wildlife. Volume II. Birds. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California. November 1990. [Reference for Appendix C]
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (compiling editors), 1990. California's wildlife. Volume III. Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California. April 1990. [Reference for Appendix C]
-

2.2.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
5. 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in §21074?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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"/>
e) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **No Impact.** CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register), or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to Section 15064.5, are addressed under criterion b), below.

Background Research. ESA completed a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System on July 14, 2015 (File No. 15-0078). The review included the Project area and a ½-mile radius. Previous surveys, studies, and site records were accessed. Records were also reviewed in the Historic Property Data File for Napa County, which contains information on places of recognized historical significance including those evaluated for listing in the *National Register of Historic Places*, the *California Register of Historical Resources*, the *California Inventory of Historical Resources*, *California Historical Landmarks*, and *California Points of Historical Interest*. The purpose of the records search was to: (1) determine whether known cultural resources have been recorded within the project vicinity; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources.

Historic Context. With Alta California's independence from Spain and the beginning of Mexican control, the area of Napa County was subdivided into twelve ranchos: Humana Carne, Catacula, Caymus, Chimiles, Entre-Napa, Le Jota, Locoallomi, Napa, Tulucay,

Yajome, Huichia, and Mallacomeato. The first non-Spanish American settler to the Napa Valley area was George C. Yount in 1831. Originally intending to travel to the Pacific Ocean to trap otter, Yount instead stopped early and worked as a carpenter for General Mariano Vallejo. In 1841, Governor Juan Alvarado granted Mexican soldier Damaso Rodríguez the 6,654-acre Rancho Yajome land grant, which includes the current Project area (Hoover et al., 2002).

Following the discovery of gold in 1848 and the subsequent gold rush of the early 1850s, the population of California grew exponentially. As a previously established American-occupied area, Napa County drew in many of the miners disillusioned by the gold fields and the severe winter in the Sierra Nevada. Saw mills, timber harvesting, and cattle ranches provided employment within Napa Valley. In 1869, John Franklin Miller purchased part of Rancho Yajome. Miller was a general in the Union Army during the American Civil War as well as a lawyer, businessman, and a California representative in the U.S. Senate. He purchased the property in several parcels from different grantors, including the United States via a deed signed by President Ulysses S. Grant and the State of California by a deed signed by Governor Newton Booth (Silverado Resort and Resort, 2015).

Miller constructed an Italianate mansion on the property in 1870 that currently serves as the clubhouse for the Silverado Resort. General Miller called the property “Lavergne” in memory of the historic conflict where he was wounded. Reportedly the mansion was constructed on the site of an old adobe that sat on the bank of Milliken Creek. Because Miller believed that ill fortune would come to whoever destroyed the adobe, Miller is said to have ordered the mansion to be built around the adobe and the adobe remains are said to be contained in the southwest corner of the present mansion (Silverado Resort and Resort, 2015).

Later known as the Maxwell Ranch and used to raise turkeys and for grazing, the property was sold to golf professional Pat Markovich and Al Furrer, and associated investors, in April 1953. Renamed Silverado Resort after the nearby Silverado Trail, construction began on an 18-hole golf course in October 1953, and was completed by May 1955. The original golf course is known as the North Course. In 1966, it was re-designed and the South Course was added. Development of the resort and surrounding residential community continued through the 1970s. By the early 1980s, there were nearly 250 individual homes around the perimeter of the Silverado Development Area. In addition, there were over 530 privately-owned condominiums. Golf legend and businessman Johnny Miller (who is of no relation to John Franklin Miller) along with Rug Doctor Corporation founder Roger Kent and Rug Doctor Corporation CEO Tim Wall currently owns the Resort (Silverado Resort and Resort, 2015).

Survey and Results. On July 15, 2015 ESA completed a cultural resources survey of the Project area (Koenig, 2015). During the survey, ESA documented the summer impoundment dam in the Project area. The dam and associated weir (slide gate) are to be

removed as part of the Project. The dam was completed in 1955 as part of the construction of the first 18-hole golf course, and was intended to divert and control the waters along this portion of Milliken Creek through the club. In 1966, the club was sold to Westgate Factors partnership which redesigned the original golf course and constructed a second 18-hole golf course, a hotel, other recreational facilities, and home sites. The official opening of the Silverado Resort & Resort was in April 1967. The Silverado Community Services District was formed in this year, and the water system was dedicated to the District. In 1970, the District asked the City of Napa to take over the operation and maintenance of all the water system facilities, including the summer impoundment dam. In 1977, all of the water facilities became the property of the City of Napa, with the City to maintain the system and provide water to the club. It appears that the dam was modified to increase its height in 1977, and it is likely that the concrete encasement to the sides of the dam were also completed at this time (Silverado Resort and Resort, 2015).

ESA recommends the dam as not eligible for listing in the California Register (Koenig, 2015). While constructed to protect the golf course from the waters of Milliken Creek in the mid-1950s, the dam does not appear to be historically significant for its associations with local or regional water conveyance or storage (criterion 1) nor is it associated with a well-known architect or engineer (criterion 2). The earthfill dam and associated features are utilitarian structures that do not represent the work of a master and is a common style of dam construction (criterion 3). The dam would also not have the ability to yield information important to history (criterion 4). Although the original portion of the dam is more than 50 years old, the dam has been modified and does not possess integrity of design and workmanship. No additional consideration of the dam as a historical resource is necessary for the Project.

As there are no California Register-eligible historical resources located in the project area, the proposed project would have no impact on historical resources and no mitigation measures would be necessary.

- b) ***Less than Significant with Mitigation.*** This section discusses archaeological resources, both as historical resources according to Section 15064.5 as well as unique archaeological resources as defined in Section 21083.2(g). A significant impact would occur if the project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Background Context. The Project is within the ethnographic territory of the Wappo, a population of Yukian speaking, hunter-gatherer people with their own unique dialect and language, who occupied the northern Napa Valley and portions of the north and eastern Russian River Valley, within the Santa Rosa Plain (Sawyer, 1978). It is surmised that the population of the Wappo prior to European contact may have exceeded 1,000 persons before falling drastically to 40 persons by 1908. During Spanish occupation, the Wappo

were notably resistant to all attempts of subjugation, from which they obtained their title. Despite this resistance, this native population was eventually brought under the control of the Mission at Sonoma, between 1823 and 1834. Today the Wappo people are represented by the Mishewal Wappo Tribe of Alexander Valley. The tribe has 340 living members and is currently seeking federal recognition from the U.S. government.

Previous studies within the records search radius indicate that no archaeological resources have been recorded in the Project area. One prehistoric site has been previously identified in the records search radius. This small prehistoric lithic scatter is over 1,000 feet south of the Project area.

Survey and Results. On July 15, 2015, ESA completed a surface survey of the Project area (Koenig, 2015). Ground surface visibility throughout the survey area ranged from moderate to good, with animal burrows, bare patches, and drainage cuts providing adequate visibility to characterize the local soil and assess the presence of cultural materials. Dense vegetation immediately adjacent to Milliken Creek necessitated occasional scraping of the ground surface to obtain a clear view of the underlying soils. The creek banks provided limited vertical profiles of soil development and deposition. Soils in the Area of Potential Effect consisted of a medium to dark brown silty clay with some gravel inclusions. Within the maintained sections of the golf course, the soil consists of augmented artificial fill. No archaeological resources, including dark midden soil, shell fragments, or other evidence of past human use, were identified.

No archaeological features or artifacts were identified in the Project area. Based on nearby site distribution; the results of the surface survey; the environmental setting; as well as previous disturbance from construction of the existing golf course, buildings, and structures; it does not appear that the Project has the potential to impact archaeological resources. Despite the low potential, the discovery of archaeological materials during ground disturbing activities cannot be entirely discounted. The inadvertent discovery of archaeological resources during Project implementation could be a potentially significant impact. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-1**, which requires avoidance measures or the appropriate treatment of archaeological resources if accidentally discovered during Project implementation.

Mitigation Measure CUL-1: If prehistoric or historic-era cultural resources are encountered, all construction activities within 100 feet shall halt and the County of Napa and the U.S. Army Corps of Engineers shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a significant resource,

mitigation shall be implemented with a preference for preservation in place. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the County of Napa and the U.S. Army Corps of Engineers and, for prehistoric resources, the appropriate Native American representative. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

- c) **No Impact.** CEQA Section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

ESA submitted a Sacred Lands File search request to the Native American Heritage Commission on July 20, 2015. ESA also contacted Vince Salsedo from the Mishewal Wappo Tribe of Alexander Valley by email on July 20, 2015. No responses have been received.

Based on the background research at the NWIC and the surface survey described above there are no tribal cultural resources in the Project area. The Project would have no impact to tribal cultural resources and no mitigation measures would be necessary.

- d) **Less than Significant with Mitigation.** A significant impact would occur if the project would destroy a unique paleontological resource or site, or a unique geologic feature. Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Because of their rarity, and the scientific information they can provide, fossils are highly significant records of ancient life.

Rock formations that are considered of paleontological sensitivity are those rock units that have yielded significant vertebrate or invertebrate fossil remains. This includes, but is not limited to, sedimentary rock units that contain significant paleontological resources anywhere within its geographic extent. The Project area is within an area mapped as Holocene-age alluvium. These types of sediments would not likely yield significant paleontological remains because they are surface deposits that are not considered fossil-bearing rock units (SVP, 2010).

Despite the low potential, the discovery of paleontological resources during ground disturbing activities cannot be entirely discounted. The inadvertent discovery of paleontological resources during Project implementation could be a potentially significant impact. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-2**, which requires avoidance measures or the appropriate treatment of paleontological resources if accidentally discovered during Project implementation.

Mitigation Measure CUL-2: If potential fossils are discovered during Project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.

- e) ***Less than Significant with Mitigation.*** There is no indication from the archival research that any part of the Project area has been used for human burial purposes in the recent or distant past. Therefore, it is unlikely that human remains would be encountered during construction of the Project. However, the possibility of inadvertent discovery cannot be entirely discounted, and would result in a potentially significant impact. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-3**, which requires avoidance measures or the appropriate treatment of human remains if accidentally discovered during Project construction.

Mitigation Measure CUL-3: In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Napa County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission will be contacted within 24 hours if it is determined that the remains are Native American. The Native American Heritage Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the County of Napa and the U.S. Army Corps of Engineers for the appropriate means of treating the human remains and any grave goods.

References

Hoover, M. B., H. E. Rensch, E. G. Rensch, W. N. Abeloe. *Historic Spots in California*. Revised by Douglas E. Kyle. Palo Alto, CA: Stanford University Press, 2002.

Koenig, Heidi, *Cultural Resources Survey Report, Milliken Creek Flood Reduction and Fish Passage Project, Napa County*. Prepared for Napa County Department of Public Works, November 2015.

Sawyer, Jesse O., Wappo. In *California*, edited by Robert F. Heizer, pp.256–263. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C., 1978.

Silverado Resort and Resort, 2015. A History of Silverado. Available at: <http://www.silveradomembers.com/Default.aspx?p=dynamicmodule&pageid=396769&ssid=319415&vnf=1>. Accessed July 17, 2015.

Society of Vertebrate Paleontology (SVP), Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010.

2.2.6 Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
6. GEOLOGY, SOILS, AND SEISMICITY —				
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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 checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a.i) **Less than Significant.** The San Francisco Bay Area generally experiences a high level of seismic activity due to its tectonic setting. Surface rupture occurs when the ground surface is broken due to fault movement during earthquakes. Such hazards generally occur in the vicinity of an active fault trace. Active fault lines in the region include the Maacama Fault, Rodgers Creek Fault, Collayomi Fault, West Napa Fault, Concord-Green Valley Fault, and the San Andreas Fault.

The State Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) prohibits the development of structures for human occupancy across active fault traces. Under the Alquist-Priolo Act, the California Geological Survey (CGS) has established zones on either side of the active fault that delimits areas susceptible to surface fault rupture. These zones are referred to as fault rupture hazard zones and are shown on official maps published by the CGS. The Project site is not located in an Alquist-Priolo Earthquake Fault Zone nor is it located on or immediately adjacent to an active or potentially active

fault. The nearest fault to the Project site is the Soda Creek Fault located approximately 0.50 mile east of the Project site, and the Valley Greens fault zone located approximately 3.5 miles east. Although fault rupture is not necessarily bound by the limits of the hazard zone, it is considered unlikely to occur in areas outside of the mapped fault rupture hazard zone. Therefore, based on the current Project location and design, which does not include housing or facilities for human occupancy, the potential for damage to property or injury/loss of life to people as a result of fault rupture is considered less than significant.

- a.ii) ***Less than Significant.*** The Project site is located in a seismically-active region. Recent studies by the United States Geological Survey (2008) indicate that there is a 63 percent likelihood of a Richter magnitude 6.7 or higher earthquake occurring in the Bay Area in the next 30 years.

The Association of Bay Area Governments (ABAG) has developed Earthquake Shaking Hazard Maps, which predict the potential for ground shaking during major earthquakes on the active faults in the Bay Area. The Project is located in an area with the potential for very strong seismic ground shaking (ABAG, 2013). Predicting seismic events is not possible, nor is providing mitigation that can entirely reduce the potential for injury and damage that can occur during a seismic event. Although some structural damage is typically not avoidable during an earthquake, the Project does not include the construction of habitable spaces. Therefore, the Project would not increase the exposure to people or associated structures to increased risk of loss, injury, or death at the project site due to seismic ground shaking; this impact would be less than significant.

- a.iii) ***Less than Significant.*** Seismic shaking of this intensity can also trigger ground failures caused by liquefaction, potentially resulting in foundation damage, disruption of utility service and roadway damage.² The soils most susceptible to liquefaction are clean, loose, uniformly graded, saturated, and fine-grained and occur close to the ground surface, usually at depths of less than 50 feet. The potential for liquefaction susceptibility at the Project site is moderate to high (County of Napa, 2008). The Project would not include the construction of any habitable structures and construction activities would be temporary. Any potential damage that could occur due to groundshaking and liquefaction would be minimized through the adherence of Project design and construction to applicable building code requirements. The Project would be required to adhere to the most current version of the California Building Code (CBC), which includes specifications and seismic design criteria that are created to minimize damage from anticipated groundshaking and secondary effects of liquefaction. Therefore, the exposure of people or structures to potential substantial adverse effects due to liquefaction would be less than significant.

² Liquefaction is the process by which saturated, loose, fine-grained, granular, soil, like sand, behaves like a dense fluid when subjected to prolonged shaking during an earthquake.

- a.iv) **Less than Significant.** Landslides generally are any type of ground movement that occurs primarily due to gravity acting on relatively weak soils and bedrock on an over-steepened slope. Slope instability is often initiated or accelerated from soil saturation and groundwater pressure, though may also be aggravated by grading activity, such as removal of toe support by excavation or addition of new loads, such as fill placement. Areas that are more prone to landslides include old landslides, the bases or tops of steep or filled slopes, and drainage hollows.

The area around the Project site is generally flat while the banks of Milliken Creek are slightly steeper. This site is not subject to slope failure (ABAG, 2015). In addition, there are no adjacent slopes that could adversely affect the Project site. Therefore, the Project would not be adversely affected by potential impacts associated with seismically induced landslides.

- b) **Less than Significant.** Construction activities associated with the Project would require land disturbing activities such as grading and excavation that could increase the susceptibility of soils to erosion by wind and/or water, and subsequently result in significant soil loss or erosion. If uncontrolled or not managed, soil erosion resulting from Project construction would be a significant impact. Because the Project would disturb more than one acre, implementation of a Storm Water Pollution Prevention Plan (SWPPP) would be required in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities. The SWPPP would include soil and erosion-control BMPs that would control and reduce soil erosion. BMPs are individual or combined measures that can be implemented in a practical and effective manner on the Project site which, when applied, would prevent or minimize the potential erosion and displacement of soil. BMPs would include dewatering procedures, storm water runoff quality control measures, watering for dust control, and construction of perimeter silt fences, as needed. As needed, soil compaction would be used during construction to further reduce soil and erosion control. After construction, the site would be re-seeded/re-vegetated with low-growing appropriate species. Therefore, with the implementation of soil and erosion-control measures, the Project would not result in substantial soil erosion or the loss of topsoil and the impact would be less than significant.
- c) **Less than Significant.** The Project site is underlain by Yolo loam (0 to 2 percent slopes) and Coombs gravelly loam (2 to 5 percent slopes). The Project would be required to adhere to the requirements of the most recent version of the CBC, which includes specifications for site preparations. Therefore, with the incorporation of building code requirements, the potential impacts associated with unstable soils would be less than significant. Potential impacts related to liquefaction and landslides are discussed under Impact a.ii), a.iii) and a.iv) above, respectively.
- d) **No Impact.** The Project would not include any structures designed for human occupancy. There would be no impacts under this criterion.

- e) **No Impact.** The Project does not require the use of septic tanks or any other alternative wastewater disposal system. Therefore, there would be no impact related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

References

- Association of Bay Area Governments (ABAG), 2013. Earthquake Shaking Potential [map]. Available online at: <http://resilience.abag.ca.gov/earthquakes/>. Accessed July 22, 2015.
- Association of Bay Area Governments (ABAG), 2015. Interactive Earthquake-Induced Landslide Hazard Map. Available online at: <http://gis.abag.ca.gov/website/Hazards/?hlyr=cgsLiqZones>. Accessed August 10, 2015.
- County of Napa, 2008. *Napa County General Plan*, June 3, 2008.
- Natural Resources Conservation Service (NRCS), 2014. Web Soil Survey. Available online at: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed August 25, 2015.
- United States Geological Survey (USGS), 2008. Working Group on California Earthquake Probabilities (WG07), *Fact Sheet 2008-3027, Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years?*, pubs.usgs.gov/fs/2008/3027/fs2008-3027.pdf.

2.2.7 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
7. 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 type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a) **Less than Significant.** Based on the following analysis, construction and operation of the Project would not generate greenhouse gas (GHG) emissions, either directly or indirectly, that would have a significant impact on the environment.

Construction

Construction activities that would be associated with the Project would include improvements for flood protection and creek restoration. Construction activities that would be associated with the Project would occur over the course of approximately 4 months. The majority of the Project-related GHG emissions would be generated at the Project sites due to the use of heavy-duty off-road equipment, including an excavator, a backhoe, a bulldozer, a water truck, etc. The equipment operation hours per day and number of required workdays would vary depending on the specific type of equipment and on the construction activity. GHG emissions would also be generated off-site associated with construction worker daily commutes and material and debris hauling.

The BAAQMD’s *Revised Draft Options and Justification Report* (BAAQMD, 2009) identifies qualitative and quantitative operations-related thresholds of significance for GHG emissions. For projects other than stationary sources, the qualitative threshold is noncompliance with a qualified climate action plan or qualified general plan. The quantitative threshold is annual operational emissions of more than 1,100 metric tons carbon dioxide equivalent (CO₂e). For stationary source projects, there is only a quantitative threshold of 10,000 metric tons CO₂e per year. There is no threshold established for emissions of GHG generated during the construction phase of a project. However, for a conservative study, this analysis applies the BAAQMD’s threshold of 1,100 metric tons CO₂e per year for non-stationary source projects.

Project construction equipment GHG emissions were estimated using CARB’s California Emissions Estimator Model (CalEEMod). GHG emissions from motor vehicles used during construction were estimated using the EMFAC2014 model for CO₂ methane (CH₄) emission factors, and nitrous oxide (N₂O) emission factors for gasoline and diesel combustion were obtained from The Climate Registry (TCR, 2015). GHG emissions in

the form of CO₂e were calculated by multiplying the estimated total miles travelled by Project-related worker vehicles and export and import haul trucks by the GHG emission factors, then multiplying the N₂O and CH₄ emissions by their respective global warming potential, and then by adding the CO₂, N₂O, and CH₄ emissions.

Estimated construction GHG emissions that would be associated with the Project are presented in **Table 2-3**. Refer to **Appendix B** for the assumptions used to estimate GHG construction emissions that would be associated with the Project.

**TABLE 2-3
CONSTRUCTION GHG EMISSIONS ESTIMATE**

Construction Activity Source	CO₂e
Off-road Construction Equipment	43.99
Off-site Commuting Worker and Haul Trucks	30.52
Total (metric tons/year)	74.51
Significance Threshold (metric tons)	1,100
Significant Impact?	No

As indicated in **Table 2-3** short-term total Project construction-related GHG emissions would be up to approximately 75 metric tons CO₂e, which would be considerably less than BAAQMD's quantitative threshold of 1,100 metric tons CO₂e per year for non-stationary sources. Therefore, GHG emissions that would be associated with construction of the project would represent a less-than-significant impact.

Operations

Long-term operation of the Project would involve periodic cleaning of drainage inlets, which would result in negligible sources of GHG emissions. Therefore, there would be a minimal net change in long-term baseline conditions as a result of the Project and the impact would be less than significant.

- b) **No Impact.** There are no adopted GHG-related plans, policies, or regulations that would be directly applicable to the Project. Therefore, there would be no impact associated with the Project conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

References

- Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance, October 2009.
- The Climate Registry (TCR), 2015. 2015 Climate Registry Default Emission Factors, Table 12.1 U.S. Default Factors for Calculating CO₂ Emissions from Fossil Fuel and Biomass Combustion, April 2015.

2.2.8 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
8. 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a, b) ***Less than Significant.*** Project construction activities would use hazardous chemicals, such as gasoline, diesel fuel, oils and lubricants, paints and thinners, solvents, and other chemicals. Impacts could occur if construction-related activities were to result in hazards or the release of hazardous materials through routine use or accidents and could be considered potentially significant. However, construction activities must comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a accidental releases of construction-related fuels or other hazardous materials to affect stormwater and downstream receiving water bodies. For example, the California Health and Safety Code, and the California Fire Code require contractors to develop and implement a Hazardous Materials Management Plan for their activities that involve the use of hazardous

- materials. These requirements would ensure that hazardous materials used for construction would be stored in appropriate containers, with secondary containment to contain a potential release, and to have a spill response plan in place to respond to accidents. Because the contractor would be required to comply with all hazardous materials laws and regulations for the transport, use, and disposal of hazardous materials, the impacts associated with the potential to create a significant hazard to the public or the environment would be less than significant.
- c) **No Impact.** There are no schools located within a 0.25 mile of the Project. Therefore, there would be no impact related to potential exposure of hazardous emissions or acutely hazardous materials, substances, or wastes within 0.25 mile of a school.
- d) **No Impact.** Project construction activities would involve excavating, trenching, and grading. If hazardous materials were present in excavated soil, dewatered groundwater, or surface water, and are inadvertently released into the environment, such release could expose the environment, construction workers, and/or the public to contaminants. Such risks could occur from stockpiling, handling, or transportation of soils that have been contaminated by hazardous materials from previous spills or leaks. The potential for the Project to encounter contaminated soil and groundwater was evaluated utilizing database searches of the State Water Resources Control Board (SWRCB) GeoTracker (SWRCB, 2015) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) EnviroStor databases (DTSC, 2015). These databases were reviewed to identify known environmental cases listed within a 0.25 mile of the Project site. The Project site is not included on any of the environmental databases maintained by the SWRCB GeoTracker (2015) or the DTSC (2015) nor are there any active sites within 0.25 mile. Thus, it is unlikely that Project construction would intercept or release contaminated soils or groundwater into the environment during construction. Furthermore, in the event that contaminated soil or groundwater was encountered during construction, implementation of BMPs for erosion control would control runoff from leaving the Project site and limit the potential spread of contaminant. Therefore, the Project would not cause a significant hazard to the public or the environment related to a known release of hazardous materials and no impact would occur.
- e) **No Impact.** The nearest airport to the Project site is the Napa County Airport, located approximately 8 miles south. The Project site does not lie within the Napa County Airport Land Use Plan. The Project would not include the construction of habitable structures and construction activities would be temporary. Therefore, the Project would not result in safety hazards to people residing or working in the Project area. No Impact would occur.
- f) **No Impact.** The Project site is not located within the vicinity of a private airstrip. Therefore, the Project would not result in a safety hazard to people working or residing in the area due to the proximity of a private airstrip.

- g) **No Impact.** The Project would not interfere with an emergency response plan or emergency evacuation plan; none are applicable to the Project site. Therefore, the Project would not impair or interfere with an adopted emergency response plan or evacuation plan. No impact would occur.
- h) **No Impact.** According to California Department of Forestry (CAL FIRE) fire hazard mapping, the Project site would not be within an area designated as very high or high fire hazard zones (CAL FIRE, 2007; 2008). Project construction would include the use of mechanized equipment, fuels and other potentially flammable substances. However, with the adherence to existing laws and regulations governing the use of hazardous materials (see criterion b), the potential for the Project to cause a wildland fire, or exposing people or structures to a significant risk of loss, injury or death as a result of a wildfire is low.

References

- CAL FIRE, 2007. Fire Hazard Severity Zones in State Responsibility Areas, Napa County, California. November 7, 2007. Available online at: http://frap.cdf.ca.gov/webdata/maps/napa/fhszs_map.28.pdf. Accessed July 22, 2015.
- CAL FIRE, 2008. Very High Fire Hazard Severity Zones in Local Responsibility Areas, Napa County, California. September 24, 2008. Available online at: http://frap.fire.ca.gov/webdata/maps/napa/fhszl_map.28.pdf. Accessed July 22, 2015.
- California Department of Toxic Substances Control (DTSC), 2015. EnviroStor database. Available online at: <http://www.envirostor.dtsc.ca.gov/public/>. Accessed July 22, 2015.
- State Water Resources Control Board (SWRCB), 2015. GeoTracker database. Available online at: <http://geotracker.waterboards.ca.gov/>. Accessed July 22, 2015.
-

2.2.9 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a, f) ***Less than Significant.*** During construction, the Project could result in water quality impacts as a result of stormwater runoff from the construction site to Milliken Creek. During construction, water quality could be affected by erosion from grading and earthmoving operations, a release of fuels or other chemicals used during construction, or a release of materials generated during demolition and construction. Grading and earthmoving would expose soil during construction and could result in erosion, with excess sediments carried in stormwater runoff to the sewer system. Stormwater runoff from temporary on-site use and storage of vehicles, fuels, wastes, and building materials could also carry pollutants into the sewer system if these materials were improperly handled.

However, the County would ensure that Project construction would not contaminate waters of the Milliken Creek by adhering to a NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002) (Construction General Permit). The Construction General Permit would require the construction contractor to develop a SWPPP that would be implemented prior to the start of construction and throughout the life of the Project. The SWPPP would be designed to reduce potential impacts related to erosion and surface water quality. The plan would include Project information, monitoring and reporting procedures, and BMPs. The BMPs would include dewatering procedures, storm water runoff quality control measures, concrete waste management, watering for dust control, and construction of perimeter silt fences, as needed. The Construction General Permit would also require a sediment monitoring plan, which would further ensure that construction activities would not adversely impact Milliken Creek. By adhering to the Construction General Permit, including the requirements in the SWPPP, the Project would not violate any water quality standard for the Milliken Creek.

- b) ***Less than Significant.*** Excavation during Project construction could intercept the shallow groundwater table and the Project may require short-term dewatering. Such dewatering activities would be minimal and temporary in nature and as such, there would be no impacts to groundwater supplies or aquifers. Any effects related to lowering the shallow groundwater table would be temporary since dewatering would be required for only a limited period during construction activities and highly localized within the vicinity of excavation activities. Therefore, if construction related groundwater dewatering is required, it would not affect municipal and domestic wells in the Project area. As a result, impacts related to the depletion of groundwater resources would be less than significant.
- c) ***Less than Significant.*** Project implementation would result in the removal of a dam, construction of a bridge to replace existing access across the creek, and creek restoration actions. These activities collectively constitute an alteration of the existing drainage pattern. Removal of the summer impoundment dam would reduce localized flooding, particularly preventing out of bank flooding upstream of the dam. This would result in more flow being maintained within the stream channel downstream of the former dam in the Milliken Creek main stem. As a result of Project implementation, the peak 100-year, 25-year, and 10-year discharges in the reach of the creek immediately downstream of the dam would increase slightly by approximately 5 percent, 2.9 percent, and 0.5 percent based upon hydraulic analyses by Mead & Hunt, August 2016.

However, the predicted increases would be limited to the peak of the given event and only occur over a small fraction of the hydrograph (e.g., approximately 4 percent). Thus, potential impacts on erosion and sediment would likewise be very transient and limited temporally. Further, at the dam site itself the recommended, conceptual restoration alternative comprises constructing a number of coarse riffle features (i.e., boulders, cobble, and coarse gravel) that would be co-located with graded expansions in the channel width. This approach would limit local bed erosion and/or instability and

encourage the formation and persistence of a more natural channel form here. Potential impacts of the Project with respect to erosion and sedimentation would be less than significant.

- d, e) ***Less than Significant.*** Project implementation would result in the removal of a dam, construction of a bridge to replace access across the creek, creek restoration actions, street drainage improvements, and construction of a bypass pipe. These activities collectively constitute an alteration of the existing drainage pattern. As described above, removal of the summer impoundment dam would reduce localized flooding. Flooding at this location (at and just upstream of the dam) occurs over the left bank area and the flows are ultimately conveyed south through the golf course toward East Fork Milliken Creek and the east side of Kaanapali Drive. Street drainage improvements (e.g., increased storm drain inlet capacities along Kaanapali Drive) and construction of the bypass pipe and drainage inlet improvements on Atlas Peak Road would further alleviate flooding issues along most of Kaanapali Drive and in areas north and south of Atlas Peak Road. However, removal of the dam would also increase the amount of flow conveyed down the Milliken Creek main stem during storm events (as summarized above).

The entire area of general interest (i.e., the residences along Kaanapali Drive) is currently mapped as a 100-year special flood hazard area (FEMA, 2010). Three structures along Kaanapali Drive will experience a minor increase (i.e., less than 0.2 feet) in the 100-year water surface elevation as a result of the removal of the dam and maintaining more flow within the main stem of the creek. However, the majority of homes along the main stem will see a decrease in 100-year flooding as a result of the Project reducing overland flooding and flowpaths. Within the floodplain and off-channel areas, increases in the 100-year water surface elevation would be minor (i.e., less than 0.2 feet) and generally limited to the roadways on Hillcrest Drive between Kaanapali Drive and Atlas Peak Road. This would have no negative impact upon residences of Kaanapali Drive, as the only potential change as a result of Project implementation would be a reduction in the flooding depths during a 100-year event for these areas.

For smaller floods (the 10-year and 25-year events), there would also be a slight increase in the peak discharge conveyed down the Milliken Creek main stem (e.g., between the summer impoundment and Atlas Peak Road). However, no structures will be negatively impacted in the 10-year or 25-year events as a result of the project. For the majority of residences along Kaanapali Drive, the Project would result in a reduction of flooding depths during these smaller flood events.

In sum, the Project would result in minor, localized increases in flooding depths at a few locations, and this would primarily be attributable to increasing overall conveyance efficiency within the drainage network, e.g., Milliken Creek main stem, East Fork Milliken Creek, and the bypass pipe. Such increases are addressed by miscellaneous drainage improvements near the south end of the golf course. However, the Project would result in an overall net reduction in flooding depths and locations, both during the

- 100-year event as well as smaller floods, such as the 25-year and 10-year events. Potential impacts of the Project with respect to on-or off-site flooding would be less than significant.
- g) **No Impact.** The Project does not include housing development; the Project would not involve construction of new housing or structures for human occupancy within a 100-year flood hazard zone. Therefore there is no impact.
- h) **Less than Significant.** The Project is located within a 100-year special flood hazards area (FEMA, 2010). Removal of the summer impoundment dam and implementation of the creek restoration Project would redirect a portion of the flood flows that currently go out of bank back into the Milliken Creek main stem. However, as discussed above, subsequent increases in the 100-year water surface elevation would be minor (i.e., less than 0.2 feet) and generally limited to Hillcrest Drive between Kaanapali Drive and Atlas Peak Road. However, this would have no negative impact upon residences of Kaanapali Drive, as the only potential change as a result of project implementation would be a reduction in the flooding depths during a 100-year event for these areas. The Project would result in an overall net reduction in flooding depths and locations during the 100-year event. The Project's redirection of flood flows do not contribute to substantial additional flooding and the impact would be less than significant.
- i) **Less than Significant.** The Project is located inside the inundation area identified for Milliken Dam at Milliken Reservoir, which is located approximately 2.8 miles northeast of the Project (County of Napa, 2008). The concrete dam was built in 1924 and has a 1,980 acre-feet capacity (DWR, 2015). The Project would not result in a change in the risk of exposure of people or structures to flooding related to the Milliken Dam.

Specifically related to this criterion, the Project would remove the existing summer impoundment dam on Milliken Creek. During intense storm events, Milliken Creek overtops the dam and the creek banks, flooding the Silverado golf course and homes along Kaanapali Drive. During lower flows water flows through a culvert located under the dam. The approximately 13 feet high and 80 feet wide dam is use by Silverado Resort as a creek crossing point between the north and south golf course. The removal of the summer impoundment dam in combination with the other Project components would relieve the flooding to the homes along Kaanapali Drive. Therefore, the exposure of people or structures to a significant risk of loss, injury or death involving flooding as a result of levee or dam failure would be less than significant.

- j) **No Impact.** Construction activities would result in vegetation removal on the stream banks of the Milliken Creek, which would expose disturbed soil that could be more susceptible to slumping and erosion during rains; however, this would not contribute to a mudflow event, which is a large scale mass wasting event characterized by rapid debris flow. As discussed in Section 2.2.6, Geology, Soils, and Seismicity, implementation of the Project SWPPP requires erosion control and revegetation of disturbed areas, which would reduce the potential for erosion and slumping. The Project would have no effect on

the frequency or probability of seiches (i.e., earthquake-induced oscillating waves in an enclosed water body in the Project region) because the Project would not create new enclosed water bodies or affect the frequency of earthquakes. Further, as the Project would not include the construction of habitable structures, there would be no impacts related to property loss, injury, or death from a seiche. The Project is not located within a tsunami inundation zone (California Department of Conservation, 2013). Therefore, there would be no impact related to seiches, tsunamis, or mudflows.

References

- California Department of Conservation, 2013. Napa County Tsunami Inundation Map. Available online at: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Napa/Pages/Napa.aspx. Accessed July 29, 2015.
- California Department of Water Resources, (DWR) 2015. Listing of Dams. Available online at: <http://www.water.ca.gov/damsafety/damlisting/index.cfm>. Accessed July 29, 2015.
- County of Napa, 2008. *Napa County General Plan*, June 3, 2008.
- Federal Emergency Management Agency (FEMA), 2010. Flood Insurance Rate Map, Panel 510 of 650. Revised September 29, 2010.
- Mead & Hunt, 2015. Basix of Design – Milliken Creek Flood Reduction Project. Prepared for Napa County. April 23, 2015.

2.2.10 Land Use and Land Use Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
10. LAND USE AND LAND USE 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"/>

Discussion

- a) **No Impact.** The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. The Project would provide flood relief to homes along Kaanapali Drive through restoration efforts, dam removal and bridge replacement on Milliken Creek, modification of existing culvert construction of an open pipe from the south end of the Silverado golf course to the Kaanapali Drive and Hillcrest Drive intersection, and new drainage inlets on Hillcrest Drive and Atlas Peak Road. The Project would not physical divide an established community. No impact would occur under this criterion.
- b) **No Impact.** Land use at the Project site is governed by the Napa County General Plan (2008), which designates the Project site for Planned Development with a zoning designation of Planned Development. The Planned Development category increase the opportunity for diversified uses by allowing multiple house types in a desirable relationship to planned common use space, limited commercial, institutional, educational, cultural, recreational and other uses. Construction activities could cause temporary but short-term impacts as discussed in other sections of this chapter. The Project would not conflict with land use designations/zoning or current uses. This site is not located within the California coastal zone, nor is it subject to a local coastal program. Therefore, the Project would be compatible with applicable land use plans, policies, and regulations, and no impact would occur.
- c) **No Impact.** The Project site is not located within an area covered under a habitat conservation plan or natural community conservation plan. Therefore, the Project would not conflict with any applicable habitat conservation plan or natural community conservation plan and there would be no impact.

References

County of Napa, 2008. *Napa County General Plan*, June 3, 2008.

2.2.11 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
11. 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"/>
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"/>

Discussion

- a, b) **No Impact.** The majority of Napa County has not been surveyed by the California Geological Survey for state mineral resource zones. The Napa County General Plan indicates that there are three active mines within the County: Napa Quarry, Pope Creek Quarry and American Canyon Quarry. Geothermal resources are utilized on a limited scale throughout the County (County of Napa, 2008). The Project site and staging areas are located in an area that has not been surveyed by the California Geological Survey (CDMG, 1987). There are no mines, mineral plants, oil, gas, or geothermal wells located at the Project (USGS, 2003; CDC, 2015). Therefore, the construction or operation of the Project would not alter, destroy, or limit access to any existing significant mineral resources.

References

- California Department of Conservation, Division of Mines and Geology (CDMG), 1987. *Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area*, Special Report 145146, Part II.
- California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (CDC), 2015. *DOGGR Online Mapping System*, accessed July 22, 2015.
- County of Napa, 2008. *Napa County General Plan*, June 3, 2008.
- United States Geological Survey (USGS), 2003. Active Mines and Mineral Plants in the U.S. 2003. Available online at: <http://mrdata.usgs.gov/mineral-resources/active-mines.html>. Accessed July 22, 2015.

2.2.12 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
12. NOISE — Would the project:				
a) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in 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 area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in 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"/>

Discussion

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. Given that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes low and extremely high frequencies, referred to as A-weighting, and is expressed in units of A-weighted decibels (dBA).³

Noise Exposure and Community Noise

Noise levels rarely persist consistently over a long period of time. Rather, noise levels at any one location vary with time. Specifically, community noise is the result of many distant noise sources that constitute a relatively stable background noise exposure where the individual contributors are unidentifiable. Throughout the day, short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual add to the existing

³ All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

background noise level. The combination of the slowly changing background noise and the single-event noise events give rise to a constantly changing community noise environment.

To legitimately characterize a community noise environment and evaluate cumulative noise impacts, community noise levels must be measured over an extended period of time. This time-varying characteristic of environmental noise is described using statistical noise descriptors, including the ones described below:

L_{eq} : The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max} : The instantaneous maximum noise level measured during the measurement period of interest.

DNL: The day-night average sound level (DNL) is the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting (“penalizing”) nighttime noise levels by adding 10 dBA to noise between 10:00 p.m. and 7:00 a.m.

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- a change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- a 10-dBA change is subjectively heard as approximately a doubling in loudness and may be perceived as undesirable or objectionable to some listeners.

These relationships occur in part because of the logarithmic nature of the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather do so logarithmically using “decibel addition” (FTA, 2006). For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Napa County Noise Ordinance

The Napa County Noise Ordinance Chapter 8, Section 8.16.110, part of the County’s code, is enforceable by law (County of Napa, 2013). To control noise from construction activities, the

County has established noise limits for construction activities. Section 8.16.040 of the ordinance states that “any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area” are prohibited. This ordinance further prohibits the use of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of 7:00 p.m. and 7:00 a.m. to prevent construction activity-related noise from creating a noise disturbance across a residential or commercial real property line. Per Section 8.16.080 of the ordinance, where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in **Table 2-4**.

**TABLE 2-4
NAPA COUNTY NOISE LIMITS FOR CONSTRUCTION ACTIVITIES**

	Residential	Commercial	Industrial
Daily: 7 a.m. to 7 p.m.	75 dBA	80 dBA	85 dBA
Daily: 7 p.m. to 7 a.m.	60 dBA	65 dBA	70 dBA

SOURCE: County of Napa, 2015

The Napa County General Plan Community Character Element which helps to implement the County Noise Ordinance establishes policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses (Napa County, 2008). The County has established guidelines to assist in determining compatibility with surrounding land uses; however, the guidelines are for assessment of long-term compatibility of land uses and are not applicable to the assessment of short-term construction activities.

Sensitive Receptors

People in residences, schools, libraries, churches, hospitals, nursing homes, and auditoriums are generally more sensitive to noise than those at commercial and industrial establishments. Sensitive receptors in the vicinity of the Project include residences, some of which are located immediately adjacent to the sites along Kaanapali Drive (within 50 feet). In general, residences and schools are among the land uses considered to be the most sensitive to noise. Active parks, recreation centers, and playgrounds are not as sensitive to noise because the levels of background noise at parks and recreation centers with active recreational uses and school playgrounds are elevated. However, users of natural recreation areas may value an increased degree of quiet for passive recreational uses.

Project Noise Levels

Long-term operation of the Project would not be expected to result in an increase in ambient noise levels. However, construction activities, which would occur over a period of approximately 4 months, would be expected to generate noise levels that would exceed ambient noise levels at land uses in the vicinity of the Project sites. Construction noise levels at the Project sites would be

intermittent, and would fluctuate depending on the particular type, number, and duration of use of various pieces of heavy on-site construction equipment. The hauling of excavated material and construction materials would also generate noise off-site from truck trips on local and regional roadways.

Table 2-5 includes the types of heavy equipment that would be utilized during construction and the typical noise levels associated with operation of the equipment at 50 feet. Large pieces of earth-moving equipment, such as excavators and bulldozers generate noise levels in the low to mid 80 dBA range at a distance of 50 feet (FTA, 2006). As indicated in the table below, the loudest piece of construction equipment would be the paver, at 89 dBA, which would be required to install the flood relief structures at Kaanapali culvert. However, the paver would not be expected to operate at the same location concurrently with other construction equipment, so the associated noise levels would not combine with noise levels associated with other construction equipment. With regard to the other construction activities, a worst-case assumption has been developed that would involve a loader and dozer operating simultaneously at the same location. This would result in a combined maximum noise level of approximately 88 dBA at 50 feet. Residences adjacent to the Project site may be exposed to an intermittent maximum L_{eq} noise level of up to 88 or 89 dBA.

**TABLE 2-5
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT**

Construction Equipment	Noise Level (dBA, L_{eq} at 50 feet)
Loader	85
Excavator	81
Dozer	85
Backhoe	80
Crane, Mobile	83
Paver	89
Roller	74

SOURCE: FTA

- a) ***Less than Significant with Mitigation.*** Construction activities would be conducted in compliance with the time-of-day restrictions identified in the Napa County Noise Ordinance, which prohibits construction activities between the hours of 7:00 p.m. and 7:00 a.m. During the construction phase, the Project would cause a temporary increase in noise levels that would exceed the County's noise limits for construction activities. However, the nuisance impact on nearby sensitive receptors that would be caused by the construction-related noise levels would be reduced to the extent feasible to a less-than-significant level through implementation of **Mitigation Measure NO-1**, which requires effective sound control devices and mufflers for equipment and pre-construction

notification to nearby sensitive receptors. No permanent exposure of persons to excessive noise levels is anticipated following completion of the Project.

Mitigation Measure NO-1: Construction Noise Reduction Measures. A construction noise reduction plan shall be developed and implemented that incorporates the following measures to reduce construction noise impacts:

- Locate all stationary noise-generating equipment as far as possible from nearby noise-sensitive receptors. Stationary noise sources located within 500 feet of noise-sensitive receptors shall be equipped with noise-reducing engine housings, and the line of sight between such sources and nearby sensitive receptors shall be blocked by portable acoustic barriers.
- Ensure that construction equipment is equipped with internal combustion engines with sound control devices at least as effective as those provided by the original equipment manufacturer.
- No equipment shall be permitted to have an un-muffled exhaust.
- Prohibit unnecessary idling of internal combustion engines.
- Pursuant to the Municipal Code, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 7:00 a.m. and 7:00 p.m.
- Notify the Silverado Resort and residences within 200 feet of the construction areas of the construction schedule in writing, at least two weeks prior to the commencement of construction activities. This notice shall indicate the allowable hours of construction activities. The construction contractor shall designate a noise disturbance coordinator who is responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed at the construction site and included in the construction schedule notification sent to nearby sensitive receptors.
- Consult and coordinate to the extent feasible with the Silverado Resort the scheduling of the highest noise-producing activities to occur at times that would cause the least amount of disruption to the facility.
- Maintain construction equipment in good condition and use it judiciously to be as quiet as practical. Prohibit construction worker electronic devices from being audible beyond the limits of the construction site.

- b) ***Less than Significant.*** There would be no long-term sources of groundborne vibration or noise associated with the Project. Temporary sources of groundborne vibration and noise during construction would result from operation of conventional heavy construction equipment such as bulldozers and loaded haul trucks. These pieces of equipment can generate vibration levels of up to 0.09 in/sec at a distance of 25 feet. However, vibration levels attenuate rapidly from the source. At a distance of 50 feet, which is the

approximate distance that the closest buildings and residences would be to active heavy construction equipment, vibration would be up to 0.04 in/sec.

The peak particle velocity (PPV) threshold of 0.20 in/sec identified by Caltrans (2004) is used in this analysis to determine the significance of vibration impacts related to adverse human reaction, and the Federal Transit Administration (FTA) PPV threshold of 0.12 in/sec for buildings extremely susceptible to vibration damage is used to determine the significance of vibration impacts related to risk of architectural damage to buildings (FTA, 2006). Vibration levels at the closest residence locations would be well below these PPV thresholds. Therefore, construction-related vibration impacts would be less than significant. These vibration levels would not have the potential to cause structural damage to nearby buildings; and would be unlikely to cause an adverse human reaction at residences or other sensitive uses in the immediate vicinity of construction activities. Impacts from Project construction would be less than significant.

- c) **No Impact.** The Project would require routine mowing and vegetation management. These activities are anticipated to generate a similar amount of noise as the mowing that already occurs at the Silverado golf course and throughout the neighborhoods in the vicinity of the Project components. These activities would not represent an increase in ambient conditions; therefore, there would be no incremental impact.
- d) **Less than Significant with Mitigation.** Noise impacts associated with construction would primarily affect those persons located closest to the proposed construction sites. Existing residents and the Silverado Clubhouse near Project sites would experience a temporary increase in noise levels above those existing without the Project. Therefore, construction-related noise levels may be considered to be a nuisance to the closest sensitive receptors.

The County considers construction-related noise levels of 75 dBA or higher to be disruptive to residential land uses (County of Napa, 2015). Therefore, given that the loudest noise levels at the nearest residences would be up to 89 dBA, the temporary increase in local noise levels could cause a substantial nuisance to nearby residences. However, implementation of **Mitigation Measure NO-1** would ensure that effective sound control devices and mufflers would be installed on construction equipment and would require pre-construction notification to Silverado Resort and nearby residences so the construction-related increase in noise levels would be less of a nuisance to nearby sensitive receptors. Therefore, impacts would be mitigated to a less-than-significant level.

Mitigation: Implement Mitigation Measure NO-1.

- e, f) **No Impact.** The Project is not subject to an airport land use plan or within 2 miles of a public airport, and is not located in the vicinity of a private airstrip. Therefore, there would be no impact with regard to exposure of people residing or working to excessive noise levels from a public airport or private airstrip.

References

California Department of Transportation (Caltrans), 2004. *Noise, Vibration, and Hazardous Waste Management Office, 2004, Transportation- and Construction-Induced Vibration Guidance Manual*, June 2004.

County of Napa, 2008. *Napa County General Plan*, June 3, 2008.

County of Napa, 2015. *Napa County Municipal Code*. Accessed online at: https://www.municode.com/library/ca/napa_county/codes/code_of_ordinances?nodeId=TI T8HESA_CH8.16NOCORE, November 11, 2015.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06)*, May 2006, page 2-3.

2.2.13 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
13. 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 units, 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"/>

Discussion

- a) **No Impact.** In general, a project would be considered growth-inducing if its implementation would result in substantial population increases and/or new development that might not occur if the project were not implemented. The Project does not propose the development of new housing, nor would it indirectly induce growth by establishing substantial permanent employment opportunities that could stimulate population growth. There could be a temporary demand for housing during construction to provide housing for workers; however the Project is not expected to involve employment opportunities substantially beyond what would normally be available to construction workers in the area, and workers are expected to be drawn from the local labor pool. It is expected that the construction workforce requirements could be met by North Bay area labor and that construction employees would commute from elsewhere in Napa or the San Francisco Bay Area, rather than relocate from more distant cities and towns. Although some workers might temporarily relocate from other areas, any population increase due to this relocation would be minor (fewer than 25 workers) and temporary. Therefore, the Project would not induce substantial population growth, either directly or indirectly.
- b, c) **No Impact.** The Project would not displace any existing housing or remove any residences. Therefore, no new housing would be required to be constructed elsewhere and no impact would occur under this criterion.

2.2.14 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the 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 following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a.i) **No Impact.** The County of Napa contracts with the CAL FIRE for protection services as the Napa County Fire Department. CAL FIRE operates five fulltime station and nine volunteer fire companies throughout the Napa County. The County also contracts with the cities of St. Helena and Calistoga, and Schell-Vista Fire Protection District for fire protection services to specified unincorporated areas adjoining these agencies. The nearest fulltime station is located at 1820 Monticello Road, approximately 0.15 mile southwest of the Project site (Napa County Fire Department, 2015). The Project would not result in an increase in population or facilities that would increase in demand for fire protection services nor would it affect service ratios. Existing fire protection services would be adequate to provide services to the Project if needed. The demand for fire protection services would remain the same as under existing conditions after the construction of the Project; therefore, no impact would be associated with Project implementation.
- a.ii) **No Impact.** The Napa County Sheriff provides police services for the unincorporated areas of Napa County, as well as American Canyon and Yountville. The closest Sheriff substation to the Project site is located at 1950 Mulberry Street in the Town of Yountville, approximately 6.5 miles northeast. The main headquarters is located 1535 Airport Boulevard in Napa, approximately 8.5 miles south (Napa County Sheriff's Office, 2015). The Project would not result in an increase in population or facilities that would increase in demand for police services nor would it affect service ratios. The demand for police services would remain the same as under existing conditions after the construction of the Project; therefore, no impact would be associated with Project implementation.

- a.iii) **No Impact.** The Project area is served by the Napa Valley Unified School District. The Project would not result in an increase in population or housing and would therefore not generate an increase in students or demand on local school facilities. No impact would be associated with Project implementation.
- a.iv, v) **No Impact.** The Project would result in short-term increases in the local population during construction, but there would not be expected to be any increase in use of local recreational or other public facilities as a result of these increases. The Project would not result in any permanent increase in local population. Therefore there would not be any need for new parks or other public facilities, and there would be no impact under these criteria.

References

- Napa County Fire Department, 2015. About Us. Available online at:
<http://www.countyofnapa.org/CountyFire/AboutUS/>. Accessed July 22, 2015.
- Napa County Sheriff's Office, 2015. Office Locations. Available online at:
<http://www.countyofnapa.org/SheriffLocations/>. Accessed July 21, 2015.

2.2.15 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a, b) ***Less than Significant.*** The nearest public park to the Project is Trancas Crossing Park, located approximately 1.25 miles southwest of the Project site. Trancas Crossing Park is a 33 acre open space park and includes trails, boat launch and restrooms (City of Napa 2011). Additionally, portion of the Project site is located at the Silverado Resort. The Silverado Resort offers a variety of recreational opportunities for members and resort guest; most notably is the two golf courses. Other recreational opportunities include pools for swimming, tennis, hiking and biking trails (Silverado, 2015).

During construction, small portions of the golf course green, holes or pathways (at the Silverado Resort) could require temporary relocation or closure. Most construction on the golf course would appear similar to course maintenance and is not anticipated to effect play. All construction would be short-term and temporary. The Project would not disrupt access to the nearby recreational areas, and would not increase the use of the existing neighborhood and regional parks in the Project vicinity. The Project also does not include a residential component that could contribute to a direct increase in the use of existing recreational facilities in the area or require the expansion or construction of new facilities. Therefore, the Project would have a less than significant impact to recreational resources.

References

- City of Napa, 2011. Trancas Crossing Park Now Open, June 28, 2011. Available online at: http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1346:trancas-crossing-park-opens-june-27&catid=1:latest. Accessed July 29, 2015.
- Silverado Resort and Spa (Silverado), 2015. About Us. Available online at: <https://www.silveradoresort.com/about-us/>. Accessed July 29, 2015.

2.2.16 Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
16. TRANSPORTATION AND 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with General Plan Policy CIR-23, which requires new uses to meet their anticipated parking demand, but to avoid providing excess parking which could stimulate unnecessary vehicle trips or activity exceeding the site's capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) 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"/>

Discussion

- a) ***Less than Significant.*** Regional access to the Project site is provided by State Route 121 (also known as the Carneros Highway), which runs in a northerly direction from State Route 37 in Sonoma County to State Route 128 near Lake Berryessa in Napa County. According to the latest data available from Caltrans, the average daily traffic volume on State Route 121 in the Project area ranges from 3,150 to 3,950 vehicles (Caltrans, 2015).

Local access is provided by Atlas Peak Road, Hillcrest Drive, Kaanapali Drive and Club House Drive. Atlas Peak Road is a four-lane road from the intersection of State Route 121 to Hillcrest Drive, where it narrows to two lanes, running along the eastern side of the Silverado Resort. Hillcrest Drive is a two-lane road along the west side of the Silverado Resort connecting to Westgate Drive. Kaanapali Drive is two-lane residential street dead-ending in a cul de sac. The Silverado Resort is accessible via Club House Drive. Two large parking lots are also located adjacent to Club House Drive. Street parking is available along Hillcrest Drive and Kaanapali Drive.

Transit services within Napa County are provided by VINE, which is an intra- and inter-city public system with services that operate within the City of Napa, between Calistoga and Vallejo, and between St. Helena and Santa Rosa. VINE does not provide regional bus service in the Project vicinity (VINE Transit, 2015).

Project Construction

Direct traffic impacts, such as local congestion and disruption of traffic flow from construction of the Project would be short-term and temporary, and limited to the 4-month construction period.

Construction activities that would generate off-site traffic would include the delivery of construction vehicles and equipment to the Project site, the daily arrival and departure of construction workers, and the delivery of materials throughout the construction period. The estimated haul truck traffic would vary depending on the activity, but would peak at up to approximately 30 trucks per day, which would yield up to 60 daily one-way trips to and from the Project site, spread over the course of the work day.⁴ There would be up to 25 construction workers commuting to and from the work site per day.

Construction-generated traffic would be temporary and less than substantial, and therefore, would not result in any long-term degradation in operating conditions on any local roadways used for the Project. The primary impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of the roads in the Project area because of the slower movements of larger turning radii of construction trucks compared to passenger vehicles. Drivers could experience delay if they were traveling behind a heavy truck. Project construction-related traffic would not be substantial in relation to traffic flow conditions on State Route 121 (falling within the daily fluctuation of the above-described traffic volumes). While the traffic generated by construction activities likely would be a noticeable change to current traffic volumes experienced by motorists on the local-serving roadways, the effect on traffic flow would be less than significant because current traffic volumes are much lower than the carrying capacity of the two-lane roads (generally 10,000 to 15,000 vehicles per day), and would remain so during Project construction. The Project impact would be less than significant.

Project Operation

Long-term operation of the Project would be similar to the existing traffic and circulation conditions within the Project area. Therefore, impacts would be less than significant.

- b) ***Less than Significant.*** Congestion management programs are intended to monitor and address long-term traffic conditional related to future development that generate permanent (on-going) traffic increases, and do not apply to temporary impacts associated with construction projects. Project construction would be transitory in nature, and effects on roadways and intersection operations would be temporary. Following construction,

⁴ The 60 one-way truck trips per day equate to about 8 truck trips per hour over an 8-hour work day (i.e., one truck every 7 or 8 minutes)

- Project operation traffic and circulation conditions within the Project area, consisting of maintenance trips, with little increase in traffic on area roads. Therefore, the Project would generate minimal long-term traffic, and would not conflict with established level-of-service standards. The impact would be less than significant.
- c) **No Impact.** There are no airports in the immediate Project vicinity, and the Project does not include any features related to airports, air traffic nor does it propose any structures that would interfere with air traffic patterns. There would be no impact on air traffic or airport service.
- d) **No Impact.** Neither Project construction nor Project operations would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The Project also would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the road system that serves the project area. Therefore, the Project would not result in an increase hazards due to design feature or incompatible uses; no impact would occur.
- e) **Less than Significant.** As described in criterion “a” above, increased Project-related traffic would not cause a significant increase in congestion. The Project would not require closure of public roads, which could inhibit access by emergency vehicles. However, construction associated with the bypass pipe or culvert components could result in segments of Kaanapali Drive to be narrowed for through traffic, and construction associated with the drainage inlets on Hillcrest Drive and Atlas Peak Road could result in segments of these roads being narrowed for through traffic. Two-way traffic flow (including the use of alternate one-way flow, controlled by flaggers) would be maintained on all surface streets, and access for emergency vehicles would be maintained at all times. During construction of the Project, heavy construction-related vehicles could interfere with emergency response to the site or emergency evacuation procedures in the event of an emergency (e.g., emergency vehicles traveling behind the slow-moving truck). However, it is the law to yield to emergency vehicles on a call (i.e., with sirens and/or flashing lights). For those reasons, Project would have a less than significant impact on emergency access.
- f) **Less than Significant.** The Project would not involve the construction of new parking areas or the demand for new long term parking. However, the Project would create a temporary parking demand for construction workers and construction vehicles as crews move between construction sites. Construction staging of vehicles would occur on a gravel lot across the street from Silverado Resort on Atlas Peak Road. Construction worker parking could occur in the maintenance area of the Silverado Resort or along Kaanapali Drive. As stated above, the Project would require a maximum of 25 construction workers per day. Assuming all personnel drive alone to each day’s work location, Project construction would generate a parking demand of up to 25 parking spaces. Given the area allotted for the staging of worker vehicles there would be

sufficient on-site space to accommodate this anticipated demand from construction workers. The impact would be less than significant.

- g) **No Impact.** Implementation of the Project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, etc.), including changes in policies or programs that support alternative transportation, nor construct facilities in locations which future alternative transportation facilities are planned. The Project would not conflict with adopted policies, plans and programs supporting alternative transportation. There would be no impact.

References

California Department of Transportation (Caltrans), 2015. *2014 Traffic Volumes on California State Highways*.

VINE Transit, 2015. Available at: <http://www.ridethevine.com/vine>. Accessed September 14, 2015.

2.2.17 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. UTILITIES AND SERVICE SYSTEMS —				
Would the project:				
a) Conflict with 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 checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would 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 checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **No Impact.** The Project would not produce any wastewater nor would it require the construction of new water or wastewater treatment facilities or expansion of such facilities. Therefore, the Project would not conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board and would not affect capacity of the County's wastewater treatment system; no impact would occur.
- b, e) **No Impact.** There would be no wastewater discharges associated with the Project; therefore the Project would not require new or expanded wastewater facilities and there would be no impact to the capacity of the current wastewater treatment system.
- c) **Less than Significant.** See Section 2.2.9, Hydrology and Water Quality, for a discussion of site hydrology and storm drainage. The Project includes improvements and modification to the existing drainages along Kaanapali Drive that would allow storm flows to be conveyed through the system in a more effective manner, which would reduce the risk of flooding. Drainage inlet improvements on Hillcrest Drive and Atlas Peak Road will also reduce the risk of flooding. Construction activities would comply with environmental regulations and incorporate environmental protection measures (as

- discussed in other sections of this chapter) and would not cause significant environmental effects which are not mitigable. The impact would be less than significant.
- d) **No Impact.** The Project would not require new water entitlement, as the Project does not propose to increase the water supply demand. Therefore the Project would have not impact existing entitlements and resources, or new or expanded entitlements.
- f, g) **Less than Significant.** The anticipated volume of solid waste generated by construction activities would be approximately 3,000 cubic yards, which would be hauled approximately 21 miles from the site and appropriately disposed of at the Clover Flat landfill. The Clover Flat landfill is permitted to receive up to 600 tons of waste daily and has a capacity of approximately 5,100,000 cubic yards. The landfill has a remaining capacity of approximately 2,599,400 cubic yards and is permitted through 2021 (CalRecycle, 2015). Although the Project could increase the total waste generation in the area, the incremental contribution of the Project could be reasonably accommodated by the landfill. Given existing and potential future landfill capacity, the Project would not result in the local landfill exceeding its permitted capacity or non-compliance with federal, State, and local statutes and regulations related to solid waste. Therefore, the impact would be less than significant.

References

- CalRecycle, 2015. Facility/Site Summary Details: Clover Flat Resource Recovery Park (28-AA-0002). Available online at: <http://www.calrecycle.ca.gov/SWFacilities/Directory/28-AA-0002/Detail/>. Accessed July 23, 2015.
-

2.2.18 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
18. MANDATORY FINDINGS OF SIGNIFICANCE —				
Would the project:				
a) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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 checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **Less than Significant with Mitigation.** Impact analyses in the sections above show that the Project would not significantly degrade the quality of the environment. Potential impacts associated with biological resources and cultural resources would be reduced to less-than-significant levels with implementation of the proposed mitigation measures in their respective sections. Potential impacts identified for biological resources would either be less than significant or mitigated (using **Mitigation Measures BIO-1a** through **BIO-7**) to a less-than-significant level, and would not be expected to degrade environmental quality, or substantially reduce the habitat or affect populations of any wildlife, fish, or plant species. **Mitigation Measure CUL-1** and **CUL-2** would be implemented to ensure that any impacts resulting from the incidental discovery of cultural or paleontological resources during construction would be less than significant.
- b, c) **Less than Significant.** The projects that are proposed or planned to occur concurrently with the Project in or near the Project area include development and roadwork improvement projects. The Project would not have impacts to agriculture, forestry resources, mineral resources, public services, population and housing, or land use and land use planning resources that would combine with other projects. The proposed activities could have potential impacts with respect to aesthetics, biological and cultural resources, geology, hazards and hazardous materials, hydrology and water quality, transportation and traffic, recreation and utilities and service systems. However, such impacts would be limited to the Project site and, where necessary, mitigated such that they would not substantially combine with other off-site impacts.

The Project's potential impacts with respect to air quality and GHG emissions, however, could extend beyond the site to combine with impacts from other projects. As described in Sections 2.2.3, Air Quality, and 2.2.7, Greenhouse Gasses, the BAAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable in developing its CEQA significance thresholds. The BAAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant. As discussed in the above sections, the Project's emissions would be limited to the construction period and would be below the BAAQMD cumulatively considerable threshold.

For the reasons presented above, the Project would not be expected to result in adverse impacts to human beings, either directly or indirectly. All impacts identified in this document would be less-than-significant, or reduced to less-than-significant levels with implementation of mitigation measures, and the Project's incremental contribution to potential cumulative impacts would not be cumulatively considerable. Therefore, the Project's impact would be considered less than significant.

CHAPTER 3

Mitigation Measures and Mitigation Monitoring and Reporting Program

This section summarizes the mitigation measures that would be integrated into the Project to reduce the potentially significant impacts to a less-than-significant level. Also provided is a Mitigation Monitoring and Reporting Program (MMRP) organized in a tabular format, keyed to each mitigation measure incorporated into the project. The tables following each measure provide a breakdown of how the mitigation measure would be implemented, who would be responsible, and when it would occur. The tables consist of four column headings which are defined as follows:

- **Implementation Procedure:** If needed, this column provides additional information on how the mitigation measures would be implemented.
- **Monitoring and Reporting Actions:** This column contains an outline of the appropriate steps to verify compliance with the mitigation measure.
- **Monitoring Responsibility:** This column contains an assignment of responsibility for the monitoring and reporting tasks.
- **Monitoring Schedule:** The general schedule for conducting each monitoring and reporting task, identifying where appropriate both the timing and the frequency of the action.

3.1 Air Quality

Mitigation Measure AIR-1: Implement Bay Area Air Quality Management District Basic Control Measures (BAAQMD). The County and/or its construction contractors shall comply with the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics

Control Measure Tile 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at Napa County regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. County includes BAAQMD basic control measures in construction specifications.	1. County reviews BAAQMD basic control measures in construction specifications.	1. County	1. Prior to construction
2. Contractor implements measures in the program.	2. County documents that measures are being implemented.	2. County	2. During construction and final inspection

3.2 Biological Resources

Mitigation Measure BIO-1a: Qualified Biologist On-site Daily.

- A Qualified Biologist knowledgeable and experienced in the biology and natural history of CFS and wildlife resources will be on site daily during clearing of vegetation and dewatering activities to ensure avoidance measures are being met and minimize impacts to fish and wildlife habitat.
- The Qualified Biologist will be responsible for monitoring all project activities, avoidance measures, including construction and any ground-disturbing activities in any areas where suitable habitat occurs.
- The Qualified Biologist will have the authority to immediately stop any activity that does not comply with avoidance measures identified for CFS, or any other special status or listed species, and suspend construction activities. If any CFS are found within the Milliken Creek Project site, the Qualified Biologist will stop work activities and the District shall coordinate with CDFW Region 3 staff before re-commencing work. If CFS are present, coordination with CDFW and the USFWS may result the need to acquire a state Incidental Take Permit and/or federal Biological Opinion to ensure Project consistency with the California and federal Endangered Species Acts, respectively.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County assigns a Qualified Biologist to conduct surveys.	1. County formalizes assignment.	1. Qualified biologist, County	1. Prior to construction
2. Qualified Biologist implements measure.	2. County documents that measures are being implemented.	2. County / Contractor	2. Prior to construction and during construction.

Mitigation Measure BIO-1b: Avoid and Minimize Impacts to California Freshwater Shrimp.

- Prior to commencing construction, trees lining the banks at the Milliken Creek Project site shall be surveyed for the presence of undercut root masses (i.e., potential CFS winter habitat). If trees with such features are identified, they shall be avoided during construction, as feasible. Avoidance measures would include adjusting grading limits. In addition, construction crews shall be directed to retain riparian vegetation near the margins of the low flow channel, as feasible. Avoidance measures, determined and implemented by a Qualified Biologist may include adjusting grading limits and reducing the area of dewatering.
- All construction personnel shall attend an environmental education program delivered by a Qualified Biologist prior to working on the Milliken Creek Project site. The program shall include an explanation of how to best avoid harm to CFS. The Qualified Biologist(s) shall conduct a training session that would be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting shall include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis shall be placed on the importance of the habitat and life stage requirements within the context of Project maps showing areas where minimization and avoidance measures are being implemented.
- Following installation of any water diversion structures, and prior to the placement of fill, a Qualified Biologist shall perform surveys for any CFS trapped in the Milliken Creek Project site vicinity.
- If the CDFW or USFWS institute any specific CFS protection measures for the Project through an Incidental Take Permit or Biological Opinion, respectively, the stated measures will be considered to supersede any or all of the measures described above.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County shall include avoidance and minimization measures in the construction specifications.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. County-approved biologist shall conduct worker awareness training.	2. County ensures that Biologist conducts worker awareness training.	2. Onsite foreman, County	2. Prior to construction
3. The contractor implements measures.	3. Qualified Biologist documents that measures are being implemented.	3. Qualified Biologist, County	3. During Construction

Mitigation Measure BIO-2: Minimize Impacts to Salmonids and other Fish Prior to and During Construction.

- Project activities that are expected to disturb the area of the streambed shall occur between June 15 and October 15, or as otherwise stipulated in resource agency permits. Temporary fencing shall be installed around the perimeter of the Milliken Creek Project site. Fencing will be installed to the extent necessary to exclude special-status wildlife and habitat from the construction area, and prevent the unintended discharge of excavated material and turbid water. Construction personnel and construction activity shall avoid areas outside the fencing. The exact location of the fencing shall be determined by the resident engineer or

Qualified Biologist, with the goal of protecting sensitive biological habitat and water quality. The fencing shall be checked regularly and maintained until all construction is complete.

- All construction personnel shall attend an environmental education program delivered by a Qualified Biologist prior to working on the Milliken Creek Project site. The program shall include an explanation of avoidance measures for salmonid species and how to best avoid harm to salmonid species and Pacific lamprey. The Qualified Biologist(s) shall conduct a training session that would be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting shall include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis shall be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where minimization and avoidance measures are being implemented.
- Following installation of any water diversion structures, and prior to the placement of fill, the Qualified Biologist shall perform surveys for any fish in the Milliken Creek Project site vicinity, collect, and transfer native fish, including salmonids and Pacific lamprey, to the nearest suitable habitat downstream of the work area. During holding and transportation, fish would be held in stream water collected from the Milliken Creek site.
- Before removal and relocation begins, the Qualified Biologist shall identify the most appropriate release location(s). Release locations should offer ample habitat for salmonids or Pacific lamprey and should be selected to minimize the likelihood of reentering the work area. Suitable habitat is defined as creek sections that would remain wet over the summer and where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation.
- Relocation activities shall be performed during the morning when temperatures are coolest. Air and water temperatures would be periodically measured and dewatering activities would cease when water temperatures exceed those allowed by CDFW and NMFS. A *Fish Relocation Plan* shall be developed and submitted to NMFS within 30 days prior to project construction, or relocation methods shall be performed as stipulated in project permits. If salmonids or Pacific lamprey are relocated from the Milliken Creek Project site vicinity, the following procedure shall be used:
 1. Handling of fish would be minimized. However, when handling is necessary, hands and nets would be wetted prior to handling.
 2. Any handled fish would be immediately placed in an aerated container with a lid in cool, shaded water. Aeration would be provided with a battery powered external bubbler. A thermometer would be placed in each holding container and partial water changes would be conducted as necessary to maintain a stable water temperature following CDFW and NMFS guidelines. Fish would not be held more than 30 minutes.
 3. All handled fish would be moved directly to the nearest suitable habitat in the same reach of the creek.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County shall include avoidance and minimization measures in the construction specifications.	1. County reviews construction specifications.	1. County	1. Prior to construction

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
2. County-approved biologist shall conduct worker awareness training.	2. County ensures that Biologist conducts worker awareness training.	2. Onsite foreman, County	2. Prior to construction
3. The contractor implements measures.	3. Qualified Biologist documents that measures are being implemented.	3. Qualified Biologist, County	3. During Construction

Mitigation Measure BIO-3: Protection of Foothill Yellow-Legged Frog and Western Pond Turtle. Surveys for western pond turtle and their nests shall be conducted before construction begins. If western pond turtle nests are found, a 100-foot buffer shall be established around the location of the nests until the young have left the nest, as determined by a Qualified Biologist. While nests are often difficult to find, the surveys would minimize the potential for nest sites to be disturbed. With these measures in place, impacts would be reduced to the extent feasible and are expected to be less than significant. In the long term, the Project is not expected to have substantial negative or beneficial effects on western pond turtle because Project activities are not anticipated to substantially improve habitat for this species.

Surveys for foothill yellow-legged frog shall be conducted before construction begins. In the unlikely event foothill yellow-legged frog eggs or tadpoles are found, a 100-foot buffer shall be established around the location until juveniles disperse from the breeding site, as determined by a Qualified Biologist. If adults are present in the construction area, work shall be stopped until individuals are allowed to disperse on their own volition or the species is relocated by a Qualified Biologist with permission to handle foothill yellow-legged frog.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County assigns a qualified biologist to conduct surveys.	1. County formalizes assignment.	1. Qualified Biologist, County	1. Prior to construction
2. Qualified Biologist implements measure.	2. County documents that measures are being implemented.	2. County / Contractor	2. During construction

Mitigation Measure BIO-4: Nesting Bird Protection.

- Removal of riparian vegetation and trimming or removal of trees shall occur outside the bird nesting season (February 15 - August 30), to the extent feasible.
- If removal of riparian vegetation and trimming or removal of trees during bird nesting season cannot be fully avoided, a qualified wildlife biologist shall conduct pre-construction nesting surveys within 2 weeks prior to the start of such activities or after any construction breaks of 14 days or more. Surveys shall be performed for the study area and suitable habitat within 250 feet of the Project area in order to locate any active passerine (perching bird) nests and within 500 feet of the Project area to locate any active raptor (birds of prey) nest.
- If nesting birds and raptors do not occur within 250 and 500 feet of the Project area, respectively, then no further action is required if construction begins within two weeks.

- If active nests are located during the pre-construction bird nesting surveys, the wildlife biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:
 - If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply:
 - If construction may affect the active nest, the biologist shall establish a no-disturbance buffer. Typically, these buffer distances are between 25 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (i.e., if the Project area is adjacent to a road or community development) and if an obstruction, such as a building structure, is within line-of-sight between the nest and construction. Reduced buffers may be allowed if a full-time biologist is present to monitor the nest and has authority to halt construction if bird behavior indicates continued activities could lead to nest failure.
 - Any birds that begin nesting within the Project area and survey buffers amid construction activities shall be assumed to be habituated to construction-related or similar noise and disturbance levels and minimum work exclusion zones of 25 feet shall be established around active nests in these cases.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County assigns a qualified biologist to conduct pre-construction surveys for birds and raptors.	1. County formalizes assignment.	1. Qualified Biologist, County	1. Prior to construction; during nesting season
2. If active nests are present, consult with CDFW and restrict construction within 250 - 500 feet of nests.	2. County consults with CDFW and assigns Qualified Biologist to conduct surveys during nesting season.	2. County and qualified biologist	2. During nesting season
3. The contractor implements nesting bird protection measures.	3. City documents that measures are being implemented.	3. County / Contractor	3. During Construction

Mitigation Measure BIO-5: Bat Protection for Western Red Bat and Pallid Bat. A

pre-construction bat survey should be conducted by a Qualified Biologist to establish the presence or absence of roosting bats prior to May 1st in order to put exclusionary measures into place before the active season of this species (no exclusionary efforts should be conducted during May 1 to August 31 of the construction year). If no roosting bats are found, no further mitigation would be necessary; however, it is recommended that exclusionary measures be conducted prior to May 1st of the construction year to prevent bats from utilizing the riparian corridor.

If pallid bats or other bat species are detected within the roost at the time of the survey, excluding any bats from roosts, if possible, will be accomplished by a Qualified Biologist prior to the removal of roost trees. The timing and other methods of exclusionary activities will be developed by the Qualified Biologist in order to reduce the stress on the bats to the amount feasible while

taking into account project schedule. Exclusionary devices, such as plastic sheeting, plastic or wire mesh, can be used to allow for bats to exit but not re-enter any occupied roosts, if applicable. A Qualified Biologist will also be notified and present during any tree removal or tree trimming.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County assigns a Qualified Biologist to conduct pre-construction surveys for bats.	1. County formalizes assignment.	1. Qualified Biologist, County	1. Prior to construction
2. Qualified Biologist implements measures.	2. County documents that measures are being implemented.	2. County / Contractor	2. During Construction

Mitigation Measure BIO-6: Monitor and Document Riparian Habitat. Following grading and recontouring, as described in Section 1.3.2, Summer Impoundment Dam Removal and Creek Restoration, a minimum of 0.52 acres will be planted with riparian vegetation as a component of the Project. In advance of construction, a Riparian Monitoring Plan shall be prepared for riparian areas which will describe the thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. The long-term ecological monitoring program described in the Plan will provide the basis for gauging the achievement of minimum performance standards. The Plan will describe a three-year riparian monitoring program that assesses the survival and health of on-site plantings. Appropriate performance standards may include, but are not limited to: a 70 percent survival rate of restoration tree and shrub plantings; absence of invasive plant species in restored areas; and self-sustaining conditions (i.e., plant viability without supplemental water) at the end of three years. The Plan will be submitted to the appropriate regulatory agencies for review and approval.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County incorporates measures in construction specifications.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. The contractor implements measures.	2. County documents that measures are being implemented.	2. County / Contractor	2. During Construction

Mitigation Measure BIO-7: Mitigation for Tree Removal. All oak trees will be replaced at more than a 2:1 ratio in accordance with the County General Plan and Napa County Voluntary Oak Mitigation Plan, or as otherwise directed by the County Planning Division.

Implementation Procedure	Monitoring and Reporting Actions	Oversight Responsibility	Monitoring Schedule
1. County incorporates measures in construction specifications.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. The contractor implements measures.	2. County documents that measures are being implemented.	2. County / Contractor	2. During Construction

3.3 Cultural Resources

Mitigation Measure CUL-1: If prehistoric or historic-era cultural resources are encountered, all construction activities within 100 feet shall halt and the County of Napa and the U.S. Army Corps of Engineers shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a significant resource, mitigation shall be implemented with a preference for preservation in place. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the County of Napa and the U.S. Army Corps of Engineers and, for prehistoric resources, the appropriate Native American representative. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. In the event prehistoric or historic-period archaeological resources are discovered, halt construction within 100 feet of the find and notify a Secretary of the Interior-qualified archaeologist.	1. Contractor notifies the County and the U.S. Army Corps of Engineers of the discovery.	1. County, qualified archaeologist	1. During construction

Mitigation Measure CUL-2: If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. County includes construction specifications to ensure procedures for fossil discovery are included.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. In the event fossils are discovered, halt construction in the area and consult qualified professional paleontologist.	2. Notify County of the discovery.	2. County, qualified archaeologist	2. During construction

Mitigation Measure CUL-3: In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Napa County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission will be contacted within 24 hours if it is determined that the remains are Native American. The Native American Heritage Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the County of Napa and the U.S. Army Corps of Engineers for the appropriate means of treating the human remains and any grave goods.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. County includes construction specifications to ensure procedures for human remains discovery are included.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. In the event human remains are discovered, halt construction in the area and consult the County Coroner.	2. Notify County of the discovery.	2. County	2. During construction

3.4 Noise

Mitigation Measure NO-1: Construction Noise Reduction Measures: A construction noise reduction plan shall be developed and implemented that incorporates the following measures to reduce construction noise impacts:

- Locate all stationary noise-generating equipment as far as possible from nearby noise-sensitive receptors. Stationary noise sources located within 500 feet of noise-sensitive receptors shall be equipped with noise-reducing engine housings, and the line of sight between such sources and nearby sensitive receptors shall be blocked by portable acoustic barriers.
- Ensure that construction equipment is equipped with internal combustion engines with sound control devices at least as effective as those provided by the original equipment manufacturer.
- No equipment shall be permitted to have an un-muffled exhaust.

- Prohibit unnecessary idling of internal combustion engines.
- Pursuant to the Municipal Code, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 7:00 a.m. and 7:00 p.m.
- Notify the Silverado Country Club and residences within 200 feet of the construction areas of the construction schedule in writing, at least two weeks prior to the commencement of construction activities. This notice shall indicate the allowable hours of construction activities. The construction contractor shall designate a noise disturbance coordinator who is responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed at the construction site and included in the construction schedule notification sent to nearby sensitive receptors.
- Consult and coordinate to the extent feasible with the Silverado Country Club the scheduling of the highest noise-producing activities to occur at times that would cause the least amount of disruption to the facility.
- Maintain construction equipment in good condition and use it judiciously to be as quiet as practical. Prohibit construction worker electronic devices from being audible beyond the limits of the construction site.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. County incorporates the noise control measures and requirements in construction specifications.	1. County reviews construction specifications.	1. County	1. Prior to construction
2. The contractor implements measures.	2. County documents that measures are being implemented.	2. County	2. During construction

References

Society of Vertebrate Paleontology (SVP), 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee 2010.

Swainson’s Hawk Technical Advisory Committee, 2000. Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in the California’s Central Valley. May, 2000.

APPENDIX A

90% Design Plan Set

This page intentionally left blank

NAPA COUNTY PUBLIC WORKS DEPARTMENT

MILLIKEN CREEK FLOOD REDUCTION PROJECT

1195 3RD STREET, ROOM 201

NAPA, CA 94559

<PROJECT NO. TO BE PROVIDED BY COUNTY>

OCTOBER 7, 2016

DRAFT - 90% DESIGN



NAPA COUNTY

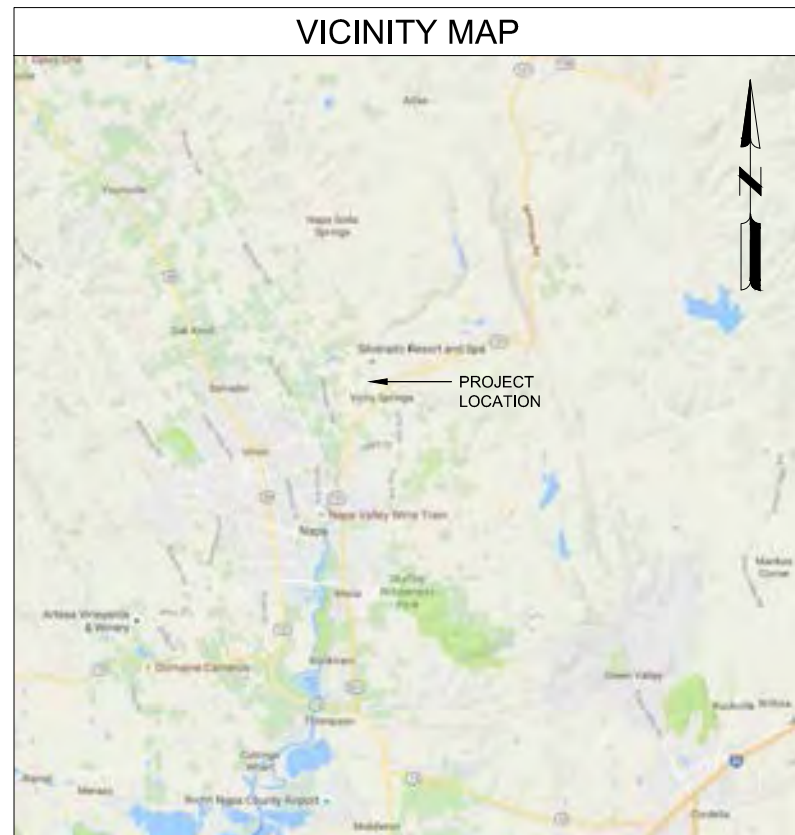


IMAGE BY GOOGLE EARTH™ MAPPING SERVICE



IMAGE BY GOOGLE EARTH™ MAPPING SERVICE

SHEET INDEX

Sheet Number Sheet Title

VOLUME 1: FLOOD REDUCTION FEATURES

- G-001 COVER SHEET
- G-002 LEGEND, ABBREVIATIONS AND GENERAL NOTES
- C-071 ALIGNMENT DATA
- C-101 EAST FORK DROP STRUCTURES
- C-202 BYPASS PIPE PLAN AND PROFILE
- C-201 BYPASS PIPE PLAN AND PROFILE
- C-XXX ROAD DRAINAGE IMPROVEMENTS
- C-501 DETAILS
- C-502 DETAILS

VOLUME 2: DAM REMOVAL

- C-601 EXISTING SITE STAGING & ACCESS PLAN
- C-602 DEMO PLAN
- C-603 DEWATERING DETAILS
- C-604 GRADING PLAN
- C-605 GRADING PROFILE
- C-606 GRADING SECTIONS 1
- C-607 GRADING SECTIONS 2
- C-608 RIFFLE DETAILS
- C-609 ENHANCEMENT PLAN
- C-610 BIOTECHNICAL DETAILS 1
- C-611 BIOTECHNICAL DETAILS 2
- C-612 HABITAT WOOD DETAILS
- C-613 REVEGETATION PLAN

CONTACT:

AGENCY

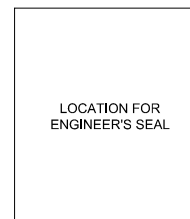
RICHARD THOMASSER
WATERSHED AND FLOOD CONTROL
OPERATIONS MANAGER
NAPA COUNTY PUBLIC WORKS DEPARTMENT
1195 3RD STREET, ROOM 201
NAPA, CA 94559
(707) 259-8657

VOLUME 1 ENGINEER - DESIGN

STEPHEN SULLIVAN
MEAD & HUNT
180 PROMENADE CIRCLE, SUITE 240
SACRAMENTO, CA 95834
(916) 971-3961

VOLUME 2 ENGINEER - DESIGN

CARLOS DIAZ
ESA
1425 N. McDOWELL, SUITE 200
PETALUMA, CA 94954
(707) 285-0586



180 Promenade Circle,
Suite 240
Sacramento, CA 95834
phone: 916-971-3961
meadhunt.com



These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



A Tradition of Stewardship
A Commitment to Service

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXXX
DRAWN BY: XXXX
CHECKED BY: XXXX
DO NOT SCALE DRAWINGS

SHEET CONTENTS
COVER SHEET

SHEET NO.

G-001

ABBREVIATIONS

AB	AGGREGATE BASE	GALV	GALVANIZED	RCP	REINFORCED CONCRETE PIPE
AG	ABOVE GROUND PIPE	GB	GRADE BREAK	REQ	REQUIRED
AC	ASPHALT CONCRETE	GD	GROUND	ROW	RIGHT OF WAY
ALT	ALTERNATE	GPM	GALLONS PER MINUTE	RSP	ROCK SLOPE PROTECTION
APPROX	APPROXIMATE	GS	GROUND SHOT	S	SANITARY LINE
ASB	AGGREGATE SUB-BASE	H	HEIGHT	SF	SQUARE FOOT
AR	ACCESS ROAD	HDPE	HIGH DENSITY POLYETHYLENE	SH	SHOULDER
BC	BEGINNING OF CURVE	HORIZ	HORIZONTAL	SS	STAINLESS STEEL
BIT	BITUMINOUS	HP	HIGH POINT	ST	STORM LINE
BLDG	BUILDING	HW	HEADWALL	STA	STATION
BRCE	BRELJE & RACE CONSULTING CIVIL ENGINEERS	HWL	HIGH WATER LEVEL	STD	STANDARD
DM	BENCHMARK	HWY	HIGHWAY	STL	STEEL
BOT	BOTTOM	IE	INVERT ELEVATION	T	TELEPHONE LINE
BVC	BEGINNING OF VERTICAL CURVE	IN	INCHES	TC	TOP OF CURB
C-C	CENTER TO CENTER	L	LENGTH	TG	TOP OF GRATE
CB	CATCH BASIN	LBS	POUNDS	TOE	TOE OF BANK
CIPCP	CAST IN-PLACE CONCRETE PIPE	LF	LINEAL FEET	TOP	TOP OF BANK
CJ	CONSTRUCTION JOINT	LWL	LOW WATER LEVEL	TOW	TOP OF WALL
CFS	CUBIC FEET PER SECOND	MAX	MAXIMUM	TYP	TYPICAL
CL	CENTERLINE	MID	MID POINT	UD	UNDERDRAIN
CLF	CHAINLINK FENCE	MIN	MINIMUM	UG	UNDERGROUND
CLR	CLEAR	MPH	MILES PER HOUR	UON	UNLESS OTHERWISE NOTED
CMP	CORRUGATED METAL PIPE	(N)	NEW	V	VELOCITY
CO	CLEANOUT	NO.	NUMBER	VC	VERTICAL CURVE
CONC	CONCRETE	#	NUMBER	VERT	VERTICAL
CONT	CONTINUOUS	NTS	NOT TO SCALE	VG	VALLEY GUTTER
CP	CONTROL POINT	OC	ON CENTER	VIF	VERIFY IN FIELD
CTB	CEMENT TREATED BASE	OH	OVERHEAD	W	WATER LINE
DB	DIRECT BURIAL	OWS	OIL WATER SEPERATOR	W/	WITH
DEG	DEGREE	PB	PULL BOX	W/O	WITHOUT
DI	DROP INLET	PC	POINT OF CURVATURE	WSE	WATER SURFACE ELEVATION
DIA	DIAMETER	PCC	PORTLAND CEMENT CONCRETE	WSP	WELDED STEEL PIPE
DIM	DIMENSION	PCF	POUNDS PER CUBIC FOOT	WV	WATER VALVE
DIP	DUCTILE IRON PIPE	PERF	PERFORATED	WWM	WELDED WIRE MESH
DP	DEPTH	PI	POINT OF INTERSECTION		
(E)	EXISTING	POB	POINT OF BEGINNING		
E	ELECTRICAL LINE	POC	POINT OF CURVE		
EC	END OF CURVE	POE	POINT OF ENDING		
EG	EXISTING GRADE	PSI	POUNDS PER SQUARE INCH		
ELEV	ELEVATION	PSF	POUNDS PER SQUARE FOOT		
EOP	EDGE OF PAVEMENT	PT	POINT OF TANGENCY		
EVC	END OF VERTICAL CURVE	PVC	POINT OF VERTICAL CURVE		
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE		
FG	FINISHED GRADE	PVI	POINT OF VERTICAL INTERSECTION		
FH	FIRE HYDRANT	PVT	POINT OF VERTICAL TANGENCY		
FL	FLOW LINE	Q	RATE OF FLOW		
FPS	FEET PER SECOND	QTY	QUANTITY		
FT	FEET	R	RADIUS		
G	GAS LINE	R&R	REMOVE AND REPLACE		
GAL	GALLON	RC	RELATIVE COMPACTION		

CIVIL LEGEND

	CONTROL POINT
	FIRE HYDRANT
	MANHOLE, SANITARY SEWER
	MANHOLE, STORM SEWER
	LP TANK
	POWER POLE
	SIGN
	TREE, EXISTING
	TREE, TO BE REMOVED
	WATER VALVE
	GAS
	ELECTRIC, OVERHEAD
	ELECTRIC, UNDERGROUND
	FENCE
	PROPERTY LINE
	SANITARY SEWER
	RIPRAP
	STORM DRAIN / CULVERT
	TELEPHONE
	WATER
	UNDERGROUND CABLE
	VEGETATION
	ABOVE GROUND PIPE

GENERAL NOTES:

1. THE ALIGNMENTS SHOWN ON THE DRAWINGS ARE THE CONSTRUCTION REFERENCE LINES FOR THE PROJECT FACILITIES SHOWN. THE CONTRACTOR SHALL ESTABLISH THE ALIGNMENTS AND ANY OFFSETS REQUIRED UTILIZING THE MONUMENTS PROVIDED.
2. UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS COMPILED FROM DATA PROVIDED BY THE UTILITY OWNERS, AND THE LOCATIONS SHOWN ARE APPROXIMATE. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES. ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES SHALL BE PROTECTED FROM DAMAGE BY CONSTRUCTION EQUIPMENT AND OPERATIONS.
3. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.
4. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.
5. FOR ALL TRENCH EXCAVATIONS THAT ARE FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF OCCUPATIONAL SAFETY & HEALTH. PRIOR TO BEGINNING ANY EXCAVATION, A COPY OF THIS PERMIT SHALL BE MADE AVAILABLE AND BE LOCATED ON THE CONSTRUCTION SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK.
7. ANY DEVIATIONS FROM THE DRAWINGS, PLANS OR SPECIFICATIONS WHICH MAY HAVE AN ENVIRONMENTAL IMPACT WILL BE SUBJECT TO APPROVAL BY THE RESIDENT ENGINEER AND MAY REQUIRE AN EXTENDED REVIEW, PROCESSING AND APPROVAL TIME. THE RESIDENT ENGINEER RESERVES THE RIGHT TO DISAPPROVE ALTERNATIVE METHODS, EVEN IF THEY ARE MORE COST EFFECTIVE, IF THE RESIDENT ENGINEER DETERMINES THAT THE PROPOSED ALTERNATIVE METHOD WILL HAVE AN ADVERSE ENVIRONMENTAL IMPACT.
8. THE CONTRACTOR SHALL RESTRICT ALL CONSTRUCTION ACTIVITIES TO WITHIN THE "LIMIT OF CONSTRUCTION ZONE" LINES SHOWN ON THE DRAWINGS UNLESS OTHERWISE APPROVED BY THE RESIDENT ENGINEER.
9. SURVEY SHOWN HEREON IS BASED ON INFORMATION PROVIDED BY: BRELJE & RACE, 475 AVIATION BLVD, SUITE 120, SANTA ROSA, CA 95403, (707) 576-1322.
10. THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY COMPLETED SEPTEMBER 2014, AND AERIAL SURVEY DATA FROM LIDAR COLLECTED JUNE 2014.

BENCHMARK

HORIZONTAL DATUM

VERTICAL DATUM

THE PUBLISHED LATITUDE, LONGITUDE AND ELLIPSOIDAL HEIGHT FROM THE CENTRAL COAST HEIGHT MODERNIZATION PROJECT WERE HELD FOR CONTROL POINTS B468: JT0442 AND TRANCAS, NAVD88 HEIGHTS WERE DETERMINED BY APPLYING THE "GEOID 12" GEOID SEPARATION TO ALL ELLIPSOID HEIGHTS.

THE HORIZONTAL DATUM OF THIS SURVEY IS THE NORTH AMERICAN DATUM OF 1983 (NAD83) (2008.0 EPOCH) BEING THE CALIFORNIA COORDINATE SYSTEM OF 1983 (CCS83) ZONE 2 (GRID SURFACE).

THE VERTICAL DATUM OF THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BEING BASED ON NGS VERTICAL CONTROL "G-858" IN THIS AREA.

Mead & Hunt

180 Promenade Circle,
Suite 240
Sacramento, CA 95834
phone: 916-971-3961
meadhunt.com



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
 1195 3RD STREET, ROOM 201
 NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DO NOT SCALE DRAWINGS

SHEET CONTENTS
LEGEND,
ABBREVIATIONS AND
GENERAL NOTES

SHEET NO.

G-002



ALIGNMENT DATA TABLE
DROP STRUCTURE

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L10	50.00	N65° 50' 01.99"E

SURVEY CONTROL DATA			
BRCE POINT NO.	NORTHING	EASTING	DESCRIPTION
1	1885921.25	6486446.81	FND-MON
2	1885985.81	6486374.60	FND-MON
4	1887156.37	6486175.29	CP-MAG
12	1887131.24	6486277.12	CP-HUB
13	1887135.76	6486118.13	CP-60D
16	1887124.91	6486023.88	CP-60D

BRCE POINT #4
N: 1887186.37
E: 6486175.29
EL. 68.25'

BRCE POINT #16
N: 1887124.91
E: 6486023.88
EL. 60.04'

BRCE POINT #13
N: 1887135.76
E: 6486118.13
EL. 66.90'

END
N: 1887133.85
E: 6486150.34

BRCE POINT #12
N: 1887131.24
E: 6486277.12
EL. 61.98'

BEGIN
N: 1887113.38
E: 6486104.79



NOTE:

- CONTROL POINTS SHOWN HEREON ARE BASED ON INFORMATION PROVIDED BY: BRELJE & RACE, 475 AVIATION BLVD, SUITE 120, SANTA ROSA, CA 95403, (707) 576-1322.

ALIGNMENT DATA TABLE
BYPASS PIPE

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING

ALIGNMENT CURVE DATA										
#	RADIUS	Δ	TANGENT	LENGTH	CENTER POINT NORTHING	CENTER POINT EASTING	PC NORTHING	PC EASTING	PT NORTHING	PT EASTING

BRCE POINT #2
N: 1885985.81
E: 6486374.60
EL. 65.75'

END
N: 1885726.86
E: 6486295.21

BEGIN
N: 1886056.99
E: 6486418.71

BRCE POINT #1
N: 1885921.25
E: 6486446.81
EL. 64.86'



Mead & Hunt

180 Promenade Circle,
Suite 240
Sacramento, CA 95834
phone: 916-971-3961
meadhunt.com



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

SHEET CONTENTS
ALIGNMENT DATA

SHEET NO.

C-071



These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

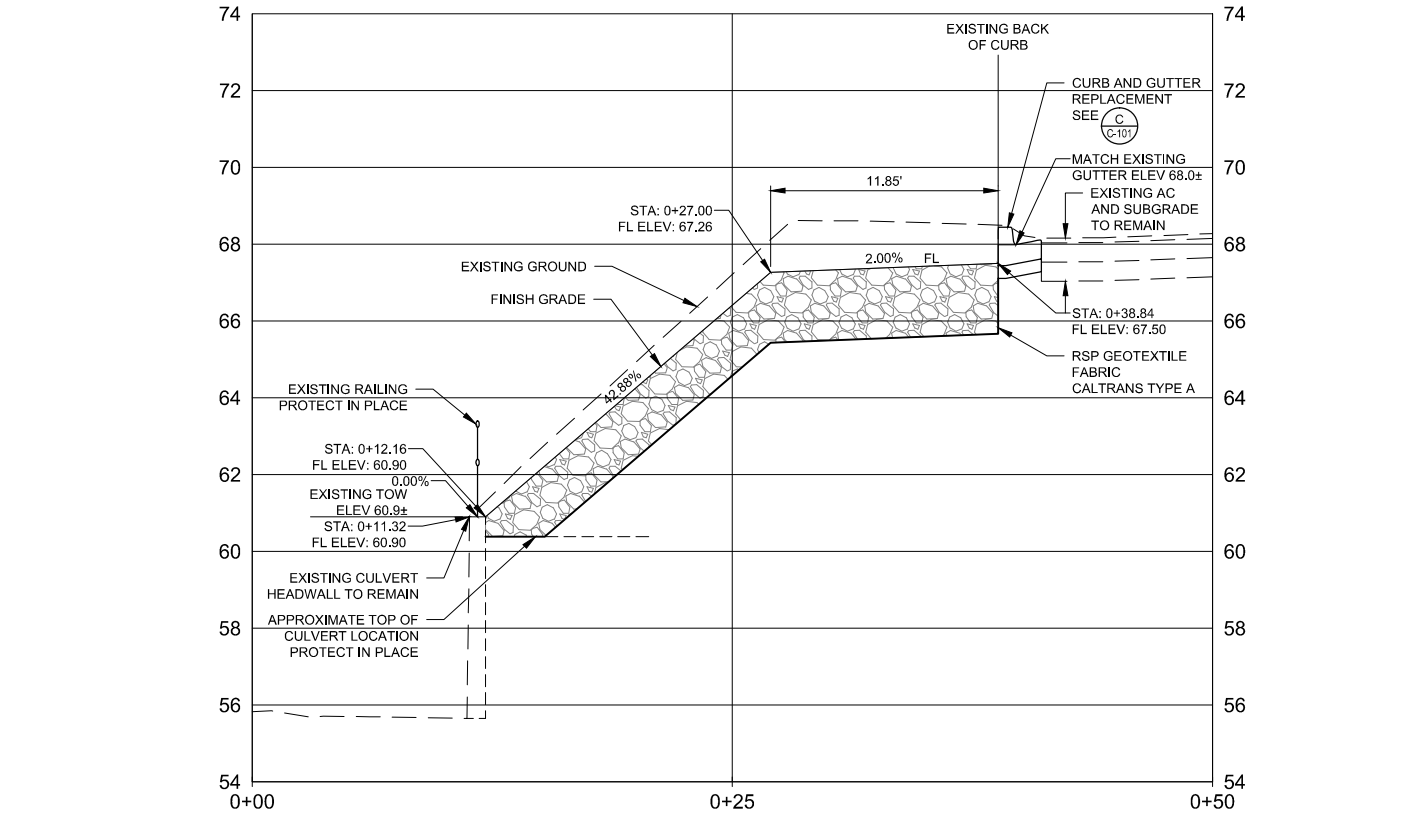
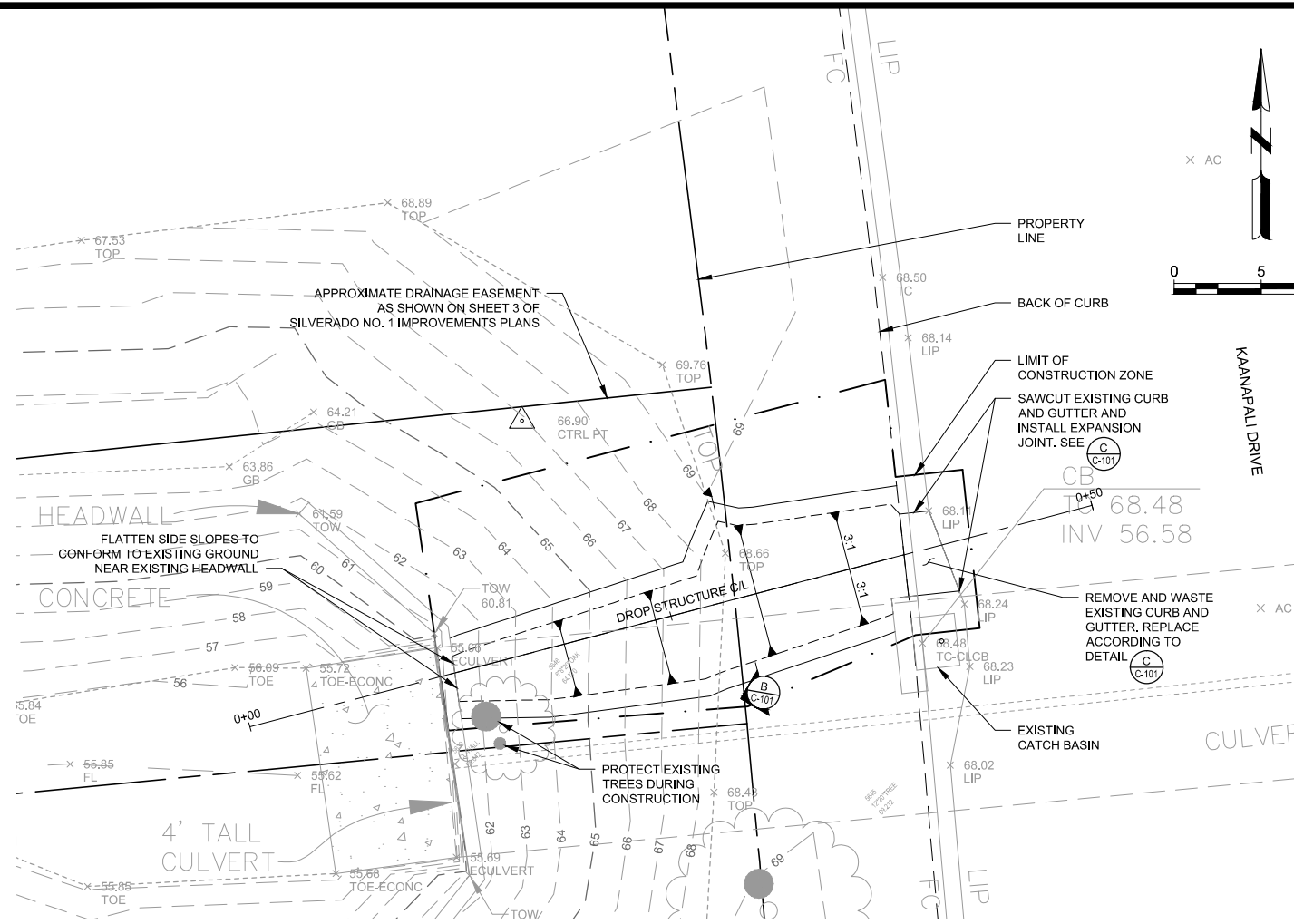
NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DO NOT SCALE DRAWINGS

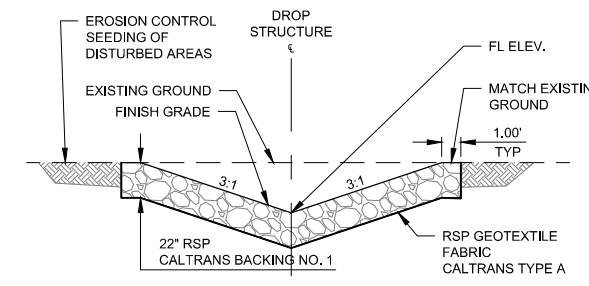
SHEET CONTENTS
EAST FORK DROP STRUCTURE

SHEET NO.

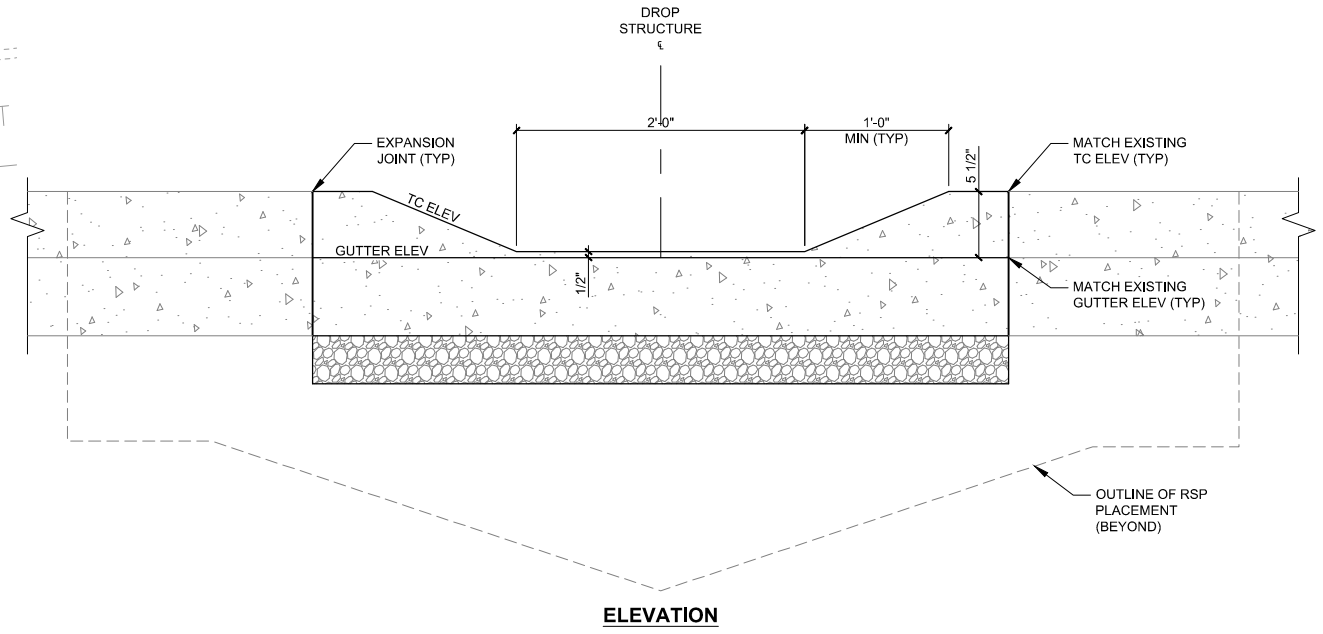
C-101



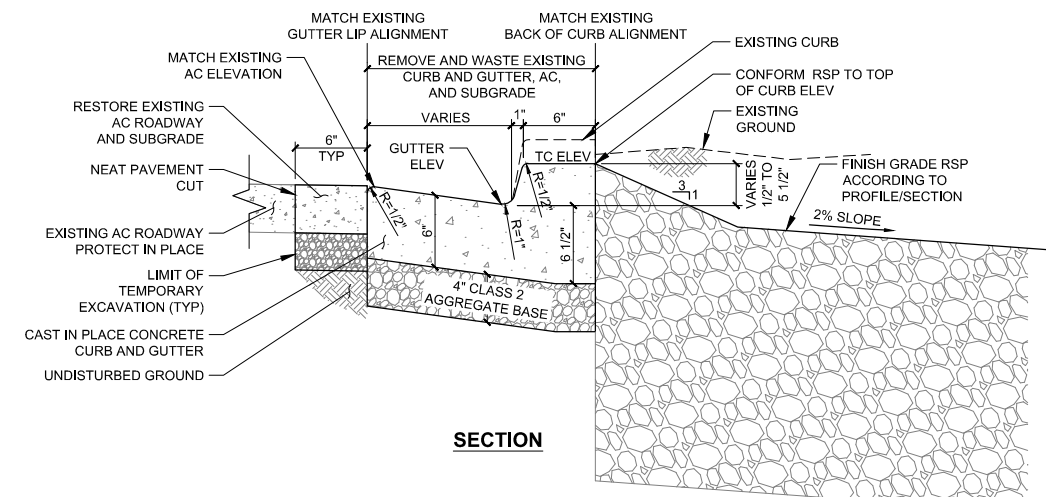
(A) DROP STRUCTURE PROFILE
1" = 5' HORIZ
1" = 2.5' VERT
0 2.5 5 10



(B) DROP STRUCTURE TYPICAL SECTION
NO SCALE



ELEVATION



(C) CURB AND GUTTER REPLACEMENT DETAIL
1 1/2" = 1'-0"
0 6 1 1 1/2



X:\3071500\130347\01\TECH\CAD\EAST FORK DROP STRUCTURES.DWG
8/24/2016 2:25:09 PM



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559**

ISSUED

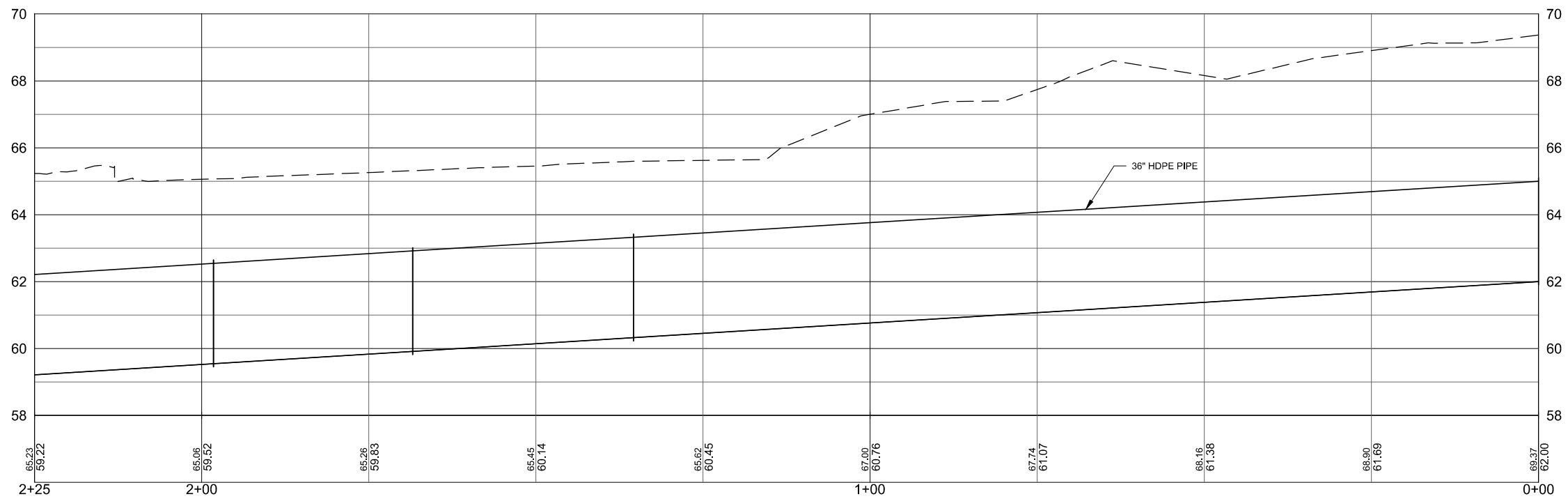
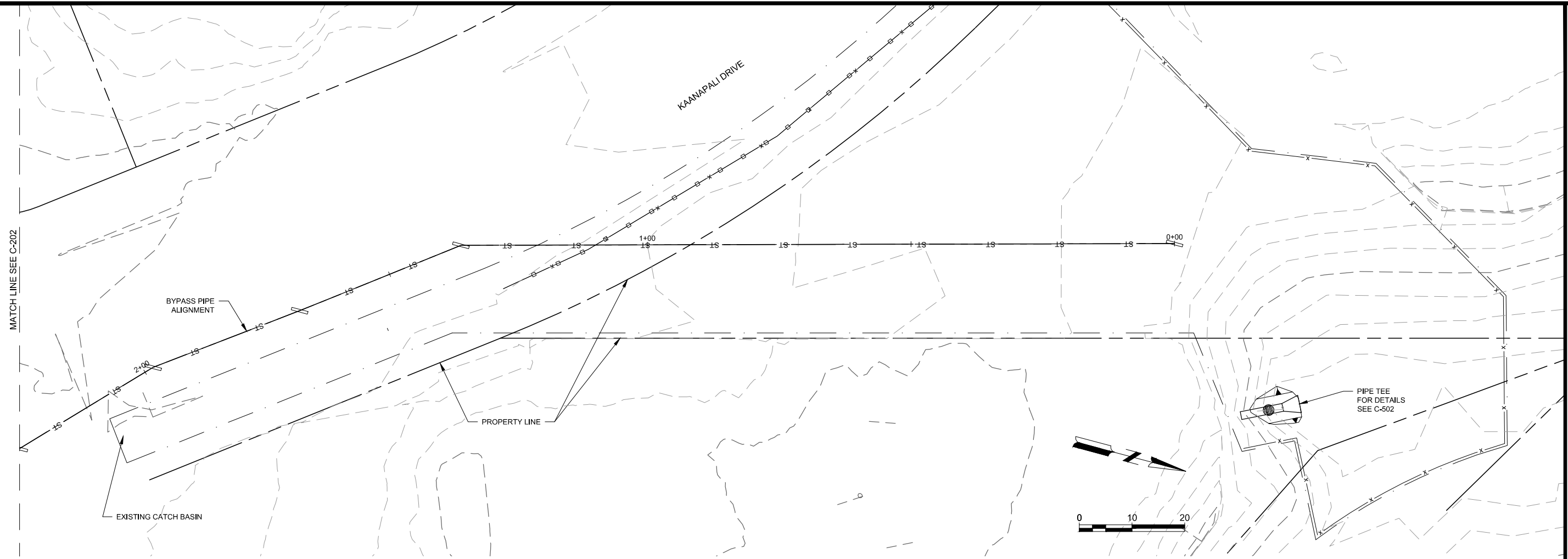
NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: RSG
DRAWN BY: RSG
CHECKED BY: GJK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
BYPASS PIPE PLAN
AND PROFILE

SHEET NO. 6 of X

C-201

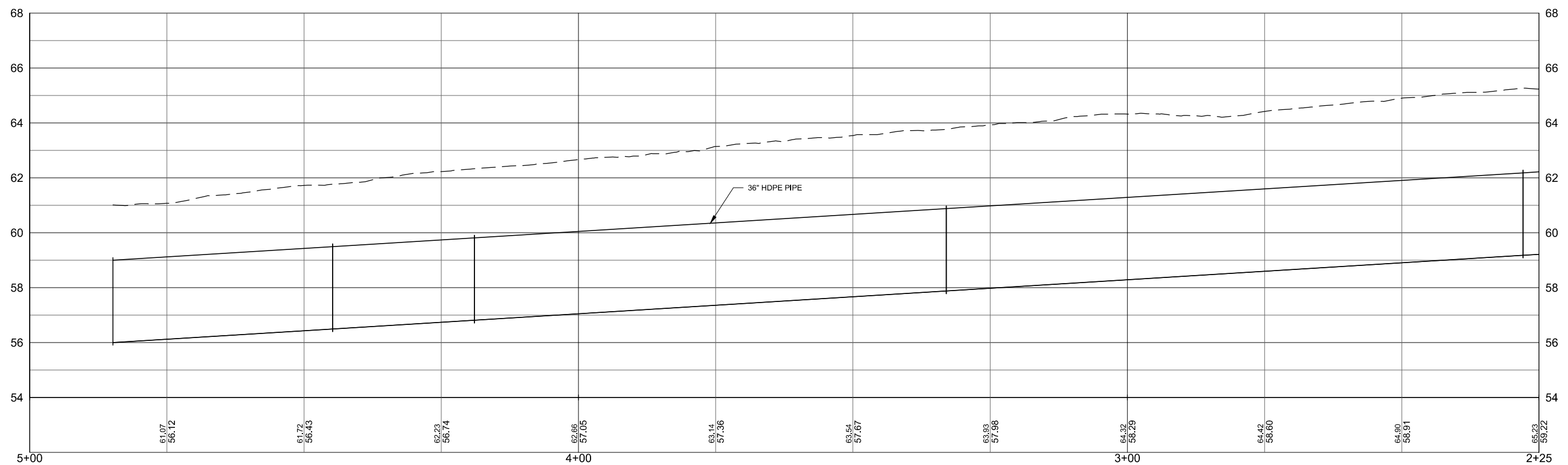
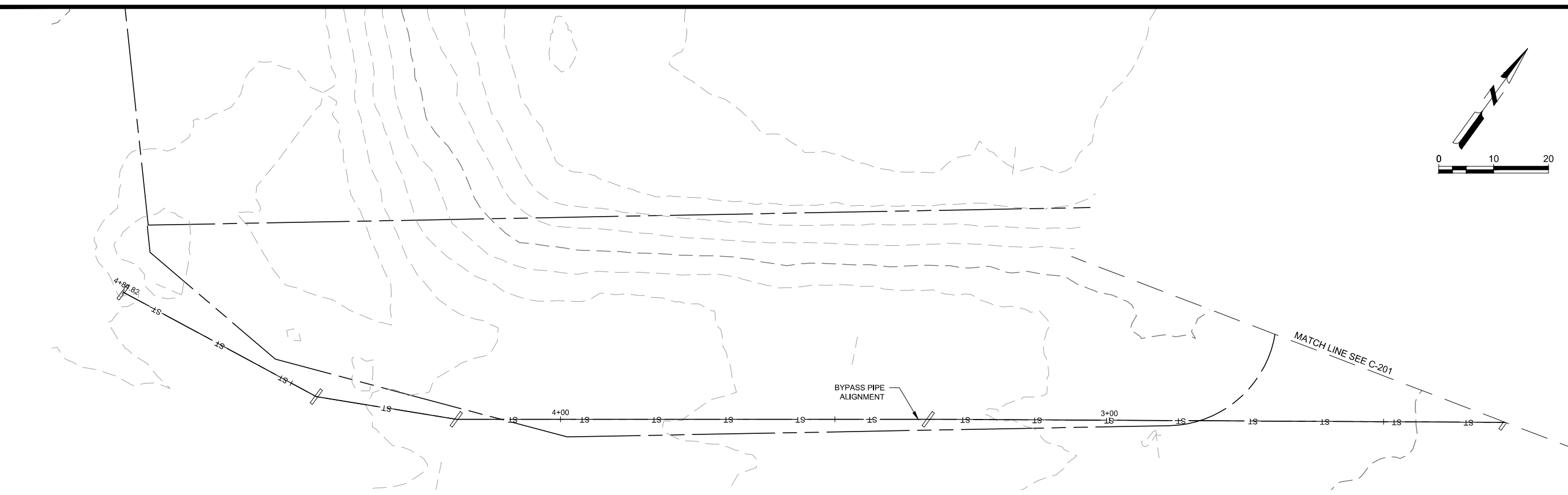
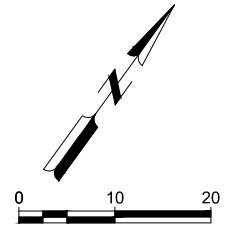


X:\3071500\130347.01\TECH\CAD\TRENCH DRAIN.DWG
8/26/2016 12:25:36 PM



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



**NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED
NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

SHEET CONTENTS
BYPASS PIPE PLAN
AND PROFILE

SHEET NO. 1 of X

C-202





A Tradition of Stewardship
 A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA COUNTY PUBLIC WORKS
 MILLIKEN CREEK FLOOD
 REDUCTION PROJECT**
 1195 3RD STREET, ROOM 201
 NAPA, CA 94559

ISSUED

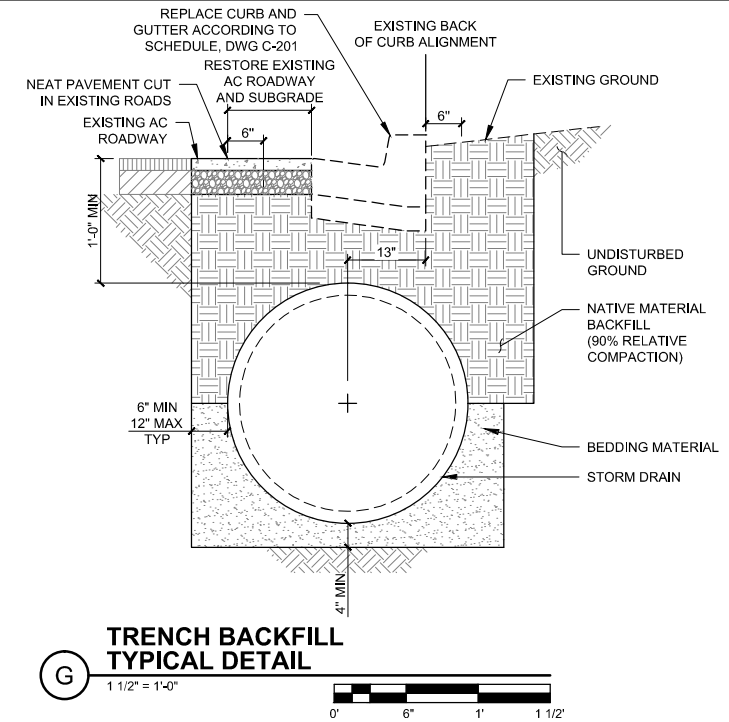
NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
 DATE: OCTOBER 7, 2016
 DESIGNED BY: XXX
 DRAWN BY: XXX
 CHECKED BY: XXX
 DO NOT SCALE DRAWINGS

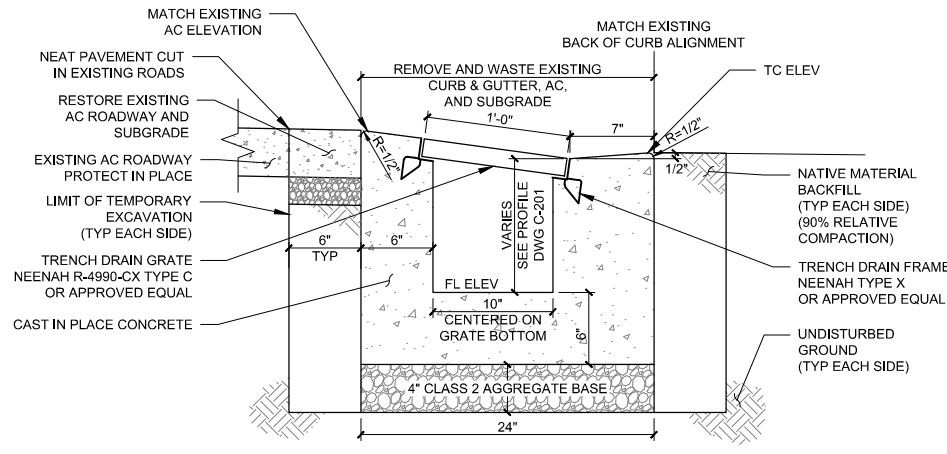
SHEET CONTENTS
 DETAILS

SHEET NO.

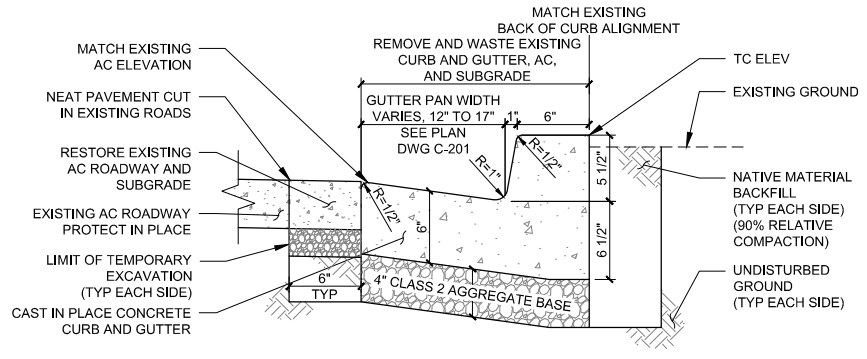
C-501



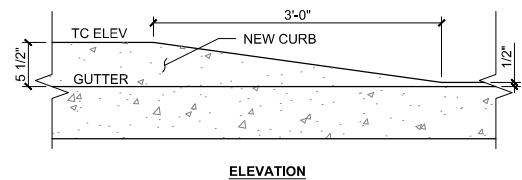
G TRENCH BACKFILL TYPICAL DETAIL



D TRENCH DRAIN WITHOUT CURB TYPICAL DETAIL

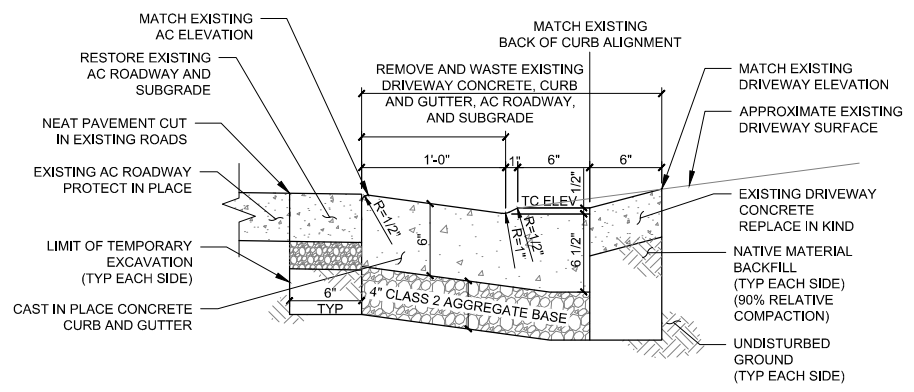


A CURB AND GUTTER TYPICAL DETAIL

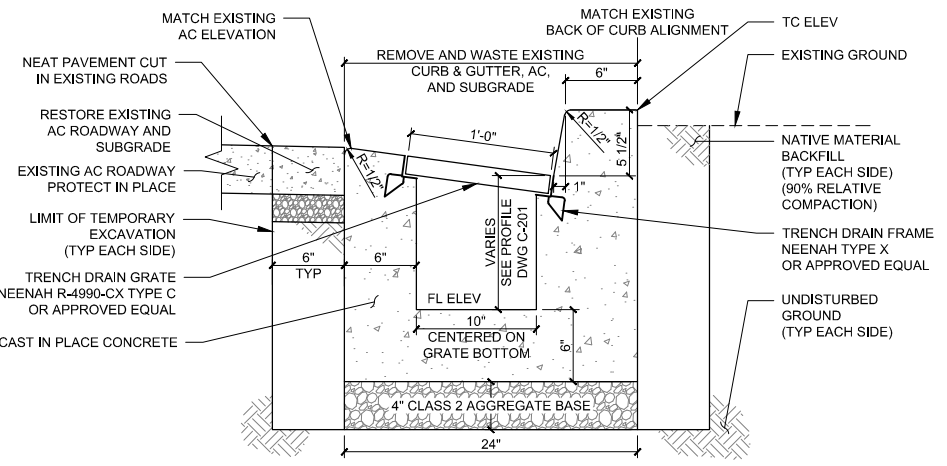
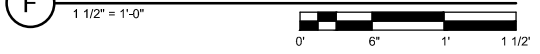


E CURB AT DRIVEWAY APPROACH TRANSITION DETAIL

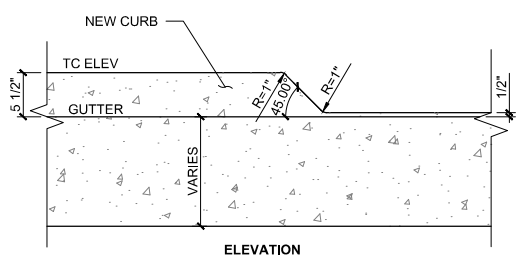
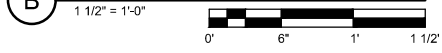
NO SCALE



F GUTTER AT DRIVEWAY APPROACH TYPICAL DETAIL



B TRENCH DRAIN WITH CURB TYPICAL DETAIL



C CURB HEAD TRANSITION DETAIL

NO SCALE

- NOTES:
 1. FOR ALL CAST IN PLACE CONCRETE, INSTALL WEAKENED PLANE JOINTS AT 10' INTERVALS AND EXPANSION JOINTS AT 40' INTERVALS.

X:\3071500\130347.01\TECH\CAD\DETAILS.DWG
 8/24/2016 2:26:06 PM



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA COUNTY PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

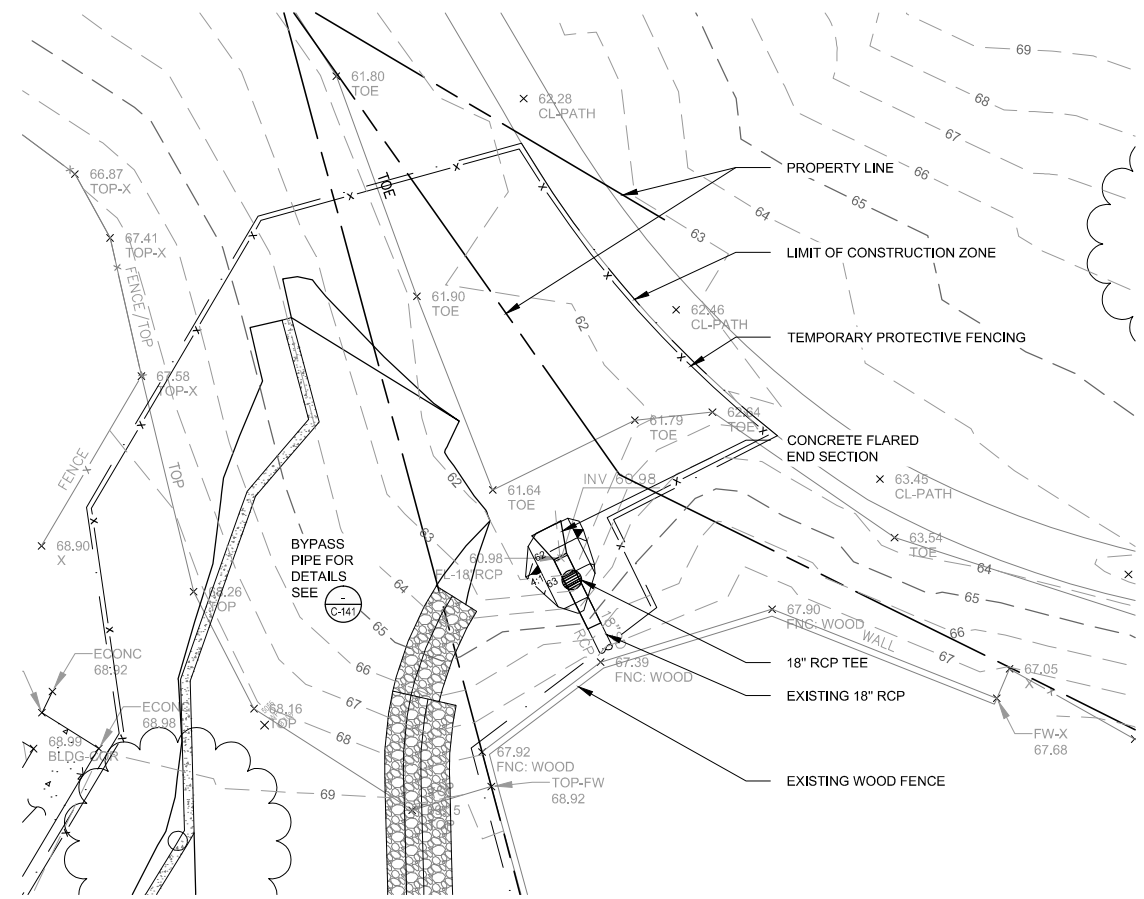
NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: OCTOBER 7, 2016
DESIGNED BY: XXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

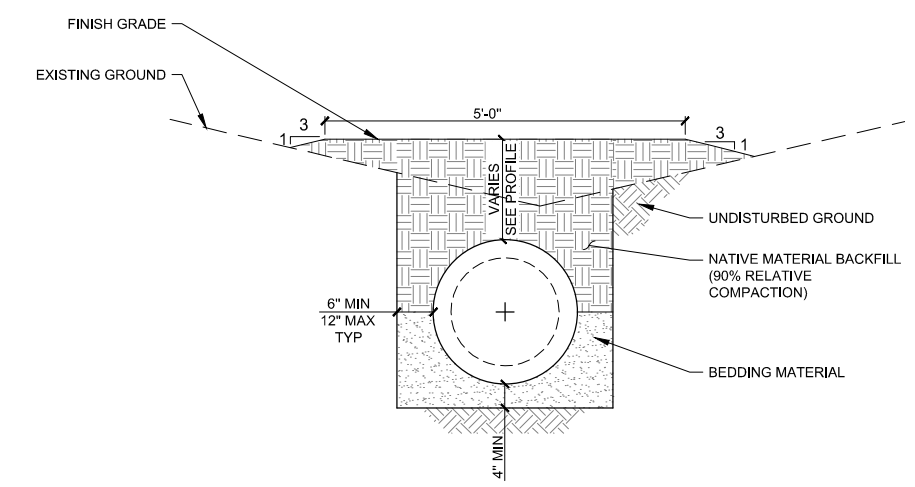
SHEET CONTENTS
DETAILS

SHEET NO.

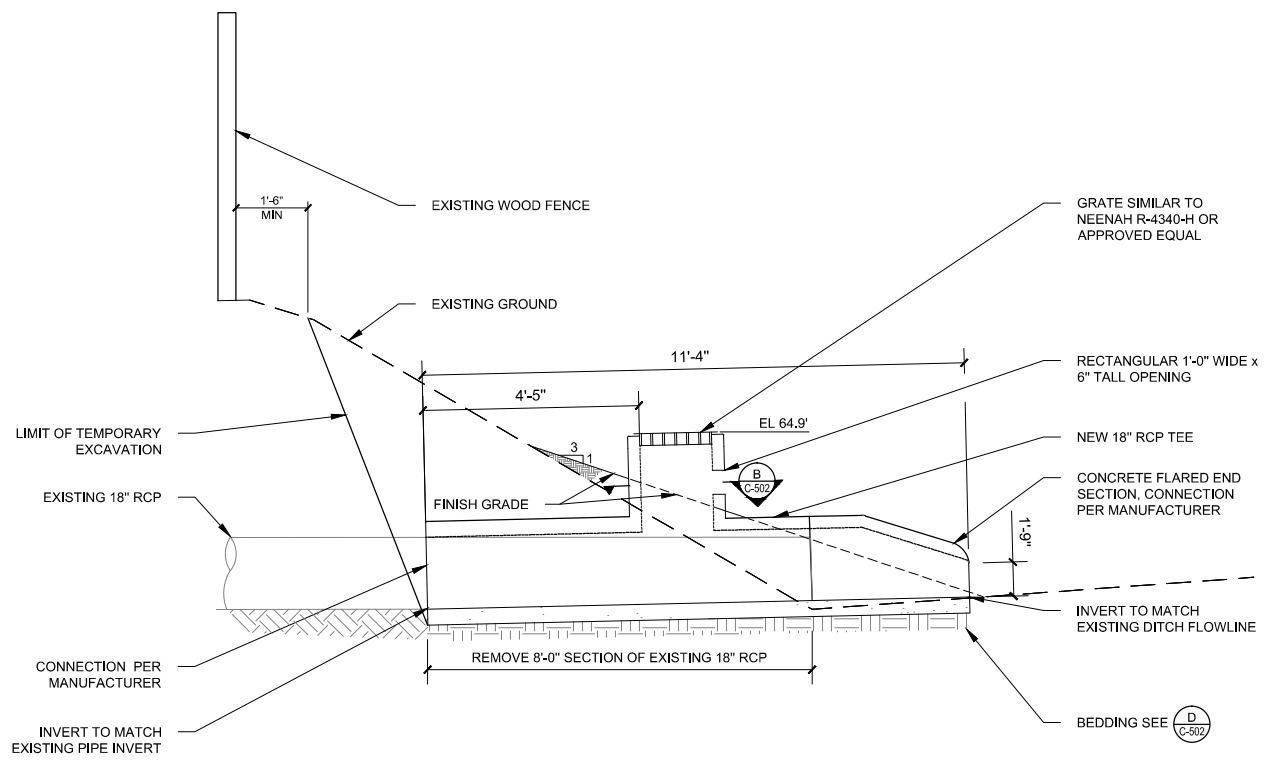
C-502



C PIPE TEE PLAN VIEW
1" = 10'
0 5 10 20



D PIPE TEE TRENCH BACKFILL
3/4" = 1'-0"
0 1' 2' 3'



A PIPE TEE PROFILE
1" = 2'
0 1 2 4

B PIPE TEE SECTION
1" = 2'
0 1 2 4

SHEET NOTES

1. CONFIRM ACCESS ROUTE AND STAGING AREA WITH RESORT PRIOR TO CONSTRUCTION.



EXISTING SITE, STAGING, & ACCESS PLAN - DAM REMOVAL AREA
PLAN VIEW SCALE: 1"=60'



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: CD, JW
DRAWN BY: CD, JW
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

SHEET CONTENTS
EXISTING SITE
STAGING & ACCESS
PLAN

SHEET NO.

C-601



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

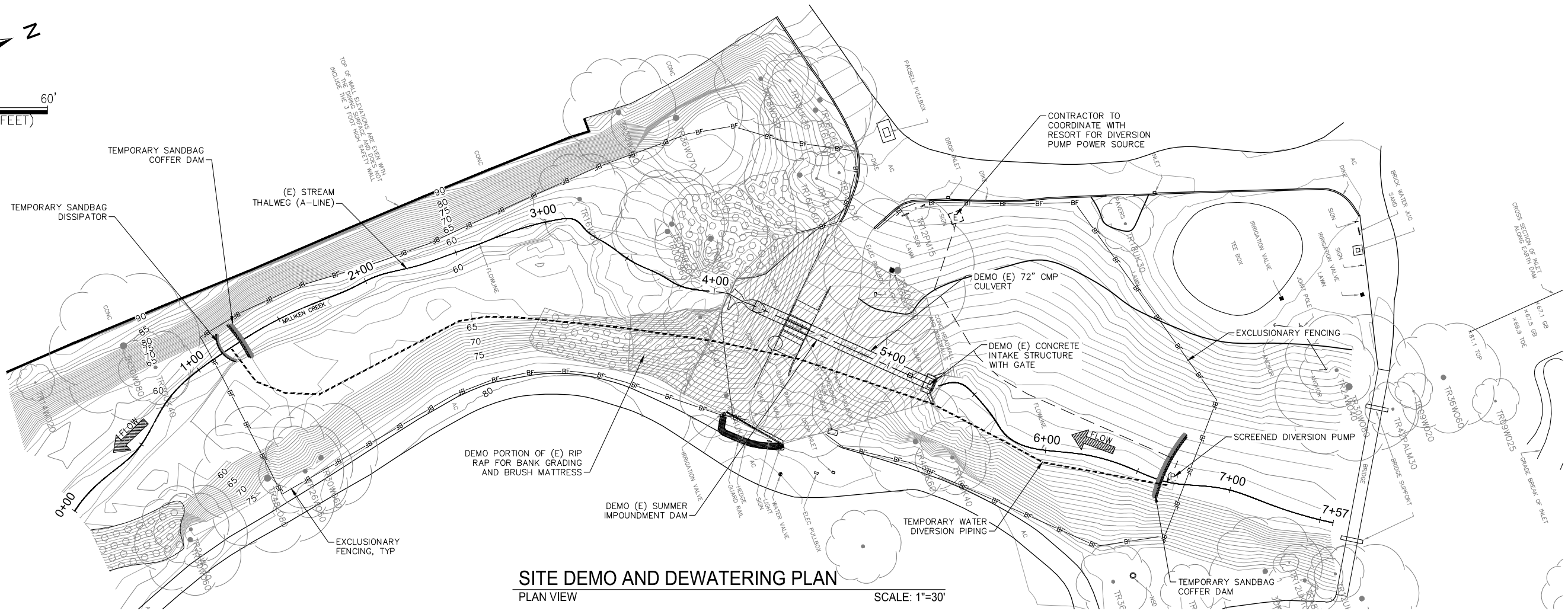
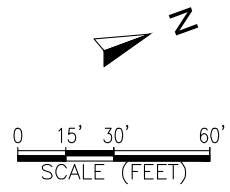
NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: CD, JW
DRAWN BY: CD, JW
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

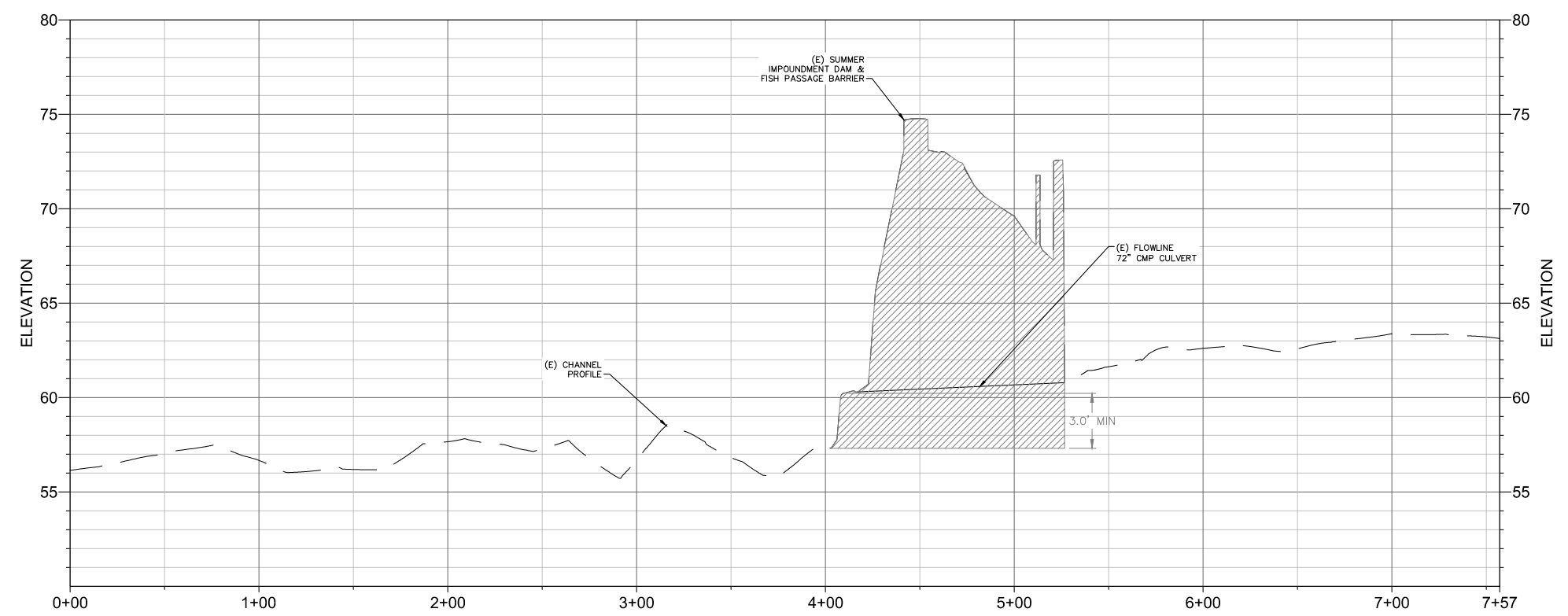
SHEET CONTENTS
DEMO PLAN

SHEET NO.

C-602



SITE DEMO AND DEWATERING PLAN
PLAN VIEW SCALE: 1"=30'



SITE DEMO AND DEWATERING PLAN
PROFILE VIEW SCALE: 1"=30', 10X VERTICAL EXAG.

SHEET NOTES
1. THIS SHEET SHOWS SCHEMATIC DEWATERING APPROACH TO SUPPORT PERMITTING. ACTUAL MEANS AND METHODS TO BE DETERMINED BY CONTRACTOR AS NEEDED TO MEET FLOW CONDITIONS AND PERMIT REQUIREMENTS.

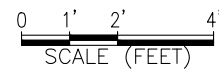
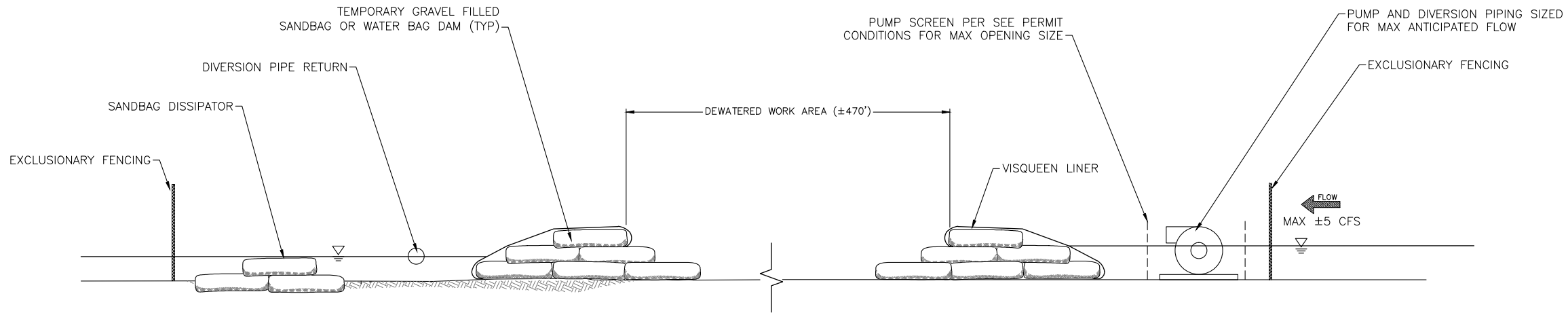


550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



SANDBAG COFFER DAM AND DIVERSION PUMP DETAIL
PROFILE VIEW SCALE: 1"=2'

SHEET NOTES

1. THIS SHEET SHOWS SCHEMATIC DEWATERING APPROACH TO SUPPORT PERMITTING. ACTUAL MEANS AND METHODS TO BE DETERMINED BY CONTRACTOR AS NEEDED TO MEET FLOW CONDITIONS AND PERMIT REQUIREMENTS.
2. PUMP SIZE TO BE DETERMINED BY CONTRACTOR AND APPROVED BY ENGINEER PRIOR TO DEWATERING ACTIVITIES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN EXCLUSIONARY FENCING FOR DURATION OF CONSTRUCTION.

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: XXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

SHEET CONTENTS
DEWATERING
DETAILS

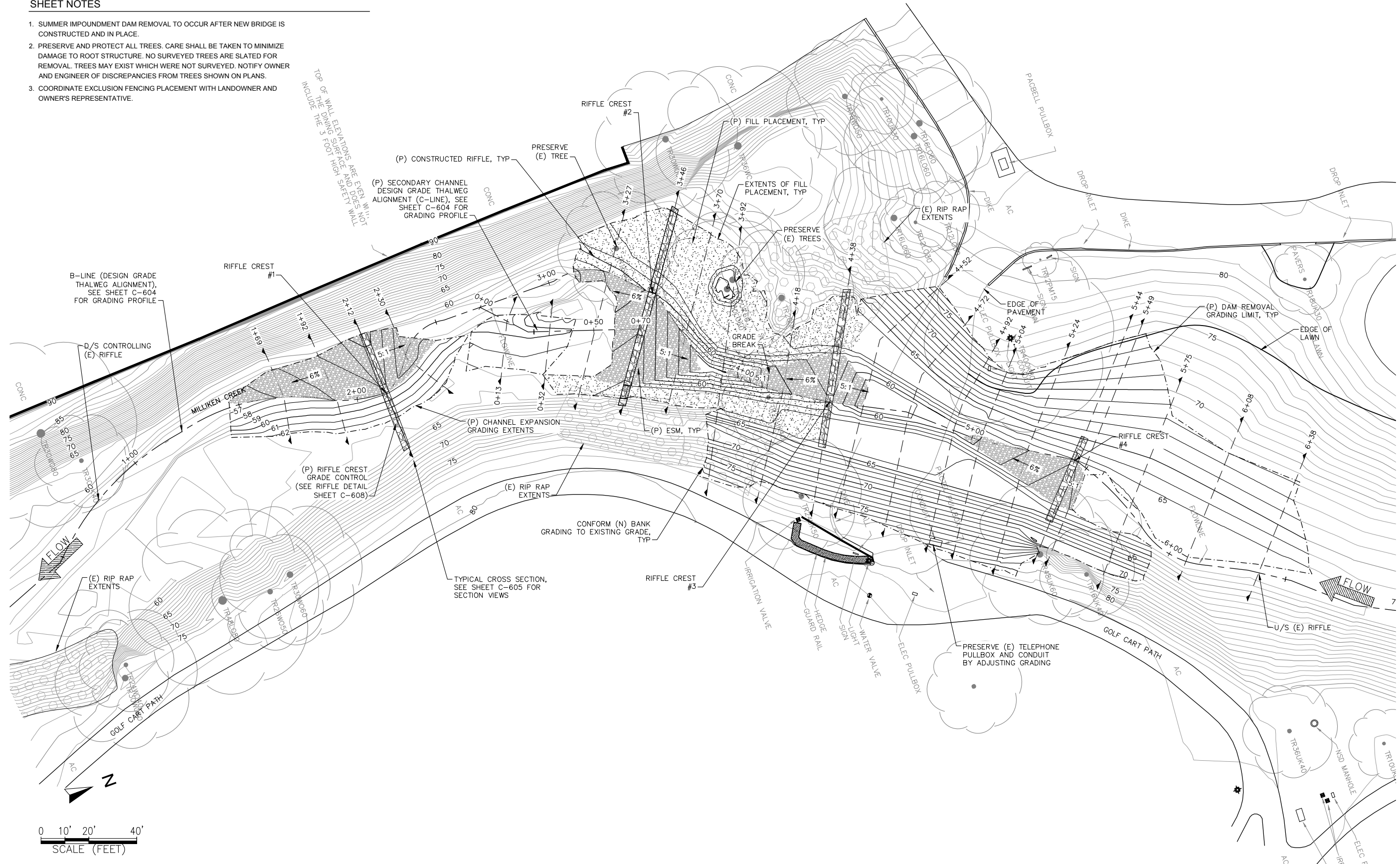
SHEET NO.

C-603

SHEET NOTES

- SUMMER IMPOUNDMENT DAM REMOVAL TO OCCUR AFTER NEW BRIDGE IS CONSTRUCTED AND IN PLACE.
- PRESERVE AND PROTECT ALL TREES. CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO ROOT STRUCTURE. NO SURVEYED TREES ARE SLATED FOR REMOVAL. TREES MAY EXIST WHICH WERE NOT SURVEYED. NOTIFY OWNER AND ENGINEER OF DISCREPANCIES FROM TREES SHOWN ON PLANS.
- COORDINATE EXCLUSION FENCING PLACEMENT WITH LANDOWNER AND OWNER'S REPRESENTATIVE.

TOP OF WALL ELEVATIONS ARE GIVEN IN 10' INCL. THE 3' FOOT HIGH SAFETY WALL SHALL INCLUDE THE 3' FOOT HIGH SAFETY WALL.



B-LINE (DESIGN GRADE THALWEG ALIGNMENT), SEE SHEET C-604 FOR GRADING PROFILE

RIFFLE CREST #1

D/S CONTROLLING (E) RIFFLE

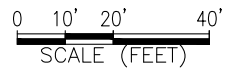
MILLIKEN CREEK

(P) RIFFLE CREST GRADE CONTROL (SEE RIFFLE DETAIL SHEET C-608)

TYPICAL CROSS SECTION, SEE SHEET C-605 FOR SECTION VIEWS

RIFFLE CREST #3

PRESERVE (E) TELEPHONE PULLBOX AND CONDUIT BY ADJUSTING GRADING



GRADING PLAN - DAM REMOVAL AREA

PLAN VIEW

SCALE: 1"=20'



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: JW, CD
DRAWN BY: JW, CD
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

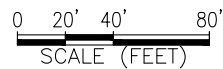
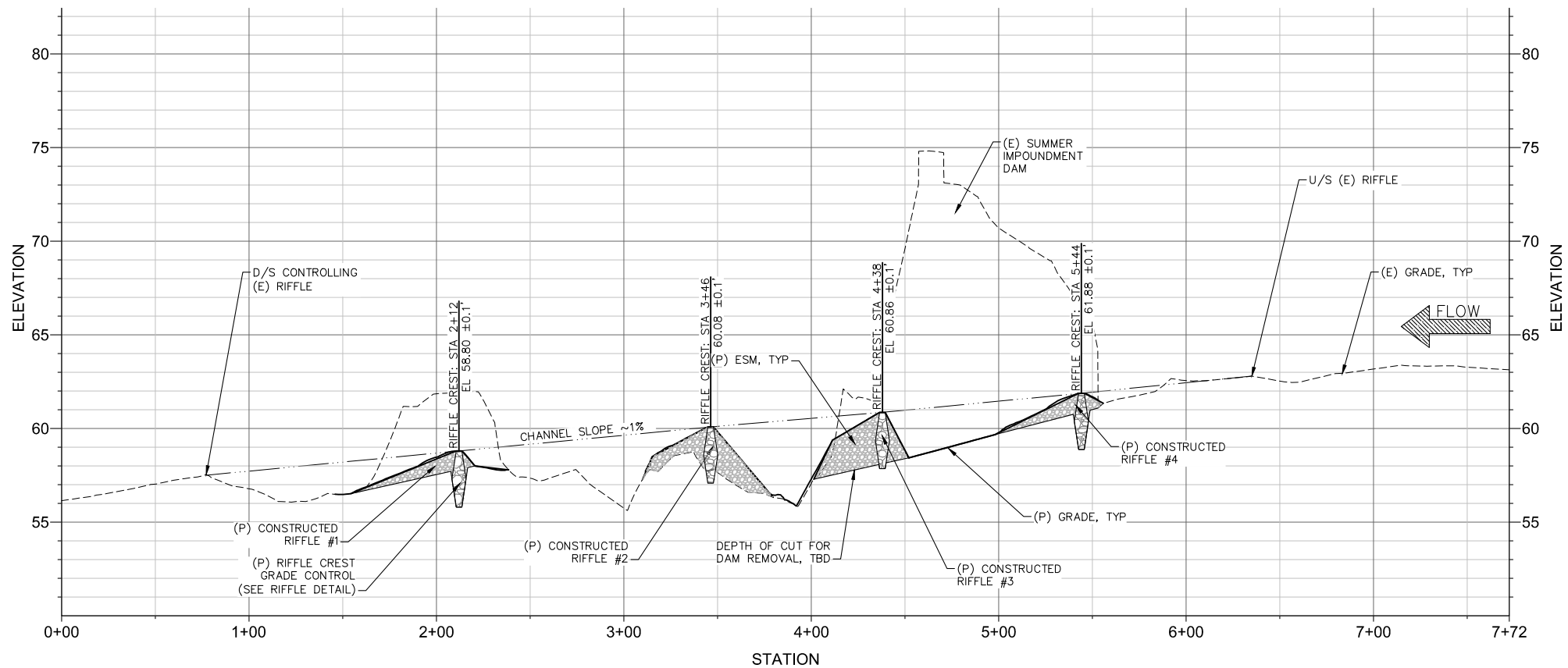
SHEET CONTENTS
GRADING PLAN

SHEET NO.

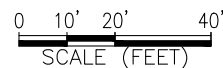
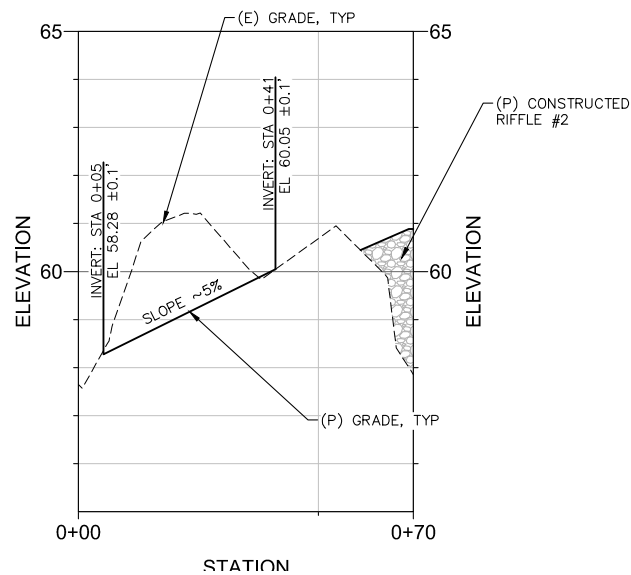
C-604

SHEET NOTES

1. GRADING PROFILE SHOWN ALONG B-LINE, OR PROPOSED CHANNEL THALWEG ALIGNMENT.
2. SEE SHEET C-605 FOR RIFFLE CREST AND POOL SECTION VIEWS.



GRADING PROFILE - DAM REMOVAL AREA
PROFILE VIEW ALONG B-LINE SCALE: 1"=40', 10X VERTICAL EXAG.



GRADING PROFILE - SECONDARY CHANNEL
PROFILE VIEW ALONG C-LINE SCALE: 1"=20', 10X VERTICAL EXAG.



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: JW, CD
DRAWN BY: JW, CD
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

SHEET CONTENTS
GRADING PROFILE

SHEET NO.

C-605



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

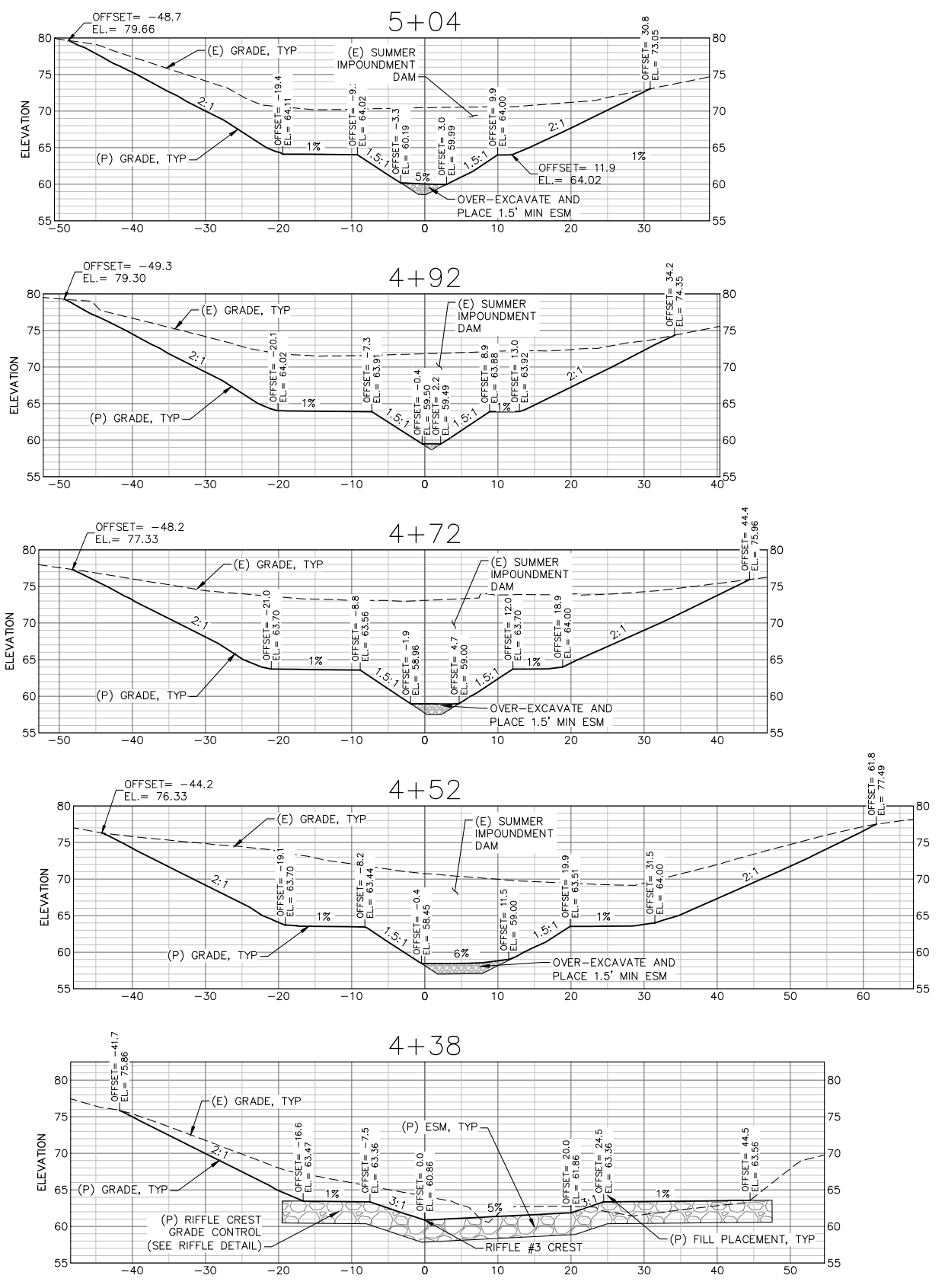
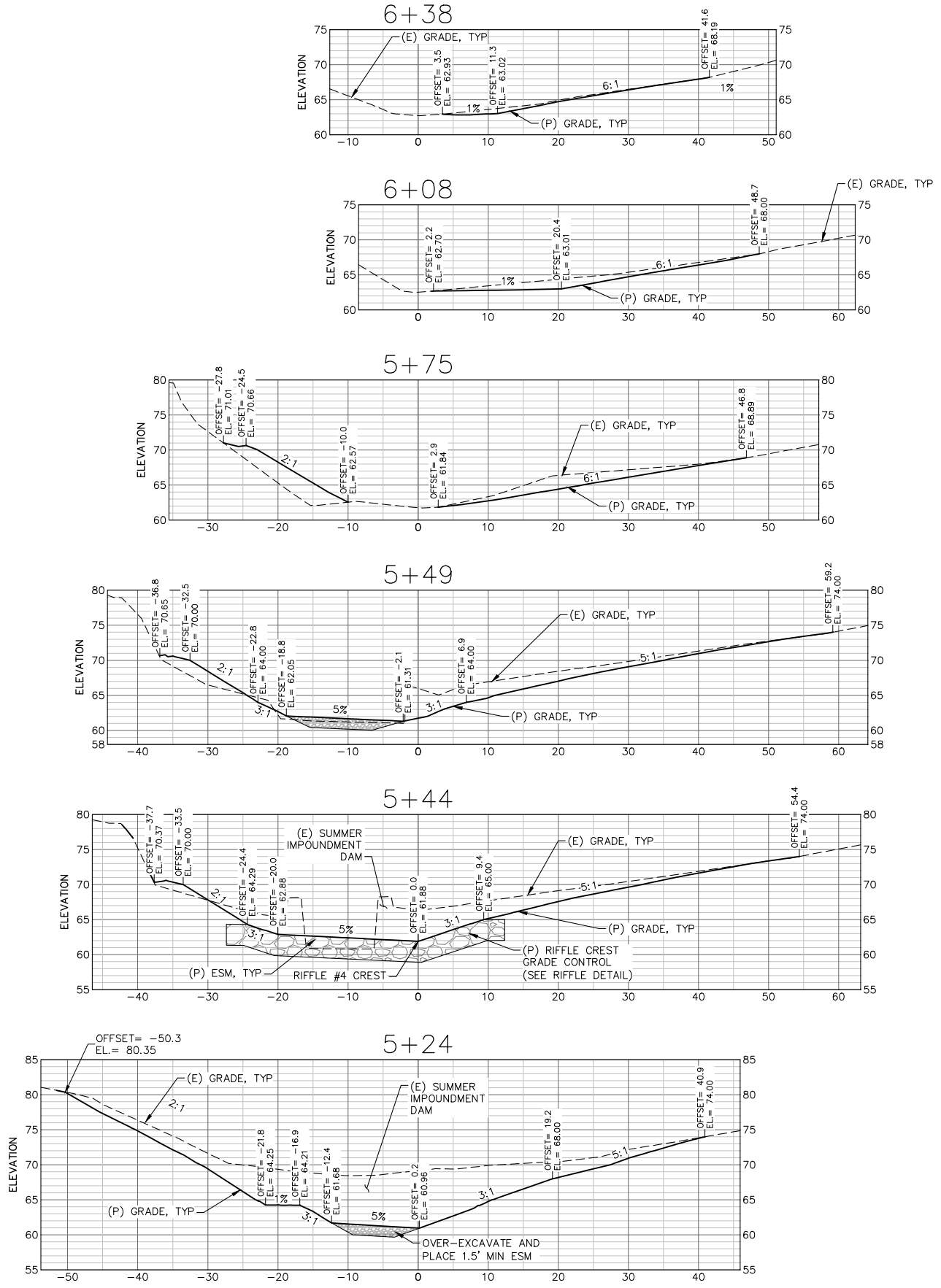
NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: JW, CD
DRAWN BY: JW, CD
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

SHEET CONTENTS
GRADING SECTIONS 1

SHEET NO.

C-606



SHEET NOTES

- CROSS SECTION VIEWS ARE ORIENTED FACING DOWNSTREAM. STATIONING FOR DAM REMOVAL AREA IS MEASURED ALONG B-LINE. STATIONING FOR SECONDARY CHANNEL IS MEASURED ALONG C-LINE.
- SEE DETAILS ON SHEET C-608, RIFFLE DETAILS, FOR TYPICAL SECTIONS.

GRADING SECTIONS - DAM REMOVAL AREA
SECTIONS ALONG B-LINE
SCALE: 1"=10', 2X VERTICAL EXAG.





A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

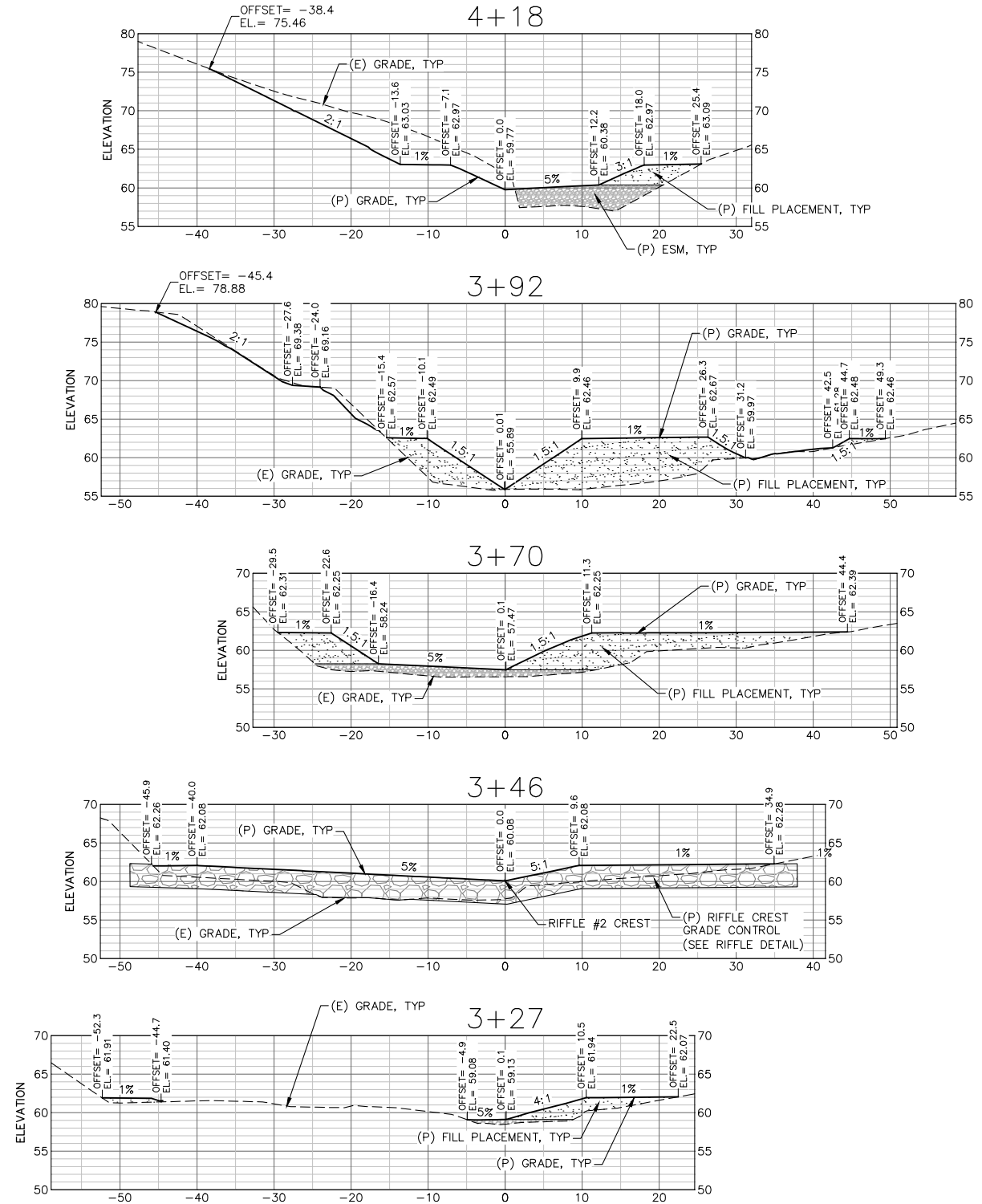
ISSUED

NOT FOR CONSTRUCTION

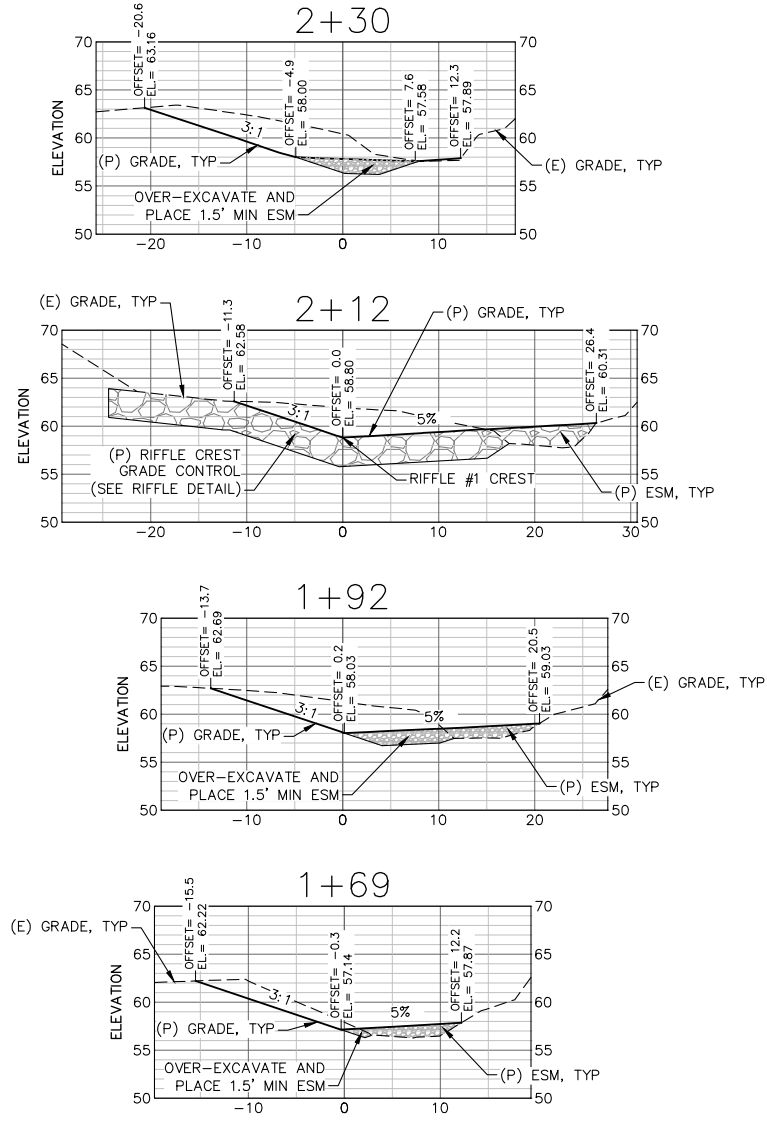
MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: JW, CD
DRAWN BY: JW, CD
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

SHEET CONTENTS
GRADING SECTIONS 2

SHEET NO.



GRADING SECTIONS - DAM REMOVAL AREA
SECTIONS ALONG B-LINE SCALE: 1"=10', 2X VERTICAL EXAG.



GRADING SECTIONS - SECONDARY CHANNEL
SECTIONS ALONG C-LINE SCALE: 1"=10', 2X VERTICAL EXAG.

SHEET NOTES

- CROSS SECTION VIEWS ARE ORIENTED FACING DOWNSTREAM. STATIONING FOR DAM REMOVAL AREA IS MEASURED ALONG B-LINE. STATIONING FOR SECONDARY CHANNEL IS MEASURED ALONG C-LINE.
- SEE DETAILS ON SHEET C-608, RIFFLE DETAILS, FOR TYPICAL SECTIONS.

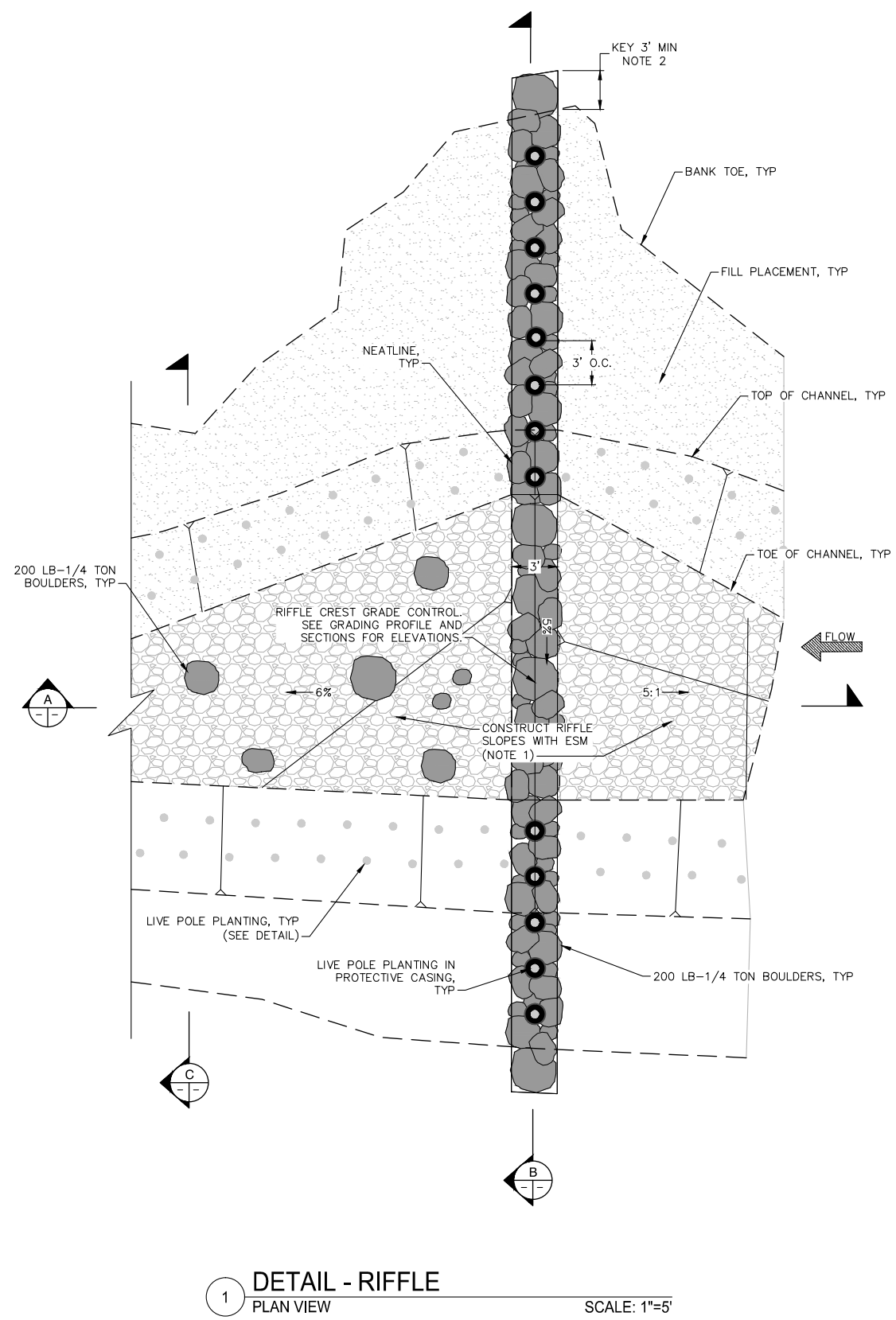


550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone

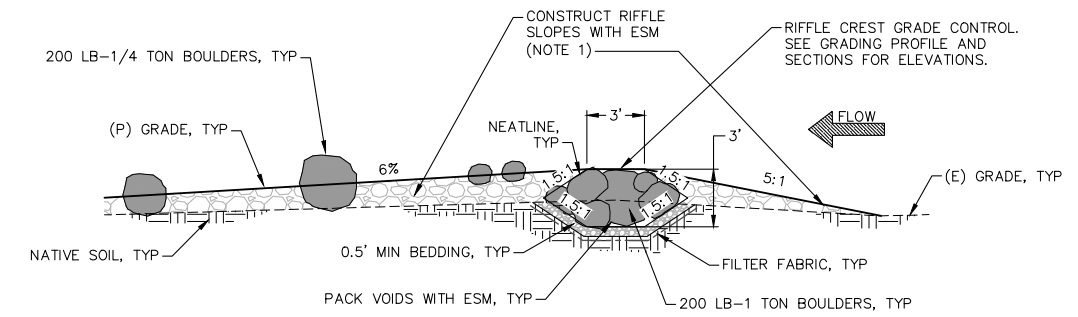


A Tradition of Stewardship
& Commitment to Service

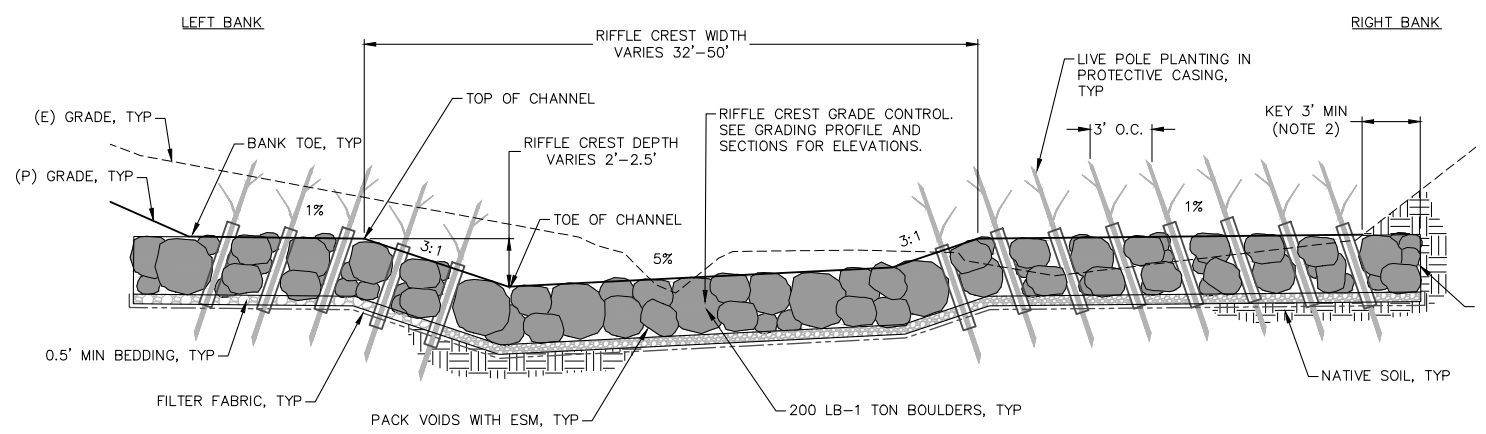
These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



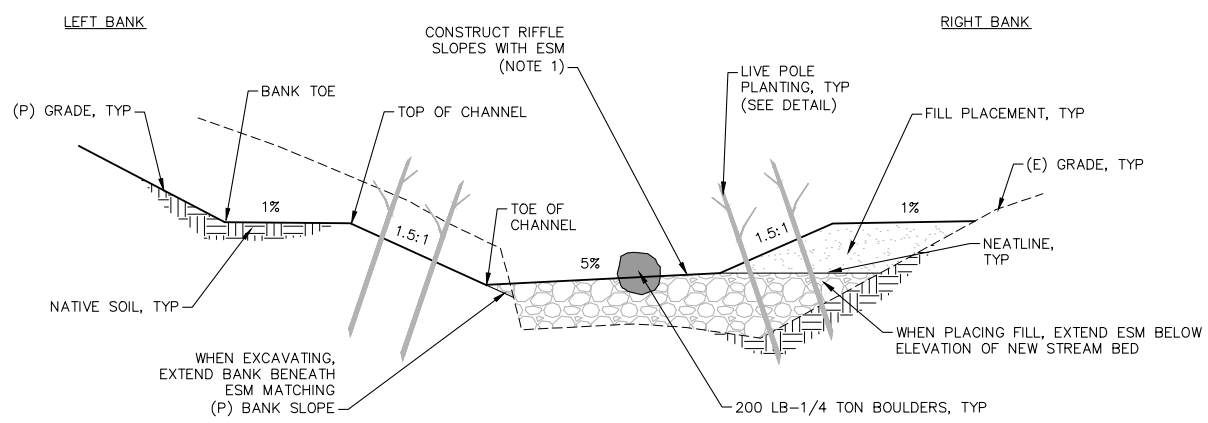
1 **DETAIL - RIFFLE**
PLAN VIEW SCALE: 1"=5'



A **DETAIL - RIFFLE**
PROFILE SCALE: 1"=5'



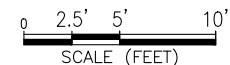
B **DETAIL - RIFFLE CREST**
SECTION SCALE: 1"=5'



C **DETAIL - RIFFLE DOWNSTREAM**
SECTION SCALE: 1"=5'

SHEET NOTES

1. CONSTRUCT RIFFLE SLOPES WITH ENGINEERED STREAM BED MATERIAL. SEE SPECIFICATIONS FOR ESM SEDIMENT GRADATION. WHERE EXCAVATING NEW CHANNEL, ESM SHALL BE A MIN DEPTH OF 1.5'
2. KEY LENGTH SHALL BE 2 BOULDER LENGTHS (MIN 3').



NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: JW
DRAWN BY: JW
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

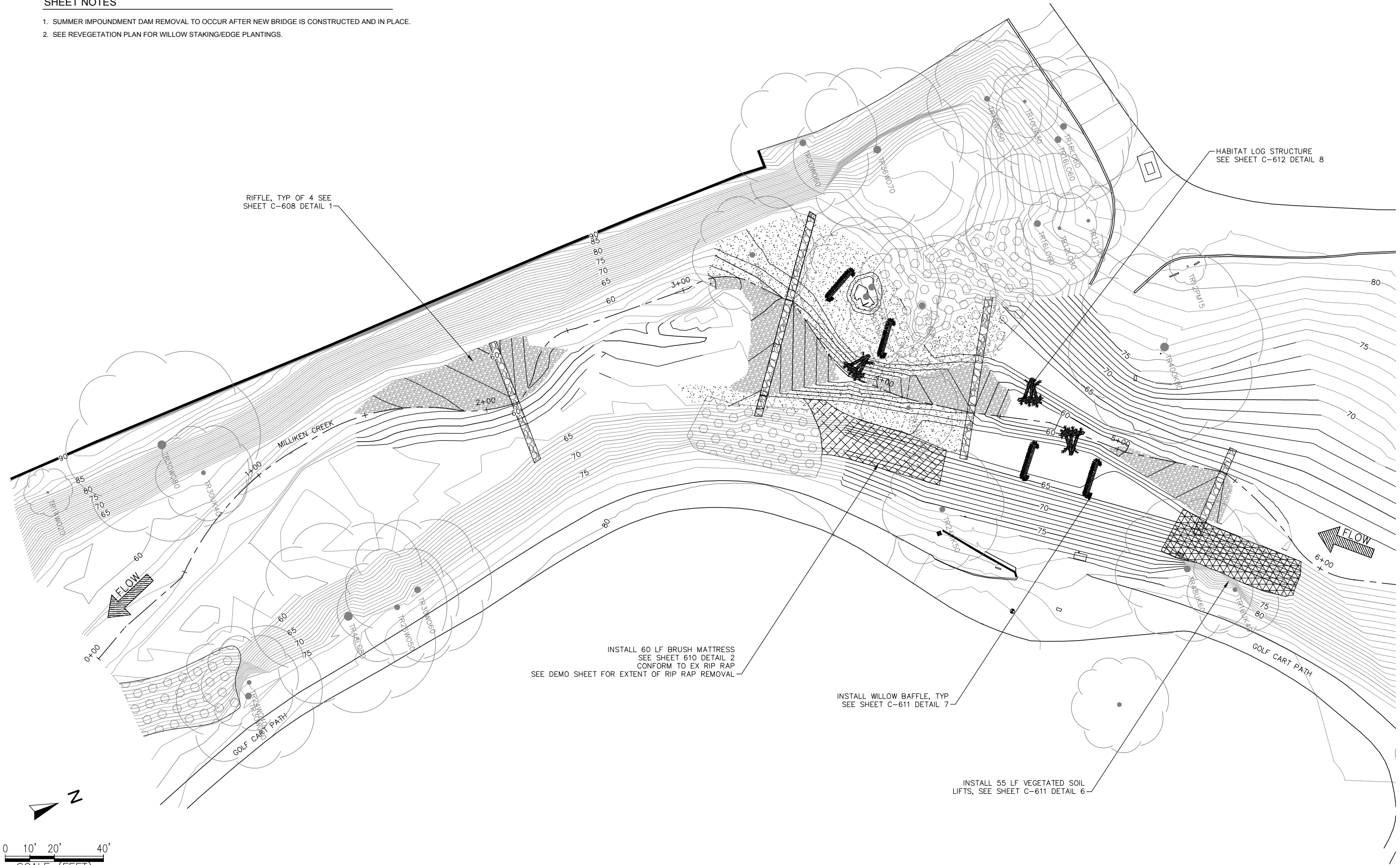
SHEET CONTENTS
RIFFLE DETAILS

SHEET NO.

C-608

SHEET NOTES

1. SUMMER IMPOUNDMENT DAM REMOVAL TO OCCUR AFTER NEW BRIDGE IS CONSTRUCTED AND IN PLACE.
2. SEE REVEGETATION PLAN FOR WILLOW STAKING/EDGE PLANTINGS.



ENHANCEMENTS PLAN - DAM REMOVAL AREA
 PLAN VIEW SCALE: 1"=20'



550 Kearny Street
 Suite 800
 San Francisco, CA 94108
 415.262.2300 phone



A Tradition of Stewardship
 & Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
 MILLIKEN CREEK FLOOD
 REDUCTION PROJECT**
 1195 3RD STREET, ROOM 201
 NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO: 3071500-130347.01
 DATE: OCTOBER 2, 2015
 DESIGNED BY: XXX
 DRAWN BY: JTH
 CHECKED BY: RG
 DO NOT SCALE DRAWINGS

SHEET CONTENTS
 ENHANCEMENT PLAN

SHEET NO.

C-609



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

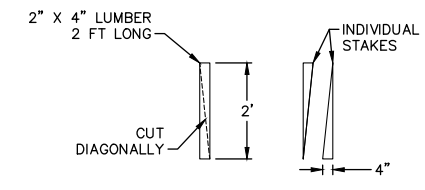
NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: XXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

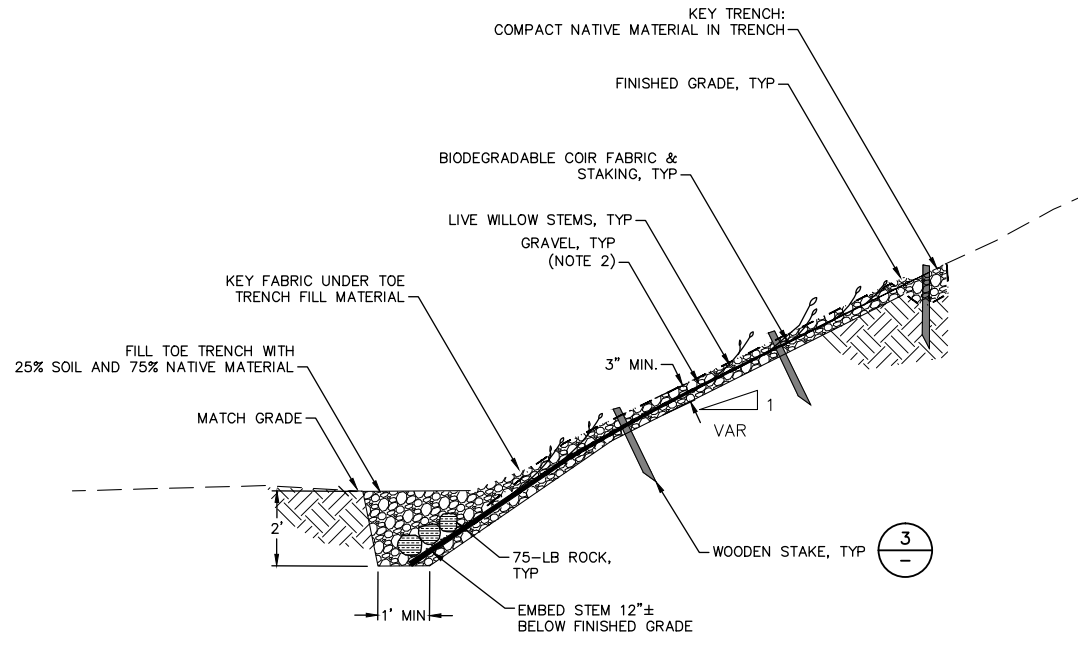
SHEET CONTENTS
BIOTECHNICAL
DETAILS 1

SHEET NO.

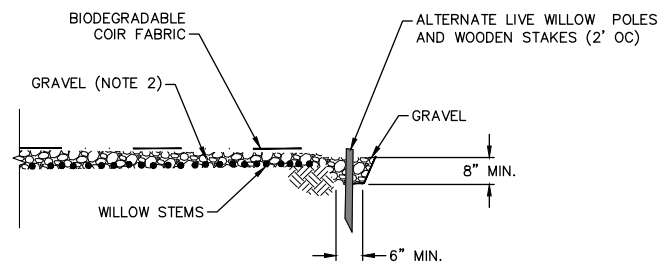
C-610



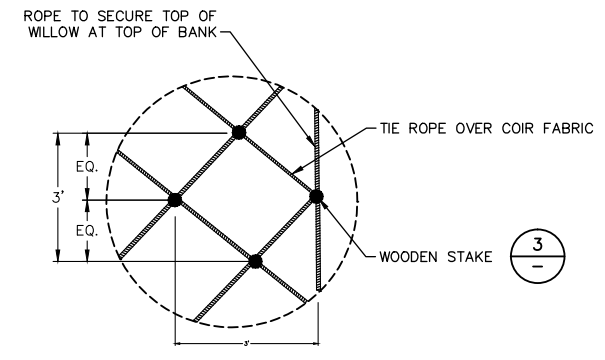
4 WOODEN STAKE DETAIL
SCALE: 1"=2'



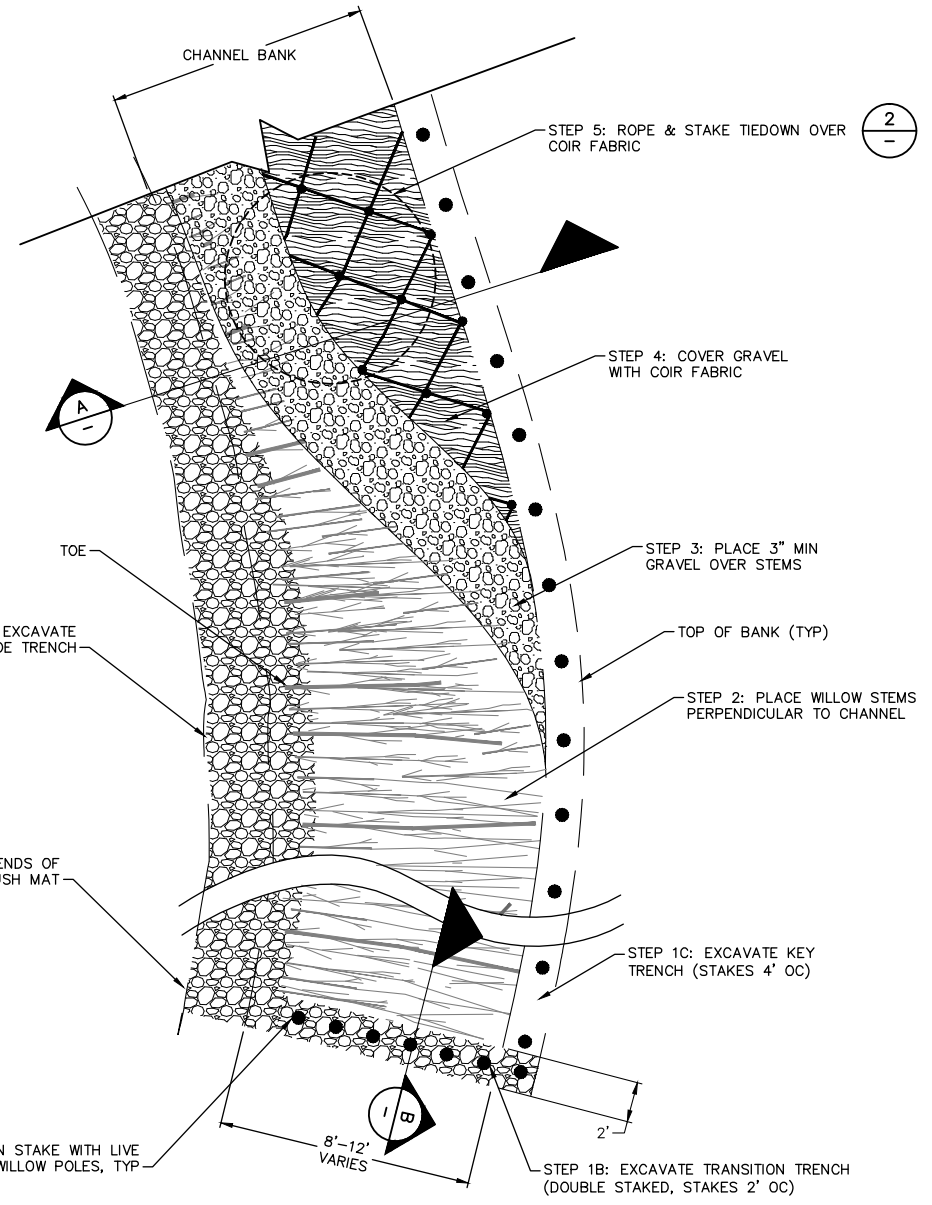
2A BRUSH MATTRESS DETAIL
SECTION VIEW SCALE: 1"=5'



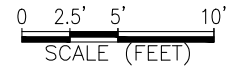
2B BRUSH MATTRESS KEY DETAIL
SECTION VIEW SCALE: 1"=5'



3 ROPE & STAKE TIE-DOWN DETAIL
SECTION VIEW SCALE: NOT TO SCALE



2 BRUSH MATTRESS DETAIL
PLAN VIEW SCALE: 1"=5'



SHEET NOTES

- CUT LIVE POLE 8" ABOVE GRADE. MAINTAIN TWO (2) GROWTH BUDS MINIMUM.
- NATIVE ALLUVIUM MAY BE UTILIZED IN PLACE OF GRAVEL TO COVER STEMS. CONFIRM WITH ENGINEER.
- THE BRUSH MAT INSTALLATION MAY EXTEND UP TO 20 FEET BEYOND THE GRADING LIMIT TO TIE INTO EXISTING VEGETATION. CONTRACTOR SHALL COORDINATE WITH ENGINEER TO IDENTIFY SPECIFIC LOCATIONS FOLLOWING GRADING ACTIVITIES AND PRIOR TO COMMENCING BRUSH MAT INSTALLATION.



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
& Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such reuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT**
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: XXX
DRAWN BY: JTH
CHECKED BY: RG
DO NOT SCALE DRAWINGS

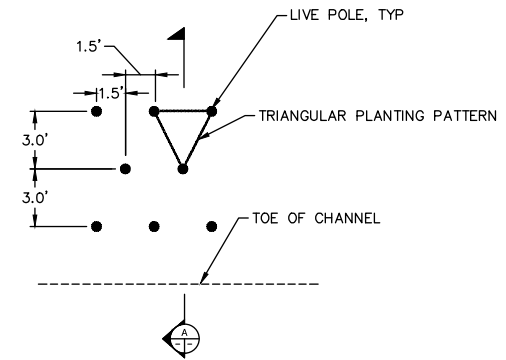
SHEET CONTENTS
BIOTECHNICAL
DETAILS 2

SHEET NO.

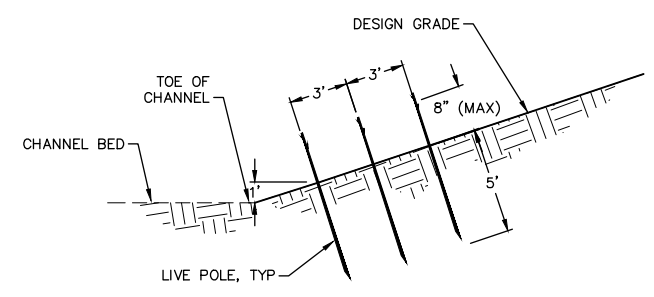
C-611

SHEET NOTES

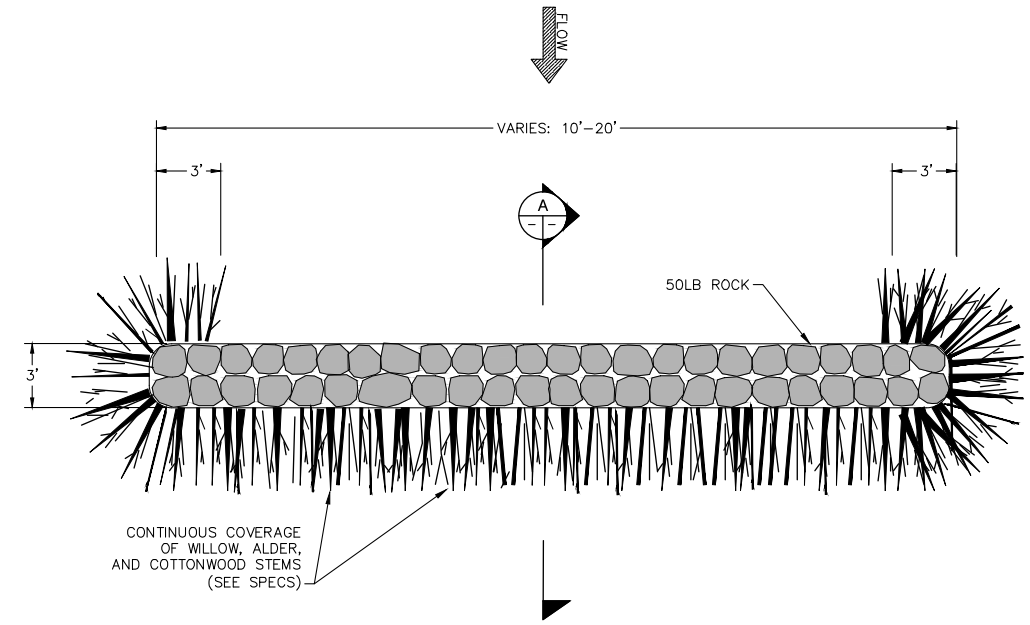
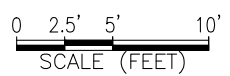
1.



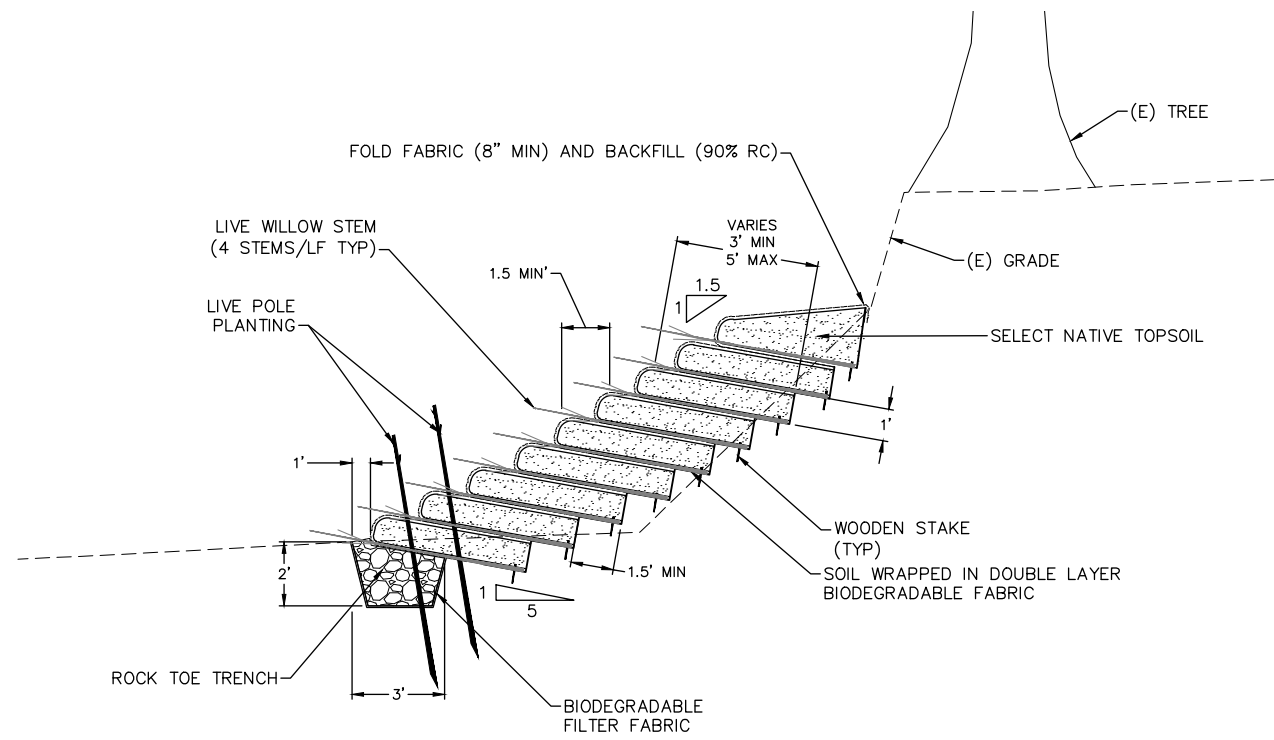
5 LIVE POLE PLANTING DETAIL
PLAN VIEW SCALE: 1"=3'



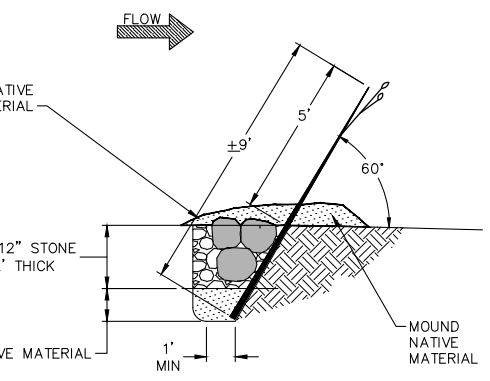
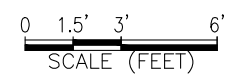
5A LIVE POLE PLANTING DETAIL
SECTION VIEW SCALE: 1"=3'



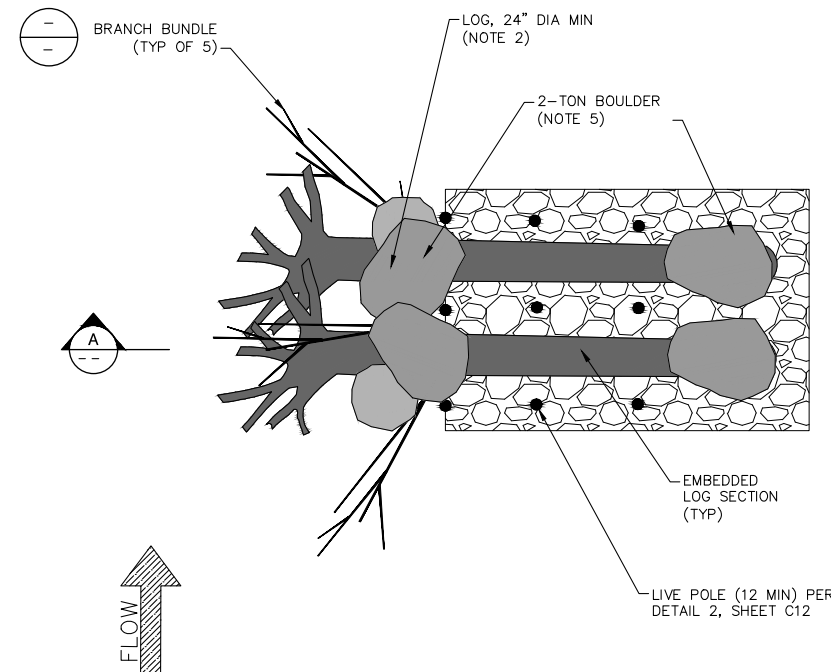
7 WILLOW BAFFLE DETAIL
PLAN VIEW SCALE: 1"=3'



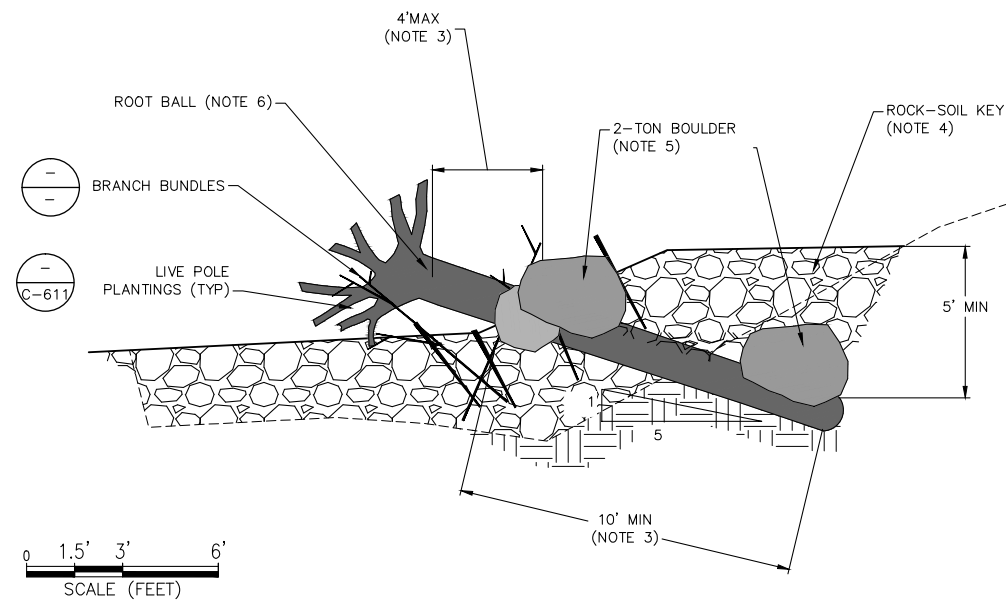
6 VEGETATED SOIL LIFT DETAIL
SECTION VIEW SCALE: 1"=3'



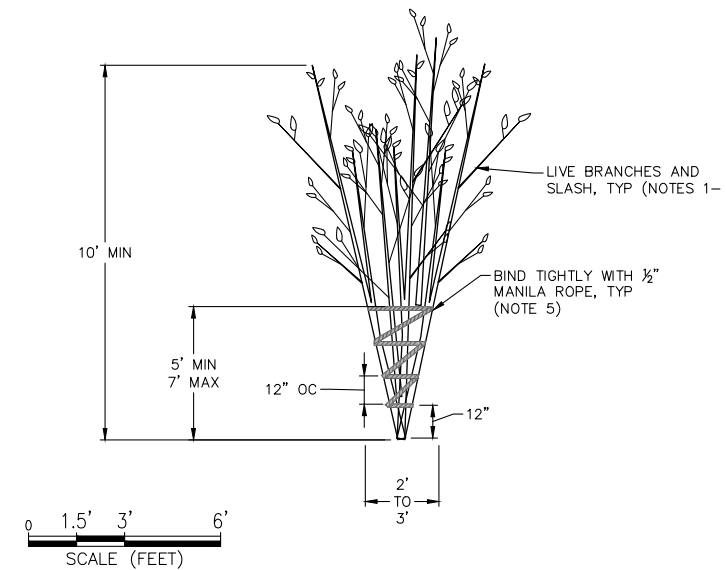
7A FLOW BAFFLE DETAIL
SECTION SCALE: 1"=3'



8 HABITAT LOG STRUCTURE
PLAN VIEW SCALE: 1" = 3'



8A HABITAT LOG STRUCTURE
SECTION VIEW SCALE: 1" = 3'



9 BRANCH BUNDLE
SECTION VIEW SCALE: 1" = 3'

BRANCH BUNDLE NOTES:

1. BUNDLE COMPOSED OF 6-8 BRANCHES.
2. BUNDLE BASAL DIAMETER 2'-3'. MINIMUM BRANCH LENGTH 8', MAXIMUM LENGTH 12'. MINIMUM BASAL DIAMETER IS 4".
3. SMALL TREES MAY ALSO BE USED. 50% OF BRANCHES IN BUNDLE TO BE LIVE MATERIAL WITH LEAVES STRIPPED (ACCEPTABLE SPECIES INCLUDE WILLOW, COTTONWOOD, AND ALDER).
4. PLACE BRANCH BUNDLES UNDER ROOT BALL OR IN LOG STRUCTURE PER DETAIL.
5. INDIVIDUAL PIECES OF BUNDLE MAY BE LASHED TO ACHIEVE SPREAD OF BUNDLE PER DETAIL.

HABITAT LOG STRUCTURE NOTES:

1. PRIOR TO INSTALLATION, FIELD STAKE STRUCTURE LOCATION (LOG ENDPOINTS) FOR REVIEW BY THE OWNER'S REPRESENTATIVE. ALLOW 3 WORKING DAYS FOR REVIEW AND ADJUST STAKES AS DIRECTED.
2. LOG SHALL BE PLACED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. FIELD FIT AND ADJUST AS NEEDED TO CONFORM IRREGULAR LOGS TO NEAT DIMENSIONS SHOWN.
3. DETAIL SHOWS EMBEDMENT DEPTH ASSUMING THE LOG IS THE MINIMUM LENGTH SPECIFIED. IF LONGER LOG IS USED, INCREASE EMBEDMENT LENGTH AND DEPTH AS NEEDED TO MEET REQUIREMENTS SHOWN. DETAIL SHOWS MAXIMUM EXPOSED LOG LENGTH, LENGTH MAY BE INCREASED IF LONGER LOG IS USED. CONFIRM WITH RESTORATION ENGINEER.
4. BACKFILL TRENCH WITH ROCK-SOIL MIX AND COMPACT TO 90% RC. STAKE THE END POINTS OF THE BURIED LOG TO GUIDE BALLAST PLACEMENT.
5. BALLAST CAN EITHER BE ONE 2-TON ROCK OR TWO 1-TON BOULDERS AT CONTRACTOR'S OPTION. BALLAST BOULDER MUST BEAR DIRECTLY ON LOG. BALLAST BOULDER MAY PROTRUDE ABOVE SURFACE NO MORE THAN 6".
6. CONTRACTOR TO EXERCISE CARE DURING HANDLING OF LOGS DURING HARVEST AND TRANSPORT TO PRESERVE ROOT STRUCTURE (MAINTAIN MINIMUM ROOT LENGTHS OF 3').
7. ORIENT BRANCH BUNDLES TO MAXIMIZE VOLUME AND EXTENT.
8. IN BANK CONDITIONS, LOG MAY BE PLACED HORIZONTALLY, WITH EXCAVATION INVERT SLOPED AS SHOWN. CONFIRM DESIGN INTENT WITH RESTORATION ENGINEER PRIOR TO INSTALLATION.
9. PRIOR TO INSTALLATION, CONTRACTOR SHALL COORDINATE WITH OWNER'S REPRESENTATIVE TO CONFIRM THE ORIENTATION AND ALIGNMENT FOR ALL HABITAT LOG STRUCTURES.



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.262.2300 phone



A Tradition of Stewardship
A Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

NAPA CO. PUBLIC WORKS
MILLIKEN CREEK FLOOD
REDUCTION PROJECT
1195 3RD STREET, ROOM 201
NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

MSH NO.: 3071500-130347.01
DATE: NOVEMBER 2, 2015
DESIGNED BY: BT
DRAWN BY: BT, JW
CHECKED BY: CD, AB
DO NOT SCALE DRAWINGS

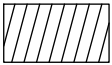
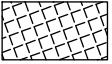
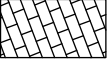
SHEET CONTENTS
HABITAT WOOD
DETAILS

SHEET NO.

C-612

SHEET NOTES

1. SUMMER IMPOUNDMENT DAM REMOVAL TO OCCUR AFTER NEW BRIDGE IS CONSTRUCTED AND IN PLACE.

-  UPPER BANK/UPLAND (0.35 AC)
-  LOWER RIPARIAN BANK (0.24 AC)
-  RIVER EDGE (0.19 AC)



REVEGETATION PLAN - DAM REMOVAL AREA
 PLAN VIEW SCALE: 1"=20'



550 Kearny Street
 Suite 800
 San Francisco, CA 94108
 415.262.2300 phone



A Tradition of Stewardship
 & Commitment to Service

These documents shall not be used for any purpose or project for which it is not intended. Mead & Hunt shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

**NAPA CO. PUBLIC WORKS
 MILLIKEN CREEK FLOOD
 REDUCTION PROJECT**
 1195 3RD STREET, ROOM 201
 NAPA, CA 94559

ISSUED

NOT FOR CONSTRUCTION

M&H NO.: 3071500-130347.01
 DATE: NOVEMBER 2, 2015
 DESIGNED BY: XXX
 DRAWN BY: JTH
 CHECKED BY: RG
 DO NOT SCALE DRAWINGS

SHEET CONTENTS
 REVEGETATION PLAN

SHEET NO.

C-613

APPENDIX B

Air Quality / Greenhouse Gas Emission Construction Assumptions and Calculations

This page intentionally left blank

Construction Emissions Summary

Criteria Pollutant Construction Emissions

Construction Emission Source	Pollutant Emissions (pounds/day)			
	ROG	NOx	PM10	PM2.5
Replacement Bridge - offroad equipment	0.69	7.24	0.4	0.38
Coffer Dam Installation - offroad equipment	1.28	14.39	0.66	0.61
Summer Impoundment Dam Removal - offroad equipment	0.75	8.39	0.36	0.33
East Fork Drop Structures - offroad equipment	1.11	12.38	0.6	0.55
Bypass Pipe & Atlas Peak Road Drainage - offroad equipment	0.57	6.07	0.36	0.33
Creek Restoration - offroad equipment	1.00	11.50	0.50	0.46
Combined Maximum Daily - offroad equipment	1.97	21.63	1.06	0.99
Onroad Vehicle Daily Emissions	0.13	2.75	0.12	0.07
Total Daily Emissions	2.10	24.38	1.18	1.06

Greenhouse Gas Construction Emissions

Construction Activity Source	CO ₂ e
Off-road Construction Equipment	43.99
Off-site Commuting Worker and Haul Trucks	30.52
Total (metric tons)	74.51

Off-Road Equipment Assumptions

Onsite Equipment and Vehicle Use during Construction

	Estimated Usage			Total Days Per Unit	Ave hours/ day
	Units	Hours/ Day	Days/ Week		
Coffer Dam Installation					
Bulldozers	1	8	6	2	3.20
Compactor/Rollers	1	8	6	2	3.20
Loader	1	8	6	2	3.20
Flat Bed Trucks	2	8	6	2	3.20
Water Truck	1	8	6	2	3.20
Excavators	1	8	6	2	3.20

	Estimated Usage			Total Days Per Unit	Ave hours/ day
	Units	Hours/ Day	Days/ Week		
Dam Removal					
Bulldozers	1	4	2	4	0.70
Compactor/Rollers	0	0	0	0	0.00
Loader	1	8	6	6	2.09
Trucks for Offhaul	2	8	6	10	3.48
Water Truck	1	8	6	10	3.48
Excavators	1	8	6	10	3.48

	Estimated Usage			Total Days Per Unit	Ave hours/ day
	Units	Hours/ Day	Days/ Week		
Creek Restoration					
Bulldozers	1	8	6	8	2.78
Loader	1	8	6	8	2.78
Trucks for Offhaul	2	8	6	8	2.78
Water Truck	1	8	6	8	2.78
Excavators	1	8	6	8	2.78

	Estimated Usage			Total Days Per Unit	Ave hours/ day
	Units	Hours/ Day	Days/ Week		
Replacement Bridge					
Backhoe	1	8	6	10	4.00
Excavator	1	8	6	10	4.00
Crane	1	8	6	2	0.80
Drilling Rig	1	8	6	5	2.00
Trucks for Offhaul	2	8	6	8	3.20
Concrete Pump	1	8	6	5	2.00

Estimated Usage

	Units	Hours/ Day	Days/ Week	Total Days Per Unit	ave. hour/day
Inlet Improvements Over Kaanapali Culvert					
Bulldozers					
Graders					
Water Trucks	1	2	1	2	0.8
Compactor/Rollers	1	2	1	2	0.8
Skid Steer	1	7	5	5	7
Pickups	1	7	5	5	7
Paver	1	4	1	2	1.6
Loader					0
Flat Bed Trucks	1	4	1	2	1.6
Forklifts					0
Trenchers					0
Backhoe	1	7	2	4	5.6
Aerial Lift					0
Dump Truck	1	7	2	4	5.6
Scraper					0
Concrete Truck	1	4	1	2	1.6
Excavators					

Estimated Usage

	Units	Hours/ Day	Days/ Week	Total Days Per Unit	ave. hour/day
Bypass Pipe & Atlas Peak Drainage Inlet					
Bulldozers	1	7	5	6	1.68
Graders					
Water Trucks	1	7	1	1	0.28
Compactor/Rollers					
Skid Steer	1	7	2	2	0.56
Pickups	4	7	5	13	3.64
Paver					
Loader					
Flat Bed Trucks	1	7	5	5	1.4
Forklifts					
Trenchers					
Backhoe	1	7	5	24	6.72
Aerial Lift	1	7	5	12	3.36
Dump Truck	2	7	5	20	5.6
Scraper					
Concrete Truck	1	7	2	2	0.56
Excavators					

On-road Vehicle Criteria Pollutant Emissions

Emission Factors

Vehicle Type	Units	Exhaust Emission Factors			
		ROG	NOx	PM10	PM2.5
Light duty truck (LDT1 gas)	grams/mile	0.08	0.28	0.05	0.02
Heavy duty truck (L7 sing. Const.)	grams/mile	0.17	6.95	0.21	0.14

Note: Emission factors obtained online from EMFAC 2014 for Napa County, average model years, and 55 mph speed.

Worker and Debris/Material Hauling Trips Criteria Pollutant Emissions

Vehicle Type	total trips	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck - commuting workers	15	25	0.07	0.23	0.04	0.02
Heavy duty truck - hauling	4.11	40	0.06	2.52	0.08	0.05
Total Emissions (lbs/day)			0.13	2.75	0.12	0.07

Notes: All trips are roundtrips. It is assumed that an average of up to 15 workers would commute to and from the sites each day. A total of 329 roundtrips would occur over the 80-day construction period. It is assumed that worker commute and import haul roundtrips would be 25 and 40 miles, respectively.

On-road Vehicle Greenhouse Gas Emissions

Emission Factors

Vehicle Type	Exhaust Emission Factors		
	(grams/mile)		
	CO2*	CH4*	N2O**
Light duty truck (LDT1)	314.817	0.019	0.087
Heavy duty truck (L7 Single Construction)	1,538.665	0.008	0.005

* Emission factors obtained from EMFAC 2014, for Napa County, average model years, and 55 mph speed.

** Emission factor obtained from TCR, 2015, Table 13.4, EPA Tier 1.

Worker and Debris/Material Hauling Trips Greenhouse Gas Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck - commuting workers	1,200	25	9.44	0.00	0.00	10.27
Heavy duty truck - hauling	329	40	20.24	0.00	0.00	20.26
Total (metric tons)			29.68	0.00	0.00	30.52

Notes: All trips are roundtrips. It is assumed that an average of up to 15 workers would commute to and from the sites each day, 20 times per month for 4 months. There would be a total of 329 truck haul trips required for the project. It is assumed that worker commute and import haul roundtrips would be 25 and 40 miles, respectively.

Global Warming Potential for CH4 = 21; GWP for N2O = 310.

The Climate Registry (TCR), 2013. The Climate Registry's 2013 Default Emission Factors. Table 13.4.

EMFAC 2014 Emission Factors

calendar_year	season_month	sub_area	vehicle_class	temp	RH	process	speed_time	pollutant	emission_rate
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	NOx	0.276579544
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	ROG	0.082381956
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	CO2	314.8165794
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	CH4	0.019198389
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	PM10	0.003146969
2016	Summer	Napa (SF)	LDT1	60	70	RUNEX	55	PM2_5	0.002913163
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	NOx	6.945827847
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	ROG	0.165666005
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	CO2	1538.664689
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	CH4	0.007694757
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	PM10	0.113426803
2016	Summer	Napa (SF)	T7 Single Constructio	60	70	RUNEX	55	PM2_5	0.108520009
2016	Summer	Napa (SF)	LDT1			PMTW		PM10	0.008
2016	Summer	Napa (SF)	LDT1			PMTW		PM2_5	0.002
2016	Summer	Napa (SF)	LDT1			PMBW		PM10	0.03675
2016	Summer	Napa (SF)	LDT1			PMBW		PM2_5	0.01575
2016	Summer	Napa (SF)	T7 Single Construction			PMTW		PM10	0.036
2016	Summer	Napa (SF)	T7 Single Construction			PMTW		PM2_5	0.009
2016	Summer	Napa (SF)	T7 Single Construction			PMBW		PM10	0.06174
2016	Summer	Napa (SF)	T7 Single Construction			PMBW		PM2_5	0.02646

Milliken Creek Flood Reduction Project Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	2.00	User Defined Unit	2.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2016
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The land use input is entered for operational emissions; since there are no operational emissions, the information is entered only as a placeholder.

Construction Phase - Input based on project description specifications.

Off-road Equipment - Per project specifications.

Off-road Equipment - Per project specifications

Off-road Equipment - Per project specifications

Off-road Equipment - Per project description specifications.

Off-road Equipment -

Off-road Equipment - Project description specifications

Off-road Equipment - Per project description specifications

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	4.00	5.00
tblConstructionPhase	NumDays	4.00	23.00
tblConstructionPhase	NumDays	4.00	5.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	4.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	5/5/2016	4/29/2016
tblConstructionPhase	PhaseEndDate	5/26/2016	5/27/2016
tblConstructionPhase	PhaseEndDate	6/3/2016	5/6/2016
tblConstructionPhase	PhaseEndDate	6/10/2016	6/17/2016
tblConstructionPhase	PhaseEndDate	7/14/2016	6/24/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	4/25/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	5/2/2016
tblConstructionPhase	PhaseStartDate	5/28/2016	5/2/2016
tblConstructionPhase	PhaseStartDate	5/7/2016	5/16/2016
tblConstructionPhase	PhaseStartDate	6/18/2016	5/30/2016
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	11.50
tblGrading	AcresOfGrading	0.00	12.50
tblGrading	AcresOfGrading	0.00	11.50
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	UsageHours	8.00	0.80
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	8.00	1.70
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.60
tblOffRoadEquipment	UsageHours	7.00	6.70
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	WorkerTripNumber	13.00	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	2.0365	21.6996	13.9701			1.0662	5.5026		0.9880	2.8233			2,678.5226	0.7282	0.0000	2,693.8144
Total	2.0365	21.6996	13.9701			1.0662	5.5026		0.9880	2.8233			2,678.5226	0.7282	0.0000	2,693.8144

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Replacement Bridge	Building Construction	4/4/2016	4/29/2016	5	20	
2	Coffer Dam Installation	Grading	4/25/2016	4/29/2016	6	5	
3	Summer Impoundment Dam	Grading	5/2/2016	5/27/2016	6	23	
4	Removal East Fork Drop Structures	Grading	5/2/2016	5/6/2016	5	5	
5	Bypass Pipe & Atlas Peak Road Drainage	Grading	5/16/2016	6/17/2016	5	25	
6	Creek Restoration	Grading	5/30/2016	6/24/2016	6	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Replacement Bridge	Bore/Drill Rigs	1	2.00	205	0.50
Replacement Bridge	Cranes	1	0.80	226	0.29
Replacement Bridge	Excavators	1	4.00	162	0.38
Replacement Bridge	Pumps	1	2.00	84	0.74
Replacement Bridge	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Coffer Dam Installation	Excavators	1	3.20	162	0.38
Coffer Dam Installation	Off-Highway Trucks	1	3.20	250	0.38
Coffer Dam Installation	Rollers	1	3.20	80	0.38
Coffer Dam Installation	Rubber Tired Dozers	1	3.20	255	0.40
Coffer Dam Installation	Rubber Tired Loaders	1	3.20	199	0.36
Summer Impoundment Dam Removal	Excavators	1	3.50	162	0.38
Summer Impoundment Dam Removal	Off-Highway Trucks	1	3.50	250	0.38
Summer Impoundment Dam Removal	Rubber Tired Dozers	1	0.70	255	0.40
Summer Impoundment Dam Removal	Rubber Tired Loaders	1	2.10	199	0.36
East Fork Drop Structures	Off-Highway Trucks	1	5.60	400	0.38
East Fork Drop Structures	Pavers	1	1.60	125	0.42
East Fork Drop Structures	Rollers	1	0.80	80	0.38
East Fork Drop Structures	Skid Steer Loaders	1	7.00	64	0.37
East Fork Drop Structures	Tractors/Loaders/Backhoes	1	5.60	97	0.37
Bypass Pipe & Atlas Peak Road Drainage	Aerial Lifts	1	3.40	62	0.31
Bypass Pipe & Atlas Peak Road Drainage	Off-Highway Trucks	0	0.30	400	0.38
Bypass Pipe & Atlas Peak Road Drainage	Off-Highway Trucks	0	5.60	400	0.38
Bypass Pipe & Atlas Peak Road Drainage	Rubber Tired Dozers	1	1.70	255	0.40
Bypass Pipe & Atlas Peak Road Drainage	Tractors/Loaders/Backhoes	1	6.70	97	0.37
Creek Restoration	Excavators	1	2.80	162	0.38
Creek Restoration	Off-Highway Trucks	1	2.80	250	0.38
Creek Restoration	Rubber Tired Dozers	1	2.80	255	0.40
Creek Restoration	Rubber Tired Loaders	1	2.80	199	0.36

3.1 Replacement Bridge - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6906	7.2350	4.6966			0.4006	0.4006		0.3757	0.3757			878.1154	0.2330		883.0076
Total	0.6906	7.2350	4.6966			0.4006	0.4006		0.3757	0.3757			878.1154	0.2330		883.0076

3.2 Cofferdam Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	2.8330		0.0000	1.3699			0.0000			0.0000
Off-Road	1.2828	14.3856	8.3270			0.6645	0.6645		0.6113	0.6113			1,289.6409	0.3890		1,297.8100
Total	1.2828	14.3856	8.3270			0.6645	3.4975		0.6113	1.9812			1,289.6409	0.3890		1,297.8100

3.3 Summer Impoundment Dam Removal - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	1.0572		0.0000	0.3469			0.0000			0.0000
Off-Road	0.7354	8.3867	4.2359			0.3620	0.3620		0.3330	0.3330			856.7690	0.2584		862.1961
Total	0.7354	8.3867	4.2359			0.3620	1.4192		0.3330	0.6799			856.7690	0.2584		862.1961

3.4 East Fork Drop Structures - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.1115	12.3804	7.2145			0.6019	0.6019		0.5538	0.5538			1,489.4387	0.4493		1,498.8733
Total	1.1115	12.3804	7.2145			0.6019	0.6019		0.5538	0.5538			1,489.4387	0.4493		1,498.8733

3.6 Bypass Pipe & Atlas Peak Road Drianage - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	1.8099		0.0000	0.7607			0.0000			0.0000
Off-Road	0.5722	6.0658	4.7098			0.3632	0.3632		0.3341	0.3341			540.2377	0.1630		543.6598
Total	0.5722	6.0658	4.7098			0.3632	2.1731		0.3341	1.0948			540.2377	0.1630		543.6598

3.7 Creek Restoration - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust						0.0000	2.6380		0.0000	1.2158			0.0000			0.0000
Off-Road	1.0046	11.4980	6.5814			0.5012	0.5012		0.4611	0.4611			1,033.0685	0.3116		1,039.6123
Total	1.0046	11.4980	6.5814			0.5012	3.1392		0.4611	1.6769			1,033.0685	0.3116		1,039.6123

Milliken Creek Flood Reduction Project Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	2.00	User Defined Unit	2.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2016
Utility Company					
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The land use input is entered for operational emissions; since there are no operational emissions, the information is entered only as a placeholder.

Construction Phase - Input based on project description specifications.

Off-road Equipment - Per project specifications.

Off-road Equipment - Per project specifications

Off-road Equipment - Per project specifications

Off-road Equipment - Per project description specifications.

Off-road Equipment -

Off-road Equipment - Project description specifications

Off-road Equipment - Per project description specifications

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	4.00	5.00
tblConstructionPhase	NumDays	4.00	23.00
tblConstructionPhase	NumDays	4.00	5.00
tblConstructionPhase	NumDays	4.00	25.00
tblConstructionPhase	NumDays	4.00	23.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	5/5/2016	4/29/2016
tblConstructionPhase	PhaseEndDate	5/26/2016	5/27/2016
tblConstructionPhase	PhaseEndDate	6/3/2016	5/6/2016
tblConstructionPhase	PhaseEndDate	6/10/2016	6/17/2016
tblConstructionPhase	PhaseEndDate	7/14/2016	6/24/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	4/25/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	5/2/2016
tblConstructionPhase	PhaseStartDate	5/28/2016	5/2/2016
tblConstructionPhase	PhaseStartDate	5/7/2016	5/16/2016
tblConstructionPhase	PhaseStartDate	6/18/2016	5/30/2016
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	11.50
tblGrading	AcresOfGrading	0.00	12.50
tblGrading	AcresOfGrading	0.00	11.50
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	HorsePower	400.00	250.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	PhaseName		Replacement Bridge
tblOffRoadEquipment	UsageHours	8.00	0.80
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	8.00	1.70
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.60
tblOffRoadEquipment	UsageHours	7.00	6.70
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	WorkerTripNumber	13.00	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0421	0.4469	0.3000			0.0217	0.0980		0.0200	0.0520			43.7400	0.0121	0.0000	43.9930
Total	0.0421	0.4469	0.3000			0.0217	0.0980		0.0200	0.0520			43.7400	0.0121	0.0000	43.9930

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Replacement Bridge	Building Construction	4/4/2016	4/29/2016	5	20	
2	Coffer Dam Installation	Grading	4/25/2016	4/29/2016	6	5	
3	Summer Impoundment Dam Removal	Grading	5/2/2016	5/27/2016	6	23	
4	East Fork Drop Structures	Grading	5/2/2016	5/6/2016	5	5	
5	Bypass Pipe & Atlas Peak Road Drainage	Grading	5/16/2016	6/17/2016	5	25	
6	Creek Restoration	Grading	5/30/2016	6/24/2016	6	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Replacement Bridge	Bore/Drill Rigs	1	2.00	205	0.50
Replacement Bridge	Cranes	1	0.80	226	0.29
Replacement Bridge	Excavators	1	4.00	162	0.38
Replacement Bridge	Pumps	1	2.00	84	0.74
Replacement Bridge	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Coffer Dam Installation	Excavators	1	3.20	162	0.38
Coffer Dam Installation	Off-Highway Trucks	1	3.20	250	0.38
Coffer Dam Installation	Rollers	1	3.20	80	0.38
Coffer Dam Installation	Rubber Tired Dozers	1	3.20	255	0.40
Coffer Dam Installation	Rubber Tired Loaders	1	3.20	199	0.36
Summer Impoundment Dam Removal	Excavators	1	3.50	162	0.38
Summer Impoundment Dam Removal	Off-Highway Trucks	1	3.50	250	0.38
Summer Impoundment Dam Removal	Rubber Tired Dozers	1	0.70	255	0.40
Summer Impoundment Dam Removal	Rubber Tired Loaders	1	2.10	199	0.36
East Fork Drop Structures	Off-Highway Trucks	1	5.60	400	0.38
East Fork Drop Structures	Pavers	1	1.60	125	0.42
East Fork Drop Structures	Rollers	1	0.80	80	0.38
East Fork Drop Structures	Skid Steer Loaders	1	7.00	64	0.37
East Fork Drop Structures	Tractors/Loaders/Backhoes	1	5.60	97	0.37
Bypass Pipe & Atlas Peak Road Drainage	Aerial Lifts	1	3.40	62	0.31
Bypass Pipe & Atlas Peak Road Drainage	Off-Highway Trucks	0	0.30	400	0.38
Bypass Pipe & Atlas Peak Road Drainage	Off-Highway Trucks	0	5.60	400	0.38
Bypass Pipe & Atlas Peak Road Drainage	Rubber Tired Dozers	1	1.70	255	0.40
Bypass Pipe & Atlas Peak Road Drainage	Tractors/Loaders/Backhoes	1	6.70	97	0.37
Creek Restoration	Excavators	1	2.80	162	0.38
Creek Restoration	Off-Highway Trucks	1	2.80	250	0.38
Creek Restoration	Rubber Tired Dozers	1	2.80	255	0.40
Creek Restoration	Rubber Tired Loaders	1	2.80	199	0.36

3.1 Replacement Bridge - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9100e-003	0.0724	0.0470			4.0100e-003	4.0100e-003		3.7600e-003	3.7600e-003			7.9661	2.1100e-003	0.0000	8.0105
Total	6.9100e-003	0.0724	0.0470			4.0100e-003	4.0100e-003		3.7600e-003	3.7600e-003			7.9661	2.1100e-003	0.0000	8.0105

3.2 Cofferdam Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust						0.0000	7.0800e-003		0.0000	3.4200e-003			0.0000	0.0000	0.0000	0.0000
Off-Road	3.2100e-003	0.0360	0.0208			1.6600e-003	1.6600e-003		1.5300e-003	1.5300e-003			2.9249	8.8000e-004	0.0000	2.9434
Total	3.2100e-003	0.0360	0.0208			1.6600e-003	8.7400e-003		1.5300e-003	4.9500e-003			2.9249	8.8000e-004	0.0000	2.9434

3.3 Summer Impoundment Dam Removal - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust						0.0000	0.0122		0.0000	3.9900e-003			0.0000	0.0000	0.0000	0.0000
Off-Road	8.4600e-003	0.0965	0.0487			4.1600e-003	4.1600e-003		3.8300e-003	3.8300e-003			8.9384	2.7000e-003	0.0000	8.9950
Total	8.4600e-003	0.0965	0.0487			4.1600e-003	0.0163		3.8300e-003	7.8200e-003			8.9384	2.7000e-003	0.0000	8.9950

3.4 East Fork Drop Structures - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust						0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	2.7800e-003	0.0310	0.0180			1.5000e-003	1.5000e-003		1.3800e-003	1.3800e-003			3.3780	1.0200e-003	0.0000	3.3994
Total	2.7800e-003	0.0310	0.0180			1.5000e-003	1.5000e-003		1.3800e-003	1.3800e-003			3.3780	1.0200e-003	0.0000	3.3994

3.5 Bypass Pipe & Atlas Peak Road Drainage - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust						0.0000	0.0226		0.0000	9.5100e-003			0.0000	0.0000	0.0000	0.0000
Off-Road	7.1500e-003	0.0758	0.0589			4.5400e-003	4.5400e-003		4.1800e-003	4.1800e-003			6.1262	1.8500e-003	0.0000	6.1650
Total	7.1500e-003	0.0758	0.0589			4.5400e-003	0.0272		4.1800e-003	0.0137			6.1262	1.8500e-003	0.0000	6.1650

3.6 Creek Restoration - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust						0.0000	0.0303		0.0000	0.0140			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.1322	0.0757			5.7600e-003	5.7600e-003		5.3000e-003	5.3000e-003			10.7776	3.2500e-003	0.0000	10.8459
Total	0.0116	0.1322	0.0757			5.7600e-003	0.0361		5.3000e-003	0.0193			10.7776	3.2500e-003	0.0000	10.8459

APPENDIX C

List of Special-Status Species Considered in the Study Area

This page intentionally left blank

**TABLE C-1
SPECIAL-STATUS PLANT SPECIES CONSIDERED IN THE PROJECT STUDY AREA**

Common Name Scientific Name	Status Fed/State/ CRPR	Phenology ^a / Flowering Period	Habitat	Potential to Occur
Listed Species				
Clara Hunt's milk-vetch <i>Astragalus claranus</i>	FE/CT/1B.1	Annual herb/ Mar - May	Serpentinite or volcanic, rocky, clay soils in chaparral (openings), cismontane woodland or valley and foothill grassland habitat. Elevation 75 to 275 meters.	Low. Habitat not present.
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE/--/1B.1	Annual herb/ Mar – June	Cismontane woodland; alkali playas; valley and foothill grassland; and mesic vernal pools. Elevation: 0 to 470 meters.	Low. Habitat not present.
Few-flowered navarretia <i>Navarretia leucocephala</i> <i>ssp. pauciflora</i>	FE/CCT/ 1B.1	Annual herb/ May – June	Volcanic ash flow vernal pools. Elevation: 400 to 855 meters.	Low. Habitat not present.
Keck's checkerbloom <i>Sidalcea keckii</i>	FE/--/1B.1	Annual herb/ Apr – May	Valley and foothill grassland with serpentinite, clay soil. Elevation: 75 to 650 meters.	Low. Habitat not present.
Sebastopol meadowfoam <i>Limnanthes vinculans</i>	FE/CE/1B.1	Annual herb/ Apr – May	Vernal pools, meadows and seeps, and vernal mesic valley and foothill grassland. Elevation 50 to 1,000 feet.	Low. Habitat not present.
Showy rancheria clover <i>Trifolium amoenum</i>	FE/--/1B.1	Annual herb/ Apr – June	Annual grassland	Low. Habitat not present.
Soft bird's beak <i>Chloropyron molle ssp. molle</i>	FE/CR/1B.2	Annual herb (hemiparasitic)/ July - Nov	Coastal salt marshes. Elevation 0 to 3 meters.	Low. Habitat not present.
Sonoma Sunshine <i>Blennosperma bakeri</i>	FE/CE/1B.1	Annual herb/ Mar – May	Vernal swales and pools	Low. Habitat not present.
Tiburon paintbrush <i>Castilleja affinis var.</i> <i>neglecta</i>	FE/CT/1.B.2	Perennial herb (hemiparasitic)/ Apr - June	Valley and foothill grassland on serpentinite soils. Elevation 50 to 400 meters.	Low. Habitat not present.
Non-Listed Special-Status Species				
Alkali milk-vetch <i>Astragalus tener var. tener</i>	--/--/1B.2	Annual herb/ Mar – June	Playas; valley and foothill grasslands with adobe clay soils; and vernal pools with alkaline soils. Elevation: 1 to 60 meters.	Low. Habitat not present.
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> <i>var. macrolepis</i>	--/--/1B.2	Annual herb/ April – Oct	Chaparral, cismontane woodland, valley & foothill grasslands, often on serpentine. Elevation 100 to 1,500 meters.	Low. Habitat not present.
Brewer's western flax <i>Hesperolinon breweri</i>	--/--/1B.2	Annual herb/ May – July	Chaparral, cismontane woodland and valley and foothill grassland habitats with serpentinite soil. Elevation 30 to 90 meters.	Low. Habitat not present.
California beaked-rush <i>Rhynchospora californica</i>	--/--/1B.1	Perennial herb (rhizomatous)/ May - July	Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps. Elevation 45 to 1,010 meters.	Low. Habitat not present.
Calistoga ceanothus <i>Ceanothus divergens</i>	--/--/1B.2	Perennial shrub (evergreen)/ Feb – Mar	Chaparral, on serpentine or volcanic soils. Elevation 170-950 meters.	Low. Habitat not present.
Carquinez goldenbush <i>Isocoma arguta</i>	--/--/1B.1	Perennial shrub/ Aug – Dec	Valley and foothill grassland (alkaline).	Low. Habitat not present.
Cobb Mountain lupine <i>Lupinus sericatus</i>	--/--/1B.2	Perennial herb/ Mar - June	Broadleaf upland forests, chaparral cismontane woodlands, and lower montane coniferous forests. Elevation 275 to 1,525 meters.	Low. Habitat not present.

TABLE C-1 (Continued)
SPECIAL-STATUS PLANT SPECIES CONSIDERED IN THE PROJECT STUDY AREA

Common Name Scientific Name	Status Fed/State/ CRPR	Phenology ^a / Flowering Period	Habitat	Potential to Occur
Non-Listed Special-Status Species (cont.)				
Congested-headed hayfield tarplant <i>Hemizonia congesta</i> ssp. <i>Congesta</i>	--/1B.2	Annual herb/ Apr - Nov	Valley and foothill grasslands, sometimes along roadsides. Elevation 20 to 560 meters.	Low. Habitat not present.
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	--/1B.1	Perennial herb/ May – July (sometimes extending into Sept.)	Freshwater and brackish marshes and swamps. Elevation: 0 to 4 meters.	Low. Habitat not present.
Dwarf downingia <i>Downingia pusilla</i>	--/2B.2	Perennial herb/ Mar - May	Vernal pools, mesic valley grasslands. Elevation 1 to 445 meters.	Low. Habitat not present.
Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	--/1B.1	Perennial herb (bulbiferous)/ May – June	Cismontane woodland, valley and foothill grassland. Elevation 50 to 500 meters.	Low. Habitat not present.
Green jewel-flower <i>Streptanthus hesperidis</i>	--/1B.2	Annual herb/ May – July	Chaparral (openings), cismontane woodland habitats with serpentinite and/or rocky soils. Elevation 130 to 760 meters.	Low. Habitat not present.
Greene's narrow-leaved daisy <i>Erigeron greenei</i>	--/1B.2	Perennial herb/ May – Sept	Chaparral habitats with serpentinite or volcanic soils. Elevation 80 to 1005 meters.	Low. Habitat not present.
Henderson's bent grass <i>Agrostis hendersonii</i>	--/3.2	Annual herb/ Apr – June	Vernal pools and mesic valley and foothill grassland. Elevations 70 to 305 meters.	Low. Habitat not present.
Holly-leaved ceanothus <i>Ceanothus purpureus</i>	--/1B.2	Perennial shrub (evergreen)/ Feb – June	Chaparral and cismontane woodland with volcanic, rocky soil. Elevation 120 to 640 meters.	Low. Habitat not present.
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	--/1B.2	Annual herb/ Mar- May	Chaparral and cismontane woodland. Usually on volcanic soil. Elevation 100 to 500 meters.	Low. Habitat not present.
Legenere <i>Legenere limosa</i>	--/1B.1	Annual herb/ Apr – June	Vernal pools. Elevation 1 to 880 meters.	Low. Habitat not present.
Marin knotweed <i>Polygonum marinense</i>	--/3.1	Annual herb/ Apr - Oct	Coastal salt and brackish marshes. Elevation 0 to 10 meters.	Low. Habitat not present.
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	--/1B.1	Perennial herb (rhizomatous)/ Apr – Nov	Brackish or freshwater marshes and swamps and riparian scrub. Elevation: 0 to 10 meters.	Low. Habitat not present.
Mead's owls-clover <i>Castilleja ambigua</i> var. <i>meadii</i>	--/1B.1	Annual herb (hemiparasitic)/ Apr - May	Meadows and seeps, and vernal pools with gravelly, volcanic and/or clay soils. Elevation 450 - 475 meters.	Low. Habitat not present.
Napa bluecurls <i>Trichostema ruygtii</i>	--/1B.2	Annual herb/ June – Oct	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, and vernal pools. Elevation 30 - 680 meters.	Low. Habitat not present.
Napa checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>napensis</i>	--/1B.1	Perennial herb/ Apr - June	Rhyolitic chaparral habitat. Elevation 415 to 610 meters.	Low. Habitat not present.
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	--/1B.2	Shrub (deciduous)/ Apr – July	Chaparral, cismontane woodland, and openings in broadleaved upland forest. Elevation 120 to 2,000 meters.	Low. Habitat not present.

TABLE C-1 (Continued)
SPECIAL-STATUS PLANT SPECIES CONSIDERED IN THE PROJECT STUDY AREA

Common Name Scientific Name	Status Fed/State/ CRPR	Phenology ^a / Flowering Period	Habitat	Potential to Occur
Non-Listed Special-Status Species (cont.)				
Narrow-anthered brodiaea <i>Brodiaea leptandra</i>	--/1B.2	Perennial herb (bulbiferous)/ May - July	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland habitats with volcanic soils. Elevation 110 - 915 meters.	Low. Habitat not present.
Northern California black walnut <i>Juglans hindsii</i>	--/1B.1	Perennial tree (deciduous)/ Apr - May	Riparian forest and woodland. Elevation 0 to 440 meters.	Low. Although saplings and small trees were detected within and near the study area, it is very likely that the trees are hybrids and not genetically the rare black walnut. Only three populations are known to exist and all contain old mature trees.
Oval-leaved viburnum <i>Viburnum ellipticum</i>	--/2B.3	Perennial shrub (deciduous)/ May - June	Chaparral, cismontane, and lower montane coniferous forest. Elevation: 215 to 1,400 meters.	Low. Habitat not present.
Pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	--/1B.2	Annual herb/ May - Nov	Often alkaline soils in chaparral, coastal prairie, meadows and seeps, and valley and foothill grasslands (vernally mesic). Elevation 0 to 420 meters.	Low. Habitat not present.
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	--/1B.1	Shrub (evergreen)/ Feb - June	Closed-cone coniferous forest, chaparral, and cismontane woodland associated with volcanic or serpentine soil. Elevation 75 to 1,065 meters.	Low. Habitat not present.
Rincon Ridge manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	--/1B.1	Shrub (evergreen)/ Feb - May	Chaparral and cismontane woodland with rhyolitic (volcanic) soils. Elevation 75 to 370 meters.	Low. Habitat not present.
Saline clover <i>Trifolium hydrophilum</i>	--/1B.2	Annual herb/ Apr - June	Marshes and swamps, mesic, alkaline valley and foothill grassland, vernal pools. Elevation: 0 to 300 meters.	Low. Habitat not present.
San Joaquin spearscale <i>Atriplex joaquinana</i>	--/1B.2	Annual herb/ Apr - Oct	Chenopod scrub; meadows and seeps; playas; and alkali valley and foothill grassland. Elevation: 0 to 830 meters.	Low. Habitat not present.
Serpentine cryptantha <i>Cryptantha dissita</i>	--/1B.2	Annual herb/ Apr - June	Chaparral with serpentinite soils. Elevation 395 to 580 meters.	Low. Habitat not present.
Sharsmith's western flax <i>Hesperolinon sharsmithiae</i>	--/1B.2	Annual herb/ May - July	Chaparral with serpentinite soils. Elevation 270 to 300 meters.	Low. Habitat not present.
Small-flowered calycadenia <i>Calycadenia micrantha</i>	--/1B.2	Annual herb/ June - Sept	Roadsides, rocky, talus, scree, sometimes serpentinite soils, sparsely vegetated areas in chaparral, volcanic meadows and seeps, valley and foothill grassland. Elevation 5 to 1,500 meters.	Low. Habitat not present.
Sonoma beardtongue <i>Penstemon newberryi</i> var. <i>sonomensis</i>	--/1B.3	Perennial herb/ Apr - Aug	Chaparral with rocky soil. Elevation 700 to 1,370 meters.	Low. Habitat not present.
Sonoma ceanothus <i>Ceanothus sonomensis</i>	--/1B.2	Shrub (evergreen)/ Feb - Mar	Chaparral, on serpentine or sandy soils. Elevation 215 to 800 meters.	Low. Habitat not present.

TABLE C-1 (Continued)
SPECIAL-STATUS PLANT SPECIES CONSIDERED IN THE PROJECT STUDY AREA

Common Name Scientific Name	Status Fed/State/ CRPR	Phenology ^a / Flowering Period	Habitat	Potential to Occur
Non-Listed Special-Status Species (cont.)				
Suisun Marsh aster <i>Symphotrichum lentum</i>	--/1B.2	Perennial herb (rhizomatous)/ May - Nov	Brackish and freshwater marshes and swamps. Elevation: 0 to 3 meters.	Low. Habitat not present.
Thin-lobed horkelia <i>Horkelia tenuiloba</i>	--/1.B.2	Perennial/ May – Aug	Broadleafed upland forest, chaparral, valley and foothill grassland with mesic openings on sandy soils. Elevation: 50 to 500 meters.	Low. Habitat not present.

^a Phenology is the study of periodic occurrences in nature, such as the ripening of fruit, and their relation to climate.

STATUS CODES:

- FE: Federally listed as Endangered
- FT: Federally listed as Threatened
- CE: State of California listed as Endangered
- CT: State of California listed as Threatened
- CR: State of California listed as Rare
- CRPR = California Rare Plant Rank
- 1A: Presumed extinct in California
- 1B: Rare, Threatened, or Endangered in California and elsewhere
- 2: Rare, Threatened, or Endangered in California, but more common elsewhere
- 3: Plants about which more information is needed – a review list.
- 4: Plants of limited distribution – a watch list.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

- .1 = Seriously endangered in California.
- .2 = Fairly endangered in California.
- .3 = Not very endangered in California.

POTENTIAL TO OCCUR

- Low = Habitat not present and/or few occurrence in the region.
- Moderate = Marginal habitat present and/or some occurrences in the region.
- High = Good habitat present and nearby occurrences or species is known to occur based on CNDDDB occurrences or field surveys.

SOURCES: CDFW, 2015; CNPS, 2015.

**TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE STUDY AREA**

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species			
Invertebrates			
California freshwater shrimp <i>Syncaris pacifica</i>	FE/CE	Endemic to low-elevation and low gradient perennial freshwater streams in Marin, Sonoma, and Napa Counties, California.	Low. No known population within Milliken Creek or within 5 miles from the study area. Nearest occurrence is within Huichica Creek, 11 miles from the study area.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE	Inhabit highly turbid water in vernal pools. Known from six populations in the northern central valley.	None. Suitable vernal pool habitat is not present in or near the study area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/--	Occurs in the Central Valley region in association with blue Elderberry shrubs. Prefers to lay eggs in elderberry stems greater than 1" in diameter.	None. Elderberry shrubs were identified in the study area. However, nearest occurrence is more than 8 miles to the east; Bay Area elderberry shrubs support the non-listed coastal longhorn beetle subspecies.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/--	Inhabit small, clear-water sandstone depression pools, grassy swales, slumps, or basalt-flow depression pools.	None. Grassy swales in the study area are managed as a golf course and are unlikely to pool or provide suitable habitat.
Fish			
Delta smelt <i>Hypomesus transpacificus</i>	FT/CE	Found in large, main channels and open areas of the Bay. Occur from tidal freshwater reaches of the Delta west to eastern San Pablo Bay.	None. Found in Napa River estuary during dry years, but not believed to persist there or in tributaries to the Napa River.
Longfin smelt <i>Spirinchus thaleichthys</i>	FC/CT	Throughout the nearshore coastal waters and open waters of San Francisco Bay-Delta including the river channels and sloughs of the Delta	None. Known to occur in Lower Napa River estuary, but not known to occur in tributaries of the Napa River.
Central California Coast steelhead <i>Oncorhynchus mykiss</i>	FT/CSC	Central California Coast steelhead breed in high quality perennial streams from the Russian River south to Soquel Creek. This species known from the Sonoma Creek drainage. Milliken Creek is designated as critical habitat.	High. Perennial stream habitat occurs in the study area. Steelhead have been observed both upstream and downstream of the dam at Silverado Country Club, most recently observed in 2007 within the reach that includes the study area (Leidy et al. 2005, Koehler and Edwards 2009).
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT/CSC	This ESU enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	Low. Not known to occur within the Napa River watershed. May occasionally occur in Lower Napa River.
Central Valley spring-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FT/CT	This ESU enters the Sacramento and San Joaquin Rivers and tributaries March to July, spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	Low. Not known to occur within the Napa River watershed. Nearest occurrence is in the Sacramento River Deep Water Ship Channel.

TABLE C-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE STUDY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species (cont.)			
Amphibians			
California red-legged frog <i>Rana draytonii</i>	FT/CSC	A largely aquatic frog found at ponds and slow-moving streams with permanent or semipermanent water. California red-legged frogs migrate into upland habitats to forage and during normal dispersal and may aestivate in upland environments.	Low. Could provide dispersal habitat and low quality breeding habitat. However, nearest occurrence is 10 miles from the study area and barriers inhibit frog movement from known populations.
Birds			
Bank swallow (Nesting) <i>Riparia riparia</i>	--/CT	Colonial nester mostly along coastal areas and rivers in northern and central California. Nesting restricted to vertical banks or bluffs with friable soils suitable for burrowing. Vegetation is varied; nesting sites are mostly selected for suitability of the nesting bank.	Low. Some fairly steep banks occur within the project area, but site does not support nesting burrows. No evidence of bank swallow colony was observed. Creek corridor also fairly narrow with human activity occurring on both sides of the creek bank. Nearest historic occurrence more than 10 miles away at Sonoma Creek.
California black rail <i>Laterallus jamalcensis columiculus</i>	--/CT	Found in tidal salt marshes in the San Francisco Bay. Requires dense tidal marsh vegetation for foraging and cover from predators.	None. No tidal marsh habitat or pickleweed occurs in or near the study area.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE/CE	Found in tidal salt marshes in the San Francisco Bay. Requires mudflats and low marsh for foraging and dense vegetation on higher ground for nesting.	None. No tidal marsh habitat occurs in or near the study area.
California least tern <i>Sterna antillarum browni</i>	FE/--	Breed in colonies along the coast and nest on the ground on sand or shell fragments.	None. Populations are not documented within the 9-quad area surrounding the study area. Nesting habitat does not occur in the study area.
Northern spotted owl <i>Strix occidentalis caurina</i>	FT/CSC	Generally found in mature and old-growth forest, supporting the following elements: high canopy closure; a multilayered, multispecies canopy with larger overstory trees; and a presence of broken-topped tree or other nesting platforms.	None. Populations are not documented within the 9-quad area surrounding the study area. The nearest known territory is 7 miles from the study area. Old growth forest habitat does not occur in the study area.
Swainson's hawk <i>Buteo swainsoni</i>	--/CT	Often nest near riparian systems, but will also use lone trees in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.	Low. Study area may provide marginal foraging habitat. No known occurrences within 5 miles of the study area.
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT/--	(Nesting) Federal listing applies only to the Pacific coastal population. Found on sandy beaches, salt pond levees and shores or large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	None. Suitable nesting habitat is not present in or near the study area.

TABLE C-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE STUDY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Mammals			
Salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE/CE	Primary habitat in pickleweed dominated areas, in tidal and muted tidal salt marshes in San Francisco Bay. Require adjacent upland areas for escape from high tides.	None. No suitable habitat present and no suitable habitat present within 5 miles of the study area.
Non-Listed Special-Status Species			
Fish			
Central Valley fall run/late fall run Chinook salmon <i>Oncorhynchus tshawytscha</i> .	FSC/--	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from Ocean through San Francisco Bay-Delta to freshwater spawning grounds	Moderate. Known to occur in Napa River. Have not been found during stream surveys on Milliken Creek, but a spawning Chinook salmon was seen in Milliken Creek in 2006.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	--/CSC	Typically found in estuarine environments and are commonly found in waters with salinities from 10 to 18 parts per thousand.	None. No suitable habitat present.
Amphibians			
Foothill yellow-legged frog <i>Rana boylei</i>	--/CSC	This species inhabits foothill and mountain streams with partly shaded, shallow substrate in a variety of habitats. Year-round water is generally required as well as cobble sized substrate for egg attachment.	Low. Perennial stream habitat is present, but habitat is marginal for this species, which has not documented in Milliken Creek during decades of focused aquatic surveys, and the nearest occurrence is greater than 5 miles away.
Reptiles			
Western pond turtle <i>Actinemys marmorata</i>	--/CSC	Variety of aquatic habitats, both permanent and intermittent, with suitable aerial and aquatic basking sites. Needs upland habitats for nesting, overwintering, and aestivating.	Moderate. Perennial stream habitat occurs in or near the study area and several occurrences within 5 miles of the study area. Not noted during the reconnaissance-level survey.
Birds			
Bald eagle <i>Haliaeetus leucocephalus</i>	DL/CE	Nests in tall trees or on cliffs, usually near water. In California, year round resident of the Sierra Nevada and Coastal Mountains of Central Western California as well as most of the northern portion of the state. Winter range includes all of California.	Low (nesting). No suitable habitat is present in or near the study area.
Black swift <i>Cypseloides niger</i>	--/CSC	Frequently associated with water; most often nest on high cliff faces, either above the ocean surf or behind or next to waterfalls. Known only in a few areas within California including the Santa Cruz coast (where it is declining, Berry Creek Falls, Yosemite, Sequoia & Kings Canyon National Parks, San Bernardino Mountains, and the San Jacinto Mountains.	Low (nesting). No cliffs or waterfalls are present in or near the study area.
Burrowing owl <i>Athene cunicularia</i>	--/CSC	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows.	None (nesting). No suitable habitat is present in or near the study area.

TABLE C-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE STUDY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Double-crested cormorant <i>Phalacrocorax auritus</i>	--/WL	Found near rivers, lakes as well as in coastal areas, and is widely distributed across North America, from the Aleutian Islands in Alaska down to Florida and Mexico.	None (nesting). No suitable habitat is present in or near the study area.
Ferruginous hawk <i>Buteo regalis</i>	--/WL	Open country, primarily prairies, plain and badlands, breeding in trees near streams or on steep slopes.	None (nesting). Narrow stream corridor with human disturbance and management just beyond the stream corridor making it unlikely to nest.
Non-Listed Special-Status Species (cont.)			
Birds (cont.)			
Golden eagle <i>Aquila chrysaetos</i>	--/FP	Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Golden Eagles nest on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	None (nesting). No suitable habitat is present in or near the study area.
Northern harrier <i>Circus cyaneus</i>	--/CSC	Nests, forages, and roosts in wetlands or along rivers or lakes, but also in grasslands, meadows, or grain fields.	Low (nesting). Provides marginal foraging and nesting habitat. Nearest occurrence is more than 10 miles away.
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	--/CSC	Found in freshwater marshes, coastal swales, swampy riparian thickets, brackish marshes, salt marshes, and the edges of disturbed weed fields and grasslands that border soggy habitats	None (nesting). No suitable habitat is present in or near the study area.
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	--/CSC	Exclusive to tidal marshes in San Pablo Bay.	None (nesting). No suitable habitat is present in or near the study area.
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	--/CSC	Brackish tidal marsh habitat including bulrush, cattail, and other emergent vegetation.	None (nesting). No suitable habitat is present or near the study area.
Tricolored blackbird <i>Agelaius tricolor</i>	--/CSC	Breeds near fresh water in dense emergent vegetation or dense brush.	Low (nesting). This species may forage within the study area, but stands of herbaceous and emergent vegetation are likely not large enough to support nesting colonies. Breeding is not expected.
White-tailed kite <i>Elanus leucurus</i>	--/FP	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland habitats. Nests in trees, often near marshes.	Low (nesting). This species may forage within the study area but nesting habitat is considered marginal and the nearest occurrence is over 5 miles from the study area to the northwest.
Mammals			
American badger <i>Taxidea taxus</i>	--/CSC	Requires sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground	Low. Friable soils present along steep banks, but no suitable uncultivated grassland habitat is present within or near the study area.

TABLE C-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE STUDY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Pallid bat <i>Antrozous pallidus</i>	--/CSC	Arid deserts and grasslands of low elevations in California; often near rocky outcrops and water. Usually roosts in rock crevice or building, less often in cave, tree hollow, mine, etc. Prefers narrow crevices in caves as hibernation sites.	Moderate. Potentially suitable roosting habitat may be present in riparian forest habitat along Milliken Creek.
Western red bat <i>Lasiurus blossevillii</i>	--/CSC	Associated with riparian habitat. Roosts primarily in the foliage of trees or shrubs, but may also occasionally use caves. Day roosts commonly in edge habitats.	Moderate. This species may intermittently roost in riparian habitat in the study area; however, roosting is not reported by the CNDDDB within 5 miles of the study area.
Suisun shrew <i>Sorex ornatus sinuosus</i>	--/CSC	Salt and brackish tidal marshes. Preferred habitat is dense, low lying cover where invertebrates are abundant. Upland habitat needed to provide food and cover during prolonged flooding of marshes.	None. No suitable habitat is present in or near the study area.

STATUS CODES:

FEDERAL

FC: Federal Candidate for listing

FE: Federally listed as Endangered

FT: Federally listed as Threatened

FD Federal Delisted

MMPA: Marine Mammal Protection Act

FSC: Former Federal Species of Concern. The USFWS no longer lists Species of Concern but recommends that species considered to be at potential risk by a number of organizations and agencies be addressed during project environmental review. *NMFS still lists Species of Concern.

STATE

CE: State of California listed as Endangered

CT: State of California listed as Threatened

CD: State of California Delisted

CP: State of California Proposed for listing

STATE

FP: California Fully Protected Species

CSC: California Species of Special Concern

*: CDFW protected

WL = CDFW Watch List

POTENTIAL TO OCCUR

None = Habitat not present in the study area and the study area is outside of the species' described range.

Low = Habitat not present in the study area and/or few occurrence in the region.

Moderate = Marginal habitat present in the study area and/or some occurrences in the region.

High = Good habitat present in the study area and nearby occurrences or species is known to occur in the study area based on CNDDDB occurrences or recent field surveys.

Present = Species observed in study area during focused field surveys.

SOURCES: CDFW, 2015; Leidy et al. 2005; Jennings and Hayes, 1994; Koehler and Edwards 2009; USFWS, 2015; WBWG, 2015; Zeiner et al., 1988-1990.